Ventura County SELPA
Emily Mostovoy-Luna, Assistant Superintendent
www.vcselpa.org

The Ventura County SELPA

Pattern of Strengths and Weaknesses Model for Specific Learning Disability Eligibility Procedural Manual

For more information contact:
Joanna Della Gatta, Director of
Technical Support and Transition
jdellagatta@vcoe.org
805-437-1560

Table of Contents

Acknowledgments

A special thank you to the following individuals for their role in the development of the Ventura County PSW Assessment Model and Procedural Manual for SLD identification:

PSW Committee Leaders:

Fran Arner-Costello, Director, Programs and Services (Retired), Ventura County SELPA

Joanna Della Gatta, Director of Technical Support and Transition, Ventura County SELPA

Jenny Jones, Director, Teacher Support Services, Ventura County Office of Education

Sandi Killackey, Social Emotional Services Specialist/ School Psychologist, Ventura County SELPA

PSW Committee Members and Subcommittee Team Leaders:

Kim Charnofsky, School Psychologist/Mental Health Facilitator, Conejo Valley Unified School District

Lucy Perales, School Psychologist, Oxnard Elementary School District

Robin Sakakini, School Psychologist, Ventura County Office of Education

Tobey Shaw, Coordinator, Special Education, Conejo Valley Unified School District

Skye Stifel, School Psychologist, Ventura Unified School District

Mary Truax, Manager of Special Education, Oxnard Elementary School District

Michelle Valdivieso, School Psychologist, Simi Valley Unified School District

PSW Subcommittee Team Members:

Katie Aeschleman, School Psychologist, Conejo Valley Unified School District

Carol Boyen-Held, Assistant Superintendent, Instructional Services, Goleta Union School District

Marlene Brostoff, Special Education Teacher, Conejo Valley Unified School District

Andrea Escobar, School Psychologist, Las Virgenes Unified School District

Cynthia Gyure, Special Education Teacher, Conejo Valley Unified School District

Lillian Hernandez, School Psychologist, Rio School District

Kayleigh Hunnicutt, Graduate Student, Department of Counseling, Clinical, & School Psychology, UCSB

Elaine Kamenow, Special Education Teacher, Conejo Valley Unified School District

Karla Kammerer, School Psychologist, Conejo Valley Unified School District

Susan Kunz, School Psychologist, Conejo Valley Unified School District

Charlene Mangi, School Psychology Intern, Ventura County Office of Education

Donna Manley, Special Education Teacher, Conejo Valley Unified School District

Amy Marciano, School Psychologist, Conejo Valley Unified School District

Suzie St. John, Special Education Teacher, Conejo Valley Unified School District

Miriam Worth, School Psychologist, Conejo Valley Unified School District

Volunteer Contributors, Reviewers, Consultants

Additional thanks and recognition go to the following individuals who provided information and dialogue above and beyond the call of duty:

Dr. Vincent C. Alfonso, Ph.D., Dean, School of Education, Gonzaga University, Spokane Washington

Dr. Ted Alper, Professor Emeritus, CSU East Bay, Morrissey-Compton Educational Center, Inc., California

Karen Apgar, School Psychologist, Eugene 4J School District, Oregon

Dr. Matthew K. Burns, Editor, School Psychology Review, University of Minnesota

Dr. Milton J. Dehn, Program Director, Schoolhouse Educational Services, Wisconsin

Jim Hanson, School Psychologist, Portland Public Schools, Oregon

Dr. Kelly Kennedy, Assistant Professor at Chapman University, California; Associate Editor, Contemporary School Psychology

Dr. Leslie E. Packer, Licensed Psychologist, New York

Dr. Monet Templeton, Psy.D., Executive Director at Templeton Neuro Academic Clinic, California

Procedural Manual Secretarial Support:

Juanita Delgadillo, Secretary, Ventura County SELPA

Sarah Fontenot, Secretary, Ventura County SELPA

The following groups contributed to the development of this manual:

Operations Cabinet, Ventura County SELPA

Program Personnel Development, Ventura County SELPA

RtI^2 Task Force, Ventura County Office of Education

Section 1

Introduction

Introduction

The 2004 reauthorization of the Individuals with Disabilities Education Act (IDEA) prohibited states from requiring Local Education Agencies (LEA) to use the ability-achievement discrepancy model and authorized the use of alternative approaches to the identification of students with Specific Learning Disabilities (SLD). The use of the Pattern of Strengths and Weaknesses (PSW) Model for SLD identification is indicated in the revised CA Education Code. With careful consideration and research, a variety of stakeholders and educational professionals across California examined alternative SLD assessment models. The result was a decision by the Ventura County SELPA to participate in the California State SELPA Patterns of Strengths and Weaknesses (PSW) Pilot Project in various school sites throughout the SELPA beginning in 2010. Based on the success of the pilot, the body of Directors of Special Education for the Ventura County SELPA approved a SELPA-wide roll out of the PSW model to begin in the 2014-2015 school year.

This manual was developed to provide procedural guidelines for the determination of eligibility for students with suspected SLDs using the PSW Model for school districts within the Ventura County SELPA. It is the intention of this document to provide assessment guidelines to ensure consistency, while still allowing for the use of informed professional judgment by trained assessment teams.

While the PSW model is still relatively new to California, it has received support from the California Association of School Psychologists (CASP, 2014), and various other scholars and researchers in the fields of education, psychology and law (LDA, 2010). This manual is informed by bodies of research; information from the PSW Pilot; focus groups representing parent groups, members of learning disability associations, psychologists, speech language pathologists, Specialized Academic Instruction (SAI) teachers, program specialists, special education directors and other professionals in general and special education fields throughout the state of California; and various committees and subcommittees of professionals across the State. The results are guidelines, procedures, forms and resources to assist assessment teams in determining SLD eligibility using the Ventura County SELPA PSW model.

Section 2

Federal and State Criteria

Federal References to Specific Learning Disability

Code of Federal Regulations

34 CFR 300.8 Child with a disability.

* * * (c) *Definitions of disability terms*. The terms used in this definition of a child with a disability are defined as follows: * * * (10) *Specific learning disability*--

(i) General. Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

(ii) *Disorders not included*. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of Intellectual disability, of emotional disturbance, or of environmental, cultural, or economic disadvantage. * * *

Additional Procedures for Identifying Children with Specific Learning Disabilities:

34 CFR 300.307 Specific learning disabilities.

(a) General. A State must adopt, consistent with § 300.9, criteria for determining whether a child has a specific learning disability as defined in § 300.8(c)(10). In addition, the criteria adopted by the State--

(1) Must not require the use of a severe discrepancy between intellectual ability and achievement for determining whether a child has a specific learning disability, as defined in § 300.8(c)(10);

(2) Must permit the use of a process based on the child's response to scientific, research-based intervention; and

(3) May permit the use of other alternative research-based procedures for determining whether a child has a learning disability, as defined in § 300.8(c)(10).

(b) Consistency with State criteria. A public agency must use the State criteria adopted pursuant to paragraph (a) of this section in determining whether a child has a specific learning disability.

34 CFR 300.308 Additional group members.

The determination of whether a child suspected of having a specific learning disability is a child with a disability as defined in § 300.8, must be made by the child's parents and a team of qualified professionals, which must include--

(a)(1) The child's regular teacher; or

(2) If the child does not have a regular teacher, a regular classroom teacher qualified to teach a child of his or her age; or

(3) For a child of less than school age, an individual qualified by the SEA to teach a child of his or her age; and

(b) At least one person qualified to conduct individual diagnostic examinations of children, such as a school psychologist, speech-language pathologist, or remedial reading teacher.

34 CFR 300.309 Determining the existence of a specific learning disability.

(a) The group described in § 300.306 may determine that a child has a specific learning disability, as defined in § 300.8(c)(10), if--
(1) The child does not achieve adequately for the child's age or to meet State-approved grade-level standards in one or more of the following areas, when provided with learning experiences and instruction appropriate for the child's age or State-approved grade-level standards:
(i) Oral expression.
(ii) Listening comprehension.
(iii) Written expression.
(iv) Basic reading skill.
(v) Reading fluency skills.
(vi) Reading comprehension.
(vii) Mathematics calculation.
(viii) Mathematics problem solving.
(2)(i) The child does not make sufficient progress to meet age or State-approved grade-level standards in one or more of the areas identified in paragraph (a)(1) of this section when using a process based on the child's response to scientific, research-based intervention; or
(ii) The child exhibits a pattern of strengths and weaknesses in performance, achievement, or both, relative to age, State-approved grade-level standards, or intellectual development, that is determined by the group to be relevant to the identification of a specific learning disability, using appropriate assessments, consistent with §§ 300.304 and 300.305; and (3) The group determines that its findings under paragraphs (a)(1) and (2) are not primarily the result of--
(i) A visual, hearing, or motor disability;
(ii) Mental retardation;
(iii) Emotional disturbance;
(iv) Cultural factors;
(v) Environmental or economic disadvantage; or
(vi) Limited English proficiency.
(b) To ensure that underachievement in a child suspected of having a specific learning disability is not due to lack of appropriate instruction in reading or math, the group must consider, as part of the evaluation described in §§ 300.304 through 300.306--
(1) Data that demonstrate that prior to, or as a part of, the referral process, the child was provided appropriate instruction in regular education settings, delivered by qualified personnel; and
(2) Data-based documentation of repeated assessments of achievement at reasonable intervals, reflecting formal assessment of student progress during instruction, which was provided to the child's parents.
(c) The public agency must promptly request parental consent to evaluate the child to determine if the child needs special education and related services, and must adhere to the timeframes described in §§ 300.301 and 300.303, unless extended by mutual written agreement of the child's parents and a group of qualified professionals, as described in § 300.306(a)(1)--
(1) If, prior to a referral, a child has not made adequate progress after an appropriate period of time when provided instruction, as described in paragraphs (b)(1) and (b)(2) of this section; and
(2) Whenever a child is referred for an evaluation.

34 CFR 300.310 Observation.
(a) The public agency must ensure that the child is observed in the child's learning environment (including the regular classroom setting) to document the child's academic performance and

behavior in the areas of difficulty.
(b) The group described in § 300.306(a)(1), in determining whether a child has a specific learning disability, must decide to--
(1) Use information from an observation in routine classroom instruction and monitoring of the child's performance that was done before the child was referred for an evaluation; or
(2) Have at least one member of the group described in § 300.306(a)(1) conduct an observation of the child's academic performance in the regular classroom after the child has been referred for an evaluation and parental consent, consistent with § 300.300(a), is obtained.
(c) In the case of a child of less than school age or out of school, a group member must observe the child in an environment appropriate for a child of that age.

34 CFR 300.311 Specific documentation for the eligibility determination.

(a) For a child suspected of having a specific learning disability, the documentation of the determination of eligibility, as required in § 300.306(a)(2), must contain a statement of--
(1) Whether the child has a specific learning disability;
(2) The basis for making the determination, including an assurance that the determination has been made in accordance with § 300.306(c)(1);
(3) The relevant behavior, if any, noted during the observation of the child and the relationship of that behavior to the child's academic functioning;
(4) The educationally relevant medical findings, if any;
(5) Whether--
(i) The child does not achieve adequately for the child's age or to meet State-approved grade-level standards consistent with § 300.309(a)(1); and
(ii) (A) The child does not make sufficient progress to meet age or State-approved grade-level standards consistent with § 300.309(a)(2); or
(B) The child exhibits a pattern of strengths and weaknesses in performance, achievement, or both, relative to age, State-approved grade-level standards or intellectual development consistent with § 300.309(a)(2)(ii);
(6) The determination of the group concerning the effects of a visual, hearing, or motor disability; mental retardation; emotional disturbance; cultural factors; environmental or economic disadvantage; or limited English proficiency on the child's achievement level; and
(7) If the child has participated in a process that assesses the child's response to scientific, research-based intervention--
(i) The instructional strategies used and the student-centered data collected; and >br> (ii) The documentation that the child's parents were notified about--
(A) The State's policies regarding the amount and nature of student performance data that would be collected and the general education services that would be provided;
(B) Strategies for increasing the child's rate of learning; and (C) The parents' right to request an evaluation.
(b) Each group member must certify in writing whether the report reflects the member's conclusion. If it does not reflect the member's conclusion, the group member must submit a separate statement presenting the member's conclusions.

California References to Specific Learning Disability

California Education Code

56337. (a) A specific learning disability, as defined in Section 1401(30) of Title 20 of the United States Code, means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or perform mathematical calculations. The term "specific learning disability" includes conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. That term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of intellectual disabilities, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

(b) Notwithstanding any other law and pursuant to Section 1414(b)(6) of Title 20 of the United States Code, in determining whether a pupil has a specific learning disability as defined in subdivision(a), a local educational agency is not required to take into consideration whether a pupil has a severe discrepancy between achievement and intellectual ability in oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, mathematical calculation, or mathematical reasoning.

(c) In determining whether a pupil has a specific learning disability, a local educational agency may use a process that determines if the pupil responds to scientific, research-based intervention as a part of the assessment procedures described in Section 1414(b)(2) and (3) of Title 20 of the United States Code and covered in Sections 300.307 to 300.311, inclusive, of Title 34 of the Code of Federal Regulations.

56337.5. (a) A pupil who is assessed as being dyslexic and meets eligibility criteria specified in Section 56337 and subdivision (b)(10) of Section 3030 of Title 5 of the California Code of Regulations for the federal Individuals with Disabilities Education Act (20 U.S.C. Sec. 1400 and following) category of specific learning disabilities is entitled to special education and related services.

(b) If a pupil who exhibits the characteristics of dyslexia or another related reading dysfunction is not found to be eligible for special education and related services pursuant to subdivision (a), the pupil's instructional program shall be provided in the regular education program.

(c) It is the intent of the Legislature that the program guidelines developed pursuant to Section 2 of Chapter 1501 of the Statutes of 1990, for specific learning disabilities, including dyslexia and other related disorders, be available for use by teachers and parents in order for them to have knowledge of the strategies that can be utilized with pupils for the remediation of the various types of specific learning disabilities.

56338. As used in Section 56337, "specific learning disability" includes, but is not limited to, disability within the function of vision which results in visual perceptual or visual motor dysfunction.

CCR Title 5 Section 3030 (b)(10)

Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may have manifested itself in the imperfect ability to listen, think, speak, read, write, spell, or do

mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The basic psychological processes include attention, visual processing, auditory processing, sensory-motor skills, cognitive abilities including association, conceptualization and expression.

(A) Specific learning disabilities do not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of intellectual disability, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

(B) In determining whether a pupil has a specific learning disability, the public agency may consider whether a pupil has a severe discrepancy between intellectual ability and achievement in oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, mathematical calculation, or mathematical reasoning. The decision as to whether or not a severe discrepancy exists shall take into account all relevant material which is available on the pupil. No single score or product of scores, test or procedure shall be used as the sole criterion for the decisions of the IEP team as to the pupil's eligibility for special education. In determining the existence of a severe discrepancy, the IEP team shall use the following procedures:

1. When standardized tests are considered to be valid for a specific pupil, a severe discrepancy is demonstrated by: first, converting into common standard scores, using a mean of 100 and standard deviation of 15, the achievement test score and the intellectual ability test score to be compared; second, computing the difference between these common standard scores; and third, comparing this computed difference to the standard criterion which is the product of 1.5 multiplied by the standard deviation of the distribution of computed differences of students taking these achievement and ability tests. A computed difference which equals or exceeds this standard criterion, adjusted by one standard error of measurement, the adjustment not to exceed 4 common standard score points, indicates a severe discrepancy when such discrepancy is corroborated by other assessment data which may include other tests, scales, instruments, observations and work samples, as appropriate.

2. When standardized tests are considered to be invalid for a specific pupil, the discrepancy shall be measured by alternative means as specified on the assessment plan.

3. If the standardized tests do not reveal a severe discrepancy as defined in subdivisions 1. or 2. above, the IEP team may find that a severe discrepancy does exist, provided that the team documents in a written report that the severe discrepancy between ability and achievement exists as a result of a disorder in one or more of the basic psychological processes. The report shall include a statement of the area, the degree, and the basis and method used in determining the discrepancy. The report shall contain information considered by the team which shall include, but not be limited to:

(i) Data obtained from standardized assessment instruments;

(ii) Information provided by the parent;

(iii) Information provided by the pupil's present teacher;

(iv) Evidence of the pupil's performance in the regular and/or special education classroom obtained from observations, work samples, and group test scores;

(v) Consideration of the pupil's age, particularly for young children; and

(vi) Any additional relevant information.

4. A severe discrepancy shall not be primarily the result of limited school experience or poor school attendance.

(C) Whether or not a pupil exhibits a severe discrepancy as described in subdivision (b)(10)(B) above, a pupil may be determined to have a specific learning disability if:

1. The pupil does not achieve adequately for the pupil’s age or to meet State-approved grade-level standards in one or more of the following areas, when provided with learning experiences and instruction appropriate for the pupil's age or State-approved grade-level standards:

(i) Oral expression.

(ii) Listening comprehension.

(iii) Written expression.

(iv) Basic reading skill.

(v) Reading fluency skills.

(vi) Reading comprehension.

(vii) Mathematics calculation.

(viii) Mathematics problem solving, and

2.(i) The pupil does not make sufficient progress to meet age or State-approved grade-level standards in one or more of the areas identified in subdivision (b)(10)(C)(1) of this section when using a process based on the pupil's response to scientific, research-based intervention; or

(ii) The pupil exhibits a pattern of strengths and weaknesses in performance, achievement, or both, relative to age, State-approved grade-level standards, or intellectual development, that is determined by the group to be relevant to the identification of a specific learning disability, using appropriate assessments, consistent with 34 C.F.R. sections 300.304 and 300.305; and

3. The findings under subdivisions (b)(10)(C)(1) and (2) of this section are not primarily the result of:

(i) A visual, hearing, or motor disability;

(ii) Intellectual disability;

(iii) Emotional disturbance;

(iv) Cultural factors;

(v) Environmental or economic disadvantage; or

(vi) Limited English proficiency.

4. To ensure that underachievement in a pupil suspected of having a specific learning disability is not due to lack of appropriate instruction in reading or math, the group making the decision must consider:

(i) Data that demonstrate that prior to, or as a part of, the referral process, the pupil was provided appropriate instruction in regular education settings, delivered by qualified personnel; and

(ii) Data-based documentation of repeated assessments of achievement at reasonable intervals, reflecting formal assessment of student progress during instruction, which was provided to the pupil's parents.

5. In determining whether a pupil has a specific learning disability, the public agency must ensure that the pupil is observed in the pupil’s learning environment in accordance with 34 C.F.R. section 300.310. In the case of a child of less than school age or out of school, a qualified professional must observe the child in an environment appropriate for a child of that age. The eligibility determination must be documented in accordance with 34 C.F.R. section 300.311.

Section 3

Specific Learning Disability Definition

Definition of a Specific Learning Disability

When completing a psychoeducational assessment for a student suspected of having a specific learning disability (SLD), it is important for all team members to have a clear conceptualization of SLD. An SLD exists in students with an Otherwise Normal Cognitive Ability Profile (ONCAP) who possess unexpected underachievement in one or more of the eight achievement areas which is explained by one or more of the domain-specific processing weakness, both of which are outlined in California Ed. Code (CCR Title 5 Section 3030 (b)(10)).

For students for whom a special education eligibility of SLD is being considered, and using the PSW approach, the following is examined:

1. Student exhibits a pattern of cognitive or processing strengths, indicated by a pattern of abilities in the average or above ranges
2. Students exhibits both significant cognitive and academic weakness(es)
3. A research-based link exists between the cognitive and academic weakness(es)
4. The student requires special education to access the core curriculum

In order to better understand the definition of SLD, it is important to consider the difference between an individual who possesses a *specific processing deficit* that relates to a specific academic weakness and a student who possesses a *global learning deficit* that manifests itself in weaknesses across all or most processing and academic areas (Hanson, Sharman, & Esparza-Brown, 2009). G*lobal* processing deficits or *general* learning difficulties (characterized by low or below average cognitive skills with minimal or no cognitive processing areas in the average range) are typically accompanied by general academic underachievement; however, they are fundamentally different from the true conceptualization of a *specific* learning disability. Students who are eligible for special education under the category of SLD typically require individualized services, not simply more intensive services (LDA, 2010). They must also possess the cognitive skills required to learn compensatory strategies and apply them independently (Flanagan, Ortiz, & Alfonso, 2013). Please refer to the *What a Specific Learning Disability (SLD) <u>is</u> vs. What SLD <u>is Not</u>* in this section for additional information.

Differentiating Intellectual Disability (ID), General Learning Difficulty (GLD) and a Specific Learning Disability (SLD)

Instructions for use: This information is intended to guide assessment teams and should be considered along with the team's knowledge of the student as well as assessment data. Decisions about assessment and eligibility should not be based solely on this document.

Characteristics

Intellectual Disability (ID)	*General Learning Difficulty (GLD)*	*Specific Learning Disability (SLD)*
Little variation in cognitive ability and processing profile	Little to moderate variation in cognitive ability and processing profile	Moderate to high (or statistically significant) variation in cognitive ability and processing profile
All or nearly all cognitive areas ≤ 70 standard score	May have normative deficits in one or more cognitive and academic areas	Normative deficits in specific cognitive abilities and processes; Normative deficits in specific academic area(s); Empirical or ecologically valid relationship between cognitive and academic deficits
Possible relative strengths in one or more processes or abilities that are not highly related to general intelligence such as phonemic awareness, simple clerical-type tasks or social skills	May have *relative* strengths in one or more processes or abilities	Intact functioning in many processes and abilities and *possible normative* cognitive or academic strengths
Deficits (≤70 standard score) in adaptive behavior, little variation in performance across adaptive behavior domains	May have one or more deficits in adaptive behavior (but not in all domains)	Minimal to no deficits in adaptive behavior any deficits in adaptive behavior are likely explained by other factors

Etiology

Intellectual Disability (ID)	*General Learning Difficulty*	*Specific Learning Disability (SLD)*
Normative cognitive deficits are explained by genetic conditions; problems during pregnancy; problems at birth; problems after birth.	Underlying causes of generally low average cognitive and academic abilities are typically not known	SLD has a neurobiological basis. *The pattern of generally average or better overall cognitive ability and below average performance in related cognitive and academic areas* cannot be explained by exclusionary factors (e.g., poor instruction; social/emotional factors; psychological disturbance; cultural or language differences, environmental deprivation, etc.), although one or more of these factors may contribute to weakened academic performance.

Response to Instruction/Multi-tiered Systems of Supports/Intervention and Programming

Intellectual Disability (ID)	*General Learning Difficulty*	*Specific Learning Disability (SLD)*
Progress Monitoring (or other performance indicators) demonstrates very slow rate of response/learning; will not meet typical grade level benchmarks in any academic area	Progress Monitoring (or other performance indicators) demonstrates slow rate of response/learning; may meet typical grade level benchmarks in some, but not all, academic areas	Following a comprehensive evaluation and resultant provision of tailored interventions, accommodations, compensatory strategies, and/or modifications, Progress Monitoring (or other performance indicators) demonstrates rate of response/learning similar to same grade peers; may approximate or meet typical grade level benchmarks in certain areas
Special Education Services	Tier II and Tier III interventions in General Education, Remedial Programs	Special Education Services; Remedial Programs; General Education Inclusion (Tier II and Tier III Interventions)
Instructional Emphasis: Self-Help Skills; Functional Academics; Social Skills; Self-Esteem	*Instructional Emphasis*: Basic Academics; Vocational Training; Accommodations; Compensatory Strategies; Social Skills and Self-Esteem	*Instructional Emphasis:* Grade Level Performance; College Preparation; Accommodations; Compensatory Strategies; Self-Esteem; Self-Advocacy; Assistive Technology

Adapted from: *Flanagan, D.P., Ortiz, S.O. & Alfonso, V.C. (2013). Essentials of Cross-Battery Assessment, 3rd Edition. Hoboken, NJ: Wiley & Sons.*

What a Specific Learning Disability (SLD) is vs. What SLD is Not

SLD is…	SLD is not...
• characterized by an Otherwise Normal Cognitive Ability Profile (ONCAP), indicating that the student has areas of strengths at or above the average range along with a specific area or areas of processing weakness.	• characterized by generally low or below average cognitive abilities with little or no areas of strength.
• characterized by processing weakness(es) that are linked by research to specific academic weakness(es).	• characterized by processing weakness(es) that are not linked with academic weakness(es).
• explained by a neurologically-based processing deficit or deficits.	• explained primarily by low or below average cognitive abilities, another disability category or an exclusionary factor.
• characterized as a "within learner" trait.	• explained by external factors such as instructional or environmental variables.
• sometimes in existence with other disability conditions (sensory, language, behavioral).	• primarily explained by another disability and/or condition (Emotional Disturbance, Intellectual Disability, etc.).
• an educational disability.	• solely a medical or mental health diagnosis.
• a disability category under the California Ed. Code and the Federal Regulations of IDEA.	• a disability category based on criteria solely from the Diagnostic and Statistical Manual (DSM) or an outside agency's professional opinion.
• a wide range of learning difficulties in relation to academic skills.	• an automatic entitlement for students with any academic difficulties.
• an impairment requiring a comprehensive and individual evaluation by an Individualized Education Plan team to ensure all SLD Federal, State, and District criteria are met.	• an automatic default category when a student demonstrates lack of progress in the general education setting.
• an educational classification in which a student meets the criteria for SLD, so much so that he/she cannot profit in the general education curriculum without special education support.	• applied when a student exhibits a pattern of strengths and weaknesses but does not require special education support to benefit from general education curriculum.

Adapted from West Shore ESD Procedures for Determining Eligibility of a SLD using a PSW Model, 2013

Section 4

Research to Support the Ventura County SELPA PSW Assessment Model

Research to Support the Ventura County SELPA PSW Assessment Model

The Ventura County SELPA has spent time, money and resources in researching learning disability assessment methods and developing the Patterns of Strengths and Weaknesses Model as outlined in this manual. The SELPA believes that the transition to the PSW model is a worthwhile endeavor that will result in accurate and valid assessments of students who are suspected of having a Specific Learning Disability (SLD).

The Ventura County SELPA PSW Model is based on several core research based principles relating to the definition and assessment of specific learning disabilities:

1. Specific Learning Disabilities are characterized by neurologically-based deficits in cognitive processing (NASP, 2007). This conclusion is supported by a meta-analysis that found significant processing differences between students with SLD and students without SLD (Johnson, Humphrey, Mellard, Woods, & Swanson, 2010).

2. Research has demonstrated the existence of specific cognitive processes (Flanagan et al., 2013; Hale & Fiorello, 2004; Dehn 2014a). Researchers are also in agreement that sound tools and measures exist to assess these cognitive processing areas (LDA, 2010).

3. Research has also found links between various cognitive processes and specific areas of academic achievement (see COMPARES annotated bibliography, available on www.venturacountyselpa.com).

While the use of the Ability-Achievement Discrepancy Model has been in widespread use for decades, academia has long pointed to a variety of flaws and problematic outcomes in using this method to identify learning disabilities (LDA, 2010). This model has been nicknamed the "Wait to Fail Model," as it is often difficult to find a large enough discrepancy between a student's ability and achievement at a young age, thus making early intervention by way of specialized academic instruction difficult for students with SLD. In using this model, it is also unclear to many practitioners which I.Q. score should be utilized for comparison with academic scores, especially when a Full Scale I.Q. score is significantly impacted by a child's processing deficit(s). Many researchers note that this model has led to an over-identification of students, is not developmentally sensitive and is not used consistently among practitioners (LDA, 2010).

The Ventura County SELPA acknowledges the research that indicates that the the Response to Instruction and Intervention (RtI^2) method for identifying SLD does not in itself provide enough evidence to support the presence of an SLD (LDA, 2010). Low achievement alone is not a suitable indicator of SLD (Fiorello et al., 2006; 2008; 2009). Literature indicates that not every student who fails to respond to quality instruction and intervention possesses neurologically-based processing deficits. Further, studies examining this method have not been successful in reliably identifying which students are considered non-responders (LDA, 2010). Using low achievement as the primary factor for determining eligibility also has the potential to increase the over-representation of minority students in special education (CASP, 2014). However, it should be noted that the Ventura County SELPA does support the use of an RtI^2 model for pre-referral interventions. (See Pre-referral Guidelines Section)

The Ventura County SELPA PSW Model provides detailed information about "within learner" traits in relation to environmental demands (SELPA, 2009). The comprehensive evaluation required within the PSW model provides information about a learner's individual cognitive processes that is only pursued when considering a student's lack of response to appropriate or targeted interventions; thus the PSW Model answers the essential question of *why* the student is not responding. It also serves to better assist teams in ruling out additional causes for underachievement, including exclusionary factors and cognitive characteristics that do not support the conceptualization of SLD (e.g. all weaknesses and no strengths). This model may further assist teams in explaining what areas can be remediated and what areas require accommodations (Hanson et al., 2009).

The SELPA believes that the PSW model is a valid method for assessing students with suspected learning disabilities. Due to its strong emphasis on research based principles, it has been suggested this model may provide more legally defensible information in litigious cases (Feifer & Della Toffalo, 2007).

Additionally, since a PSW assessment answers the question of *why* a student is struggling academically, educators can more accurately target interventions to meet a learner's specific needs, regardless of whether the student meets eligibility requirements for Special Education (Mascolo, Alfonso & Flanagan, 2014). Although further research is needed for establishing relationships between cognitive domains and strategies (LDA, 2010), current evidence is stronger for some psychological processes and interventions (e.g. reading) than others (e.g. writing and math). There are various studies that have linked PSW evaluation with features of curricula, teaching methods and classroom environments (Feifer, 2008; Keene & Zimmerman, 1997; Beringer et al., 2007; 2008; Swanson & Saez, 2003; Fletcher et al., 2003; Mascolo et al., 2014).

While the Ventura County SELPA PSW Model does not mandate that individual schools utilize a Response to Instruction and Intervention model (RtI²) as a pre-referral requirement, there are certain basic elements that should be considered prior to developing an assessment plan for an SLD evaluation (see Pre-Referral guidelines section). It should be noted that the PSW model works best when it is used in conjunction with an instruction and intervention model that includes Multi-Tiered Systems of Support (MTSS) along with effective screening and progress monitoring procedures. Some practitioners have reported that up to one-third fewer students are being identified as having an SLD when using a combined RtI/PSW model, as they are more accurately able to identify other disabilities (e.g. OHI, ED) or exclusionary factors (e.g. environmental, instructional, attendance, language considerations) as the primary cause for a student's underachievement (Hanson et al., 2009). Based on the above information, along with other well-established bodies of research, the Ventura County SELPA endorses PSW as an assessment model for the identification of students with SLD.

Comparison of the California Discrepancy Model and Ventura County SELPA PSW Model for SLD Identification

	CA Discrepancy Model	Ventura County SELPA PSW Model
Theoretical Basis	None.	Based on cognitive neuroscience that has shown links between cognitive processing skills and academic achievement areas (Flanagan et al., 2013; Hale & Fiorello, 2004; Dehn, 2014a).
Research-based Assessment Approaches Required within Model	None identified.	In Ventura County, special education directors chose to adopt Cross Battery: Dual Discrepancy/Consistency Method and Dehn's Processing Strengths and Weaknesses assessment approaches, both based upon research, to support the eligibility decision (Flanagan et al, 2013; Dehn, 2014a).
Use of Full Scale IQ Score	Required in all cases with the exception of African American students (Larry P. decision). When the full scale score is not considered valid, there are a variety of approaches to determine the score to use for eligibility purposes.	The use of the full scale score is not required, but can be utilized. There are times that the full scale score is impacted by the student's processing weakness (LDA, 2010). However, assessment teams must determine that the student has an otherwise normal cognitive ability profile, utilizing the research behind the two adopted assessment approaches.
Processing Deficit	In California, a processing deficit is required to determine eligibility. California Ed Code refers to processing deficits that have no clearly defined definitions. It is difficult to locate research that supports the use of some the specified processing deficits as they are specific to California. According to California Ed Code, the discrepancy model requires: severe discrepancy between achievement and overall ability; and a processing deficit. California Education Code does not specifically state that the processing deficit must be related to or linked to the academic achievement deficit.	In Ventura County, the PSW model strongly encourages that the assessment team finds a research-based link between the processing weakness and the academic deficit. To assist teams with this research-based link, the Comprehensive Organizational Matrix of Processing-Achievement Relations, Evaluating Significance (COMPARES) is available within the Ventura County SELPA PSW Model for SLD Identification Procedural Manual.
Academic Achievement Weakness	Academic achievement is assessed through the use of standardized testing. One test score should not be used in determining eligibility. California Ed Code does not specifically state that ecological validity be used in the eligibility decision-making process.	Academic achievement is assessed through the use of standardized testing; however, the Ventura County PSW Model requires ecological validity. Therefore, the academic weakness must be substantiated by both other academic data (grades, work samples, etc.) and observation by a team member.

Section 5

Overview of Model

Ventura County Model for Specific Learning Disability (SLD) Eligibility
Pattern of Strengths and Weaknesses (PSW) Model Overview

The 2004 reauthorization of the Individuals with Disabilities Education Act (IDEA) prohibited states from requiring Local Education Agencies (LEA) to use the ability-achievement discrepancy model and authorized the use of alternative approaches to the identification of students with Specific Learning Disabilities (SLD). The use of the Pattern of Strengths and Weaknesses (PSW) Model for SLD identification is indicated in the revised CA Education Code. With careful consideration and research, a variety of stakeholders and educational professionals across California examined alternative SLD assessment models. The result was a decision by the Ventura County SELPA to participate in the California State SELPA PSW Pilot Project in various school sites throughout the SELPA beginning in 2010. Based on the success of the pilot, the body of Directors of Special Education for the Ventura County SELPA approved a SELPA-wide roll out of the PSW model to begin in the 2014-2015 school year.

While the PSW model is still relatively new to California, it has received support from the California Association of School Psychologists (CASP, 2014), and various other scholars and researchers in the fields of education, psychology and law (LDA, 2010). The following table provides an overview of the steps assessment teams will take when utilizing the Ventura County SELPA PSW model for SLD eligibility.

Step	Action	Procedural Manual Sections and Other Resources
1	Document differentiated instruction and targeted interventions that were provided to the student.	Pre-referral Interventions
2	Determine if assessment is needed.	Pre-referral Interventions
3	Clearly define the reason for referral.	Planning as a Team
4	Prepare Assessment Plan and obtain signature from parent.	Refer to SIRAS information
5	Determine hypotheses for psychological processing strengths/weaknesses, assessment approach to be used, and assessment tools to be used.	COMPARES * Assessment Approach explanations within Evaluating Processing Strengths/Weaknesses Planning as a Team
6	Test your hypotheses. Determine: • academic achievement deficit(s) • processing strengths to ensure student possesses an "Otherwise Normal Cognitive Ability Profile (ONCAP)" • processing weaknesses	Evaluating Processing Strengths/Weaknesses Evaluating Academic Strengths/Weaknesses COMPARES * Software associated with Assessment Approach
7	Re-meet with the Assessment Planning Team. Verify link between academic and processing deficits.	COMPARES * Planning as a Team
8	Rule out remaining exclusionary factors.	Ruling out Exclusionary Factors
9	Hold IEP meeting.	Refer to SIRAS information
10	Final decision regarding eligibility for special education under the classification of SLD will be completed by IEP team.	Refer to SIRAS information SLD Eligibility summary IEP form

*COMPARES: Comprehensive Organizational Matrix of Processing-Achievement Relations, Evaluating Significance

Section 6

Pre-Referral Guidelines

Pre-Referral Guidelines

According to the Federal definition of Specific Learning Disabilities, to ensure that underachievement in a student suspected of having a Specific Learning Disability is not due to lack of appropriate instruction in reading or math, the group making the decision about whether assessment is appropriate must consider whether prior to, or part of the referral process, the student was provided:

- Appropriate differentiated instruction in general education settings using state-adopted standards in reading, writing, mathematics and English Language Development (for EL students), delivered by qualified personnel.

- Research-based interventions and the monitoring of progress in response to instruction and intervention (RtI²) within the general education setting (SELPA, 2009). Interventions and instruction within a Multi-tiered System of Supports (MTSS) should be targeted to meet the student's area of academic or behavioral instructional need (e.g. decoding, math calculations, social skills, etc.) and should be implemented with fidelity for a reasonable period of time. Documentation of multiple data points of repeated assessment of achievement at reasonable intervals, reflecting assessment of student progress during instruction also needs to be provided.

  These data sources should include both pre- and post-intervention data from a variety of sources. Data sources may be, but are not limited to:
  - Teacher-created or published diagnostic, formative and summative assessments
  - Progress monitoring data (DIBELS, EasyCBM, etc.)
  - District benchmark assessments

To assist school teams in documentation of these pre-referral requirements, school teams may want to utilize the Ventura County RtI² Forms, which are located at the end of this section. For school teams who utilize these forms, Forms A-C should be completed prior to making the decision as to whether assessment is appropriate at the time.

School districts and individual school sites within Ventura County are at various stages of implementation of Response to Instruction and Intervention (RtI²) (See Pre-Referral Resources). To assist school districts and sites with implementation at a "best practice" level, additional documents are provided within this section. They include the RtI² Task Force Narrative, which outlines the recommended model, as well as a self-assessment tool. Please note that implementation at this "best practice" level is encouraged to be consistent with use of the PSW Model for SLD Eligibility. School site teams make the final decision as to whether assessment for special education consideration is appropriate. It should be noted that a district may not deny a request for a special education assessment, simply due to a student's lack of exposure to research-based interventions (See Office of Special Education and Rehabilitative Services Memorandum dated 1/21/11).

When determining whether assessment for special education is appropriate for a student who is also an English Learner (EL), additional considerations need to be taken. The following resources are available for school teams when making these decisions:

- Ventura County SELPA: Meeting the Needs of English Learners with Disabilities Resource Book and Guidelines for Assessment for Special Education of English Language Learners
- Your school district's policies/procedures

When identifying students for referral for assessment to determine special education eligibility, there are many factors to consider. The following questions may be helpful to school teams when making these decisions.

Appropriate Differentiated Instruction	Was the student provided appropriate instruction in the areas of reading, writing, and math (and ELD for EL students)? Was the instruction delivered by qualified personnel? Was the instruction using state-adopted standards? Was the instruction implemented with fidelity according to publisher's guidelines?
	Which differentiation strategies were utilized by the classroom teacher? Were differentiation strategies implemented with fidelity?
	For secondary students, was the student placed in appropriate classes based on the student's developmental level and area(s) of need?
Interventions	In comparison to the ***whole class or grade level***, what percentage of students is performing within the same range as the student you are concerned about?
	What interventions have you provided for that group of students? How effective are the interventions for these students? What does the data indicate in regards to growth of the group in comparison to baseline data for that group?
	For students who did not respond to the initial intervention, what other interventions and/or strategies were provided? What does the data show in regards to the effectiveness of these interventions?
	What interventions and strategies were provided to the student of concern? Were the interventions implemented according to publisher's guidelines? How many data points were collected and reviewed by the problem-solving team?
	If the interventions are working for only a small number of students, the school team should examine the intervention match and/or implementation of the intervention Was it the correct intervention for the identified need? Was it implemented correctly, often enough, and long enough, according to the intervention program manual?
	If the intervention worked for many students, but not the student of concern, the team can likely assume it is a good intervention being implemented properly. However, the team should question why it is not working for this student. Did the intervention target the specific skill need for that student? Was the intervention too high or too low or not targeting the correct skills (i.e. are they working on blending and this student doesn't even have letter/sound yet, or working on decoding when the student needs comprehension)? Was it implemented correctly, often enough, and long enough, according to the intervention program manual? Did the student participate in a meaningful way (attended regularly, stayed the whole time, focused and engaged)? Were there other mitigating factors that hindered benefit (not wearing glasses, hearing aids, etc.)?

Considerations for Pre-referral Exclusionary Factors	Has the student demonstrated consistent attendance at school?
	If the student is an English Learner, has the school team examined language data?
	Do vision/hearing results indicate a concern?

Pre-referral Interventions Resources

California Department of Education	http://www.cde.ca.gov/ci/cr/ri/
RtI Action Network	http://www.rtinetwork.org/
Ventura County Office of Education	http://www.vcoe.org/cici/RtI2.aspx
What Works Clearinghouse	http://ies.ed.gov/ncee/wwc/
West Ed	http://www.wested.org/
District Policies and Procedures related to RtI²	See district policy

Ventura County Office of Education

Rtl^2 Forms A, B, C and D

Ventura County
Response to Instruction and Intervention (RtI^2)
Initial Student Referral

RtI^2—Form A

Purpose: *This form is completed by the referring general education teacher to bring information about the student to the Intervention Progress Team (IPT*)/Professional Learning Community (PLC)/Grade Level Department Team. Attach parent communication logs, universal screening results, data test results, work samples, and/or Behavior Analysis Worksheet.*

Section 1: IDENTIFYING INFORMATION

Student: _____ **Date:** _____

Referring Teacher: _____ **Room:** _____ **Grade:** _____

Overall EL Proficiency Level: _____ **Subject (Secondary Only):** _____

Section 2: STUDENT STRENGTHS

Academic: _____

Social/Emotional/Behavioral: _____

Interests and Talents: _____

Section 3: AREA(S) OF CONCERN

☐ Reading Basic Skills	☐ Reading Comprehension	☐ Reading Fluency
☐ Written Expression	☐ Oral Expression	☐ Listening Comprehension
☐ Math Calculation	☐ Math Problem Solving	☐ Health
☐ Social/Emotional/Behavioral	☐ Attendance	☐ Other _____

Description of Concern:

Current Performance Score or Behavioral Frequency:	Assessment Tool(s):	How Often Measured and/or Date(s):

Estimated Class Rank in Area (if applicable): _____

Grade Level Expectation (as applicable): _____

Section 4: Tier 1 DIFFERENTIATION STRATEGIES teacher has used to address above concerns (Core/Universal Access):

	Frequency	Duration

(Team Use Only)

- ❑ Request completion of **Behavior Analysis Worksheet – Form D**
- ❑ Complete **Intervention Plan – Form B** in the area(s) of need
- ❑ Schedule consultation with school support staff
- ❑ Other recommendations

Date of Meeting: _____ Team members present (names and titles): _____

_____

_____

* *Refer to the Ventura County RtI² Model narrative for a description of IPT.*

Ventura County
Response to Instruction and Intervention (RtI^2)
Intervention Plan

RtI^2—Form B

Purpose: *Areas in gray on this form are to be completed by the Intervention Progress Team (IPT)*/Professional Learning Community (PLC) or Grade Level Department Team. Complete a separate Intervention Plan form for each area of concern and/or to document each discussion by the team. Please attach parent communication logs.*

Section 1: IDENTIFYING INFORMATION

Student: _____ **Date:** _____

Referring Teacher: _____ **Room:** _____ **Grade:** _____

Overall EL Proficiency Level: _____ **Subject (Secondary Only):** _____

Section 2: AREA(S) OF CONCERN

☐ Reading Basic Skills	☐ Reading Comprehension	☐ Reading Fluency
☐ Written Expression	☐ Oral Expression	☐ Listening Comprehension
☐ Math Calculation	☐ Math Problem Solving	☐ Health
☐ Social/Emotional/Behavioral	☐ Attendance	☐ Other _____

Section 3: SPECIFIC SKILL OF CONCERN

Current Tier of Intervention: ☐ Tier 1 ☐ Tier 2 ☐ Tier 3

Description of Skill:

Current Performance Score or Behavioral Frequency (Baseline):	Assessment/Progress Monitoring Tool(s)	Frequency of Measurement	Long-Range Goal
Behavior Only–Replacement Behavior			
Baseline			

Section 4: INTERVENTION/STRATEGY TO BE IMPLEMENTED

Strategy	
Person responsible (Interventionist)	
Group size	
Setting	
Frequency	
Duration	
Intervention Tier Level	☐ Tier 1 ☐ Tier 2 ☐ Tier 3
Review date	

Section 5: ADDITIONAL INFORMATION NEEDED

Date of Meeting:	Date of IPT/PLC to review with interventionist:
Team members present (names and titles:	

* *Refer to the Ventura County RtI^2 Model narrative for a description of IPT.*

Ventura County
Response to Instruction and Intervention (RtI^2)
Intervention Report

RtI^2—Form C

Purpose: *This form is to be completed by the Interventionist(s) to document the effectiveness of the interventions. Please attach parent contact communication logs and indicate the tier level:* ☐ Tier 1 ☐ Tier 2 ☐ Tier 3

Section 1: IDENTIFYING INFORMATION

Student: _____ **Date:** _____

Referring Teacher: _____ **Room:** _____ **Grade:** _____

Overall EL Proficiency Level: _____ **Subject (Secondary Only):** _____

Section 2: AREA(S) OF CONCERN

☐ Reading Basic Skills	☐ Reading Comprehension	☐ Reading Fluency
☐ Written Expression	☐ Oral Expression	☐ Listening Comprehension
☐ Math Calculation	☐ Math Problem Solving	☐ Health
☐ Social/Emotional/Behavioral	☐ Attendance	☐ Other_____

Section 3: INTERVENTIONS

Description of Skill:

Current Tier of Intervention: ☐ Tier 1 ☐ Tier 2 ☐ Tier 3

Interventions Implemented:	Frequency	Start Date	End Date

Comments:

Section 4: CURRENT DATA after implementation of recommended intervention(s)

Current Performance Score or Behavior Frequency	Assessment / Progress Monitoring Tool	Frequency of Measurement	Long-Range Goal
Behavior Only–Replacement Behavior (Baseline)			

(Team Use Only)

- ❑ Request completion of **Behavior Analysis Worksheet – Form D**
- ❑ Complete **Intervention Plan – Form B**
- ❑ Refer to ☐ Tier 1 ☐ Tier 2 ☐ Tier 3
- ❑ Schedule Consultation with School Support Professionals:
- ❑ Refer for 504 Assessment
- ❑ Refer for Special Education Assessment

Date of Meeting: _____ Team members present (names and titles): _____

_____

_____

*Refer to the Ventura County RtI^2 Model narrative for a description of IPT

Ventura County
Response to Instruction and Intervention (RtI²)
Behavior Analysis Worksheet

Form D

PURPOSE: The purpose of the **Behavior Analysis Worksheet** is to assist in determining the Communicative Function of the behavior or social skill which is of concern. This form may be completed at various stages of the progress monitoring process, either as the result of an **Initial Student Referral – Form A** or after review of **Intervention Report – Form B**.

Section 1. IDENTIFYING INFORMATION:

Student: _____ Date: _____

Referring Teacher: _____ Room: _____ Grade: _____

Overall EL Proficiency Level: _____ Subject (Secondary Only): _____

Section 2. BEHAVIOR(S) OF CONCERN:

Description of Behavior: _____

_____

_____

Check the area that best matches the behavior of concern. Refer to **Behavior Interventions – Specific Strategies and Replacement Behaviors – Forms D-1 to D-20** for definitions.

- ☐ 1. Attendance
- ☐ 2. Biting
- ☐ 3. Difficulty Organizing and Caring for Materials
- ☐ 4. Dishonesty
- ☐ 5. Drops to Ground
- ☐ 6. Inappropriate Interactions with Peers and/or Adults
- ☐ 7. Inappropriate Personal Touching
- ☐ 8. Minor Fine Motor Annoyances
- ☐ 9. Noncompliance w/ Requests from Teachers and Other Adults
- ☐ 10. Off Task
- ☐ 11. Out of Seat
- ☐ 12. Physical Aggression
- ☐ 13. Resists Transitions Between Classes/Activities
- ☐ 14. Runs Away/Leaves Class Without Permission
- ☐ 15. Spitting
- ☐ 16. Stealing
- ☐ 17. Talking Out/Back/Inappropriate Comments
- ☐ 18. Throwing Objects
- ☐ 19. Verbal Aggression
- ☐ 20. Withdrawn

Section 3. BASELINE DATA: Indicate frequency, intensity and/or duration of behavior.

_____

_____

_____

_____

Section 4: DESCRIBE SETTINGS IN WHICH THE BEHAVIOR –

	MOST OFTEN OCCURS:	DOES NOT OCCUR:
Day/Time/Period(s)		
Subjects/Activities		
Group Size		
Type of instruction (lecture, centers, etc.)		
Location		

Section 5: ANTECEDENT AND PRIOR EVENTS: Using the information from Section 4, describe what happens directly **before** the behavior occurs: _____

_____

_____

_____

_____

_____

Section 6: CONSEQUENCES AND OUTCOMES: Describe what happens after the behavior occurs	
What does the student get/obtain/do?	
How does the teacher respond?	
How do peers respond?	

Section 7: ADDITIONAL INFORMATION:

(Team Use Only)

Communicative Function: In order to identify appropriate interventions, select the primary Communicative Function (reason for behavior) below that appears to underlie the behavior:

- ☐ Escape (e.g. avoidance of non-preferred activities, situations, or people)
  Specific Description _____
- ☐ Attention (e.g. looking for attention (positive or negative) from adults or peers)
  Specific Description _____
- ☐ Sensory (more movement, less noise, more space, less light, etc.)
  Specific Description _____
- ☐ Tangible (access to a particular toy, food item, object, etc.)
  Specific Description _____

Refer to Behavior Interventions – Specific Strategies and Replacement Behaviors – Forms D-1 to D-20 for ideas and strategies that correlate with the selected Communicative Function.

Note:
**Attach any updated data collection sheets.*

Ventura County Recommended Model – Response to Instructions (RTI^2) and Intervention Multi-Tiered Systems of Support

National Perspective

Response to Intervention (RtI) uses a multi-tier model of educational resource delivery. Each tier represents an increasing intensity of services matched to the level of current student need (Batsche, et al., 2006). Effective implementation of RtI requires leadership, collaborative planning, implementation by professionals across the educational system, and a commitment to create a culture of high expectations for all students.

> RtI is cited in the reauthorization of the Individuals with Disabilities Education Act (IDEA) of 2004 related to the determination of Specific Learning Disability (SLD) and 34 Code of Federal Regulations sections 300.307, 300.309, and 300.311. The IDEA regulations allow for the use of a process, based on a child's response to scientific, research-based intervention, as a component to determine if a child has a specific learning disability. Thus the data gained during the implementation of an effective RtI system can be a part of the identification process. Research shows that implementation of RtI in general education reduces the disproportionate representation of certain groups of students identified as needing special education services (O'Connell, 2008).

California Perspective

California's educational leaders saw a need to expand the concept of RtI to include not only intervention, but also instruction. State Superintendent of Instruction, Jack O'Connell (2008), explains the California perspective:

> Response to Intervention is emerging nationally as an effective strategy to support every student. California is 'squaring' the term RtI to Response to Instruction and Intervention (RtI^2) to define a general education approach to high-quality instruction, early intervention, and prevention and behavioral strategies.

RtI^2 is an integrated approach to service delivery that encompasses general and special education (Batsche, et al., 2006). RtI^2 is an individualized, comprehensive, student-centered assessment and intervention delivery system to identify and address student academic and social, emotional, and behavioral challenges.

California's model includes ten core components:

1. High-quality classroom instruction
2. High expectations
3. Assessments and data collection
4. Problem-solving systems approach
5. Research-based interventions
6. Positive behavioral support
7. Fidelity of program implementation
8. Staff development and collaboration
9. Parent/family involvement
10. Specific Learning Disability Determination

►For a description of each component, go to www.cde.ca.gov/ci/cr/ri

Ventura County Model

The Ventura County Research-Based Model (preschool through Grade 12) was developed in 2007 in response to the needs of our educational community with the belief that *all* children and youth can learn. The model is a three-tiered approach to instruction and intervention that includes core, strategic/targeted, and intensive instruction to support the academic as well as the social, emotional, and behavioral needs of students. The model embraces the creation of a culture and climate that provide high-quality research-based instruction and interventions that are matched to student need, that employ continuous progress monitoring, and that utilize team decisions to intentionally inform instruction.

Parents/guardians are an essential component of the RtI^2 process. Each district establishes procedures for informing and involving parents/guardians about interventions and the monitoring of student progress.

The Ventura County Model is regularly updated by the Ventura County RtI^2 Task Force to reflect current research and best practices. While the model provides a comprehensive, inclusive and integrated framework to assure consistency of service delivery, it is recognized that the actual delivery system may vary depending on the school or district in which it is being implemented. To support the Ventura County Model, the task force has developed documents, forms, and instructions which can be found on our Web site.

►To view a graphical depiction of the Ventura County RtI^2 model, go to www.vcoe.org/cici/rti2.aspx and click on "Pyramid of Intervention."

►For the complete library of VCOE RtI^2 forms and instructions, go to www.vcoe.org/cici/rti2.aspx and click on "Forms."

Tier 1: *Core/Benchmark/Universal (Core+Differentiation)*

Instruction

The general education teacher delivers appropriate differentiated first instruction supported by research-based core curriculum materials with aligned to the Common Core State Standards (CCSS). This foundational system uses the principles of Universal Design of Learning (UDL) to deliver information in different ways with appropriate supports, strategies and accommodations. Students will have access to a broad curriculum that integrates the four strands of the CCSS. These include the standards for Reading Literature, Informational Text, Writing, Speaking and Listening and Language. Instruction will focus on grade level standards while ensuring mastery of the key themes outlined in the draft ELA/ELD Framework for students in K-12 including foundational skills (print concepts, phonological awareness, phonics and word recognition and fluency) in grades K-5. A comprehensive core ELA program is designed to develop proficient readers with the capacity to comprehend text across the different range of text types and disciplines. Students will have access to rigorous grade level standards in order to be College and Career ready. English learner students receive rigorous and coherent English Language Development using the 2012 ELD Standards as part of their core instructional program until they are reclassified.

In mathematics, the general education teacher uses research-based core curriculum materials with differentiated instruction aligned to the Common Core State Standards, emphasizing the development of the eight Standards for Mathematical Practice. The math program is designed to be comprehensive in scope, developing students who are College and Career ready. All students are supported to become problem solvers who persist in their efforts to find solutions that are appropriately precise. They think flexibly, moving between different representations, using multiple tools effectively, seeing and utilizing patterns and structures in finding solutions to problems. They clearly and effectively justify their solutions and critique the reasoning of others. All students, and particularly English learners, are supported in developing their understanding of the specialized language of mathematics, and in the appropriate and accurate use of that language.

Universal Screening

Research by Fuchs and Fuchs (2005) defines universal screening as an assessment to be used with all students. Although districts may lack fiscal resources to screen all students, universal screening is a way to assess and diagnose students who appear to have reading problems based on teacher observation, running records, benchmarks, California Standards Tests and other student data. The assessment should consider English only, English learners, students with disabilities, and gifted and talented students. The assessment data should be used to determine differentiation and universal access activities in Tier 1. Further diagnostic assessments help the teacher direct interventions to the specific needs of students in Tiers 2 and 3. Progress monitoring (Tiers 1, 2 and 3) helps determine if the academic or behavioral supports are producing desired results.

The screening data are organized for review of individual and group performance on essential measures of instruction. The classroom-wide behavior support model is based on the district or school's overall research-based model of positive behavior support. All strategies are implemented with fidelity and are preventive and proactive.

The teacher uses the district-adopted data collection and analysis tools for progress monitoring. Data is collected during key points in the curriculum and may include benchmark assessments, theme/quarter tests, statewide standardized achievement tests, behavior data, etc., on all children in the class. The teacher uses the data to gauge the effectiveness of the instruction, to plan re-teaching, and to consider instructional methodology and research-based strategies.

►For a list of assessment instruments, refer to www.vcoe.org/cici/rti2.aspx

Students "at-risk" are monitored closely with more intentional analysis of ongoing systematic progress monitoring for a specified period of time (six to eight weeks is recommended). Some students may be identified as needing additional instruction.

Research indicates that less than 20% of the students will be performing at "Below Basic" or "Far Below Basic" (or an equivalent level of proficiency) or achieving a score below the 16th percentile. Each district determines the criteria that are used to identify at-risk students according to terminology in locally selected resources and curricula. If greater than 20% of students in general education are identified as at-risk, professional development and support of the instructional program should be considered (Batsche, et al., 2006). Research suggests approximately 80% of the student population should achieve proficiency in Tier 1.

Collaboration and Progress Monitoring

The RtI^2 framework supports a collaborative process whereby educators meet to discuss student data and the integrity and fidelity of research-based instructional strategies. Teachers bring the names of students who are performing below grade level standards to the Professional Learning Community (PLC) and/or the Intervention Progress team (IPT). The teacher summarizes the area(s) of academic and/or behavioral concern, strategies attempted, student strengths and assets, and other information on the **Initial Student Referral – Form A**. The IPT or PLC decides either to make additional recommendations for Tier 1 strategies or to develop a plan for Tier 2 interventions. If additional recommendations for Tier 1 strategies are made, they are noted on the **Intervention Plan – Form B.**

►For the complete library of Ventura County RtI^2 forms and instructions, go to www.vcoe.org/cici/rti2.aspx and click on "Forms."

Intervention Progress Team (IPT)* and/or Professional Learning Communities (PLCs)

Intervention Progress Team (IPT): The IPT is made up of general education teachers from each grade level or representatives from primary, upper elementary, middle school, or high school departments. The IPT may also include the site administrator, psychologist, and mild/moderate education specialist. Occupational therapists, speech-language pathologists, school nurses, and other staff may participate in the IPT as appropriate.

If a student is being considered for referral for special education assessment, the IPT must be expanded to include a special education team member.

PLCs-Grade Level/Department Collaboration Teams: These teams consist of grade level or department staff that collaborate to assess student achievement. The teams analyze and discuss whole class and individual data to assess student achievement and provide each student with targeted instruction based on his or her individual behavioral and academic needs. Meeting at least twice a month (and more often if necessary), the team makes instructional decisions based on the data analysis, plans lesson delivery, and coordinates targeted intervention. The team should articulate to the principal the need for additional training, coaching, or resources as circumstances present.

Each district decides the role and composition of each team and who will make decisions regarding delivery of tiered interventions.

Tier 2: *Strategic/Targeted/Selective (in addition to Tier 1)*

At a Tier 2 level, supplemental instruction is provided to students who exhibit poor response to the targeted instruction provided through Tier 1 strategies (Batsche et al., 2006). Tier 2 is provided in addition to Tier 1 strategies and can be delivered through an individualized Problem Solving Approach (Bergan, 1997) and/or through a Standard Protocol Model/Standard Treatment Protocol (Deno & Mirkin, 1997). Research suggests a merger of the two approaches at Tier 2 is most effective (Batsche et al., 2006).

- A Problem-Solving Approach allows the IPT/PLC to design individualized interventions to address the specific academic or behavioral needs of each student.

- A Standard Treatment Protocol Approach uses research-based practices to provide operationalized, highly structured and systematic interventions with cut points, and includes participating students who have similar needs.

The IPT and/or PLC, including the teacher, determine which specific curricular strands or behaviors will be addressed. Baseline and methods for measuring progress are established using data provided by the teacher or new data provided by the interventionist (weekly/bi-monthly). The team recommends interventions to be provided on the **Intervention Plan – Form B.**

►To access **Intervention Plan – Form B,** along with the complete library of Ventura County RtI^2 forms, go to www.vcoe.org/cici/rti2.aspx and click on "Forms."

Intervention is typically provided by general education teachers, intervention teachers or specially trained instructional assistants in small groups of four to five students. Academic interventions supplement and enhance the research-based core curriculum, usually provided on a daily basis for a period of six to eight weeks. Academic groups are made up of students who share similar instructional and skill needs. When working with English Learners, the PLC/IPT must consider the student's level of English language proficiency.

For students exhibiting behavioral concerns, the team may recommend completion of **Behavior Analysis Worksheet – Form D** prior to recommending an **Intervention Plan (Form B)**. **Intervention Plan – Form B** may be implemented with data collected on an ongoing basis. Individual or group counseling may be provided to work on social skills, teasing, bullying, etc. Forms B and D can be found in the RtI^2 section on the Ventura County Office of Education Web site among the complete collection of behavior intervention documents, which include the following:

- Key Terms and Concepts
- Process Overview
- Universal Strategies
- Strategies Organized by Communicative Function
- Behavior Analysis Worksheet – Form D Instructions
- Behavior Analysis Worksheet – Form D
- Behavior Interventions – Specific Strategies and Replacement Behaviors, Forms D-1 through D-20 (each of which addresses a specific behavior of concern)

►For the complete library of Ventura County RtI^2 forms and instructions, go to www.vcoe.org/cici/rti2.aspx and click on "Forms."

Determining Long Range Goal (LRG)

The long-range goal (LRG) defines the student achievement level the team expects the student to reach at the end of the intervention period (usually six to eight weeks). The team establishes the LRG and may use publisher recommendations and/or district norms for expected student progress. The *aimline* is the line that connects the baseline and the LRG. The intervention staff plots the baseline and aimline. Additionally, the team collects data on a frequent basis to monitor the student's response to ongoing intervention. After a period of intervention, the team may establish a new LRG based on student performance for a subsequent intervention cycle.

►To view a sample aimline graphic, refer to www.vcoe.org/cici/rti2.aspx

Collaboration and Progress Monitoring

The IPT and/or PLC meets as needed to plan the interventions, including strategies, staffing and review (typically twice a month). Tier 2 teachers and other intervention staff compile data to present to the IPT/PLC. Data is reviewed to determine whether progress, defined as making adequate incremental growth towards to the LRG, meets established targets. Research suggests that an additional 15% of students will achieve proficiency with Tier 2 intervention.

Determining Effectiveness of Intervention

The IPT or PLC documents the interventions used and their level of effectiveness on the **Intervention Report – Form C**.

- If the LRG is achieved, then the team decides to continue to offer another round of Tier 2 interventions or reintroduce Tier 1 strategies. (A new **Intervention Plan** is developed and a new baseline and LRG are plotted.)
- If the LRG is not achieved, then the team may decide to offer another round of Tier 2 interventions or refer to Tier 3.

►For the complete library of Ventura County RtI^2 forms and instructions, go to www.vcoe.org/cici/rti2.aspx and click on "Forms."

Tier 3: *Intensive/Indicated (Core Plus Differentiation or Intensive Intervention Program/Curriculum)*

The IPT/PLC establishes a new LRG/Aimline and plots the baseline and LRG/Aimline to plan interventions. **Intervention Plan – Form B** is used to document interventions and their effectiveness.

In Tier 3, the general education teacher(s), intervention teacher, special education specialist, speech-language pathologist, occupational therapist, school nurse, or school psychologist may use a specially designed, researched-based, intervention program. The intervention is implemented with fidelity. Tier 3 represents an increase of intensity in terms of frequency, duration, and/or decrease in student-teacher ratio.

►For the complete library of VCOE RtI^2 forms and instructions, go to www.vcoe.org/cici/rti2.aspx and click on "Forms."

Continuous Progress Monitoring

Progress is monitored on a continuous (at least weekly) basis and collected for presentation to the IPT and/or PLC at scheduled intervals. The team decides if the student is making adequate progress toward the LRG (as defined above). Research suggests approximately 5% of the student population should achieve proficiency in Tier 3.

Determining Effectiveness of Intervention

The IPT or PLC documents the interventions and effectiveness on the **Intervention Report – Form C**.

- If the LRG is achieved, then the team may decide to either offer another round of Tier 3 interventions or refer back to Tiers 2 or 1.

- If the LRG is not achieved, then the team may decide to offer another round of Tier 3 interventions or initiate a referral for a special education assessment. If special education is being considered, the expanded IPT team must include appropriate representation from special education.

- If the area of concern is reading, one or more of the five elements of reading—phonemic awareness, phonics, fluency, vocabulary, comprehension—are emphasized in a small group setting, usually consisting of one to three students with similar skill needs working for 45 to 60 (or greater) minutes each day. Math or writing may be addressed with similar intensity.
- If the area of concern is behavior, a behavioral assessment may be conducted in order to develop a more comprehensive intervention plan. Data collection on both the occurrence of the non-desired behavior and the socially appropriate replacement behavior may be beneficial information for development of the intervention plan. School-based counseling may be suggested and/or community-based therapeutic services.

►For the complete library of VCOE RtI^2 forms and instructions, go to www.vcoe.org/cici/rti2.aspx and click on "Forms."

►To view a sample aimline graphic, refer to www.vcoe.org/cici/rti2.aspx

RtI^2, Section 504, and Special Education

The Ventura County RtI^2 Model is designed to be an intentional, thoughtful, and effective tiered intervention framework to address academic, social, emotional, and behavioral concerns for all students. This model may also be used to establish a pattern of strengths and weaknesses and to document interventions for students who are being assessed for eligibility of Specific Learning Disability (SLD) in the Ventura County Special Education Local Plan Area (SELPA). This model may also be used for documenting pre-referral interventions for students who may be referred for suspected Other Health Impairment (e.g., Attention Deficit Disorder and Tourette Syndrome); Emotional Disturbance; Autism (e.g., Asperger's or High Functioning Autism); Speech-Language Impairments (Language or speech disorders); Mental Retardation (Mild); or Physical Disabilities and Section 504 American with Disabilities Act (ADA) eligibility.

Students being considered for eligibility under SLD should have received at least six to eight weeks of targeted select, specific, or individual intervention in all three tiers before being referred for a special education assessment.

►For an overview of the special education referral process, go to www.vcoe.org/cici/rti2.aspx and click on "Psychoeducational Assessment Process."

►For the "Section 504/American with Disabilities Act Handbook," go to www.vcselpa.org and click on the "Publications A-Z" tab.

References

Batsche, G., Elliott, J., Graden, J. L., Grimes, J., Kovaleski, J. F., Prasse, D., Reschly, D. J., Schrag, J., & Tilly III, W. D. (2006). *Response to Intervention Policy Considerations and Implementation.* Alexandria, VA: National Association of State Directors of Special Education, Inc.

Bender, W. N., & Shores, C. (2007). Response to Intervention, a practical guide for every teacher. Thousand Oaks, CA: Corwin Press, Inc. http://www.corwinpress.com.

Bergan, J. R. (1997). *Behavioral consultation*. Columbus, OH: Charles E. Merrill.

Chrisman, V., & Wagmeister, J. (2011). California Department of Education. *Response to Instruction and Intervention, A Technical Assistance Guide for Schools and Districts.*

Coleman, M. R., Roth, F. P. & West, T. (2009). Roadmap to Pre-K RTI: *Applying Response to Intervention in Preschool Settings*. A publication of the National Center for Learning Disabilities, Inc. http://www.rtinetwork.org/Learn/RTI-in-Pre-Kindergarten

Deno, S., & Mirkin, P. (1997). *Data-based program modification*. Minneapolis, MN: Leadership Training Institute for Special Education.

Fuchs, D., & Fuchs, L. S. (2005). "Responsiveness-To-Intervention: A Blueprint for Practitioners, Policymakers and Parents, *Teaching Exceptional Children*, 38 (1), 57-61.

National Center on Universal Design for Learning (UDL) Web site: http://www.udlcenter.org/

O'Connell, J. California State Superintendent of Public Instruction, September 16, 2005.

O'Connell, J. California State Superintendent of Public Instruction, *Response to Instruction and Intervention.* November 14, 2008.

Ventura County Office of Education, RtI^2 Response to Instruction and Intervention Web site: http://www.vcoe.org/cici/rti2.aspx

Ventura County Special Education Local Plan Area (SELPA) Web site: http://www.vcselpa.org

Ventura County Rtl^2 Implementation Self-Assessment Tool

This self assessment tool is intended to help schools and districts determine their "next steps" toward implementation of a multi-tiered Response to Instruction and Intervention (RtI^2) approach for meeting the learning needs of all students including English Learners (ELs) and students with disabilities (SWDs). The tool addresses California's RtI^2 Core Components along with specific quality sub indicators.

This tool may be completed by certificated staff members, grade level/department teams, and/or school/district leadership team in order to formulate a school/district profile, develop goals, identify support needed, and to encourage team conversations. To determine "next steps," it is important to not only measure the current implementation status of each core component area, but to also determine its relative priority.

Directions:

Rate each item according to the following response scale:

Not in place (N) = 0 (The activity occurs less than 24% of the time)

In progress (I) = 1 (The activity occurs approximately 25% to 74% of the time)

Achieved (A) = 2 (The activity occurs approximately 75% to 100% of the time)

Maintained (M) = 2.5 (The activity was rated as Achieved (A) last time the tool was completed and continues to occur approximately 75% to 100% of the time)

Please include any comments, explanations and/or evidence that are relevant to your team's response.

Completing this process annually will help Leadership Teams assess which core components and sub areas are progressing and make effective systems change. These 10 core components are critical for effectively implementing school reform, RtI^2 and to ensure academic and behavioral success for all students.

This self assessment tool can be supported with the *RtI^2 Implementation Action Plan* document located on page 13 of this document.

Target Group: (Please specify)

District _____ School _____ Grade Level____ Department _____ Other_____

Rate each item according to the response scale.

1. High-Quality Classroom Instruction **Students receive high-quality, standards and research-based, culturally and linguistically relevant instruction in their inclusive classroom setting by highly qualified teachers.** Tiers: 1, 2, 3; Essential Program Components (EPCs)1, 2, 3, 5; District Standards 2, 5	**Ratings and Comments**			
	Not in place **N/0**	**In progress** **I/1**	**Achieved** **A/2**	**Maintained** **M/2.5**
Instructional strategies are research-based.				
Instruction is planned intentionally to maximize student engagement and interaction. Includes flexible grouping and is differentiated to address the needs of all students, including English Learners and students with disabilities.				
All instruction is linked to the grade level standards for that content area.				
All instruction is taught by teachers credentialed for both the content and the grade level.				
A broad range of systematic and individualized strategies, including positive behavior support (PBS) for achieving important social and learning outcomes while preventing problem behavior with all students, is in place.				
Classroom instruction reflects attention to the cultural and linguistic backgrounds of all students and is responsive to their unique learning needs.				
Reading instruction is scheduled at the same time within grade levels and different times across grade levels to maximize use of resources.				
School-wide data are used to evaluate the effectiveness of core academic programs.				
School-wide data are used to evaluate the effectiveness of core behavior programs.				
SCORE RANGE FOR MINIMUM FLOOR of FIDELITY OF **High-Quality Classroom Instruction:** 13-18				
Total: **Reflections/Comments:**				

2. High Expectations **District and site leaders as well as teachers and other support staff believe that all students can learn including students of poverty, students with disabilities, English Learners and students representing all ethnicities as evident in the school and district cultures. Students, parents and educators hold high academic and behavioral expectations for student success that are consistent, clearly defined and well-communicated in vision and mission statements, district LEAP, school SPSA, and Board Policies.** Tiers: 1, 2, 3; Essential Program Components (EPCs) 1, 2, 3, 4, 5, 6; District Standards 2, 5	**Ratings and Comments**			
	Not in place **N/0**	**In progress** **I/1**	**Achieved** **A/2**	**Maintained** **M/2.5**
A written plan is developed and used by the School-Based Leadership Team to guide implementation of RtI^2.				
All changes made to the implementation plan are based on a thorough examination of data.				
Master schedule ensures that sufficient time is allotted for core and supplemental instruction including access to rich and engaging curriculum, instruction and intervention.				
Site leadership demonstrates expertise with respect to research-based practices for academics and behavior.				
Various methods are used to monitor implementation of research-based strategies; e.g., instructional rounds, walk-throughs, extended observations, teacher conferences, and lesson plan evaluations .				
A variety of resources are identified and provided to address areas of screening, assessment, curriculum, behavior management and instructional strategies.				
Leadership supports the collection of school and class data to determine areas of need; e.g., resources and professional development.				
Staff members have a good understanding of language acquisition theory and English Language Development.				
Staff members are trained in understanding poverty and its effect on school performance.				
Staff members utilize their understanding of cultural differences to form relationships with students and to guide instruction.				
Leadership ensures the professional work week includes adequate time for teacher collaboration.				
Feedback on the outcomes of the RtI^2 approach is provided to staff and families at least yearly.				
District Level Leadership: Leadership support includes agreement to adopt an RtI^2 model and allocate required resources in both general and special education.				
Leadership demonstrates expertise with respect to research-based practices for academics and behavior.				
Leadership understands and is committed to a long term change process (3 or more years) including staff training for all components of RtI^2.				
Leadership demonstrates long term district resource commitment of staff, time, materials for screening, assessment, and interventions.				

The district leadership meets with the School-Based Leadership Team at least twice each year to review data and implementation issues.				
Changes are made to the implementation plan as a result of district and site team data-based decisions.				
Data are collected to assess level of commitment and impact of RtI^2 on staff.				
SCORE RANGE FOR MINIMUM FLOOR OF FIDELITY OF **High Expectations**: 27-38				
Total: **Reflections/Comments:**				

3. Assessments and Data Collection **Integrated data collection and assessment system includes universal screening, diagnostics and progress monitoring to inform decisions appropriate for each tier of service delivery.** Tiers: 1, 2, 3; Essential Program Components (EPCs) 6, 7, 8. District Standards 2, 4, 6.	**Ratings and Comments** **Not in place** **N/0**	**In progress** **I/1**	**Achieved** **A/2**	**Maintained** **M/2.5**
Screening Assessments are administered to all students for academic and behavioral needs upon entry. Additional assessments are available as needed. Based on the collected data, school staff determine which students require close progress monitoring, differentiated instruction, additional targeted assessment, a specific research-based intervention, or acceleration.				
Screening Assessments allow for decision making 3 or more times a year along with established decision-making criteria to be used with screening results.				
Diagnostic Assessments are gathered based on an established process when additional information is necessary to align instruction to individual student need.				
There are established decision-making criteria/benchmarks/cut scores that apply to diagnostic results.				
Teachers use the data to differentiate instruction.				
Formative Assessments may include any curriculum based measures including, teacher made probes, benchmark and other critical indicators and are aligned to the standards.				
Student performance is clearly identified/defined by the assessment used and instructional decisions are based on this data.				
Appropriate monitoring for each academic or behavioral intervention is used and is uniform in content and procedure.				
Teachers engage in a collaborative team problem-solving process using data to design instruction and behavior intervention plans or modify if positive progress is made.				
Data is collected at approximately six to eight week intervals for progress monitoring to determine the effectiveness of the academic or behavioral acceleration or intervention and to make any modifications, if necessary.				
Progress monitoring occurs more frequently (weekly or bi-weekly) for students in intensive intervention programs.				
Data is regularly charted or graphed in an easy to read format to share information with students, teachers, parents, and administrators as feedback about the effectiveness of the intervention.				
School-wide data are presented to staff in a timely fashion after each benchmarking sessions (staff meetings, grade level/department meetings).				
SCORE RANGE FOR MINIMUM FLOOR OF FIDELITY OF **Assessments and Data Collection:** 18-26				
Total: **Reflections/Comments:**				

4. Problem-Solving Systems Approach **Uses a problem-solving systems process and method to identify problems, develop interventions and evaluate the effectiveness of the intervention in a multi-tiered system of service delivery.** Tiers: 1, 2, 3; Essential Program Components (EPCs) 1, 2, 5, 6, 7, 8; District Standards 2, 6, 7.	**Ratings and comments**			
	Not in place **N/0**	**In progress** **I/1**	**Achieved** **A/2**	**Maintained** **M/2.5**
Collaborative problem-solving teams meet regularly to monitor students in the RtI^2 process.				
Collaborative problem-solving teams (facilitator, time keeper, recorder, etc.) have defined roles .				
The school schedule is arranged in such a way the grade/department level teaching teams can meet to discuss student progress and instructional changes on at least a twice monthly basis.				
The team uses standardized forms at the meeting to lead the team through the Problem-Solving process.				
Collaborative problem-solving teams identify a specific measureable outcome and design research-based intervention to address concerns.				
Collaborative problem-solving team uses academic and behavioral assessments to identify why students are not mastering the required academic skills and to guide the development of effective interventions and to provide frequent monitoring of progress.				
The team maintains records on students served through the team.				
Communication occurs within and across grade levels and among stakeholders of the school.				
The team sets clear, objective, measurable goals for student progress.				
The team has access to the inventory of school-wide resources that it can use in Team interventions.				
The team holds follow-up meetings with the referring teacher to review student progress and judge whether interventions were effective.				
Collaborative problem solving teams ensure interventions are implemented with fidelity according to their research base and student progress is monitored to determine the student's response.				
Resources are allocated to teaching teams based on results of progress monitoring.				
SCORE RANGE FOR MINIMUM FLOOR OF FIDELITY OF **Problem-Solving Systems Approach:** 18-26				
Total: **Reflections/Comments:**				

5. Research-Based Interventions **The interventions are designed to increase the intensity of the students' instructional experience.** Tiers: 1, 2, 3; Essential Program Components (EPCs) 1, 2, 7, 8. District Standards 2, 6	**Ratings and comments**			
	Not in place **N/0**	**In progress** **I/1**	**Achieved** **A/2**	**Maintained** **M/2.5**
When monitoring data indicate a lack of progress, an appropriate research-based intervention is implemented.				
Research-based interventions target learning or behavioral identified through progress monitoring data.				
The school has in place standard protocol interventions designed to address common and/or frequent learning or behavior problems.				
The school has invested in multiple effective, research-based intervention programs/ideas to meet the needs of individual students.				
Allocation of staff to provide various interventions is flexible across educational roles recognizing availability and expertise.				
Intervention plans include frequency, intensity, and duration of intervention, as well as progress monitoring tools and timelines.				
A process is in place to ensure research-based strategies and interventions are implemented with fidelity.				
A tiered system of research-based instructional interventions is established:				
➢ Tier 1 Academic Core Instruction clearly identified.				
➢ Tier 1 Behavioral Core Instruction clearly identified.				
➢ Tier 2 Academic Strategic/Supplemental Instruction/Programs clearly identified.				
➢ Tier 2 Behavioral Strategic/Supplemental Instruction/Programs clearly identified.				
➢ Tier 3 Academic Intensive Strategies/Programs are evidenced-based.				
➢ Tier 3 Behavioral Intensive/Programs are evidence-based.				
SCORE RANGE FOR MINIMUM FLOOR OF FIDELITY OF **Research-Based Interventions:** 18-26				
Total: **Reflections/Comments:**				

6. Positive Behavioral Strategies **The school uses schoolwide and classroom research-based positive behavioral strategies for achieving important social and learning outcomes.** Tiers: 1, 2, 3; Essential Program Components (EPCs) 2, 6, 7, 8. Standards 7	**Ratings and comments** **Not in Place** **N/0**	**In Progress** **I/1**	**Achieved** **A/2**	**Maintained** **M/2.5**
There is a schoolwide behavior support system which is understood and implemented by all staff and is clearly articulated to students.				
All students are acknowledged and recognized for appropriate behaviors regularly.				
Behavioral expectations are clearly articulated and behavior and instructional errors are monitored, corrected, or re-taught.				
There is a system for universal screening of all students at key developmental stages for risk factors in social/emotional development.				
Office Disciplinary Referral data are used in conjunction with other data sources to identify students needing targeted group intervention and individualized interventions for behavior.				
Appropriate monitoring for each academic or behavioral intervention is used and is uniform in content and procedure.				
Teachers engage in a collaborative team problem-solving process identifying underlying causes and replacement behaviors.				
Positive behavioral strategies are consistently used in the classroom and school wide. A broad range of systematic and individualized strategies including positive behavior support (PBS) is in place.				
The school has established a three-tiered system of behavior supports:				
➢ Tier 1 Behavioral Core Instruction clearly identified.				
➢ Tier 2 Behavioral Supplemental/Strategic Instruction/programs clearly identified.				
➢ Tier 3 Behavioral Intensive Strategies/Programs are evidenced based.				
There is a system in place for collecting data on the increase of individual positive replacement behaviors that are being targeted for a student.				
SCORE RANGE FOR MINIMUM FLOOR FIDELITY OF **Positive Behavioral Strategies:** 17- 24				
Total: **Reflections/Comments:**				

7. Fidelity of Program Implementation **Student success in the RtI^{2}model requires fidelity of implementation in the delivery of content and instructional strategies specific to the learning and/or behavioral needs of the student** Tiers: 1, 2, 3; Essential Program Components (EPCs) 1, 2, 6, 8. District Standards 1, 2, 7	**Ratings and comments**			
	Not in place **0**	**Partially in place** **1**	**Achieved** **A/2**	**Maintained** **M/2.5**
The core R/LA/ELA curriculum is evidenced-based and addresses five necessary components: phonemic awareness, phonics, fluency, vocabulary and comprehension.				
The arithmetic approach incorporates the three components of math instruction: conceptual knowledge and number sense; problem solving and mathematical reasoning; basic computational and procedural skills.				
The curriculum is *guaranteed*; articulated and taught in the way it is intended to be taught.				
The curriculum is *mapped* to align curriculum across grade levels and is *viable*; effectively sequenced and paced so that the content is adequately addressed in the time available.				
The curriculum is aligned with the California Standards.				
The literacy block is prioritized and protected from interruption.				
Teachers use flexible grouping during Universal Access core instruction to maximize student performance.				
Data demonstrates that the instruction in core is meeting the needs of most students (80%).				
Administrator ensures that critical components of core curriculum are implemented, as defined by the publisher's implementation design.				
Additional strategic/supplemental (Tier 2) instruction is scheduled, protected and targeted to student(s) needs.				
There is evidence that strategic/supplemental (Tier 2) instruction is meeting the targeted instructional needs of approximately 10-15% students.				
Additional intensive instruction (Tier 3) is scheduled, protected and highly targeted to student need.				
There is evidence that intensive instruction (Tier 3) is meeting the targeted instructional needs of approximately 5% of students.				
Intensive intervention program instruction is provided within the same constructs and in accordance to program recommendations of the research environment in which it was developed:				
• Fidelity of instructional minutes/frequency				
• Fidelity of group size				
• Fidelity of instructional practices and procedures				
Administrator uses a variety of classroom observation methods and tools on a frequent basis (instructional rounds, walk-throughs, etc.).				
SCORE RANGE FOR MINIMUM FLOOR OF IMPLEMENTATION **Fidelity of Program:** 24-34				
Total: **Reflections/Comments**				

8. Staff Development and Collaboration **All school staff members are trained in assessments, data analysis, programs, and research-based instructional practices and positive behavioral strategies.** Tiers: 1, 2, 3; Essential Program Components (EPCs)1, 2, 3, 4, 5, 6, 7, 8. District Standards 6, 7.	**Ratings and comments** **Not in place** **N/0**	**Partially in place** **P/1**	**Achieved** **A/2**	**Maintained** **M/2.5**
Staff members are trained in the California RtI^2 Core Components including but not limited to:				
• RtI^2 overview				
• RtI^2 implementation procedures				
• Collaborative delivery of instruction/interventions				
• Administering universal screening measures				
• Administering universal screening data (cut scores/guidelines)				
• Diagnostic assessment				
• Formative assessment				
• The effective use of data to drive instruction				
• The adopted core curriculum (SB 472)				
• The appropriate intervention curriculum				
• The effective implementation of research based instructional strategies and interventions, including those for ELs and SWDs				
• Culturally and linguistically responsive instruction				
• The use of positive behavioral support strategies				
• The use of differentiated instruction				
• Managing small group instruction and intervention				
• Determining rate of learning				
• Parent/family engagement strategies				
Staff members are trained in the effective use of collaboration time for:				
• Analyzing data to make instructional decisions				
• Planning instruction				
• Developing instructional strategies that meet diverse learning needs				
• Collaborative decision making				
Site grade level or interdisciplinary teams use a collaborative approach to analyze student data and work together in the development, implementation, and monitoring of the intervention process.				
Staff development is linked to program evaluation data and identified student need.				
District leadership has ensured that school leaders have the tools they need to effectively collect, analyze, and publish progress monitoring data from short cycle assessments and Curriculum Based Measurements.				
SCORE RANGE FOR MINIMUM FLOOR OF FIDELITY OF **Staff Development and Collaboration:** 34-48				
Total: **Reflections/Comments**				

9. Parent/Family Involvement **The involvement and active participation of parents/families at all stages of the instructional and intervention process are essential to improving the educational outcomes of their students.** Tiers: 1, 2, 3; Essential Program Components (EPCs) 7 District Standards 4	**Ratings and comments**			
	Not in place **N/0**	**Partially in place** **P/1**	**Achieved** **A/2**	**Maintained** **M/2.5**
School community includes parents/families in a culturally-sensitive, problem solving approach to support student learning.				
Staff members utilize parent interview, questionnaires, student records, previous teachers, and all other available resources to learn about students and the factors that may contribute to their learning and/or behavior challenges.				
Parents/families are kept informed of the progress of their students in their native language or other mode of communication, and their input is used to make appropriate decisions in an understandable format.				
Parents/ families receive ongoing communication regarding students academic and behavioral progress, with early notification of difficulties their child may experience in academic and/or behavior.				
District and school RtI^2 framework and problem-solving process is widely disseminated to families and community members.				
School communicates with parents and families about problem-solving meetings and has invited them to attend meetings.				
SCORE RANGE FOR MINIMUM FLOOR OF FIDELITY OF **Parent and Family Support:** 9-12				
Total: **Comments:**				

10. Specific Learning Disability Determination **The RtI^2 approach may be one component of Specific Learning Disability determination as addressed in the Individuals with Disabilities Education Act of 2004 statute and regulations. As part of determining eligibility, the data from the RtI^2 process may be used to ensure that a student has received research-based instruction and interventions.** Tiers: 3 Essential Program Components (EPCs) 7 District Standards 2, 4	**Ratings and comments**			
	Not in place **N/0**	**Partially in place** **P/1**	**Achieved** **A/2**	**Maintained** **M/2.5**
Multi-disciplinary assessment teams use RtI^2 academic and behavioral progress monitoring data for decision making to identify patterns of strength and weakness.				
Multi-disciplinary assessment teams utilize a variety of diagnostic assessments in addition to RtI^2 data for decision making around SLD eligibility.				
Multi-disciplinary teams consider data from parents, general education teachers, team members familiar with English language development, and other specialists relevant to student's learning or behavioral needs, in the decision making process.				
The process for identifying a Specific Learning Disability includes identifying the academic areas of strength as well as need.				
The process for identifying a Specific Learning Disability includes an analysis of the types of interventions used and their relevant efficacy.				
The system for making a referral to special education includes the consideration of the implementation of increasing intensive research-based interventions over time.				
The process for identifying a Specific Learning Disability includes consideration of the student's opportunity to participate in research-based curriculum and methods implemented with fidelity.				
The process for identifying a Specific Learning Disability includes identification of the student's cognitive processing strengths and weaknesses.				
There are criteria for determining when a child's needs exceed the resources of the problem-solving team and special education eligibility is considered.				
SCORE RANGE FOR MINIMUM FLOOR OF FIDELITY OF **Specific Learning Disability Determination:** 13-18				
Total: **Reflections/Comments:**				

Page 12 (Specific Learning Disability Determination) is to be used by Ventura County "pilot sites" after first year of pilot.

Ventura County RtI^2 Implementation Action Plan

School/District:_____

Name(s) of Team Members:_____

Core Component:_____

Goal:_____

The Leadership Team should consider which areas to address first and develop the action plan to reflect the prioritized actions and timeline for implementation. The Leadership Team takes the Self-Assessment Tool data, considerations, reflections and impact on student achievement into account when selecting specific actions.

Specific Indicator & Task Activity	Person(s) Responsible	Timeline	Resources			Dates for Monitoring Progress	Evidence
			Cost	Materials	Training		

Total score (pages 2-11) range for minimum floor of fidelity = <u>178-254.</u>

Our score =_____

Acronyms:

LEAP: Local Education Agency Plan
SPSA: Single Plan for Student Achievement
Tier 1: Core/Benchmark
Tier 2: Supplemental/Targeted/Strategic
Tier 3: Intensive Intervention

District Standards:

1. Governance
2. Alignment of Curriculum, Instruction, and Assessment to State standards
3. Fiscal Operations
4. Parent and Community Involvement
5. Human Resources
6. Data Systems and Achievement Monitoring
7. Professional development

Essential Program Components (EPCs):

1. Standards-aligned instructional materials
2. Instructional time
3. Lesson pacing guide
4. School administrator instructional leadership training
5. Credentialed teachers and professional development opportunity
6. Ongoing instructional assistance and support for teachers
7. Student achievement monitoring system
8. Monthly collaboration by grade level or program level for teachers
9. Fiscal support

Section 7

Evaluation Planning as a Team

Evaluation Planning as a Team

Completing a multidisciplinary assessment requires that highly trained team members from multiple disciplines be involved in the evaluation process. It also necessitates that those team members consider multiple sources of data related to the reason for referral. In the early stages, teams must take into consideration the information and data that they have gathered related to the student and determine which team members from which disciplines should be involved in the evaluation in order to develop an assessment plan.

Once the decision is made to consider eligibility for SLD and an assessment plan is signed, the team has additional opportunities to work together collaboratively. Based on reason for referral, observations, record reviews, interviews and other relevant information gathered, an assessment team will begin to form a working hypothesis as to what specific areas require further evaluation (e.g. individual processing and academic areas, adaptive skills, social-emotional domains, etc.) (Eugene, 2010).

It is recommended that all team members communicate with each other early in the process, and carve out time to plan which professional will complete which portion(s) of the assessment. They will look for signs that indicate a student's potential strengths and weaknesses, which will assist relevant team members in determining which assessment tools should be used to investigate these areas (Cristo, 2010). It may be helpful to utilize the Comprehensive Matrix of Processing- Achievement Relations, Evaluating Significance (COMPARES) (see Evaluating Processing Strengths and Weaknesses section) in the team planning process. This tool may assist teams in documenting which psychological processing areas are strongly linked by research to the academic area(s) of concern and in hypothesizing areas of potential processing weaknesses. Conversely, teams can document which processing areas may be potential areas of strength. The SLD Planning Worksheets for Multi-Disciplinary Assessment Teams (see this section of the manual) can assist practitioners in planning a focused assessment.

It should be noted that there may be times when an individual team member determines that further investigation into additional processing or academic areas is warranted, given their preliminary assessment results. In this scenario, it would be helpful to communicate this information to other team members.

Planning time will be well spent, as it will help to ensure that all relevant areas are investigated, while decreasing the likelihood that team members from different disciplines duplicate or over test the same areas unnecessarily (e.g. school psychologist and speech-language pathologist both assessing auditory memory). Completing a thorough evaluation will also help assessment teams to reduce the likelihood of identifying students with SLD when they do not have a true specific learning disability (Type I Errors) (Hanson et al., 2009).

After team members have compiled assessment data, it is important that all relevant information is analyzed. While analysis may involve a variety of methods, software to evaluate processing strengths and weaknesses may be helpful in uncovering patterns in a student's scores. (See section of manual related to PSW approaches and supporting software.) Many practitioners have found that holding an Assessment Integration Conference (an informal conference prior to the IEP meeting to review the assessment data) has been an extremely beneficial approach to accomplishing this task.

It is imperative that teams be fluent in their understanding of what each assessment tool measures. They must also be able to apply their findings, consider ecological validity of any findings, and come to a logical conclusion regarding eligibility recommendations based on statistics and valid reasoning (Hanson et al., 2009). In addition to examining the numbers, Suhr (2008) notes that more is required when making decisions regarding SLD eligibility:

> Extensive and integrated psychological assessment training is well beyond simply learning to administer tests in a standardized fashion and following the manual to score them and look for statistical discrepancies. It requires that information gathered through behavioral observation, collateral reports, school records, medical and neurological records, and administration of standardized tests be integrated and applied, based on psychological and neuropsychological science, to test patterns seen in a given evaluation. (p.114)

It is vital that assessment team members carefully consider exclusionary factors and the definition of SLD as part of their analysis before making statements regarding eligibility (see "What SLD is and What it is Not" and "Exclusionary Factors" sections of this manual). Keeping these elements in mind is key to an accurate, integrated, and thorough analysis.

While not required, many assessment teams have found that presenting assessment results in one, combined multidisciplinary assessment report is a logical and useful format for communicating findings. This method assists the reader in understanding the student's individual strengths and/or weaknesses across various domains, and how they relate to the conceptualization of an SLD. It may also prove to be a beneficial method for teams to communicate their collective recommendations to the IEP team (See Ventura County SELPA Assessment Report Template).

Using the PSW model for the purpose of evaluating a student for SLD eligibility creates an opportunity for assessment teams to work together in a purposeful, efficient and meaningful way. Planning, communication and teamwork are essential to the success of a comprehensive and valid assessment.

*Please see the Ventura County SELPA website for planning worksheets specific to the Cross Battery: Dual Discrepancy/Consistency Method and Dehn assessment approaches.

SLD Planning Worksheet for Multidisciplinary Assessment Teams
Using Cross Battery Assessment (XBA)

Student Name	
IEP Due Date	
Proposed Assessment Integration Conference Date	
Proposed IEP Date	
Is the student an English Learner?	

Reason for Referral:

Taking into consideration the information from record reviews, observations, etc., as well as utilizing the COMPARES* document, indicate which of the seven (7) CHC broad areas you believe may be strengths (S) or weaknesses (W) for this student. Include other areas of concern, if needed.

S	W	Fluid Reasoning (Gf)
S	W	Crystalized Knowledge (Gc)
S	W	Long-Term Memory (Glr)
S	W	Short-Term Memory (Gsm)
S	W	Visual Processing (Gv)
S	W	Auditory Processing (Ga)
S	W	Processing Speed (Gs)

*Comprehensive Organizational Matrix of Processing-Achievement Relations, Evaluating Significance

Cross Battery Assessment Tips

- Remember to assess in all seven CHC Broad Abilities, including a minimum of two (2) subtests for each of the seven broad abilities. Best practices indicate that these 2 subtests should come from qualitatively different narrow abilities.
- If reading decoding is a reason for referral, consider assessing orthographic processing.
- If speech and language skills are also being evaluated, consider collaborating with the SLP to determine if any of the assessment tools being administered will assess CHC abilities.
- Consider the cohesion of subtests within broad ability categories to determine if additional subtests may be needed to interpret broad area score.
- See CHC Broad and Narrow Ability Classifications table from the Cross-Battery Assessment Software System (X-BASS®) (Flanagan, Ortiz & Alfonso, 2015).

Planning Checklist

Assessment Category	Assessment Area	Assess Area? √	Who Completes?	Tools/ Subtests to Use
Observations	Observation 1			
	Observation 2 (optional)			
Processing: CHC Broad Abilities	Fluid Reasoning (Gf)			
	Crystalized Knowledge (Gc)			
	Long-Term Memory (Glr)			
	Short-Term Memory (Gsm)			
	Visual Processing (Gv)			
	Auditory Processing (Ga)			
	Processing Speed (Gs)			
Optional Processing Areas	Orthographic Processing			
	Cognitive Efficiency			
	Learning Efficiency			
	Retrieval Fluency			
	Sensorimotor			
	Attention			
	Executive Functioning			
Academic Areas	Oral Expression			
	Listening Comprehension			
	Written Expression			
	Basic Reading Skills			
	Reading Fluency			
	Reading Comprehension			
	Math Calculation			
	Math Problem Solving			
Other Areas to Assess				

SLD Planning Worksheet for Multidisciplinary Assessment Teams
Using Dehn's Processing Strengths & Weaknesses Model

Student Name	
IEP Due Date	
Proposed Assessment Integration Conference Date	
Proposed IEP Date	
Is the student an English Learner?	

Reason for Referral:

Taking into consideration the information from record reviews, observations, etc., as well as utilizing the COMPARES* document, indicate which of the areas you believe may be strengths (S) or weaknesses (W) for this student. Include other areas of concern, if needed.

S	W	Attention	S	W	Oral Language
S	W	Auditory Processing	S	W	Orthographic Processing
S	W	Executive Functions	S	W	Phonological Processing
S	W	Fine Motor	S	W	Processing Speed
S	W	Fluid Reasoning	S	W	Visual-Spatial Processing
S	W	Verbal Long-Term Recall	S	W	Verbal Working Memory
S	W	Visual-Spatial Long-Term Recall	S	W	Visual-Spatial Working Memory

*Comprehensive Organizational Matrix of Processing-Achievement Relations, Evaluating Significance

Dehn's PSW Model Assessment Tips

- Remember that you are NOT required to assess in all fourteen (14) areas.
- Crystallized intelligence is not emphasized as a processing area.
- You are encouraged to examine Dehn's processing clusters that are discussed on pages 46 and 246 within his Essentials book.
- Working memory is a core cognitive process in Dr. Dehn's approach.
- If speech and language skills are also being evaluated, consider collaborating with the SLP to determine if any of the assessment tools being administered will assess the 14 areas.

Planning Checklist

Assessment Category	Assessment Area	Assess Area? √	Who Completes?	Tools/ Subtests to Use
Observations	Observation 1			
	Observation 2 (optional)			
Cognitive Processing Areas	Attention			
	Auditory Processing			
	Executive Functions			
	Fine Motor			
	Fluid Reasoning			
	Verbal Long-Term Recall			
	Visual-Spatial Long-Term Recall			
	Oral Language			
	Orthographic Processing			
	Phonological Processing			
	Processing Speed			
	Visual-Spatial Process			
	Verbal Working Memory			
	Visual-Spatial Working Memory			
Academic Areas	Basic Reading Skills			
	Reading Fluency			
	Reading Comprehension			
	Math Calculation			
	Math Problem Solving			
	Written Expression			
	Oral Expression			
	Listening Comprehension			
Other Areas to Assess				

Section 8

Evaluating Academic Strengths and Weaknesses

Evaluating Academic Strengths and Weaknesses

When evaluating a student for SLD identification, the team must determine that a student demonstrates a weakness in one or more of the following academic areas (CCR Title 5 Section 3030 (b)(10)):

1. basic reading skills
2. reading fluency skills
3. reading comprehension
4. written expression
5. math calculation
6. math reasoning/problem solving
7. listening comprehension and/ or
8. oral expression.

In determining whether a student possesses an academic weakness, the team gathers multiple sources of information in regard to academic performance. For Special Education eligibility purposes, a student must demonstrate a history of a weakness in one or more of the eight academic areas listed above as demonstrated by documentation from all of the sources listed below:

1. Norm-referenced standardized academic assessments (e.g. Woodcock Johnson Tests of Achievement)
2. A minimum of three (3) of the following:
    a. Grade level assessments
    b. Grades
    c. Work samples
    d. Progress Monitoring data
    e. Progress towards IEP goals (available for triennial assessments)
3. Experienced team members' observations of student performance.

When examining data from standardized academic achievement tests, an assessment team should not rely on a single test score for eligibility determination. Multiple standardized achievement tests should corroborate a specific area of academic need. In addition to the comprehensive academic achievement test, assessment teams can administer other achievement tests to support the low score(s). Refer to the Academic Assessment tools list found within this section for information about the variety of common assessment tools that assess each of the eight academic areas.

Standard scores for most achievement tests are based upon norms that are either age-based or grade-based. Typically grade-based scores are based upon semester (fall, winter, or spring) norms for grades pre-K through 12. Selecting age-based or grade-based scores determines the peer group with which the student's performance is compared. If a student's achievement scores are being compared to his/her cognitive scores, then age-based norms should be used for the achievement scores (since aged-based norms are used for cognitive scores). However, if a student is outside of the typical age range for his/her grade level (e.g., a student that has been retained), then grade-based norms should be utilized.

Guidelines for Cut-off Scores

The table below contains guidelines that assessment teams could use to assist in decision making for identification of academic strengths and weaknesses. No one data source should be used in decision making. In addition, academic assessment information is only one part of the identification process for students found eligible under the category of Specific Learning Disability.

Academic Assessment Type	Strength	Weakness
Standardized Academic Achievement Test	General Guidelines * ≥25th %ile	General Guidelines * ≤10th %ile
Additional Academic Data: (Work Samples, Grades, Grade Level Assessments, Progress Monitoring (PM) Data, CBM, Progress on Goals, etc.)	At "benchmark" level or above grade-level when compared to the norm of the class/grade level Scores/Grades 70% or greater Meeting/Exceeding aimline or intervention plan Refer to the guidelines outlined for the progress monitoring program	At "at-risk" level or below when compared to the norm of the class/grade level Scores/Grades 69% or below Falling below intervention plan aimline for at least four consecutive data points on most recent probes Refer to the guidelines outlined for the progress monitoring program
Observation of Student	Observations demonstrate average or above average achievement in comparison to other students in classroom. Examples of observation documents are located in the Academic reference section.	Observations demonstrate below average achievement in comparison to other students in classroom. Examples of observation documents are located in the Academic reference section.

*Please refer to the specific assessment approach (XBA or DPSWM) for more specific information regarding cut-off scores

Academic Assessment Tools

(Standardized, Norm-Referenced)

DOMAIN	TEST	SUBTESTS
Oral Expression	WIAT-III	Expressive Vocabulary Oral Word Fluency Sentence Repetition
	KTEA-III	Oral Expression
	WJ-IV Oral Language	Sentence Repetition Picture Vocabulary
Listening Comprehension	WIAT-III	Receptive Vocabulary Oral Discourse Comprehension
	WJ-IV Oral Language	Oral Comprehension Understanding Directions
	KTEA-III	Listening Comprehension
	Woodcock Reading Mastery Test	Listening Comprehension
Written Expression	WIAT-III	Alphabet Writing Fluency (grades 1-3) Spelling *(included in composite score)* Essay Composition (grades 3-12) Sentence Composition
	WJ-IV	Sentence Writing Fluency Writing Samples Spelling *(included in composite score)*
	KTEA-III	Written Expression Spelling *(included in composite score)*
	PIAT-R / NU	Written Expression Spelling *(included in composite score)*
	TOWL-4	Vocabulary Spelling Punctuation Logical Sentences Sentence Combining Contextual Conventions Story Composition

DOMAIN	TEST	SUBTESTS
Basic Reading Skills	WIAT-III	Early Reading Skills (grades 1-3) Word Reading Pseudoword Decoding
	WJ-IV	Letter Word Identification Word Attack
	KTEA-III	Letter Word Recognition Phonological Awareness Nonsense Word Decoding
	PIAT-R / NU	Reading Recognition
	Test of Word Reading Efficiency (TOWRE)	Sight Word Efficiency Phonetic Decoding Efficiency
	Woodcock Reading Mastery Test	Phonological Awareness Letter Identification Word Identification Word Attack
	WRAT-4	Word Reading
	PAL-II	Pseudoword Decoding Morphological Decoding Find the True Fixes Sentence Sense
	Feifer Assessment of Reading (FAR)	Nonsense word decoding
Reading Fluency	WIAT-III	Oral Reading Fluency
	WJ-IV	Sentence Reading Fluency Oral Reading Word Reading Fluency
	KTEA-III	Word Recognition Fluency Decoding Fluency Silent Reading Fluency
	Grey Oral Reading	*Scores for rate /accuracy / fluency*
	Woodcock Reading Mastery Test	Oral Reading Fluency
	Test of Silent Word Reading Fluency	*Scores for word reading fluency*

	Feifer Assessment of Reading (FAR)	Isolated Word Reading Fluency Oral Reading Fluency Irregular Word Reading Fluency Silent Reading Fluency

DOMAIN	TEST	SUBTESTS
Reading Comprehension	WIAT-III	Reading Comprehension
	WJ-IV	Passage Comprehension Reading Vocabulary *Reading Recall*
	KTEA-III	Reading Comprehension Reading Vocabulary
	PIAT-R / NU	Reading Comprehension
	Woodcock Reading Mastery Test	Passage Comprehension Word Comprehension
	Grey Oral Reading	*Scores for Comprehension*
	Test of Reading Comprehension TORC-4	Relational Vocabulary Sentence Completion Paragraph Construction Text Comprehension Contextual Fluency
	WRAT-4	Sentence Comprehension
	Test of Irregular Word Reading Efficiency	*Uses irregular words to test for vocabulary / comprehension*
	PAL-II	Sentence Sense
	Feifer Assessment of Reading (FAR)	Silent Reading Fluency: Comprehension

Math Calculation	WIAT-III	Numerical Operations Math Fluency- Addition, Subtraction, Multiplication
	WJ-IV	Math Calculation Math Facts Fluency
	KTEA-III	Math Computation
	Keymath	Operations (3 subtests)
	WRAT-4	Math Computation

	Test of Mathematical Abilities (TOMA-3)	Computation Math in Everyday Life
	Test of Early Mathematics Ability (TEMA-3)	Numeracy Number Facts Calculation
	Feifer Assessment of Math (FAM)	Addition Fluency Addition Knowledge Backward Number Count Division Fluency Division Knowledge Forward Number Count Multiplication Fluency Multiplication Knowledge Object Counting Subtraction Fluency Subtraction Knowledge

DOMAIN	TEST	SUBTESTS
Math Problem Solving	WIAT-III	Math Problem Solving
	WJ-IV	Applied Problems Number Matrices
	PIAT-R / NU	Mathematics
	Keymath	Concepts (5 subtests) Foundations of Problem Solving Applied Problem Solving
	Test of Mathematical Abilities (TOMA-3)	Mathematical Symbols and Concepts Word Problems
	Test of Early Mathematics Ability (TEMA-3)	Math Concepts
	KTEA-III	Math Concepts and Applications
	Feifer Assessment of Math (FAM)	Equation Building Sequences

*Note: Curriculum Associates has developed a standardized version of the Brigance Comprehensive Inventory: "The **BRIGANCE CIBS II Standardized** features reading, writing, and math standardized assessments in one convenient inventory "(curriculumassociates.com)". The website currently does not provide information on specific domains/subtests.*

Observation Checklists

Intended Use: Assessment teams may find the following academic checklists useful when completing their assessments. There are 6 checklists below, which can be used individually or combined, dependent upon the referral question. Assessment teams may utilize these checklists during classroom observations, teacher/parent interviews, or during assessment analysis.

Basic Reading Skills (BRS)

Hypothesized Indicator descriptions (check to right if description applies)	Check
Difficulty in single-word decoding	
Problems with letter sound correspondence	
Problem naming all the letters of the alphabet	
Problems blending two or more sounds	
Difficulty identifying that two words rhyme	
Frequent mispronunciation of age-appropriate words	
Failure to identify the starting letters of own name	
Failure to identify the initial phoneme of own name	
Frequent long pauses between words	
Makes wild guesses at unfamiliar words without sounding	
Avoidance or behavior problems when asked to read	
Spelling that demonstrates pre-phonetic relationships or no phonetic relationship	
Higher skill development in areas that are not dependent on reading	

Reading Fluency (RF)

Hypothesized Indicator descriptions (check to right if description applies)	Check Accuracy *	Check Fluency
Problems accurately identifying individual letters		
Problems quickly associating a letter with a sound		
Increased effort when naming letters		
Substitution of words		
Difficulty using context to correctly identify words		
Frequent pauses in between words in connected text		
Frequently guesses at words		
Makes careless errors		
Difficulty reading simple connecting or function words such as *that, an, in, the, etc.*		
Oral reading that is choppy or dysfluent		
Missing phonemes in the middle or end of words		
Problems with reading words in isolation		
Inability to finish reading tasks or tests in a reasonable amount of time		

*If accuracy issues are the primary problem, consider Basic Reading Skills (BRS) domain

Adapted from: Eugene 4J Working Hypothesis Statements.pdf (rev. 5/12/11)

Reading Comprehension (RC)

Hypothesized Indicator descriptions (check to right if description applies)	Check
Difficulty understanding oral directions at an age/grade appropriate level	
Uses imprecise vocabulary	
Trouble remembering what was read	
Difficulty retelling a story	
Problems defining vocabulary	
Trouble recalling relevant detail from a passage	
Difficulty retelling a sequence of consecutive actions	
Problems drawing an accurate picture from an age appropriate orally presented story	
Problems with cloze or maze reading tasks	
Difficulty providing possible outcomes in a given unfinished story	
Problems identifying inconsistencies in a contrived story	
Problems sorting and sequencing randomized sentences from the same story (story anagram)	
Difficulty with inference tasks (providing missing elements, elaboration on detail, etc.)	

Math Calculations (MC)

Hypothesized Indicator descriptions (check to right if description applies)	Conceptual	Procedural
Problems accurately identifying individual numbers		
Problems with rapid number identification		
Early delays in counting objects or object sets		
Errors in regrouping process		
Require excessive repetition of math facts for learning		
Difficulty retaining instructions for solving math problems		
Delayed associations between amounts shown and corresponding number		
Uses inefficient or ineffective strategies when solving simple problems		
Makes ‘careless’ errors on computations		
Lack of understanding of concepts underlying use of certain procedures		
Difficulty with comparisons of quantity, volume, or other measures		
Uses less mature procedures for computations (finger counting, hash marks, etc.)		
Problems with sequence or order in computations		
Delayed response times on simple counting or computations		
Delayed reading development or poor phonemic awareness		

Adapted from: Eugene 4J Working Hypothesis Statements.pdf (rev. 5/12/11)

Math Problem Solving (MPS)

Hypothesized Indicator descriptions (check to right if description applies)	Conceptual/Semantic	Procedural
Difficulty understanding the task expectations in math problems		
Problems developing estimation skills		
Fails to identify wildly inaccurate results		
Confuses operations identified by quantitative words (sum, difference, etc.)		
Trouble retaining process for common algorithms		
Difficulty explaining verbally how an answer was derived		
Errors in the order of computations applied to a problem-solving task		
Problems disregarding irrelevant items/numbers in word problems		
Problems with basic computations even when using a calculator		
More anxious when approaching math in context of story problems		
Difficulties with regrouping		
Takes excessive time to solve problems		
Uses immature strategies such as finger counting or hash marks		

Written Expression (WE)

Hypothesized Indicator descriptions (check to right if description applies)	Type 1	Type 2
Poor narrative (consistent style, point of view, etc.)		
Poor spelling (phonological, additional syllables, etc.)		
Limited use of punctuation, incorrect punctuation		
Demonstrates poor grammatical structure (verb tense, subject verb agreement, etc.)		
Uses poor semantics (words with wrong meaning)		
Poor letter formation		
Poor descriptive quality		
Poor organization		
Poor visual format (spacing, paragraphs, indentation, margins, etc.)		
Incorrect or missing capitalizations		
Does not correct mistakes (revising for content, mechanics, etc.)		
Problems with vocabulary (age appropriate words, descriptive, imaginative)		
Poor decoding/reading skills		

_ Type 1: Primarily composition, content, and expression
_ Type 2: Primarily spelling, motor, and mechanical
_ Combination of both types

Adapted from: Eugene 4J Working Hypothesis Statements.pdf (rev. 5/12/11)

Section 9

Evaluating Processing Strengths and Weaknesses

Evaluating Processing Strengths and Weaknesses

The Ventura County SELPA PSW Assessment Model allows for the use of two research-based assessment methods to assist assessment teams in determining if a pattern of processing strengths and weaknesses exists within a student suspected of having a specific learning disability. These two methods are Cross Battery: Dual Discrepancy/Consistency Method (XBA:DD/C) (Flanagan et al., 2013) and Dehn's Processing Strengths and Weaknesses Model (DPSWM) (Dehn, 2014a).

While there are subtle differences in the above mentioned assessment approaches, both have key similarities that align with the Ventura County SELPA PSW Assessment Model requirements. Both approaches:

- rely on substantial bodies of empirical research to support their analysis;
- use data from multiple assessment measures to draw conclusions about a student's processing strengths and weaknesses;
- do not require a Full Scale IQ score (with the exception of when a team is ruling out an intellectual disability);
- require assessment teams to link suspected deficit(s) in specific processing area(s) to the specific area(s) of academic deficits (see Comprehensive Organizational Matrix of Processing-Achievement Relations, Evaluating Significance (COMPARES) to assist with this process);
- require that individuals with an SLD demonstrate an Otherwise Normal Cognitive Ability Profile (ONCAP).

As mentioned previously, when analyzing a student's processing strengths and weaknesses, a student who is being considered for SLD eligibility should possess an Otherwise Normal Cognitive Ability Profile (ONCAP). It should be clear that the student exhibits a pattern of strengths that indicates average or above average functioning that would allow the student to learn compensatory strategies and apply them independently (Flanagan et al., 2013). This should not be confused with a general learning difficulty which typically manifests itself in weaknesses across all or most processing and academic areas (See Differentiating an Intellectual Disability (ID), General Learning Difficulty (GLD) and a Specific Learning Disability (SLD) within SLD Definitions Section). Both assessment approaches provide the assessment team with information on establishing ONCAP.

Once ONCAP is established, further analysis is required. The Ventura County SELPA PSW Assessment Model does not identify specific cut-off scores or percentile ranks to determine strengths and weaknesses. With the acknowledgment that each individual student is unique, however, both XBA and DPSWM methods utilize software programs that assist assessment teams in determining a student's strengths and weaknesses based on his or her personal profile. Most students eligible under the Ventura County PSW Assessment Model will also possess normative weakness(es) (i.e. below the 10^{th}-15^{th} percentile). However, the model also acknowledges that there may be times when a student who possesses many processing strengths above the average range may fit the profile of a student with a pattern of strengths and weaknesses. In these rare cases, an assessment team would want to carefully consider whether this student requires special education services to access the core curriculum.

Whether assessment teams utilize a XBA or DPSWM approach as part of their analysis, there may be times when it is clear that the student possesses ONCAP and exhibits a strong pattern of processing strengths and weaknesses. Other times, this pattern may not be as evident. If there is any doubt, it is recommended that the software linked with the approach chosen by the team be used as part of the decision-making process.

Cross Battery: Dual Discrepancy/Consistency Method (XBA:DD/C)

Overview

The Dual Discrepancy/Consistency Method

SLD is a discrete condition differentiated from generalized learning failure by generally average cognitive ability (or better) and a learning skill profile exhibiting significant variability indicating cognitive processing and ability areas of strength and weakness. The Dual Discrepancy/Consistency (DD/C) method proposed by Flanagan and her colleagues (e.g., Flanagan, Ortiz, and Alfonso, 2013; Flanagan, Oritz, Alfonso, & Mascolo, 2002) is designed to identify SLD in accordance with this definition.

The DD/C method identifies specific discrepancies and consistencies that correspond with what is known about the SLD construct (Flanagan & Alfonso, 2011).

- In students with SLD, there exists an empirical or otherwise clearly demonstrable and meaningful relationship, or ***consistency***, between the cognitive and academic weaknesses (or deficits).
- This consistency typically co-occurs with a number of cognitive strengths (not just one), suggesting generally average ability to think and reason.
- In the DD/C method, statistically significant and clinically meaningful ***discrepancies*** between (1) cognitive strengths and the respective areas of cognitive weaknesses as well as between (2) cognitive strengths and academic weaknesses are identified, which constitute the two discrepancies in the DD/C method.

This approach, which is based not only upon the Cattell-Horn-Carroll (CHC) theory but also on current neuropsychological processing concepts, allows assessors to use traditional stand-alone ability assessments and additional cognitive, achievement, and neuropsychological subtests across batteries to more exactly and reliably determine individual needs and targeted interventions (Flanagan, Ortiz, Alfonso, 2013).

Seven broad abilities are encouraged to be examined in the comprehensive assessment for SLD identification; additional broad abilities can also be examined. Information regarding these specific seven broad abilities and their corresponding narrow abilities can be found in the most recent edition of the Essentials book (Flanagan, Ortiz, Alfonso, 2013). The seven broad abilities are:

1. Crystallized Intelligence
2. Fluid Reasoning
3. Long-Term Storage and Retrieval
4. Short-Term Memory
5. Visual Processing
6. Auditory Processing
7. Processing Speed

The DD/C pattern of cognitive and academic strengths and weaknesses is more psychometrically sophisticated, descriptive, and informative than the traditional ability–achievement discrepancy pattern and is more in line with the SLD construct.

Readers are strongly encouraged to read the authors' Essentials book and obtain the most up-to-date software when utilizing the DD/C method. Additional training on the XBA methodology can be found on the School Neuropsychology website at www.schoolneuropsych.com

Seven Core Broad Abilities	Narrow Abilities	Assessment Tools
Crystallized Knowledge (Gc) is defined as the depth and breadth of knowledge and skills that are valued by one's culture. It includes the ability to use speech to communicate thoughts clearly as well as general understanding of spoken language.	KO--*General (verbal) Information:* The range of general knowledge.	
	LD--*Language Development*: General development or understanding of words, sentences, and paragraphs in spoken language.	
	VL--*Lexical Knowledge*: The extent of vocabulary in terms of correct word meanings.	
	LS--*Listening Ability:* The ability to listen and comprehend oral communications.	
	CM--*Communication Ability*: The ability to speak in 'real life' situations in an adult-like manner.	
	MY--*Grammatical Sensitivity*: Knowledge or awareness of the grammatical features of language.	
Fluid Reasoning (Gf) is the deliberate but flexible control of attention to solve novel, on-the-spot problems that cannot be performed by relying exclusively on previously learned habits, schemas, and scripts.	I--*Induction*: The ability to discover the underlying rule, concept, etc. that govern a problem.	
	RG--*General Sequential Reasoning*: The ability to start with stated rules, premises, or conditions, and to engage in one or more steps to solve a novel problem (also referred to as *deduction*).	
	RQ--*Quantitative Reasoning*: The ability to inductively and deductively reason with concepts involving math relations and properties.	
Long-term Storage and Retrieval (Glr) refers to the ability to store, consolidate, and retrieve information over periods of time measured in minutes, hours, days and years.	MA--*Associative Memory:* The ability to recall one part of a previously learned but unrelated pair of items when the other part is presented.	
	MM -*Meaningful Memory*: The ability to recall items with a meaningful relation or the items comprise a meaningful story or connected discourse.	
	M6-*Free Recall Memory*: Ability to recall as many unrelated items as possible, in any order, after a large collection of items is presented.	
	FI--*Ideational Fluency*: The ability to produce a series of related ideas, words, etc.	

Seven Core Broad Abilities	Narrow Abilities	Assessment Tools
	FF--*Figural Fluency*: The ability to draw examples when given a starting example or description.	
	NA--*Naming Facility*: Ability to rapidly produce names for concepts when presented with a pictorial or verbal cue (RAN).	
	FW--*Word Fluency*: Ability to rapidly produce words that have specific phonemic, structural, or orthographic characteristics (independent of word meaning).	
Short-term Memory (Gsm) is the ability to encode, maintain, and manipulate information in one' immediate awareness. Short-term memory includes both memory span and working memory skills.	MS--*Memory Span*: The ability to attend to, and immediately recall elements in the correct order.	
	WM--*Working Memory*: The ability to temporarily store and perform operations on information that requires divided attention and the management of limited capacity of short term memory.	
Visual Processing (Gv) is the ability to make use of simulated mental imagery to solve problems.	Vz--*Visualization*: The ability to mentally manipulate objects or patterns.	
	SR—*Speeded Rotation*: The ability to solve problems quickly using mental rotation of simple images.	
	CS--*Closure Speed*: The ability to quickly combine disconnected visual information into a meaningful whole.	
	MV--*Visual Memory:* The ability to store visual information and recall it later.	
	SS--*Spatial Scanning:* The ability to survey a pattern and identify a path through that pattern.	
	CF--*Flexibility of Closure*: The ability to identify a visual pattern embedded within a complex visual array.	
Auditory Processing (Ga) is the ability to detect and process	PC--*Phonetic Coding* The ability to cod, process and be sensitive to the nuances in phonetic information (speech sounds) in short term memory.	

Seven Core Broad Abilities	Narrow Abilities	Assessment Tools
meaningful nonverbal information in sound.	Includes the ability to identify, isolate, blend or transform sounds of speech.	
	U1/9--*Musical Discrimination and Judgment*: Ability to discriminate and judge tonal patterns in music with respect to melodic, harmonic, and expressive aspects (e.g., phrasing, tempo, intensity variations).	
	UR--*Resistance to Auditory Stimulus Distortion*: The ability to understand speech that has been distorted.	
	UL--*Sound Localization:* The ability to localize heard sounds in space.	
	US--*Speech Sound Discrimination*: The ability to detect differences in speech sounds under conditions of little distraction or distortion.	
Processing Speed (Gs) is the ability to perform simple, repetitive cognitive tasks quickly and fluently.	P--*Perceptual Speed*: Ability to rapidly search for and compare known visual symbols or patterns presented side-by side or separated in a visual field.	
	N--*Number Facility*: Ability to rapidly and accurately manipulate and deal with numbers, from elementary skills to advanced skills.	

		Assessment Tools
Optional Processing Areas *(this list is not comprehensive. See XBASS Software* for more information on additional processing areas)	Learning Efficiency (LE) comprises Meaningful Memory, Associative Memory, and Free Recall Memory.	
	Orthographic Processing (OP) involves using the visual system to form, store, and recall words.	
	Retrieval Fluency (RF) refers to the ability to rapidly and fluently retrieve words from an individual's lexicon: verbal efficiency or automaticity of lexical access. This is comprised of Ideational Fluency and Naming Facility.	
	Cognitive Efficiency (CE) refers to the ability to process information automatically.	

Dehn's Processing Strengths and Weaknesses Model (DPSWM) Overview

Dehn's Processing Strengths and Weaknesses Model (DPSWM)

Dehn's PSW Model is built off of theoretical principals, theories, and research originating from cognitive psychology, educational psychology, and neuroscience. Scholastic learning and performance depend primarily on a subset of psychological processes known as cognitive processes. Significant weaknesses or deficits in one or more cognitive processes will create learning challenges and often result in a specific learning disability (SLD).

The complexity of neuropsychological processing makes it difficult to identify and assess discrete processes. Furthermore, completion of any given task requires the interaction of numerous processes. The list of processes recommended for a learning disability assessment (see below) has also been restricted to those that have strong evidence-based relations with the acquisition of specific academic skills. The list excludes skills and abilities that are primarily the product of processing, such as verbal or crystallized abilities. The subsequent table displays the processes that have the strongest relations with specific academic skills.

The model focuses on key neuropsychological processes that function as aptitudes for specific academic skills. The processing areas indicated are:

- Attention
- Auditory Processing
- Executive Functions
- Fine Motor Processing
- Fluid Reasoning
- Long-Term Recall
    - Verbal Long-Term Recall
    - Visual-Spatial Long-Term Recall
- Oral Language Processing
- Orthographic Processing
- Phonological Processing
- Processing Speed
- Visual-Spatial Processing
- Working Memory
    - Verbal Working Memory
    - Visual-Spatial Working Memory

Selective testing is conducted by developing a hypothesis of the involving psychological processes, selecting only those subtests that are needed to measure the processes and skills under consideration, and utilizing a cross-battery approach in the selection of composites and subtests required to assess the chosen processes (Dehn, 2014).

In Dehn's PSW model, there is support for a diagnosis of SLD when all the following occur:

- At least one psychological process is identified as an intra-individual weakness or as a deficit. (A deficit is defined as a process score that is both below average and an intra-individual weakness.)
- The intra-individual weaknesses are statistically significant.
- Intra-individual weaknesses with nonunitary subtest scores should not be used to diagnose a disability.
- There is at least one processing strength. Ideally, there should be a statistically significant intra-individual strength, but a processing score within the average range may be considered a strength.

- The processing intra-individual weakness or deficit must have a strong research-based relation with the deficient academic skill being considered for SLD (see Table 3).
- There should be consistency between the process score(s) of the intra-individual weakness or deficit and the related deficient achievement score. That is, they should both be low scores, or the process score could be lower than the related achievement score.

Readers are strongly encouraged to read the author's Essentials book and obtain the most up-to-date software when utilizing this method. Additional information can also be obtained from a webinar, which can be purchased from his website: www.schoolhouseeducationalservices.com

Table 3 Psychological Processes Significantly Related With Types of Academic Learning

Basic Reading Skills	Reading Fluency	Reading Comprehension	Mathematics Calculation	Mathematics Problem Solving	Written Language	Oral Expression	Listening Comprehension
			Attention		Attention		
Auditory Processing		Auditory Processing			Auditory Processing		Auditory Processing
		Executive Functions	Executive Functions	Executive Functions	Executive Functions	Executive Functions	Executive Functions
					Fine Motor		
		Fluid Reasoning	Fluid Reasoning	Fluid Reasoning			
Verbal Long-Term Recall	Verbal Long-Term Recall	Verbal Long-Term Recall	Verbal Long-Term Recall	Verbal Long-Term Recall	Verbal Long-Term Recall	Verbal Long-Term Recall	
Visual-Spatial Long-Term Recall	Visual-Spatial Long-Term Recall	Visual-Spatial Long-Term Recall	Visual-Spatial Long-Term Recall	Visual-Spatial Long-Term Recall			
Oral Language		Oral Language		Oral Language	Oral Language	Oral Language	Oral Language
Phonological Processing	Phonological Processing				Phonological Processing	Phonological Processing	Phonological Processing
Processing Speed	Processing Speed		Processing Speed	Processing Speed	Processing Speed	Processing Speed	Processing Speed
			Visual-Spatial Processing				
Verbal Working Memory		Verbal Working Memory	Verbal Working Memory	Verbal Working Memory	Verbal Working Memory	Verbal Working Memory	Verbal Working Memory
		Visual-Spatial Working Memory	Visual-Spatial Working Memory	Visual-Spatial Working Memory			

Processing Area & Definition	**Assessment Tools You Have Access To**	**Assessment Tools You May Want to Review**
Attention includes self-inhibitory processes that allow one to focus, sustain, and divide attention.		
Auditory Processing consists of the processes involved in perceiving, analyzing, synthesizing, and discriminating speech and other auditory stimuli.		
Executive Functions regulate behavior and cognitive functions during purposeful, goal-directed, problem-solving.		
Fine Motor processes, such as motor planning, are involved in the control and coordination of small muscle movements that occur in the fingers.		
Fluid Reasoning includes problem solving and deductive and inductive reasoning.		
Verbal Long-Term Recall is the delayed recall of new verbal learning and the efficient retrieval of previously acquired verbal knowledge.		
Visual-Spatial Long-Term Memory is the delayed recall of new visual-spatial learning.		
Oral Language includes the linguistic processes that allow one to communicate effectively, such as the ability to construct meaningful sentences.		

Processing Area & Definition	**Assessment Tools You Have Access To**	**Assessment Tools You May Want to Review**
Orthographic Processing is the ability to visually recognize and remember printed words and parts of words. It includes the ability to recognize letter sequences and patterns and to spell phonetically irregular words.		
Phonological Processing involves the awareness and manipulation of phonemes, the smallest units of speech that are used to form syllables and words.		
Processing Speed is how quickly information is processed and how efficiently simple cognitive tasks are executed over a sustained period of time.		
Visual-Spatial Processing is the ability to perceive, analyze, synthesize, manipulate, and transform visual patterns and images, including those generated internally. The visual aspect applies to processing static characteristics of an image. The spatial component processes location and movement.		
Verbal Working Memory manipulates and transforms verbal information that is being held in short-term memory or has been retrieved from long-term memory.		
Visual-Spatial Working Memory manipulates and transforms visual-spatial information that is being held in short-term memory or has been retrieved from long-term memory.		

Processing Definitions Aligned with California Ed. Code.

Processing Definitions Aligned with California Ed. Code

The following are working definitions of the processing areas outlined in California Ed. Code (California Department of Education: Section 3030 (b)(10), Title 5, CCR) and are not intended be exhaustive. For more comprehensive information regarding these processing areas and related sub-areas, please refer to the COMPARES Glossary.

Auditory Processing

Auditory processing refers to the ability to perceive, analyze, and synthesize a variety of auditory stimuli. Measures of auditory processing tap into phonemic awareness (rhyming, segmentation, sound-symbol association), auditory perception, sound discrimination, auditory mental manipulation, as well as auditory memory. Auditory processing matures early, after gradual development (Dehn, 2014). See "Phonological Processing," "Auditory Memory," "Auditory Processing Speed," and "Processing Speed" in the COMPARES Glossary.

What this may look like: **"**Students with an auditory processing weakness have no problem with hearing – they simply do not process or retain what they take in through their ears. An auditory processing weakness is not a reflection of intelligence (although non-response to oral information often makes it appear that these students are "slow"). These students tend to be accused of "daydreaming" because so often they do not "get" what has been said to them. They may be able to repeat it word-for-word, but cannot explain what was meant. (In some cases, as with auditory memory deficits, they cannot repeat what was said.)" (Rodrigues, J. & Decker, K., 2007, p. 8)

Visual Processing

Visual Processing is the mental/psychological construct defined by cognitive mechanisms that are involved in the retention, processing, and organization of visual information so as to demonstrate accurate perception, as distinct from visual acuity. This type of cognitive processing ability involves the ability to generate, perceive, analyze, synthesize, manipulate, and transform visual patterns and stimuli. Measures of the visual process may include factors such as spatial awareness, visual-perceptual skills, perceptual organization, visual mental manipulation, and perceptual discrimination. Visual-Spatial Processing matures early, after gradual development (Dehn, 2014). See "Visual-Spatial Processing," "Orthographic Processing," "Visual Memory," "Visual Processing Speed," and "Processing Speed" in the COMPARES Glossary.

What this may look like: **"**This processing weakness affects visual learning but has nothing to do with acuity – or lack of it – in vision. This visual processing weakness is not an impairment of intelligence. What this student sees does not get to the brain in the same form as the eye beholds it. The brain may distort information brought in through the eyes. The student may have difficulty tracking (seeing print consistently in a line from left to right), retaining or understanding what is in print, and may experience headaches or blurred vision from concentration on visual tasks for prolonged periods" (Rodrigues, J. & Decker, K., 2007, p. 11).

Cognitive Abilities

Cognitive Abilities is an umbrella term, according to the California Ed. Code, which includes Association, Conceptualization, and Expression. See the COMPARES Glossary for more information regarding these three terms.

Association

Association is the mental/psychological process of remembering basic units of information and establishing systems for relating those units to each other. See definitions of “Memory,” “Long-Term Retrieval,” “Working Memory,” “Rapid Naming Skills,” “Orthographic Processing, “Auditory Memory,” “Visual Memory,” and “Sensorimotor Memory” in the COMPARES Glossary.

Conceptualization

Conceptualization is the mental/psychological process of understanding or grasping the significance and meaning of increasingly complex information and ideas, including abstract thinking and reasoning. Conceptualization is also known as Fluid Reasoning (Gf) and Problem-Solving. See definition of “Fluid Reasoning” in the COMPARES Glossary.

Expression

Expression is the mental/psychological process of conveying the meaning of information to others via oral, written or gestural language. See “Language Processing” in the COMPARES Glossary.

What this may look like: “These students may have an inability or difficulty in understanding complex concepts, making associations, or seeing the relationships between ideas and concepts. This student may have no difficulty with retaining information, but will generally have a very difficult time generalizing from that information to determine the logic behind it. A language processing weakness is not necessarily a speech disability, nor is a language processing weakness a reflection of intelligence. In fact, students with this processing weakness often display frustration at their inability to express what they understand (Expressive Language Disability), or to understand what words they hear (Receptive Language Disability). With a language processing weakness it is specifically words that create a problem (whether auditory or visual). Like a stroke victim, students with a language processing weakness may be caught not by lack of intelligence, but by lack of ability to process words” (Rodrigues, J. & Decker, K., 2007, pp. 7-8).

Sensory-Motor Skills

Sensory-Motor or Psycho-Motor Integration is the mental/psychological process that involves engaging perceptual and cognitive skills to organize physical output. As a basic psychological process involved in learning, sensory-motor skills chiefly involve fine-motor and graphomotor output. The sensory-motor process may include measures of visual-motor integration, motor speed, and overall fine-/gross-motor skills. Fine motor processing matures early after gradual development (Dehn, 2014). See “Fine Motor Skills,” “Visual Motor Skills,” “Graphomotor Skills,” “Sensorimotor Memory,” “Sensorimotor Speed,” “Oral Motor Speed,” “Psychomotor Abilities,” and “Processing Speed” in the COMPARES Glossary.
What this may look like: **“**This processing weakness affects visual motor integration, but has nothing to do with acuity – or a lack of it – in vision. This visual disability is not an impairment of intelligence. This student will not be able to consistently coordinate what she/he sees with muscle movements (especially the fine motor muscle movements needed for pen and pencil work). Students with this weakness have nothing physically wrong with their hands. There is, however, a dysfunction in the area of the brain that controls the planning of the hand-muscle

movements. As a result, writing does not come naturally to the students with this disability as it does to most of us. The student must concentrate so intently on forming each letter on the page that they have very little mental energy left over for developing their thoughts. Students with this weakness often have difficulty with tasks involving copying, drawing, cutting, pasting, folding, puzzles, and handwriting. Copying from the board or a book are examples of using visual-motor skills. These students generally do poorly in writing task and have become quite sophisticated in their avoidance techniques" (Rodrigues, J. & Decker, K., 2007, p. 11)

Attention

Attention is the mental/psychological process of maintaining alertness to incoming sensory stimuli in order to process it. Attention requires the sustained focus of cognitive resources on information while filtering or ignoring extraneous information. Attention is a basic or "gatekeeping" function that is a foundation to all other neurological/cognitive functions. Attention is a process that matures late after gradual development (Dehn, 2014). See "Executive Functions" in the COMPARES Glossary.

Some researchers divide attention into component parts, which may be measured separately:

- Focused Attention: The ability to respond discretely to specific visual, auditory or tactile stimuli.
- Sustained Attention (vigilance): The ability to maintain a consistent behavioral response during continuous and repetitive activity.
- Selective Attention: The ability to maintain a behavioral or cognitive set in the face of distracting or competing stimuli. Therefore it incorporates the notion of "freedom from distractibility."
- Alternating/Shifting Attention: The ability of mental flexibility that allows individuals to shift their focus of attention and move between tasks having different cognitive requirements.
- Divided Attention: This is the highest level of attention and it refers to the ability to respond simultaneously to multiple tasks or multiple task demands.

What this may look like: **"**Students with this processing weakness do not seem to be able to filter out background noise of any kind. This is the student who always turns around when the door opens, who ask you some totally irrelevant question in the middle of an important discussion, and answers anytime you ask anyone in the class a question. This student may not be able to accurately process spoken language when there are competing auditory distractions: i.e. student may be unable to understand test instructions if students around him/her are shuffling feet, wrestling papers, or if there is noise in the halls or outside of windows" (Rodrigues, J. & Decker, K., 2007, p. 13).

Phonological Processing

Phonological Processing includes phonemic awareness, sound discrimination, phonetic coding, and phonological memory. Phonological Processing is listed as a "basic psychological process" by California Education Code (California Department of Education: Section 3030(b)(10), Title 5, CCR). This type of processing involves the ability to hear, manipulate and, in the case of phonological memory, remember phonemes. Phonological Processing matures early after gradual development and is associated with the Temporal and Parietal lobes of the brain (Dehn, 2014a). See "Auditory Processing" and "Phonological Memory" in the COMPARES glossary.

References

CA Department of Education (n.d.). *California education code*. Retrieved from: http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=edc

Dehn, M. J. (2014). *Essentials of processing assessment (2nd ed.).* Hoboken, NJ: John Wiley & Sons.

Flanagan, D.P., McGrew, K.S., & Ortiz, S.O. (2000). *The Weschler intelligence scales and Gf-Gc theory: A contemporary approach to interpretation.* Boston: Allyn & Bacon.

Flanagan, D. P., & Ortiz, S. O., Alfonso, V. C. (2013). *Essentials of cross-battery assessment* (3rd ed.). Hoboken, NJ: John Wiley & Sons.

Flanagan, D. P., Ortiz, S. O., Alfonso, V. C. & Mascolo (2002). *The achievement test desk reference: Comprehensive assessment and learning disabilities*. Boston: Allyn & Bacon.

Flanagan, D. P., & Ortiz, S. O. (2001). *Essentials of the cross battery approach*. New York: Wiley.

Korkman, M., Kirk, U., & Kemp, S. (1998). The NEPSY manual. Toronto: The Psych Corporation.

Rodrigues, J. & Decker, K. (2007). *Special Education Information Packet for San Lorenzo High School General Education Teachers.* San Lorenzo Unified School District, California.

Seaman, J. (n.d.). *Interventions for cognitive and academic deficits: A compendium of accommodations and instructional strategies corresponding to Woodcock-Johnson III cognitive and achievement clusters*. Retrieved from: http://images.pcmac.org/SiSFiles/Schools/GA/FranklinCounty/LavoniaElementary/Uploads/DocumentsCategories/Documents/Interventions.pdf

TN Department of Education. (2009). *Resource packet: Specific learning disabilities: Evaluation: Procedural addendum B discrepancy and processing deficits*. Retrieved from: http://www.tn.gov/education/student_support/eligibility/71309SLDEval.pdf

Ventura County SELPA. (2011). *Eligibility guidelines 2011.* Retrieved from: http://www.vcselpa.org/PublicationsAZ.aspx

Section 10

Ruling out Exclusionary Factors

Exclusionary Factors

California Education Code requires that the assessment team examine and exclude specific factors as being the primary cause of the student's specific learning disability. Education Code specifically states:

Specific learning disabilities do not include learning problems that are primarily the result of:

- visual, hearing, or motor disabilities,
- intellectual disability,
- emotional disturbance,
- environmental, cultural, or economic disadvantage,
- limited school experience,
- poor school attendance, or
- lack of appropriate instruction in reading or math.

The attached document is an Exclusionary Factors Worksheet adapted from the Marquette Alger Regional Education Service Agency in Michigan that may assist assessment teams in ruling out exclusionary factors. Statements for each of these exclusionary factors should be included within the psychoeducational report.

EXCLUSIONARY FACTORS WORKSHEET

Specific Learning Disability

Mark each exclusionary factor. Each factor must be ruled out as the PRIMARY FACTOR for the student's inability to progress in the general education curriculum.	**YES**	**NO**
1. Lack of instruction in essential components of reading and math. (Document all information gathered regarding quality instruction in English and Math)		
Has the student had a lack of appropriate instruction in math?		
Has the student had a lack of appropriate instruction in reading?		
Is lack of appropriate instruction in reading and math the determinant factor in this student's inability to progress in the general education curriculum? Report Page ___		
2. Limited English Proficiency (Document all information gathered during assessment regarding English Language proficiency.)		
Is there a language other than English spoken by this student?		
Is there a language other than English spoken in the student's home?		
Are there any specific dialect or cultural influences that would affect the student's ability to speak or understand English?		
Have you considered the student's current State Adopted English Language Learner Exam (SAELE) scores in addition to their progression on the SAELE or CELDT over their school career?(See EL section of manual)		
Have you considered the results of the C-LIM*?		
Is limited English proficiency the primary reason for the student's deficit scores? Report Page ____		
3. Intellectual Disability *(Document all information gathered in assessment regarding cognitive abilities.)*		
Does the student have a significant intellectual disability that is better understood under the eligibility of ID? Report Page ____		
4. Emotional Impairment *(Document all information gathered in assessment regarding emotional issues.)*		
Does the student exhibit emotional difficulties that interfere with learning?		
Does the student have a medical history and/or school history of emotional difficulties?		
Is emotional disturbance the primary reason for the student's deficit scores? Report Page____		
5. Vision, Hearing, or Motor Impairments *(Document all information gathered in assessment regarding vision, hearing or motor abilities.)*		
Do vision screening results indicate concern?		
Do hearing screening result indicate concern?		
Does the student have a history of significantly delayed motor development?		
Is visual, hearing or motor disability the primary reason for the student's deficit scores? Report Page ____		
6. Environmental, Cultural, or Economic Disadvantage *(Document all information gathered in assessment regarding environmental, cultural, or economic factors.)*		
a. Lack of Opportunity		
Do environmental, cultural, or economic disadvantage impact student's readiness for school and ability to learn and retain information?		
b. Motivational Factors		
Does the student attempt classroom assignments and/or homework?		
Is the student's performance on grade level during classroom activities?		
Are group achievement scores consistent with the student's grades?		
c. Situational Trauma		
Has the student's academic performance fallen dramatically within the last 6-12 months?		
Is there knowledge of any new situations within the student's family that would contribute to a drop in academic performance?		
d. Attendance		
Does the student have a high absentee rate either due to illness, disciplinary issues or other factors?		
Are environmental, cultural or economic disadvantage the primary reason for the student's academic deficits? Report Page ____		

* Culture-Language and Interpretive Matrix (Flanagan et al., 2013)

Form adapted from Marquette Alger Regional Education Service Agency

Section 11

Specific Populations

PSW Model for Identification:
English Learners

When determining whether a student meets eligibility requirements for Special Education under the classification of Specific Learning Disability, who is also an English Learner (EL), additional considerations need to be taken. The following resources are available for school teams when making these decisions:

- Ventura County SELPA: Meeting the Needs of English Learners with Disabilities Resource Book and Guidelines for Assessment for Special Education of English Language Learners
- Your school district's policies/procedures
- The Cultural-Language and Interpretive Matrix (C-LIM) is a useful tool for assessment teams (Flanagan et al., 2013).
- United Framework for the Assessment of Bilingual Students http://www.bilingualassessment.org

PSW Model for Identification:
African-American Students

Based on the Larry P vs. Riles ruling in 1979, schools in California cannot use I.Q. tests with African-American students for any special education purposes. Therefore, LEAs are required to use alternative means of assessment when determining an African-American student's eligibility for special education (Evans-Pongratz & Yaklin, 2006).

The Ventura County PSW assessment model for SLD identification does not require the use of a Full Scale I.Q. score but rather asks assessment teams to determine whether the student has an Otherwise Normal Cognitive Ability Profile (ONCAP), which can be inferred from various measures which assess separate processing areas.

When assessing African-American students for any special education eligibility category, assessment teams are referred to the California Association of School Psychologists website at https://casponline.org/about-casp/publications/

Additional Resource:
Diagnostic Center North: Culturally Responsive Assessment
http://www.dcn-cde.ca.gov/resource/crt.html

PSW Model for Identification:
Private School, Home School and Independent Study Students

When a request is made for a student attending private school, home school or independent study to receive a psychoeducational evaluation as a result of a suspected SLD, assessment teams must work with the student's school and/or parent to gather information in order to formulate a clear reason for referral. It would behoove assessment team members to provide the student's school officials with general information regarding the PSW assessment model to assist the student's teachers in providing relevant information to support the decision to move forward with an assessment.

Assessment teams would do well to gather data on the student's academic performance in relation to his peers and/or classmates, when available. It would also be beneficial to collect information on whether the student has received any interventions related to the area(s) of concern. If no interventions have been used, assessment professionals may assist the student's educators in determining ways to address the areas of concern, prior to considering the student for special education eligibility. It should be noted, however, that a district may not deny a request for special education assessment, simply due to a student's lack of exposure to research-based interventions (See Office of Special Education and Rehabilitative Services Memorandum dated 1/21/11).

When an assessment is initiated, a student should be evaluated in all areas of the suspected disability. A team may wish to use the information gathered regarding the student's suspected strengths and weaknesses to complete the SLD Planning Worksheet for Multi-Disciplinary Assessment Teams to assure a thorough assessment is conducted.

In terms of academic assessment, it would be appropriate for evaluators to assess the student's performance using standardized academic achievement tests. At times, there may be progress monitoring data; however, this may not always be available. Teachers and/or parents would most likely be able to provide grade level assessments which may include report cards, assessment grades and/or work samples. Additionally, it is required by law that a psychologist and/or another relevant assessment professional complete a structured observation of the student in an academic setting to confirm areas of strengths and/or weaknesses.

Section 12

Triennial/Reevaluation Assessments

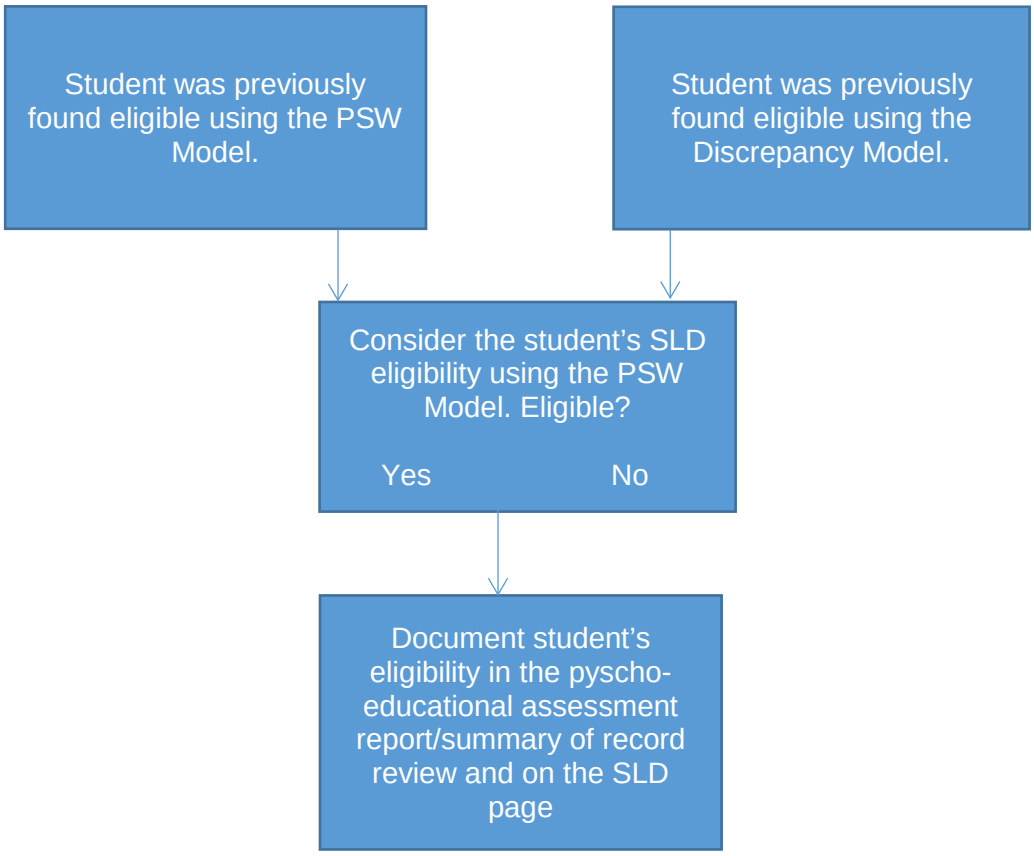
Triennial/Reevaluation Assessments

When conducting a triennial/reevaluation assessment using the PSW Model, there are several factors to consider. It is likely that an assessment team will have a strong basis to form a hypothesis regarding the student's areas of strengths and weaknesses, as previous standardized testing has already been completed.

If the school district has adopted the PSW Model as the model for identification of students with a Specific Learning Disability, then the school district will use the PSW model for all SLD evaluations, including triennial/reevaluations. This is regardless of the model used during the previous evaluation for SLD eligibility purposes. Therefore, if the student was previously found eligible under the discrepancy model, the assessment team will now utilize the PSW model for the student's current triennial/reevaluation.

There are times that an assessment team has previously identified that no further assessment is necessary (as noted on the *Worksheet for Determination of Needed Assessment for Triennial Review*). If no new assessment will be conducted, the assessment team lead should complete the *Summary of Record Review in Preparation for Triennial Review* form to compile the existing sources of data for development of the IEP at the Triennial Review. If the IEP team believes the student continues to be eligible for special education under the eligibility of SLD, the team needs to document the present levels of academic achievement and related developmental needs that indicate the student continues to meet criteria for the eligibility of SLD; however, the specific model (discrepancy or PSW) does not need to be considered or indicated on the form. In these cases, refer to district policy regarding the use of the *SLD Eligibility Summary* form found in SIRAS.

SLD Triennial/Reevaluation Assessment Flow Chart



References

References

Aaron, P. G., Joshi, R. M., Palmer, H., Smith, N., & Kirby, E. (2002). Separating genuine cases of reading disability from reading deficits caused by predominantly inattentive ADHD behavior. *Journal of Learning Disabilities*, *35*(5), 425-436. (ABC)

Ackerman, P. T., & Dykman, R. A. (1993). Phonological processes, confrontation naming, and immediate memory in dyslexia. *Journal of Learning Disabilities, 26*(9)*, 597-609.* (ABC)

August, G. J., & Garfinkel, B. D. (1990). Comorbidity of ADHD and reading disability among clinic-referred children. Journal of Abnormal Child Psychology, 18(1), 29- 45. (ABC)

Badian, N. A. (1993). Phonemic awareness, naming, visual symbol processing, and reading. *Reading and Writing, 5*(1), 87-100. (ABC)

Badian, N. (2001) Phonological and orthographic processing: Their roles in reading prediction. *Annals of Dyslexia.* 51(1) 177-202. (ABC)

Badian, N. (2005) Does a visual-orthographic deficit contribute to reading disability?. *Annals of Dyslexia.* 55(1) 28-52. (ABC)

Barker, T. A., Torgeson, J., & Wagner, R. K. (1992). The role of orthographic processing skills on five different reading tasks. *Reading Research Quarterly, 27*(4), 334-345. (HT)

Barnhardt, C., Borsting, E., Deland, P., Phan, N., & Vu, T. (2005) Relationship Between Visual-Motor Integration and Spatial Organization of Written Language and Math. *Optometry and Vision Science.* 82(2), 138-143. (ABC)

Bell, S. M., McCallum, R. S., & Cox, E. A. (2003). Toward a research-based assessment of dyslexia: Using cognitive measures to identify reading disabilities. *Journal of Learning Disabilities, 36*(6)*,* 505-516. (HT)

Bellani, M., Moretti, A., Perlini, D., & Brambilla P. (2011). Language disturbances in ADHD. *Epidemiology and Psychiatric Sciences, 20*(4), 311-315.

Benjamin, C. F. A., & Gaab, N. (2012). What's the story? The tale of reading fluency told at speed. *Human Brain Mapping, 33*(11), 2572-2585. (ABC)

Benson, N. (2008). Cattell-Horn-Carroll cognitive abilities and reading achievement. *Journal of Psychoeducational Assessment, 26*(1), 27-41. (ABC)

Berninger, V. W. (2003). Preventing written expression disabilities through early and continuing assessment and intervention for handwriting and/or spelling problems: Research into practice. In H. Swanson, K. Harris, & S. Graham (Eds.), *Handbook of learning disabilities* (pp. 345-363). New York, NY: The Guilford Press. (HT)

Berninger, V. W. (2010). Assessing and intervening with children with written language disorders. In D. C. Miller (Ed.), *Best Practices in School Neuropsychology: Guidelines for effective practice, assessment, and evidence-based intervention* (pp.507-520). New York, NY: John Wiley & Sons. (HT)

Berninger, V. W. , & Amtmann, D. (2011). Evidence-based differential diagnosis and treatment of reading disabilities with and without comorbidities in oral language, writing, and math for prevention, problem-solving consultation, and specialized instruction. In D. P. Flanagan & V. C. Alfonso (Eds.), *Essentials of specific learning disability identification.* New York, NY: John Wiley & Sons. (pp. 203-232) (HT)

Berninger, V. W., O'Donnell, L. O., & Holdnack, J. (2008). Research-supported differential diagnosis of specific learning disabilities and implications for instruction and response to instruction (RTI). In A. Prifitera, D. H. Saklofske, & L. G. Weiss (Eds.), *WISC-IV clinical assessment and intervention* (2nd ed., pp. 69-108). San Diego, CA: Academic Press. (HT)

Berninger, V. W. & Richards, T. L. (2002). *Brain literacy for educators and psychologists*. San Diego, CA: Academic Press. (HT)

Berninger, V., Winn, W., Stock, P., Abbott, R., Eschen, K., Lin, C., et al. (2007). Tier 3 specialized writing instruction for students with dyslexia. *Reading and writing: An interdisciplinary journal.* Printed Springer Online: May 15, 2007.

Bishop, D. V. M., & Snowling, M. J. (2004). Developmental dyslexia and specific language impairment: Same or different? *Psychological Bulletin, 130*(6), 858-886.

Bitan, T., Burman, D. D., Chou, T., Lu, D., Cone, N. E., Cao, F., . . . Booth, J. R. (2007). The interaction between orthographic and phonological information in children: An fMRI study. *Human Brain Mapping, 28*(9), 880-891. (ABC)

Breznitz, Z. (2002). Asynchrony of visual-orthographic and auditory-phonological word recognition processes: An underlying factor in dyslexia. *Reading and Writing, 15*(1), 15-42. (ABC)

Buchweitz, A., Mason, R. A., Tomitch, L. M. B., & Just, M. A. (2009). Brain activation for reading and listening comprehension: An fMRI study of modality effects and individual differences in language comprehension. *Psychology & Neuroscience, 2*(2), 111-123. (ABC)

Butterfield, J. (2012). *Meeting the Needs of English Learners with Disabilities Resource Book.* Santa Barbara, CA: Santa Barbara SELPA

Cain, K., & Bignell, S. (2014). Reading and listening comprehension and their relation to inattention and hyperactivity. *British Journal Of Educational Psychology*, *84*(1), 108-124. (ABC)

Cain, K. & Oakhill, J. (2006). Profiles of children with specific reading comprehension difficulties. *British Journal of Educational Psychology, 76*(4), 683-696. (ABC)

Cain, K., Oakhill, J., Bryant, P. (2004) Children's Reading Comprehension Ability: Concurrent Prediction by Working Memory, Verbal Ability, and Component Skills. *Journal of Educational Psychology, 96(1), 31-42.*

Call, M. E. (1985). Auditory short-term memory, listening comprehension, and the input hypothesis. *TESOL Quarterly, 19*(4), 765-781. (ABC)

Christo, C. & Davis, J. (2008). Rapid naming and phonological processing as predictors of reading and spelling. *The California School Psychologist, 13,* 7-18. (HT)

Cristo, C. (2010). Paper presented at American Psychological Association: *A model to guide the identification of learning disabilities.* San Diego, CA: APA

Cristo, C., Jones, J. (2014). CASP position paper: Specific learning disabilities and patterns of strengths and weaknesses. *CASP Today, 64* (2). 3-10.

Crain, S., Shankweiler, D., Macaruso, P., & Bar-Shalom, E. (1990). Working memory and comprehension of spoken sentences: Investigations of children with reading disorder. In G. Vallar & T. Shallice (Eds.), *Neurological impairments of short-term memory* (pp.477-508). New York, NY: Cambridge University Press (ABC)

Daneman, M., & Merikle, P. M. (1996). Working memory and language comprehension: A meta-analysis. *Psychonomic Bulletin & Review, 3*(4), 422-433. (ABC)

DeBono, T., Hosseini, A., Cairo, C., Ghelani, K., Tannock, R., & Toplak, M. E. (2012). Written expression performance in adolescents with attention-deficit/hyperactivity disorder (ADHD). *Reading and Writing, 25*(6)*,* 1403-1426. (ABC)

Decker, S. L. & Davis, A. (2010). Assessing and intervening with children with sensory motor impairment. In D. C. Miller (Ed.), *Best practices in school neuropsychology: Guidelines for effective practice, assessment, and evidence-based intervention.* New York, NY: John Wiley & Sons. (HT)

Dehn, M. J. (2008). *Working memory and academic learning: Assessment and intervention.* New York, NY: John Wiley & Sons. (KEY) (ABC)

Dehn, M. J. (2010). *Long-term memory problems in children and adolescents: Assessment, intervention, and effective instruction.* Hoboken, NJ: John Wiley & Sons. (KEY) (ABC)

Dehn, M. J. (2014a). *Essentials of processing assessment (2nd ed.).* Hoboken, NJ: John Wiley & Sons. (KEY) (ABC)

Dehn, M. J. (2014b) *Working Memory in the Classroom.* Wisconsin: Schoolhouse Educational Services, LLC.

Dehn, M. J. (in press). *Essentials of working memory assessment*. New York, NY: John Wiley & Sons. (KEY) (ABC)

Engle, R. W., & Conway, A. R. A. (1998). Working memory and comprehension. In R. H. Logie & K. J. Gilhooly (Eds.), *Working memory and thinking* (pp. 66-90). London, Lawrence Erlbaum.

Eugene, 2010 4J School District. (2010). PSW Methodology Overview. Retrieved from http://www.ospaonline.com/Default.aspx?pageId=417777

Evans, J. J., Floyd, R. G., McGrew, K. S., & Leforgee, M. H. (2001). The relations between measures of Cattell-Horn-Carroll (CHC) cognitive abilities and reading achievement during childhood and adolescence. *School Psychology Review, 31*(2), 246-262. (ABC)

Evans-Pongratz & H. Yaklin, B. (2006). *Revisiting Larry P. v. Riles* [PDF]. Retrieved from http://www.caspsurveys.org/NEW/pdfs/lp1.pdf

Feifer, S. (2008). Integrating neuroscience and RTI in the assessment of LDs. In Fletcher-Janzen, E., and Reynolds, C., (Eds.) *Neuropsychological Perspectives on Learning Disabilities in the Era of RTI (pp. 219-237).* Hoboken, New Jersey: John Wiley & Sons, Inc.

Feifer, S. G. (2010). Assessing and intervening with children with reading disorders. In D. C. Miller (Ed.), *Best practices in school neuropsychology: Guidelines for effective practice, assessment, and evidence-based intervention* (pp. 483-506). Hoboken, NJ: John Wiley & Sons. (HT)

Feifer, S. G., & Toffalo, D. A. D. (2007). *Integrating RTI with cognitive neuropsychology: A scientific approach to reading.* Middletown, MD: School Neuropsych Press. (ABC)

Fiorello, C. A., Hale, J. B., & Snyder, L. E. (2006). Cognitive hypothesis testing and response to intervention for children with reading problems. *Psychology in the Schools*, *43*(8), 835-853.

Fiorello, C. A., Hale, J. B., Snyder, L. E., Forrest, E., & Teodori, A. (2008). Validating individual differences through examination of converging psychometric and neuropsychological models of cognitive functioning. *Applied cognitive research in K-3 classrooms*, 232-254.

Fiorello, C. A., & Primerano, D. (2005). Research into practice: Catell-Horn-Carroll cognitive assessment in practice: Eligibility and program development issues. *Psychology in the Schools, 42*(5), 525-537. (HT)

Fiorello, C. A., Thurman, S. K., Zavertnik, J., Sher, R., & Coleman, S. (2009). A comparison of teachers' and school psychologists' perceptions of the importance of CHC abilities in the classroom. *Psychology in the Schools*, *46*(6), 489-500.

Flanagan, D. P., Alfonso, V. C. & Mascolo, J. T. (2011). A CHC-based operational definition of SLD: Integrating multiple data-gathering methods. In D. P. Flanagan & V. C. Alfonso (Eds.), *Essentials of specific learning disability identification* (pp.233-298). New York, NY: John Wiley & Sons.

Flanagan, D. P., Alfonso, V. C., & Ortiz, S. O. (2012) The cross-battery assessment approach: An overview, historical perspective, and current directions. In D. P. Flanagan & P. L. Harrison (Eds.), *Contemporary intellectual assessment: Theories, tests, and issues* (3rd ed., pp. 459-483). New York, NY: Guilford Press. (ABC)

Flanagan, D. P., Ortiz, S. O., & Alfonso, V. C. (2007). *Essentials of cross-battery assessment* (2nd ed.). Hoboken, NJ: John Wiley & Sons. (HT)

Flanagan, D. P., & Ortiz, S. O., Alfonso, V. C., (2013). *Essentials of cross-battery assessment* (3rd ed.). Hoboken, NJ: John Wiley & Sons. (KEY)

Flanagan, D. P., & Ortiz, S. O., Alfonso, V. C., & Dynda, A. M. (2006). Integration of response to intervention and norm-referenced tests in learning disability identification: Learning from the tower of Babel. *Psychology in the Schools, 43*(7), 807-825.

Flanagan, D. P., Ortiz, S. O., Alfonso, V. C., & Mascolo, J. T. (2006). *The achievement test desk reference (ATDR): A guide to learning disability identification* (2nd ed.). Hoboken, NJ: John Wiley & Sons.

Fletcher, J. M. (2005). Predicting math outcome: Reading predictors and comorbidity. *Journal of Learning Disabilities, 38*(4), 308-312. (ABC)

Fletcher, J. M., Stuebing, K. K., Barth, A. E., Denton, C. A., Cirino, P. T., Francis, D. J., & Vaugh, S. (2011). Cognitive correlates of inadequate response to reading intervention. *School Psychology Review, 40*(1), 3-22. (HT)

Fletcher-Janzen, E. (2010). Foreword. In D. C. Miller (Ed.). *Best practices in school neuropsychology: Guidelines for effective practice, assessment, and evidence-based intervention.* New York: John Wiley & Sons. (HT)

Floyd, R., Meisinger, E., Gregg, N., & Keith, T. (2012). An explanation of reading comprehension across development using models from Cattell-Horn-Carroll theory: Support for integrative models of reading. *Psychology in the Schools, 49*(8), 725-743. (ABC)

Floyd, R. G., Bergeron, R., & Alfonso, V. C. (2006). Cattell-Horn-Carroll cognitive ability profiles of poor comprehenders. *Reading and Writing, 19*(5), 427-456. (ABC)

Floyd, R. G., Evans, J. J., & McGrew, K. S. (2003). Relations between the measures of Cattell-Horn-Carroll (CHC) cognitive abilities and mathematics achievement across the school-age years. *Psychology in the Schools, 40*(2), 155-171. (ABC)

Floyd, R. G., McGrew, K. S., & Evans, J. J. (2008). The relative contributions of the CHC cognitive abilities in explaining writing achievement during childhood and adolescence. *Psychology in the Schools, 45*(2), 132-144. (ABC) (HT) (KEY)

Floyd, R. G., Reynolds, M. R., Farmer, R. L., & Kranzler, J. H. (2013). Are the general factors from different child and adolescent intelligence tests the same? Results from a five-sample, six-test analysis. *School Psychology Review, 42*(4), 383-401.

Fry, A. F., & Hale, S. (2000). Relationships among processing speed, working memory, and fluid intelligence in children. *Biological Psychology, 54*(1-3), 1-34. (HT)

Fuchs, D., Compton, D., Fuchs, L., Bryant, V. J., Hamlett, C., & Lambert, W. (2012). First-grade cognitive abilities as long-term predictors of reading comprehension and disability status. *Journal of Learning Disabilities, 45*(3), 217-231. (ABC)

Geary, D. C. (2003). Learning disabilities in arithmetic: Problem-solving differences and cognitive deficits. In H. Swanson, K. Harris, & S. Graham (Eds.), *Handbook of learning disabilities* (pp. 199-212). New York, NY: The Guilford Press. (HT)

Geary, D. C. (2011). Cognitive predictors of achievement growth in mathematics: a 5-year longitudinal study. *Developmental Psychology*, *47*(6), 1539. (ABC) (KEY)

Geary, D.C. (2011b) Consequences, Characteristics, and Causes of Mathematical Learning Disabilities and Persistent Low Achievement in Mathematics. Journal of Developmental and Behavioral Pediatrics 32(3): 250-263. (ABC)

Geary, D. C., Boykin, A. W. Embertson, S., Reyna, V., Siegler, R., Berch, D. B., & Graban, J. (2008). *Report of the Task Group on Learning Processes.* Retrieved from http://www2.ed.gov/about/bdscomm/list/mathpanel/report/learning-processes.pdf (HT)

Geary, D. C., Hoard, M. K., & Bailey, D. H. (2011). How SLD manifests in mathematics. In D. P. Flanagan & V. C. Alfonso (Eds.), *Essentials of specific learning disability identification.* New York, NY: John Wiley & Sons. (HT)

Ghelani, K., Sidhu, R., Jain, U., & Tannock, R. (2004). Reading comprehension abilities of children with attention-deficit/hyperactivity disorder. *Journal of Attention Disorders, 1*(3), 173-185. (ABC)

Gioia, G. A., Isquith, P. K., & Guy, S. C. (2001). Assessment of executive function in children with neurological impairments. In R. Simeonsson & S. Rosenthal (Eds.), *Psychological and developmental assessment.* New York, NY: The Guilford Press. (HT)

Hale, J. B., & Fiorello, C. A. (2004). *School Neuropsychology: A practitioner's handbook.* New York, NY: The Guilford Press. (HT)

Hale, J. B., Fiorello, C. A., Kavanagh, J. A., Holdnack, J. A., & Aloe , A. M. (2007). Is the demise of IQ Interpretation justified? A response to special issue authors. *Applied Neuropsychology, 14*(1)*,* 37-51*.*

Hammil, D. (2004). What we know about correlates of reading. *Exceptional Children, 70*(4), 453-469. (ABC)

Hanson, J., Sharman, L. A., & Esparza-Brown, J. (2009). Pattern of strengths and weaknesses in specific learning disabilities: What's it all about. *Technical Assistance Paper, Oregon School Psychologists Association*.

Hanson, J., & Templeton, M. (February 2013) DRAFT *Guidance for the Identification of Specific Learning Disabilities: Meeting of the Minds Committee for Specific Learning Disabilities, Using Patterns of Strengths and Weaknesses Methodology and Research*. (KEY)

Harris, S. (2009). *Avoiding Pitfalls when Using "Pattern of Strengths and Weaknesses" Criteria for SLD eligibility: How to define and refine your process to avoid legal challenges.* Paperpresented at the Confederation of Oregon School Administrator's Special Education pre-Conference, Seaside, OR.

Hartsuiker, R. J., & Barkhuysen, P. N. (2006). Language production and working memory: The case of subject-verb agreement. *Language and Cognitive Processes, 21*(1-3), 181-204. (ABC)

He, Q., Xue, G., Chen, C., Chen, C., Lu, Z. L., & Dong, Q. (2013). Decoding the neuroanatomical basis of reading ability: a multivoxel morphometric study. *The Journal of Neuroscience*, *33*(31), 12835-12843.

Hooper, S. R., Swartz, C. W., Wakely, M. B., DeKruif, R. E. L., & Montgomery, J. W. (2002). *Journal of Learning Disabilities*, *35*(1), 57-68. (ABC)

Horn, J. L., & Stankov, L. (1982). Auditory and visual factors of intelligence. *Intelligence, 1*(6)*,* 165-185.

James, K. H., & Atwood, T. P. (2009). The role of sensorimotor learning in the perception of letter-like forms: Tracking the causes of neural specialization for letters. *Cognitive Neuropsychology*, *26*(1), 91-110.

Jerman, O., Reynolds, C., & Swanson, H. L. (2012). Does growth in working memory span or executive processes predict growth in reading and math in children with reading disabilities? *Learning Disability Quarterly*, *35*(3), 144-157. (ABC)

Johnson, E., Humphrey, M., Mellard, D., Woods, K., & Swanson, H.L. (2010). Cognitive Processing Deficits and Students with Specific Learning Disabilities: A Selective Meta-Analysis of the Literature. *Learning Disability Quarterly*, *33*(1), 3-18. (ABC)

Kane, M.J. & Engle, R.W. (2002). The role of prefrontal cortex in working memory capacity, executive attention, and general intelligence: An individual-differences perspective. *Psyhonomic Bulleting & Review, 9*(4), 637-671.

Katzir, T., Kim, Y.S., Wolf, M., Morris, R., & Lovett, M.W. (2008). The varieties of pathways to dysfluent reading: Comparing subtypes of children with dyslexia at letter, word, and connected text levels of reading. *Journal of Learning Disabilities, 41*(1), 47-66. (ABC)

Katzir, T., Kim, Y.S., Wolf, M., O'Brien, B., Kennedy, B., Lovett, M., & Morris, R. (2006). Reading fluency: The whole is more than the parts. *Annals of Dyslexia, 56*(1), 51-82. (ABC)

Keene, E. O., & Zimmerman, S. (1997). *Mosaic of thought: Teaching comprehension in a reader's workshop.* Portsmouth, New Hampshire: Heinemann.

Kulp, M. T. (1999). Relationship between Visual Motor Integration Skill and Academic Performance in Kindergarten through Third Grade. *Optometry and Vision Science*, *76*(3), 159-163. (ABC)

Learning Disability Association of America. (2010). *The Learning Disabilities Association of America's white paper on evaluation, identification, and eligibility criteria for students with specific learning disabilities*.

Levine, M.D. (1998). *Developmental variation and learning disorders (2nd ed.)*. Cambridge, MA: Educators Publishing Service. (ABC)

Lewis, B.A., Freebairn, L.A., & Hansen, A.J. (2004). School-Age Follow-Up of Children With Childhood Apraxia of Speech. *Language, Speech, & Hearing Services in Schools, 35*(2), 122-140. (ABC)

Lewis, B.A., Freebairn, L.A., & Taylor, G.H. (2000). Follow-Up of Children With Early Expressive Phonology Disorders. *Journal of Learning Disabilities*, *33*(5), 433-444. (ABC)

Locascio, G., Mahone, E.M., Eason, S., & Cutting, L.E. (2010). Executive Dysfunction among children with reading comprehension deficits. *Journal of Learning Disabilities, 43*, 441-454. (ABC)

Lynn, R., Meisenberg, G., Mikk, J., & Williams, A. (2007). National IQs Predict Differences in Scholastic Achievement in 67 Countries. *Journal of Biosocial Science, 39*(6), 861-874. (ABC)

Mahone, E.M., (2011). The Effects of ADHD (Beyond Decoding Accuracy) on Reading Fluency and Comprehension, *New Horizons Journal*. (ABC)

Manis, F. R., Seidenberg, M. S., & Doi, L. M. (1999). See Dick RAN: Rapid naming and the longitudinal prediction of reading subskills in first and second graders. *Scientific Studies of Reading, 3*(2), 129-157. (ABC)

Mann, V. (1989). Phonological Processing, Language Comprehension, and Reading Ability. *Journal Of Learning Disabilities*, *22*(2). (ABC)

Mann, V.A., Liberman, I.Y., & Shankweiler, D. (1980). The association between comprehension of spoken sentences and early reading ability: The role of phonetic representation. *Journal of Child Language, 11, 627-643.* (ABC)

Maricle, D.E., Psimas-Fraser, L, Muenke, R.C., & Miller, D.C. (2010). *Assessing and intervening with children with math disorders*. In Miller, D.C. (Ed.). *Best Practices in School Neuropsychology: Guidelines for Effective Practice, Assessment, and Evidence-Based Intervention.* Hoboken, NJ: John Wiley & Sons.. (HT)

Marquette-Alger Regional Services Agency (2010). *Specific learning disabilities evaluation procedures.* Retrieved from http://www.maresa.org/downloads/se_policies_procedures/guidelines_for_determining_students_with_specific_learning_disabilities_20130212_151030_14.pdf

Marshall, R. M., Schafer, V. A., & O'Donnell, L. (1999). Arithmetic disabilities and ADD subtypes: implications for DSM-IV. *Journal of Learning Disabilities*, *32*(3), 239-247. (ABC)

Marshall, R., Hynd, G., Handwerk, M., & Hall, J. (1997). Academic underachievement in ADHD subtypes. *Journal of Learning Disabilities*, *30*(6), 635-642. (ABC)

Mascolo, J.T., Alfonso, V.C., & Flanagan, D.P. (2014) *Essentials of Planning, Selecting, and Tailoring Interventions for Unique Learners.* New York, NY: John Wiley & Sons, Inc.

Mather, N. & Wendling, B.J. (2011). How SLD manifests in writing. In Flanagan, D.P. & Alfonso, V.C. (Eds.) *Essentials of Specific Learning Disability Identification.* Hoboken, NJ: John Wiley & Sons, Inc. (HT)

McCallum, R. S., Bell, S.M., Wood, M.S., Below, J.L., Choate, S. M., & McCane, S.J. (2006). What is the role of working memory in reading relative to the big three processing variables (orthography, phonology, and rapid naming)? *Journal of Psycho-educational Assessment, 24*, 243-259. (HT)

McCloskey G., & Perkins L.A. (2013). *Essentials of executive functions assessment.* Hoboken, NJ:Wiley. (ABC)

McCloskey, G., Perkins, L.A., & VanDivner, B. (2009). *Assessment and intervention for executive function difficulties.* New York, NY: Routledge, Taylor & Francis Group. (HT)

McGrath, Lauren, Pennington, Bruce, Shanahan, Michelle A., Santerre-Lemmon, Laura E., Barndard, & Holly P. (2011). A Multiple Deficit Model of Reading Disability and Attention Deficit Hyperactivity Disorder: Searching for Shared Cognitive Deficits, *Journal of Child Psychology and Psychiatry*, *52*(5) 547-557. (ABC)

McGrew, K.S. (2009). CHC theory and the Human Cognitive Abilities Project. *Intelligence, 37*, 1-10.

McGrew, K.S. & Wendling, B.J. (2010). Cattell-Horn-Carroll Cognitive-Achievement Relations: What We Have Learned from the Past Twenty Years of Research. *Psychology in the Schools, 47*(7), 651-675. (ABC) (HT) (KEY)

McHale, K. & Cermak, S. A. (1992). Fine Motor Activities in Elementary School: Preliminary Findings and Provisional Implications for Children With Fine Motor Problems. *The American Journal of Occupational Therapy, 46*(10), 898-903(ABC)

McInnes, A., Humphries, T. , Hogg-Johnson, S. , & Tannock, R. (2003). Listening comprehension and working memory are impaired in attention-deficit hyperactivity disorder irrespective of language impairment. *Journal of Abnormal Child Psychology*, *31*(4), 427-443. (ABC)

Mellard, D.F., Anthony, J.L., & Woods, K.L. (2012) Understanding oral reading fluency among adults with low literacy: Dominance analysis of contributing component skills. *Reading and Writing. 25*(6), 1345-1364. (ABC)

Miao, L., Liying, C., & Kirby, J. R. (2012). Phonological awareness and listening comprehension among Chinese English-immersion students. *International Education*, *41*(2), 46-65. (ABC)

Miller, C.J., Sanchez, J, and Hynd., G.W. (2003). Neurological correlates of reading disabilities. In H. Swanson, K. Harris, & S. Graham, (Eds.), *Handbook of Learning Disabilities* (pp. 345-363). New York, NY : The Guilford Press. (HT)

Miller, D., (2007). *Essentials of School Neuropsychological Assessment.* Hoboken, NJ: John Wiley & Sons, Inc. (HT)

Moll, K., Ramus, F., Bartling, J., Bruder, J., Kunze, S., Neuhoff, N., & Landerl., K. (2014). Cognitive mechanisms underlying reading and spelling development in five European orthographies. *Learning and Instruction, 29,* 65-77. (ABC)

Montgomery, J. W. (2004). Sentence comprehension in children with specific language impairment: Effects of input rate and phonological working memory. *International Journal of Language & Communication Disorders*, *39*(1), 115-133.

Nation, K., Cocksey, Taylor, J., & Bishop, D. (2010). A Longitudinal Investigation of Early Reading and Language Skills in Children With Poor Reading Comprehension. *The Journal of Child Psychology and Psychiatry*, *51*(9), 1031-1039. (ABC)

National Association of School Psychologist. (2007). *Identification of students with specific learning disabilities* (Position Statement). Bethesda, MD: NASP

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its applications for reading instruction.* Washington, DC: National Institute of Child Health and Human Development (NICHD).

Newton, J.H. & McGrew, K.S. (2010). Introduction to the Special Issue: Current Research in Cattell-Horn-Carroll-Based Assessment. *Psychology in the Schools, 47*(7), 621-634. (ABC)

Nutley, S.B., Soderqvist, S., Bryde S., Thorell, L.B., Humphreys, K., & Klingberg, T. (2011). Gains in fluid intelligence after training non-verbal reasoning in 4-year-old children: a controlled, randomized study. *Developmental Science 14(3),* 591-601.

O'Brien, B.A., Wolf, M, Miller, L.T. Lovett, M.W. & Morris, R. (2011). Orthographic processing efficiency in developmental dyslexia: an investigation of age and treatment factors at the sublexical level. *Annals of Dyslexia, (61)*1, 112. (HT)

Osmon, D.C., Smerz, J.M., Braun, M.M., & Plamback, E. (2006). Processing abilities associated with math skills in adult learning disability. *Journal of Clinical and Experimental Neuropsychology*, 23, pp. 84-95. (HT)

Penner-Wilger, M., Fast, L. L., Smith-Chant, J., Skwarchuk, B. L., Kamawar, S., & Bisanz, D. J. (2007). The foundations of numeracy: subitizing, finger gnosia, and fine motor ability. *Proceedings of the 29th Annual Cognitive Science Society* (ABC)

Pham, A.V., & Hasson, R.M. (2014) Verbal and Visuospatial Working Memory as Predictors of Children's Reading Ability. *Archives of Clinical Neuropsychology, 29*(5), 467-477. (ABC)

Pimperton, H. & Nation, K (2014). Poor Comprehenders in the Classroom: Teacher Ratings of Behavior in Children With Poor Reading Comprehension and Its Relationship With Individual Differences in Working Memory. *Journal of Learning Disabilities, 47*(3), 199-207. (ABC)

Podhajski, B. (2010). Robust Oral Language Assessment for Literacy Learning. PowerPoint presentation*. International Dyslexia Association Conference*. (HT)

Proctor, B.E, Floyd, R.G., & Shaver, R.B. (2005). Cattell-Horn-Carroll broad cognitive ability profiles of low math achievers. *Psychology in the Schools, 42*(1), 1-12. (ABC) (HT)

Quinn, M.T. (2011). Assessing and intervening with children with speech and language disorders. In Miller, D.C. (Ed.). *Best Practices in School Neuropsychology: Guidelines for Effective Practice, Assessment, and Evidence-Based Intervention.* Hoboken, NJ: John Wiley & Sons. (HT)

Re, A., & Cornoldi, C. (2010). ADHD Expressive Writing Difficulties of ADHD Children: When Good Declarative Knowledge Is Not Sufficient. *European Journal of Psychology of Education*, *25*(3), 315-323. (ABC)

Rodrigues, J. & Decker, K. (2007) *Special Education Information Packet for San Lorenzo High School General Education Teachers.* San Lorenzo Unified School District, California.

Rosen, S. (2003). Auditory processing in dyslexia and specific language impairment: is there a deficit? What is its nature? Does it explain anything?. *Journal of Phonetics*, *31*(3), 509-527. (ABC)

Samuelsson, S., Lundberg, I., & Herkner, B. (2004). ADHD and Reading Disability in Male Adults Is There a Connection?. *Journal of Learning Disabilities*, *37*(2), 155-168. (ABC)

Schneider, W. J., & McGrew, K. (2012). The Cattell-Horn-Carroll model of intelligence. in D. Flanagan & P. Harrison (Eds.), *Contemporary intellectual assessment: Theories, tests, and issues* (3rd ed., pp 99-144). New York, NY: Guilford Press.

Schrank, F. A. (2006). Specification of the cognitive processes involved in performance on the Woodcock-Johnson III. *Assessment Service Bulletin, 7*.

SELPA, 2009 Administrators of CA ad hoc committee. (2009). *New Approaches to Comprehensive Assessment for SLD Eligibility Part Two: Patterns of Strengths and Weaknesses* (draft).

Semrud-Clikeman, M. (2005). Neuropsychological aspects for evaluating learning disabilities. *Journal of Learning Disabilities, 38*(6), 563-568. (HT)

Sesma, H.W., Mahone, E.M., Levine, T., Eason, S., & Cutting, L. (2009). The contribution of executive skills to reading comprehension. *Child Neuropsychology*, *15,* 232-246. (ABC)

Shaywitz, S. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level.* New York, NY: Alfred A. Knopf. (HT)

Singer, B.D. & Bashir, A.S. (1999) What Are Executive Functions and Self-Regulation and What Do They Have to Do With Language-Learning Disorders? *Language, Speech, and Hearing Services in Schools.* 30, 265-273. (ABC)

Sorter, J.M., Kulp, & Taylor, M. (2003) Are the results of the Beery-Buktenica Developmental Test of Visual-Motor Integration and its subtests related to achievement test scores? *Optometry & Vision Science, (80)*11 (HT)

Stankov, L. & Horn, J.L. Human Abilities Revealed Through Auditory Tests. (1980). *Journal of Educational Psychology, 72*(1), 21-44.

Stanovich, K.E., (1982). Individual Differences in the Cognitive Processes of Reading, *Journal of Learning Disabilities*, *15*(8), 485-493.

Stanovich, K.E. & West, R.F., (1989). Exposure to Print and Orthographic Processing, *Reading Research Quarterly*, *24*(4), 402-433. (ABC)

Stuebing, K.K., Fletcher, J.M., Branum-Marin, L., & Francis, D.J. (2012). Evaluation of the Technical Adequacy of Three Methods for Identifying Specific Learning Disabilities Based on Cognitive Discrepancies. *School Psychology Review, 41*(1), 3-22.

Suhr, J. A. (2008). Assessment versus testing and its importance in learning disability diagnosis. In Fletcher-Janzen, E., & Reynolds, C. R. (Eds.) *Neuropsychological perspectives on learning disabilities in the era of RTI* (pp. 99-114). Hoboken, New Jersey: John Wiley & Sons, Inc.

Swanson, H., & Jerman, O. (2006). Math Disabilities: A Selective Meta-Analysis of the Literature. *Review of Educational Research*, 76(2). (ABC)

Swanson, H.L., & Saez, L. (2003). Memory difficulties in children and adults with learning disabilities. In Swanson, H.L., Harris, K.R., & Graham, S. (Eds.), *Handbook of Learning Disabilities* (pp182-198). New York, NY: The Guilford Press. (HT)

Taub, G.E., Floyd, R.G., Keith, T.Z., & McGrew, K.S. (2008). Effects of General and Broad Cognitive Abilities on Mathematics Achievement. *School Psychology Quarterly, 23,* 187-198. (ABC) (HT)

The Consortium for Evidence-Based Early Intervention Practices. (2010). *A response to the Learning Disabilities Association of America (LDA) white paperon specific learning disabilities identification. Retrieved from http://www.isbe.state.il.us/speced/pdfs/LDA_SLD_white_paper_response.pdf*

Tolar, T. D., Fuchs, L., Fletcher, J. M., Fuchs, D., & Hamlett, C. L. (2014). Cognitive Profiles of Mathematical Problem Solving Learning Disability for Different Definitions of Disability. *Journal of learning disabilities*. (ABC)

U.S. Department of Education, Office of Special Education Programs. (2006). Assistance to states for the education of children with disabilities. *Code of federal register. Title 34.* Part 300

Van Gelderen, A., Schoone, R., De Glopper, Kees, Hulstijn, J., Simis, A., Snellings, P., & Stevenson, M. (2004). Linguistic Knowledge, Processing Speed, and Metacognitive Knowledge in First- and Second-Language Reading Comprehension: A Componential Analysis. *Journal of Educational Psychology. 96*(1), 19-30. (ABC)

Ventura County SELPA. (2011). *Special education eligibility guidelines*. Camarillo, CA: US. Ventura County Office of Education

Ventura County SELPA. (2012). *Guidelines for assessment for special education of english language learners*. Camarillo, CA: US. Ventura County Office of Education

West Shore Educational Service District (2013). *Procedures for determining eligibility of a specific learning disability using a pattern of strengths and weaknesses model.* Retrieved from http://www.wsesd.org/instructional-services/special-education/specific-learning-disability-identification/

Williams, J.P., (2003). Teaching text structure to improve reading comprehension. In H. Swanson, K. Harris, & S. Graham, (Eds.), *Handbook of Learning Disabilities* (pp. 293-305). New York, NY: The Guilford Press. (HT)

Williams, P.C., McCallum, R.S., & Reed, M.T. (1996). Predictive Validity of the Cattell-Horn Gf-Gc Constructs to Achievement. *Assessment*,*3*(1), 43-51. (ABC)

Zentall, S.S. (1990). Fact-retrieval automatization and math problem-solving by learning-disabled, attention-disordered, and normal adolescents. *Journal of Educational Psychology, 82(4),* 856-865. (ABC)

Zentall, S.S. & Ferkins, M.A. (1993). Mathematical problem-solving for youth with ADHD, with and without learning disabilities. *Learning Disability Quarterly, 16*(1), 6-18. (ABC)

Zheng, Y. & Zhou, X. (2009) Executive control in language processing. Neuroscience and Behavioral Reviews. 33, 1168-1177. (ABC)

Appendix

Appendices

Specific Learning Disability Eligibility Summary: Using a Pattern of Strengths and Weakness (PSW) Model

SPECIFIC LEARNING DISABILITY ELIGIBILITY SUMMARY

Using a Pattern of Strengths and Weaknesses (PSW) Model

Ventura County SELPA IEP

Student Name _____ D.O.B. _____ Meeting Date: _____

A. ☐ **Yes** ☐ **No The student has not achieved adequately to meet grade level standards in one or more of the following areas, when provided with differentiated instruction and intervention(s) appropriate for the student's age and/or grade level:**

- ☐ **Reading Comprehension**
- ☐ **Basic Reading Skills**
- ☐ **Reading Fluency**
- ☐ **Oral Expression**
- ☐ **Listening Comprehension**
- ☐ **Written Expression**
- ☐ **Mathematics Reasoning / Problem Solving**
- ☐ **Mathematics Calculation**

1. Norm-referenced academic assessments indicating academic achievement deficit(s):

Academic Achievement Deficit Area	Test/ Subtest	Standard Score	Percentile Rank
If the standardized academic testing scores do not substantiate an achievement deficit, explain the evidence that supports the team's rationale that an academic deficit exists.			

2. The academic achievement deficit(s) found above are substantiated by a minimum of three of the following academic data sources:

☐ Grade level assessments ☐ Grades ☐ Work Samples ☐ Progress Monitoring ☐ Progress towards goals (triennials)

3. The academic deficit(s) found above are substantiated by observations of the student. ☐ Yes ☐ No

B. ☐ Yes ☐ No The student demonstrates a pattern of cognitive strengths and weakness(es) relative to the student's age or grade.

1. Psychological processing measures (including rating scales) indicating an otherwise normal cognitive ability profile (ONCAP):

Processing Area		Test/ Subtest	Standard Score/ T-score	Percentile Rank

2. Psychological processing measures (including rating scales) indicating processing weakness(es):

Processing Area		Test/ Subtest	Standard Score/ T-score	Percentile Rank

C. ☐ Yes ☐ No Research supports a link between the academic achievement deficit(s) and the processing weakness(es), according to the Ventura County Comprehensive Organizational Matrix of Processing-Achievement Relations, Evaluating Significance (COMPARES).

If the research within the COMPARES does not indicate a link between the academic achievement deficits and the processing weakness(es), but the team still believes the student is eligible under the classification of SLD, please explain the team's rationale for linking the processing weakness(es) and academic deficits.

D. If any of the following are checked "Yes", the student may not be identified as having a specific learning disability:

Lack of progress is due primarily to limited school experience or poor school attendance.	☐ Yes ☐ No
Lack of progress is due primarily to environmental or cultural differences or economic factors.	☐ Yes ☐ No
Lack of progress is due primarily to intellectual disabilities or emotional disturbance.	☐ Yes ☐ No
Lack of progress is due primarily to a visual, hearing, or motor disability.	☐ Yes ☐ No
Lack of progress is due primarily to limited English proficiency.	☐ Yes ☐ No
Lack of progress can be corrected through other regular or categorical services offered within the regular instructional program.	☐ Yes ☐ No
Lack of progress is due to a lack of appropriate instruction.	☐ Yes ☐ No

☐ Yes ☐ No The IEP Team concludes that the student meets the eligibility requirements for Special Education under the classification of Specific Learning Disability.

Specific Learning Disability Eligibility Summary: Using a Pattern of Strengths and Weakness (PSW) Model- Instructions

Specific Learning Disability (SLD) Pages
for IEP Teams using Ventura County PSW Model

Specific Learning Disability Eligibility Summary:

This page is required when a student is suspected of being eligible under Specific Learning Disability using the Pattern of Strengths and Weaknesses (PSW) Model at an Initial Evaluation or Triennial Review IEP meeting. It may also be used to rule out SLD eligibility when it was a suspected area, depending upon district procedure.

A. Mark yes/no if responses to items 1-3 all substantiate the academic achievement deficit(s). Choose the academic achievement area(s) in which deficits were found after documentation of differentiated instruction, targeting interventions, and data through the assessment process.

    1. Fill in appropriate information. You need not list all tests, only those which are useful in determining the academic achievement deficit(s). Fully explain the evidence if the standardized scores do not substantiate the deficit(s).

    2. Mark all data sources that substantiate the academic achievement deficit(s). A minimum of three must be marked.

    3. Mark yes/no based on observational data.

B. Mark yes/no if responses to items 1 and 2 substantiate that processing strengths and weaknesses are evident.

    1. For the processing area, the left column is a drop-down menu that includes the processing areas outlined by CA Ed Code. The right column is for the assessment team to further delineate the specific processing strengths. Fill in the appropriate test information. You need not list all tests, only those which are useful in indicating an otherwise normal cognitive ability profile.

    2. For the processing area, the left column is a drop-down menu that includes the processing areas outlined by CA Ed Code. The right column is for the assessment team to further delineate the specific processing weaknesses. Fill in the appropriate test information. You need not list all tests, only those which are useful in indicating processing weakness(es).

C. Mark yes/no if the research supports the link between the identified academic achievement weaknesses and processing weakness(es). Should the information contained within the Comprehensive Organizational Matrix of Processing-Achievement Relations, Evaluating Significance (COMPARES) not support the link, assessment teams may include the team's rationale for linking this information.

D. All components of section D must be addressed.

SLD Eligibility: Record team decision regarding eligibility as a student with a specific learning disability who requires special education services.

Comprehensive Matrix of Processing- Achievement Relations, Evaluating Significance (COMPARES)

The Comprehensive Organizational Matrix of Processing-Achievement Relations, Evaluating Significance

The COMPARES

Acknowledgment

A special thank you to Kim Charnofsky and her team of volunteers who contributed countless hours to the development of the COMPARES document.

Introduction

The Comprehensive Organizational Matrix of Processing-Achievement Relations, Evaluating Significance (COMPARES) is intended to summarize the known relationships between cognitive processing areas and academic achievement areas for California school assessment teams. Based on a review of existing literature, the COMPARES identifies the most likely psychological processes involved in each area of academic achievement. The COMPARES is an integral tool in the Ventura County SELPA PSW Model, to be consulted at several key points in the assessment process, as outlined in the Overview [see section 5].

Processing Areas Are Related To One Another Since They All Act in the Same Brain

There is overlap across and among processes, as no part of the brain works in complete isolation. As described in Dehn's *Essentials of Processing Assessment* (2014a): "Multiple brain structures, systems, and processes are involved in any one function, and the same structures and processes participate in more than one functional system. The results are that overall mental processing is greater than the sum of its parts and that measuring cognitive processes in isolation is challenging" (p. 46).

Despite this challenge, school psychologists, researchers, and test publishers in the field do measure cognitive processes as if they were separate entities. The COMPARES thus organizes the research by processing area but with the presumption that the practitioner using the COMPARES will bring to bear the knowledge and understanding of these relationships among processing areas when interpreting the existing research base.

For example, the close relationship between attention and executive functions would suggest that if a strong significant relationship between executive functions and a particular academic area is identified in the COMPARES, but research has not (yet) identified a significant relationship between that academic area and attention, the practitioner may wish to go beyond the COMPARES and consider whether observation and assessment support the possibility that the student's attention is in fact impacting functioning in the area of concern. The fact that a related processing area has been documented to have an impact adds credence to this interpretation.

Certain Processing Areas Have Stronger Relationships With Certain Academic Areas

Many processing areas have a degree of relationship with many types of academic learning. However, some processes have more influence on particular academics than others, are the best predictors of success in an academic area, and have the strongest correlations with a given academic skill, as empirically identified by research. The COMPARES provides the evaluation team with a starting point when considering academic skill weaknesses and possible related psychological processes that might be impacting performance. The COMPARES also provides the team with a reference tool to consult once evaluation is underway, to confirm that an established, research-based link has been found between a particular processing area and a particular academic achievement area.

Academic areas also have varying degrees of relation to one another. For example, reading decoding and reading fluency are known to have a high degree of inter-relations (Benson, 2008). For this reason, in a case where a student may show impaired reading fluency (as well as struggling with decoding), the processing area research related to decoding may also apply to reading fluency, even if that processing area is not (yet) explicitly tied to reading fluency through empirical study. The team will consider these types of inter-relationships between academic areas when using the COMPARES.

The literature review that provides the foundation for the COMPARES is available on the VC SELPA website in a document of Annotated Bibliographic Citations (ABC). In addition, a version of the COMPARES that includes brief citations included in each box of the grid is also available online, for practitioners who want an at-a-glance overview of relevant research pertaining to the rating in each box.

Processing Areas and Sub-Areas in the COMPARES

The processing areas featured in the COMPARES reflect categories specified in California's Education Code, including auditory processing, visual processing, cognitive abilities (association, conceptualization, expression), sensory-motor skills, and attention. These categories were designated in an era that predated the fMRI and the ability to directly observe processing occurring in the brain. Recognizing that newer "brain-based" processing area categories rooted in the rapidly-advancing science of neuropsychology do not neatly correspond to the specified Education Code categories, the COMPARES further divides the research literature into sub–areas of the basic California cognitive processing areas, using the basic processing areas from the Education Code as general headings.

These sub-areas reflect categories found in the cognitive processing research literature, and align more precisely with brain-based findings than do their broader, more general counterparts. Examples of sub-areas might include phonological processing (as part of the broader area of auditory processing), orthographic processing (as part of the broader area of visual processing), and graphomotor processing (as part of the broader area of sensory-motor skills). Sub-areas also correspond with broad or narrow abilities as defined in Cattell-Horn-Carroll (CHC) theory, and as measured on the Woodcock Johnson Tests of Cognitive Abilities, an assessment instrument that has dominated the processing-related research arena in recent years.

The sub-areas give greater significance to the term Specific Learning Disability, as the deeper level of understanding associated with identifying the particular cause of a student's disability allows teams to address the area of deficit more directly. For example, saying that a student has an "auditory processing deficit" when auditory memory and auditory reasoning are intact can be misleading, but identifying a "phonological processing deficit" under the general category of auditory processing helps teams to pinpoint the area of concern and design appropriate intervention. Using this finer level of clarity leads to greater clarity of thinking and a finer level of intervention.

Working definitions of the processing areas and sub-areas may be found in the COMPARES glossary. While there appears to be greater consensus than in the past in the field of educational and cognitive psychology concerning definitions of these terms, at this writing, debate still continues, informed by the ever-changing research base.

A Special Note About the "Cognitive Abilities" Category

When California Education Code lists "Cognitive Abilities" as a processing area, the text explicitly includes association, conceptualization, and expression. Definitions for these and other processing-related terms are found within the glossary, but the interpretation of the simple equivalents to these terms in the assessment vernacular would equate association with "memory" of all kinds, conceptualization with "fluid reasoning" and "problem-solving," and expression with "oral expression" and "language processing." These are also terms that are used by major test publishers to define the factors that are being measured during a psychoeducational battery.

In addition, the Education Code definition of "Cognitive Abilities" does not appear to specify exclusion of other cognitive abilities that might be related to those processing areas that are specifically mentioned. Therefore, the Cognitive Abilities section of the COMPARES includes the processing abilities of Rapid Automatic Naming (RAN) (which taps into long-term memory/storage and retrieval), Executive Functions (a "gateway" processing area that helps the brain organize and use all of the other processing areas), and Processing Speed/Perceptual Speed (measured as such during research projects and variously covering visual, auditory, or sensory-motor speed).

Studies on "Attention" vs. Studies on ADHD

The bulk of the current research literature related to attention focuses on students with a diagnosis of ADHD as representative of students with attentional processing deficits. Using students with a DSM diagnosis makes it convenient for researchers since test subject criteria for inclusion in a study are clearly defined. However, interpreting these studies to ascertain whether a student's attention was the pure and primary determining factor in results -- versus whether another aspect of behavior associated with ADHD (e.g., impulsivity or hyperactivity) might have impacted results -- is typically challenging.

As research emerges that evaluates attention by component parts (for example, focused attention, sustained attention, selective attention, alternating/shifting attention, or divided attention), it would be anticipated that a greater clarity of connection will emerge between the attentional components and the academic achievement areas.

At this point in the evolution of the research base, there is a lack of solid research demonstrating strong associations between attention and several academic achievement areas. However, as assessment team members are aware, based on clinical experience and many hours of classroom observation, attention is a foundational processing area, and can impact every academic area when a student is not able to be engaged.

Executive Functions (EF)

A wide range of definitions of EF exist in the research. In recent years, there has been an increase in research on executive functions, yet study authors may operationally define EF differently. For purposes of the COMPARES, research was included that overtly uses terms such as “executive functions,” “executive functioning,” “executive processes,” “executive memory,” “executive working memory,” “central executive,” and “metacognition.” The summary of these findings is located in the COMPARES boxes headed, “Executive Functions, Executive Memory.” A general definition such as, ”An array of mental processes responsible for regulating cognitive functions during purposeful, goal-directed, problem-solving behavior” is useful for establishing shared understanding of the concept (Dehn 2014a, p. 27). An evaluation of the components of executive functions in the field reveals a variety of ways to divide the term into component parts, suggesting that the practitioner interested in understanding Executive Functions’ relationship to academic achievement areas should also consult COMPARES categories that include Working Memory, Fluid Reasoning, Rapid Naming Skills, and Attention, all of which either comprise part of the definition of executive functions and/or are highly related with executive functions, depending on whose model you are using (Dehn, 2014a; Flanagan et al, 2013; McCloskey & Perkins, 2013).

Language as a Process, Language as an Academic Skill

Language has the special distinction of being both a “process” and an “academic skill.” A student may have a neuropsychologically based weakness in processing incoming language or in expressing herself through language, and/or a student may have an academic skills weakness in Listening Comprehension and/or Oral Expression that could be caused by a variety of cognitive processes (not just a weakness in language processing, per se) (Dehn, 2014a). Students with these various challenges who are eligible for special education services may be identified as having a Specific Learning Disability, and/or they may be identified as having a Speech/Language Impairment. Either way, because of the unique status of language, there are language-related categories on both axes of the COMPARES. In several cases, where a grid intersects that would show where language processing is related to an academic achievement area related to language, there are no citations or ratings, since it is evident that the two areas are overlapping. Very few studies attempt to evaluate whether language processing is related to Listening Comprehension and Oral Expression, since it is implicit that their relationships are strong and not mutually exclusive.

The “crystallized knowledge” skills that include possessing general information, comprehending the world around, and maintaining a trove of vocabulary words are not included in the COMPARES as processing areas per se, since they are not thought to involve processing so much as a store of knowledge, to be “used” by other processing

areas during learning (Dehn,2014a). However, because many research studies use vocabulary as an indicator of language skills, there are some references to studies involving crystallized knowledge, vocabulary, and "Gc" within the COMPARES, found in relation to the language categories.

Processing Speed

Processing speed is a construct that is not possible to measure directly during a neuropsychological evaluation, unless there is access to equipment that can image the internal workings of the electrical connections in the brain. That is, processing speed is measured at the "output" level, not at the actual speed of a student's thinking, but by how quickly a student can respond using hands or voice. Current research studies measure processing speed by how quickly and accurately a student can perform simple, repetitive tasks, whether using a pencil or responding aloud during a rapid naming task. The COMPARES lists the relationship ratings of processing speed under the Cognitive Abilities sections, although speed of visual processing, speed of auditory (and language) processing, and speed of sensory-motor processing are also listed under their respective sections, as well, to acknowledge that there may be differences among different types of speeded responses, depending on the modality involved. In general, the research base does not distinguish between these modality differences in processing areas, although a few studies specify, for example, "speed of visual processing."

Rapid naming tasks are used by some researchers to measure processing speed, even though other researchers report these are primarily measures of long-term retrieval. Despite falling under the general category of rapid automatic naming, rapid naming tasks can vary in which modalities are involved. Some tasks involve visual input with less language and memory load, where a student quickly reads letters or numbers, some tasks may involve visual input with a greater language and memory load, where a student names colors and pictures, whereas other tasks involve retrieval fluency (associational fluency, verbal fluency), tapping more significantly into speed of long-term memory retrieval (and language) to create a list based on a category (e.g., animals, food, girls' names). Processing speed, which involves encoding, retrieval, and other working memory functions, increases with maturity, and exerts a direct, positive effect on working memory capacity (Evans et al., 2001). The more automatic a task is and the faster it can be completed, the less is the stress on working memory, and the more reserves of working memory are available for processing. Because of their interwoven characteristics, processing speed has an exceptionally strong relationship with working memory (Dehn, 2008).

Because of the diversity of methods of measuring processing speed used in the literature and available in current assessment instruments and its overlap with other processing areas, the practitioner measuring a student's processing speed should be aware of which modalities are involved in each type of task during testing, how these particular modalities relate to the student's hypothesized strengths and weaknesses and to other processing areas, and which part of the COMPARES to consult in order to best understand the scores.

The "Comprehensive" in the COMPARES

The use of the term "Comprehensive" – the initial letter in the COMPARES acronym -- refers to the grid being inclusive of all of the processing areas and academic achievement areas specified in Educational Code. It is not intended to suggest that the COMPARES

includes every research study that has been published in the past few decades. Instead, it must be understood that the research underlying the COMPARES reflects the intensive work of a team of school psychologists and graduate students over a period of many months to locate and review selected, relevant, available studies and bibliographies compiled by other researchers, to represent what is current at this point in time. While the COMPARES will be updated over time, it is the responsibility of each professional to consider relevant new research in the field as it is published and becomes available.

Clinician Judgment and Experience When Using The COMPARES

The COMPARES should not be used to exclude the possibility that, in an individual student, a particular processing weakness might affect academic performance in a way that is not consistent with the known research findings, which look at majority effects and levels of significance. Because all brains differ, individual profiles may differ from the norm. Clinician judgment and experience are essential in interpretation.

When To Use The COMPARES

*Use the COMPARES in the initial stages when the initial suspicion appears that a student may have a learning disability, to see if observed processing weaknesses correspond with observed academic weaknesses.

* Use the COMPARES when planning the assessment, to assist the team in knowing which processing areas to evaluate, based on the referral question.

* Use the COMPARES during assessment as the team revises and fine tunes the hypothesis, to help guide additional areas to be evaluated.

*Use the COMPARES when the assessment is complete, to confirm that processing area strengths and weaknesses correspond with academic achievement area strength and weaknesses.

How To Use The COMPARES

To begin, ask these questions: Based on the student's referral reason, which academic areas are suspected to be weak? Which processing areas are suspected to be weak?

Using the Overview of the COMPARES (page 95), locate the page numbers you will need to consult to look up the relationships between processing and academic areas.

Locate the suspected academic areas in the COMPARES. Scan down the relevant column(s) and, using the COMPARES Key of Rating Symbols as a guide (page 94), see which processing areas have been found to be most closely associated with these academic areas. Do these processing areas make sense with what you know of the referral? Are these processing areas observed weaknesses for the student, based on what team members have shared?

Using the COMPARES, plan the assessment to include evaluation of processing areas related to the suspected area(s) of academic weakness. If suspected academic and

processing areas do not appear related, engage in additional consultation with team members and additional observation of the student to refine the hypothesis, and re-visit the COMPARES. Continue to consult the COMPARES as your evaluation unfolds.

Processing Development Changes as Students Grow

The COMPARES includes "Developmental Notes" to remind users that, although all of the processes begin to develop around the same time in early childhood, the pace of development varies by processing area, and the primary process a student relies on for a particular task may change over time (Dehn, 2014a) Factor loadings (indications of what a subtest is primarily measuring) for some processing subtests change over the course of development. For example, a visual-spatial subtest designed to measure fluid reasoning in older students may actually measure visual-spatial ability in a younger student more than it measures fluid reasoning. The test performance of younger students typically relies on fewer processes than that of older children. Also, when an essential process is underdeveloped at the time of testing, it may have undue influence on subtests designed to assess other processes. Thus, a young student's limited ability to sustain attention can have a strong influence across much of a cognitive battery.

When considering which processes relate to a student's academic achievement performance, the student's developmental stage and the timing of the maturation of processing areas should be carefully considered. Where research supports the finding of a difference in significance between a processing-achievement duo based on age differences, the COMPARES may list two separate numbers, one for each age group studied. The practitioner should be sure to consult the appropriate rating for the student's age group.

How to Interpret the COMPARES Key of Rating Symbols

The Key uses a five-point scale to rate the relationship between processing areas and academic achievement areas, based on existing reviewed research.

- Relationships that have a rating of "four" will suggest to the practitioner that there is strong convincing evidence of processing-achievement relations.
- Scores of "three" suggest convincing evidence, but may not be unanimous among researchers, and/or may not have the explicit research base that a score of "four" would imply.
- Relationships marked with a "two" would need to be carefully considered by practitioners; if a finding of a more significant processing-achievement relationship for a particular child than the COMPARES research supports is to be considered, the team would need to carefully document the evidence.
- Relationships marked with a "one" indicate either weak or little relationship, or studies done without strong foundations.
- A null sign or blank in the COMPARES indicates that no research was discovered that supports the relationship at this point in time.
- On a few occasions, the rating differs depending on a student's age, which is noted.
- On some occasions, two ratings are listed because the relationship was judged to fall between two ratings, rather than clearly aligning with one.

How Research Was Evaluated for Inclusion in the COMPARES

The initial intention of the review of literature for the COMPARES was to limit the review to published peer-reviewed journal articles in the field of educational psychology and neuropsychology. However, it quickly became apparent that additional sources would need to be considered to cover the broad research base of processing-achievement relations. Thus, journal articles from related fields and specialized areas were also considered, such as speech/language pathology, occupational therapy, optometric science, and the burgeoning field of fMRI studies. Recent texts authored by well-respected researchers in the field were also examined, as these well-documented works integrated and summarized findings from many more studies than it would have been possible to review with the COMPARES team.

In addition, while original studies using an experimental or quasi-experimental design were initially targeted, researchers also discovered a wealth of information available in studies using other research designs including well-constructed correlation studies and, of great assistance, synthesis/review works, particularly those that used a meta-analytical approach. No single-subject studies were used to draw a conclusion, although some single-subject studies were reviewed for background information and case study illustration. The Annotated Bibliographic Citations (ABC), available online, describe each study in more detail.

A number of studies were considered for inclusion that failed to delineate processing areas or academic achievement areas from other, linked areas. For example, in the case of academic achievement, some studies simply discussed a processing area's relationship to "Total Achievement." In these cases, the research was not able to be used for purposes of the COMPARES because it was not specific enough, with few exceptions. If a finding general to "reading" (without specifying whether it was decoding, fluency, or comprehension) or to "math" (without specifying whether it was calculation or problem-solving) was made, and by reading the research carefully it was difficult to evaluate what aspect of these academic areas was involved, then the research was not used. On occasion, a study's author might make a case for greater generalization to additional areas, and, in this case, the statement of justification was included.

Much of the processing research in recent years is based upon the Cattell-Horn-Carroll (CHC) theory (integrated with neuropsychological theory) and uses the Woodcock Johnson Tests of Abilities as the primary instrument for subject evaluation. While many CHC-based studies were reviewed for the COMPARES, an effort was also made to review studies that were not solely CHC-based, which relied on other instruments, to provide a balance of impact.

The COMPARES Key

COMPARES Key of Rating Symbols for Research Associating Processing & Achievement Areas	Description of Relationship
❹	Strong convincing evidence. Research shows a strong to very strong relationship, and is consistent. Meta-analyses may confirm the correlation between this processing area and achievement area.
❸	Convincing evidence. One or more research studies or meta-analyses show a strong relationship, but findings may be inconsistent or contradictory. A recognized expert in the field may state in an article or a textbook that there is a significant or relevant relationship, yet current research may not focus on the explicit connection. An fMRI study may show activation of a brain area known to be associated with a particular cognitive process while engaged in a related academic task.
❷	Partially convincing evidence. Some research shows a moderate or relevant relationship, but findings may be inconsistent, contradictory, or preliminary.
❶	Unconvincing evidence. Research shows a weak relationship, and/or is anecdotal rather than quantitative, and/or lacks peer review, and/or has few or no bibliographic citations.
∅	No research found that shows even a weak correlation as of the publication date of this document. If a study was found that shows "no relation," this study is cited in the annotated version of the COMPARES.

Overview of the COMPARES

Directions for use: The overview of the COMPARES document allows assessment teams a quick glance at the strength of the research link between the processing area and academic achievement area. Assessment teams need to examine the specific page number(s) (which are located directly to the right of the rating symbol) for the areas of question and take into consideration the other information provided within the COMPARES.

Processing Area	Processing Sub-Area	Basic Reading Skills (Decoding)		Reading Fluency		Reading Comprehension		Written Expression		Math Calculation		Math Problem-Solving		Listening Comprehension		Oral Expression	
Auditory Processing	**Phonological Processing**	❹	B11	❸	B11	❸❶	B11	❷	B11	❷	B18	❷	B18	❸	B23	❸	B23
	Auditory Memory	❹	B11	❸	B11	❹	B11	❹	B11	❹	B18	❹	B18	❹	B23	❹	B23
	Auditory Processing Speed	*	B11	*	B11	*	B11	*	B11	*	B18	*	B18	❸	B23	❸	B23
	Auditory Processing	❷❸	B12	*	B12	❸	B12	❸	B12	∅	B18	∅	B18	❸	B23	❷	B23
Visual-Spatial Processing	Visual-Spatial Processing	❷	B13	❷	B13	❷❸	B13	❶	B13	❷❸	B19	❶	B19	❶❷	B24	∅	B24
	Orthographic Processing	❹	B13	❹	B13	❷	B13	❷	B13	❷	B19	∅	B19	∅	B24	∅	B24
	Visual Memory	❷	B13	❷	B13	❹	B13	❸❹	B13	❹	B19	❹	B19	∅	B24	∅	B24
	Visual Processing Speed	❹	B13	❹	B13	*	B13	*	B13	*	B19	*	B19	∅	B24	∅	B24
Cognitive Abilities	Association/Memory	❹	B14	❹	B14	❹	B14	❹	B14	❹	B20	❹	B20	❸❹	B25	❹	B25
	Rapid Naming Skills	❹	B14	❹	B14	❷	B14	❷	B14	❸	B20	❷	B20	∅	B25	*	B25
	Conceptualization and Fluid Reasoning/Problem-Solving	∅	B14	∅	B14	❷❸	B14	❷❸	B14	❸	B20	❹	B20	∅	B25	∅	B25
	Expression	❸	B15	∅	B15	❸	B15	❸	B15	∅	B20	❸	B20	❸	B25	*	B25
	Language Processing (Crystalized Knowledge)	❹	B15	❸	B15	❸	B15	❸	B15	❷	B20	❸	B20	*	B25	*	B25
	Processing Speed	❹	B15	❹	B15	❸	B15	❸❹	B15	❹	B21	❹	B21	❸	B26	❸	B26
	Executive Functions	❸	B16	❷❸	B16	❹	B16	❸	B16	❸	B21	❸	B21	❹	B26	❹	B26
Sensory-Motor Skills	Visual Motor, Fine Motor, Graphomotor, Sensorimotor	❶	B17	∅	B17	∅	B17	❸	B17	❷	B22	❶	B22	∅	B27	∅	B27
	Sensorimotor Memory	❶	B17	∅	B17	∅	B17	∅	B17	∅	B22	∅	B22	∅	B27	∅	B27
	Sensorimotor Speed	∅	B17	∅	B17	∅	B17	*	B17	∅	B22	∅	B22	∅	B27	∅	B27
	Oral Motor/Oral Motor Speed	❷	B17	❸	B17	∅	B17	∅	B17	∅	B22	∅	B22	∅	B27	*	B27
Attention†	Attention	❶	B17	❶❷	B17	❷	B17	❷	B17	❸	B22	❷	B22	❷	B28	❶	B28

*Please reference the COMPARES for specific information.

Updated 11/2015

† Please refer to page B3 for additional information regarding Attention.

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Basic Reading Skills (aka Reading Decoding)	Reading Fluency*	Reading Comprehension	Written Language
* Studies by McGrew & Wendling (2010), Benson (2008), and Evans et al (2001) suggest that there is a direct relationship between basic reading skills (e.g., decoding) and reading fluency. Therefore, where significance is found between a processing area and basic reading skills, it may be possible to infer a relationship between that processing area and reading fluency, even if the research was not explicitly examining proficiency in reading fluency. In addition, reading fluency initially has a strong effect on reading comprehension but that effect is reduced with age (Benson, 2008).					
Auditory Processing (Ga) **Developmental Note[1]:** Auditory processing matures early, after gradual development.	**Phonological Processing (including phonemic awareness and sound discrimination, phonetic coding, phonologic memory)** **Developmental Note[1]:** Phonological Processing matures early after gradual development.	❹ See also "Memory" under "Cognitive Abilities."	❸ See also "Memory" under "Cognitive Abilities."	❸ Rating of 3 for younger students, but for older students typically other factors impact reading comprehension, so rating would be 1 ❶ See also "Memory" under "Cognitive Abilities."	❷ See also "Memory" under "Cognitive Abilities."
	Auditory Memory, Auditory Short-Term Memory, Auditory Working Memory, Verbal Memory, Verbal Working Memory, Phonological Memory, Phonological Short-Term Memory **Developmental Note[1]:** Working Memory matures late after gradual development.	❹ See also "Memory" under "Cognitive Abilities."	❸ See also "Memory" under "Cognitive Abilities."	❹ See also "Memory" under "Cognitive Abilities."	❹ See also "Memory" under "Cognitive Abilities."
	Auditory Processing Speed	See "Processing Speed" and "Rapid Naming Skills" under Cognitive Abilities section.	See "Processing Speed" and "Rapid Naming Skills" under Cognitive Abilities section.	See "Processing Speed" and "Rapid Naming Skills" under Cognitive Abilities section.	See "Processing Speed" and "Rapid Naming Skills" under Cognitive Abilities section.

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	**Sub-Area**	**Basic Reading Skills** (aka Reading Decoding)	**Reading Fluency***	**Reading Comprehension**	**Written Language**
Auditory Processing (Ga) (continued)	**Auditory Processing (Ga) including Auditory Analysis/Synthesis** **Developmental Note[1]:** Auditory processing matures early, after gradual development.	❷ to ❸	See "Auditory Processing and Basic Reading Skills" and "Phonological Processing and Reading Fluency"	❸	❸

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Basic Reading Skills (aka Reading Decoding)	Reading Fluency*	Reading Comprehension	Written Language
Visual-Spatial Processing (Gv) Developmental Note[1]: Visual-Spatial Processing matures early, after gradual development.	**Visual-Spatial Processing (Gv) including Visual Analysis and Synthesis, Visual Perception, and Visual Discrimination**	❷ See "Orthographic Processing" below.	❷ See "Processing Speed" under "Cognitive Abilities" in relation to Reading Fluency, for studies on speeded visual processing.	❷ to ❸	❶
	Orthographic Processing	❹	❹	❷	❷
	Visual Memory, Spatial Memory, Visual-Spatial Memory, Visual-Spatial Short-Term Memory, Visual-Spatial Working Memory	❷ See also "Memory" and "Orthographic Processing" under "Cognitive Abilities."	❷ See also "Memory" and "Orthographic Processing" under "Cognitive Abilities."	❹ See also "Memory" under "Cognitive Abilities."	❸ to ❹ See also "Memory" under "Cognitive Abilities."
	Visual Processing Speed	❹ See "Processing Speed" and "Rapid Naming Skills" under "Cognitive Abilities."	❹ See "Processing Speed" and "Rapid Naming Skills" under "Cognitive Abilities."	See "Processing Speed" and "Rapid Naming Skills" under Cognitive Abilities section.	See "Processing Speed" and "Rapid Naming Skills" under Cognitive Abilities section.

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Basic Reading Skills (aka Reading Decoding)	Reading Fluency*	Reading Comprehension	Written Language
Cognitive Abilities	**Memory including Association and Long-Term Retrieval (Glr)** **Developmental Notes[1]:** Long-Term Recall matures early, after gradual development. Working Memory matures late after gradual development.	❹	❹	❹	❹
	Rapid Naming Skills	❹	❹	❷ See also "Memory including Association & Long-Term Retrieval"	❷ See also "Memory including Association and Long-Term Retrieval"
	Conceptualization and Fluid Reasoning (Gf)/ Problem-Solving **Developmental Note[1]:** Fluid Reasoning is one of the last cognitive abilities and processes to fully develop. Full Development of fluid reasoning cannot be expected until late adolescence. Fluid reasoning matures late, after gradual development.	∅	∅	❷ to ❸	❷ to ❸

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Basic Reading Skills (aka Reading Decoding)	Reading Fluency*	Reading Comprehension	Written Language
Cognitive Abilities (continued)	**Expression** **Developmental Note[1]:** Oral language matures late, after gradual development.	❸	∅ See "Rapid Naming Skills," a process related to reading fluency. Both "naming facility" or "rapid automatic naming" (the ability to rapidly retrieve &associate print & sound) & expressional fluency (rapidly thinking of different ways of expressing an idea) are part of long-term storage &retrieval, & may overlap in certain ways, but are distinct skills.	❸	❸
	Language Processing (Crystalized Knowledge) **Developmental Note[1]:** Oral language matures late, after gradual development.	❹	❸	❸	❸
	Processing Speed **Developmental Note[1]:** Processing speed matures early after rapid development. Benson 2008: "The effect of cognitive processing speed (Gs) on reading fluency increases with age."	❹	❹	❸	❸ ❹ (for ages 8-12 & 14)

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas					
Processing Area	**Sub-Area**	**Basic Reading Skills** (aka Reading Decoding)	**Reading Fluency***	**Reading Comprehension**	**Written Language**
	Executive Functions, Executive Memory, Executive Working Memory **Developmental Note:** Executive functions mature late, after gradual development.	❸ See also "Memory" under "Cognitive Abilities."	❷ to ❸ See also "Memory" under "Cognitive Abilities."	❹	❸

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Basic Reading Skills (aka Reading Decoding)	Reading Fluency*	Reading Comprehension	Written Language
Sensory-Motor Skills	**Visual Motor, Fine Motor, Graphomotor, Sensorimotor, Sensory-Motor, Psychomotor Perceptual Motor** **Developmental Note[1]:** Fine motor processing matures early after gradual development.	❶	∅	∅	❸
	Sensorimotor Memory	❶ See also "Memory" under "Cognitive Abilities."	∅ See also "Memory" under "Cognitive Abilities."	∅ See also "Memory" under "Cognitive Abilities."	∅ See also "Memory" under "Cognitive Abilities."
	Sensorimotor Speed, Graphomotor Speed	∅ See "Processing Speed" under Cognitive Abilities section.	∅ See "Processing Speed" under Cognitive Abilities section.	∅	See "Processing Speed" under Cognitive Abilities section above.
	Oral Motor/Oral Motor Speed	❷ Consider referral to Speech/Language Pathologist.	❸ Consider referral to Speech/Language Pathologist.	∅	∅
Attention† **Developmental Note[1]:** Attention matures late after gradual development.	**Attention**	❶	❶ to ❷	❷	❷

† Please refer to page B3 for additional information regarding Attention.

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Math Calculations	Math Problem-Solving
In some cases, research shows that "narrow" cognitive abilities may play an important role in the prediction of math achievement – both basic math skills and problem-solving – even when the corresponding "broad" ability does not (McGrew & Wendling, 2010).			
Auditory Processing **Developmental Note[1]:** Auditory processing matures early, after gradual development.	**Phonological Processing (including phonemic awareness and sound discrimination, phonetic coding, phonologic memory)** **Developmental Note[1]:** Phonological processing matures early after gradual development.	❷ See also "Memory" under "Cognitive Abilities."	❷ See also "Memory" under "Cognitive Abilities."
	Auditory Memory, Auditory Short-Term Memory, Auditory Working Memory, Verbal Memory, Verbal Working Memory, Phonological Memory, Phonological Short-Term Memory **Developmental Notes[1]:** Working Memory matures late after gradual development.	❹ See "Memory" under "Cognitive Abilities" below.	❹ See "Memory" under "Cognitive Abilities" below.
	Auditory Processing Speed	See "Processing Speed" and "Rapid Naming Skills" under Cognitive Abilities section.	See "Processing Speed" and "Rapid Naming Skills" under Cognitive Abilities section.
	Auditory Processing (Ga) including Auditory Analysis/Synthesis **Developmental Note[1]:** Auditory processing matures early, after gradual development.	∅	∅ See "Phonological Processing" above.

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Math Calculations	Math Problem-Solving
Visual-Spatial Processing (Gv) Developmental Note[1]: Visual-Spatial Processing matures early, after gradual development.	**Visual-Spatial Processing (Gv) including Visual Analysis and Synthesis, Visual Perception, and Visual Discrimination**	❷ to ❸	❶
	Orthographic Processing	❷	∅
	Visual Memory, Spatial Memory, Visual-Spatial Memory, Visual-Spatial Short-Term Memory, Visual-Spatial Working Memory **Developmental Notes[1]:** Long-Term Recall matures early, after gradual development. Working Memory matures late after gradual development.	❹ See also "Memory" under "Cognitive Abilities."	❹ See also "Memory" under "Cognitive Abilities."
	Visual Processing Speed	See "Processing Speed" and "Rapid Naming Skills" under Cognitive Abilities section.	See "Processing Speed" and "Rapid Naming Skills" under Cognitive Abilities section.

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Math Calculations	Math Problem-Solving
Cognitive Abilities	**Memory including Association and Long-Term Retrieval (Glr)** **Developmental Notes[1]:** Long-Term Recall matures early, after gradual development. Working Memory matures late after gradual development.	❹	❹
	Rapid Naming Skills	❸	❷
	Conceptualization and Fluid Reasoning (Gf)/ Problem-Solving **Developmental Note[1]:** Fluid Reasoning is one of the last cognitive abilities and processes to fully develop. Full Development of fluid reasoning cannot be expected until late adolescence. Fluid reasoning matures late, after gradual development.	❸	❹
	Expression **Developmental Note[1]:** Oral language matures late, after gradual development.	∅ See "Language Processing" below.	❸
	Language Processing (Crystalized Knowledge) **Developmental Note[1]:** Oral language matures late, after gradual development.	❷	❸

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas			
Processing Area	**Sub-Area**	**Math Calculations**	**Math Problem-Solving**
	Processing Speed **Developmental Note[1]:** Processing speed matures early after rapid development.	❹	❹
	Executive Functions, Executive Memory, Executive Working Memory **Developmental Note[1]:** Executive functions mature late, after gradual development.	❸	❸

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Math Calculations	Math Problem-Solving
Sensory-Motor Skills	**Visual Motor, Fine Motor, Graphomotor, Sensorimotor, Sensory-Motor, Psychomotor Perceptual Motor** **Developmental Note[1]:** Fine motor processing matures early after gradual development.	❷	❶
	Sensorimotor Memory	∅ See "Memory" under "Cognitive Abilities."	∅ See "Memory" under "Cognitive Abilities."
	Sensorimotor Speed, Graphomotor Speed	∅ See "Processing Speed" under Cognitive Abilities section.	∅ See "Processing Speed" under Cognitive Abilities section.
	Oral Motor/Oral Motor Speed	∅	∅
Attention† **Developmental Note[1]:** Attention matures late after gradual development.	**Attention**	❸	❷

† Please refer to page B3 for additional information regarding Attention.

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Listening Comprehension	Oral Expression
Auditory Processing (Ga) **Developmental Note[1]:** Auditory processing matures early, after gradual development.	**Phonological Processing (including phonemic awareness and sound discrimination, phonetic coding, phonologic memory)** **Developmental Note[1]:** Phonological Processing matures early after gradual development.	❸ See also "Memory" under "Cognitive Abilities."	❸ See also "Memory" under "Cognitive Abilities."
	Auditory Memory, Auditory Short-Term Memory, Auditory Working Memory, Verbal Memory, Verbal Working Memory, Phonological Memory, Phonological Short-Term Memory **Developmental Notes[1]:** Working Memory matures late after gradual development.	❹ See "Memory" under "Cognitive Abilities."	❹ See "Memory" under "Cognitive Abilities."
	Auditory Processing Speed	❸ See "Processing Speed" and "Rapid Naming Skills" under "Cognitive Abilities."	❸ See "Processing Speed" and "Rapid Naming Skills" under "Cognitive Abilities."
	Auditory Processing (Ga) including Auditory Analysis/Synthesis	❸ See "Phonological Processing" above.	❷

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Listening Comprehension	Oral Expression
Visual-Spatial Processing (Gv) Developmental Note[1]: Visual-Spatial Processing matures early, after gradual development	**Visual-Spatial Processing (Gv) including Visual Analysis and Synthesis, Visual Perception, and Visual Discrimination**	❶ to ❷	∅
	Orthographic Processing	∅	∅
	Visual Memory, Spatial Memory, Visual-Spatial Memory, Visual-Spatial Short-Term Memory, Visual-Spatial Working Memory **Developmental Notes[1]:** Long-Term Recall matures early, after gradual development. Working Memory matures late after gradual development.	∅ See "Memory" under "Cognitive Abilities."	∅ See "Memory" under "Cognitive Abilities."
	Visual Processing Speed	∅ See "Processing Speed" under "Cognitive Abilities."	∅ See "Processing Speed" under "Cognitive Abilities."

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Listening Comprehension	Oral Expression
Cognitive Abilities	**Memory including Association and Long-Term Retrieval (Glr)** **Developmental Notes[1]:** Long-Term Recall matures early, after gradual development. Working Memory matures late after gradual development.	❸ to ❹	❹
	Rapid Naming Skills	∅	See "Long-Term Retrieval" under "Memory" above.
	Conceptualization and Fluid Reasoning (Gf)/ Problem-Solving **Developmental Note[1]:** Fluid Reasoning is one of the last cognitive abilities and processes to fully develop. Full Development of fluid reasoning cannot be expected until late adolescence. Fluid reasoning matures late, after gradual development.	∅	∅
	Expression **Developmental Note[1]:** Oral language matures late, after gradual development.	❸	By definition, oral expression as a process is related to oral expression as a skill.
	Language Processing **Developmental Note[1]:** Oral language matures late, after gradual development.	The relationship between language processing (as a processing area) and listening comprehension (as an academic achievement area) is implicit, as both are interlinked and overlapping parts of language comprehension.	The relationship between language processing (as a processing area) and oral expression (as an academic achievement area) is implicit, as the processing of language is required prior to and while expressing oneself aloud.

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas			
Processing Area	**Sub-Area**	**Listening Comprehension**	**Oral Expression**
	Processing Speed **Developmental Note[1]:** Processing speed matures early after rapid development.	❸	❸
	Executive Functions, Executive Memory, Executive Working Memory **Developmental Note[1]:** Executive functions mature late, after gradual development.	❹ See also "Memory" section in "Cognitive Abilities" above.	❹ See also "Memory" section in "Cognitive Abilities" above.

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Listening Comprehension	Oral Expression
Sensory-Motor Skills	**Visual Motor, Fine Motor, Graphomotor, Sensorimotor, Sensory-Motor, Psychomotor Perceptual Motor** **Developmental Note[1]:** Fine motor processing matures early after gradual development.	∅	∅
	Sensorimotor Memory	∅ See "Memory" under "Cognitive Abilities."	∅ See "Memory" under "Cognitive Abilities."
	Sensorimotor Speed, Graphomotor Speed	∅ See "Processing Speed" under "Cognitive Abilities."	∅ See "Processing Speed" under "Cognitive Abilities."
	Oral Motor/Oral Motor Speed	∅	**California Education Code 56333, CCR Title 5, Section 3030(c)** (an articulation disorder is when the pupil displays reduced intelligibility or an inability to use the speech mechanism which significantly interferes with communication and attracts adverse attention) Consider referral to Speech/Language Pathologist.

COMPARES for California's Five Processing Areas, Sub-Areas, and Academic Areas

Processing Area	Sub-Area	Listening Comprehension	Oral Expression
Attention† **Developmental Note**[1]**:** Attention matures late after gradual development.	**Attention**	❷	❶

[1] Developmental groupings of processes are provided in Dr. Milton J. Dehn's *Essentials of Processing Assessment, Second Edition,* 2014, pp. 48 and 49. Dr. Dehn reports that all processes begin to develop about the same time during early childhood, but the rate of progress varies. Basic developmental processes (e.g., perceptual processes) reach full development relatively early, but higher-level processes (e.g., executive functions) take longer to fully mature. Dr. Dehn identifies three groupings of processes based on timing of maturation: 1.) mature early after gradual development, plateauing in elementary school (auditory, fine motor, long-term recall, phonological, visual-spatial); 2.) mature in adolescence after gradual development (attention, executive functions, fluid reasoning, oral language, working memory); 3.) mature early after rapid development, plateauing in elementary school (processing speed).

† Please refer to page B3 for additional information regarding Attention.

The Comprehensive Organizational Matrix of Processing-Achievement Relations, Evaluating Significance

Glossary for the COMPARES

The Glossary contains definitions of processing areas and sub-areas used by the team of school psychologists who read the research that underlies the COMPARES. While all study authors do not use the same definitions in their studies, shared working definitions were helpful in establishing a common frame of reference for the COMPARES team to use to approach the research literature. As test publishers also do not use identical definitions for processing areas in each of their assessment instruments, the practitioner is urged to consider how best to interpret which processing area is being measured when selecting tools to evaluate students. This Glossary may be useful in that regard.

In addition to the working definitions, to allow the user to view the original wording used by the authors of the following key sources, the Glossary includes direct quotations excerpted from these authors' writings, following the definitions:

Dehn, M. J. (2014a). *Essentials of processing assessment* (2nd ed.). New York: John Wiley & Sons.

Dehn, M. J. (2014b). *Working memory in the classroom.* Wisconsin: Schoolhouse Educational Services, LLC.

Dehn, M. J. (2010). *Long-term memory problems in children and adolescents: Assessment, intervention, and effective instruction.* New York: John Wiley & Sons.

Dehn, M. J. (2008). *Working memory and academic learning: Assessment and intervention.* New York: John Wiley & Sons.

Flanagan, D. P., Alfonso, V. C., & Ortiz, S. O. (2012). The cross-battery assessment approach: An overview, historical perspective, and current directions. In Flanagan D.P. Editor & Harrison, P.L. Editon (Eds.), *Contemporary Intellectual Assessment, Third Edition* (pp. 459-483). New York: Guilford Press.

Flanagan, D. P., & Ortiz, S. O., Alfonso, V. C., (2013). *Essentials of cross-battery assessment* (3rd ed.). New York: John Wiley & Sons, Inc.

Newton, J.H. & McGrew, K.S. (2010). Introduction to the special issue: Current research in Cattell-Horn-Carroll-Based assessment. *Psychology in the Schools,* Vol. 47(7), pp.621-634.

Rodrigues, J. & Decker, K. (2007). *Special education information packet for San Lorenzo High School general education teachers.* San Lorenzo Unified School District, California.

COMPARES GLOSSARY

OF PROCESSING AREAS AND SUB-AREAS

Association

Association is the mental/psychological process of remembering basic units of information and establishing systems for relating those units to each other. Association is listed as a "basic psychological process" by California Education Code (California Department of Education: Section 3030 (b)(10), Title 5, CCR). See definitions of "Memory," "Long-Term Retrieval," "Working Memory," "Rapid Naming Skills," "Orthographic Processing, "Auditory Memory," "Visual Memory," and "Sensorimotor Memory" in the Glossary.

Key Authors In Their Own Words:	
Associative Memory (MA): The ability to remember previously unrelated information as having been paired.	Flanagan et al., 2013
Associational Fluency (FA): The ability to rapidly produce a series of original or useful ideas related to a concept.	Flanagan et al., 2013
Retrieval Fluency: Tasks of this nature are sometimes referred to as associational fluency or verbal fluency tasks. These activities are intended to measure the examinee's speed of long-term memory retrieval.	Dehn, 2008
A working memory measurement paradigm developed by Cowan et al 2006 using verbal-spatial associations involved remembering the location of names presented on a computer screen, to measure working memory for abstract information, with cross-modal associations required.	Dehn, 2008

Attention

Attention is the mental/psychological process of maintaining alertness to incoming sensory stimuli in order to process it. Attention requires the sustained focus of cognitive resources on information while filtering or ignoring extraneous information. Attention is a basic or "gatekeeping" function that is a foundation to all other neurological/cognitive functions. Attention is listed as a "basic psychological process" by California Education Code (California Department of Education: Section 3030 (b)(10), Title 5, CCR). Attention is a process that matures late after gradual development and is associated with the Frontal, Parietal, and Temporal lobes of the brain (Dehn, 2014a). See also "Executive Functions."

Some researchers divide attention into component parts, which may be measured separately:

- Focused Attention: The ability to respond discretely to specific visual, auditory or tactile stimuli.
- Sustained Attention (vigilance): The ability to maintain a consistent behavioral response during continuous and repetitive activity.
- Selective Attention: The ability to maintain a behavioral or cognitive set in the face of distracting or competing stimuli. Therefore it incorporates the notion of "freedom from distractibility."
- Alternating/Shifting Attention: The ability of mental flexibility that allows individuals to shift their focus of attention and move between tasks having different cognitive requirements.
- Divided Attention: This is the highest level of attention and it refers to the ability to respond simultaneously to multiple tasks or multiple task demands.

Key Authors In Their Own Words:	
Attention is a state of awareness in which the senses and cognition are selectively focused on certain stimuli, thoughts, or aspects of the environment. The cognitive processes of attention are those self-inhibitory processes that allow one to focus, sustain, and divide attention.	Dehn, 2014a
Attention is a complex and multi-faceted neuropsychological function used when an individual must focus on certain stimuli for information processing. In order to regulate thinking and to complete tasks of daily living such as schoolwork, it is necessary to be able to attend to both auditory and visual stimuli in the environment. Attention can be viewed as the foundation of all other higher-order processing. Attention can be divided into five sub-areas: selective/focused attention, shifting attention, divided attention, sustained attention, and attentional capacity (Miller 2007).	Flanagan et al., 2013

Auditory Memory

Auditory Memory is remembering what has been heard. Variously called Auditory Memory, Auditory Short-Term Memory, Verbal Memory, Verbal Short-Term Memory, Verbal Working Memory, Phonological Memory, Phonological Short-Term Memory, Short-Term Auditory Memory, Short-Term Memory, and similar terms, Auditory Memory may be found in the COMPARES under Auditory Processing as well as under Cognitive Abilities: Memory. See also “Memory” and particular types of memory in Glossary.

Key Authors In Their Own Words:	
Although frequently referred to as auditory or verbal short-term memory, phonological short-term memory is a more appropriate term, because auditory input is processed and encoded phonologically (Dehn 2008). Phonological short-term memory is a limited-capacity, speech-based store of verbal information (Baddeley, 1986, 2003).	Dehn, 2014a

Key Authors In Their Own Words:	
Verbal working memory consists of complex working memory operations in which analysis, manipulation, and transformation of verbal material take place (Dehn, 2008). One of the primary functions of verbal working memory is to extract a meaningful representation that corresponds to the information taken in by phonological short-term memory.	Dehn, 2014a
Memory Span (MS): The ability to maintain information, maintain it in primary memory, and immediately reproduce the information in the same sequence in which it was represented."	Flanagan et al., 2013
Working Memory Capacity (MW): The ability to direct the focus of attention to perform relatively simple manipulations, combinations, and transformations of information within primary memory while avoiding distracting stimuli and engaging in strategic/controlled searches for information in secondary memory.	Flanagan et al., 2013
Short-Term Memory: Ability to hold information in immediate awareness and use or transform it within a few seconds	Flanagan et al., 2012

Auditory Perception

Auditory Perception is the mental/psychological process of deriving meaning from auditory stimuli and using the auditory information for the purpose of learning. See "Sound Discrimination" and "Auditory Processing."

Auditory Processing

Auditory Processing refers to the ability to perceive, analyze, and synthesize a variety of auditory stimuli. Measures of auditory processing tap into phonemic awareness (rhyming, segmentation, sound-symbol association), auditory perception, sound discrimination, auditory mental manipulation, as well as auditory memory. Auditory Processing may also apply to processing more complex combinations of sounds, including language, although this type of processing overlaps with the category of Language Processing (found in the Cognitive Abilities section of the COMPARES). Auditory Processing is listed as a "basic psychological process" by California Education Code (California Department of Education: Section 3030 (b)(10), Title 5, CCR). Auditory processing matures early, after gradual development, and is associated with the Temporal lobe of the brain (Dehn, 2014a). See "Phonological Processing," "Auditory Memory," "Auditory Processing Speed," "Processing Speed," and "Language Processing" in Glossary.

Key Authors In Their Own Words:	
The processes involved in perceiving, analyzing, synthesizing and discriminating speech and other auditory stimuli	Dehn, 2014a
Ability to analyze and synthesize auditory information.	Flanagan et al., 2013

Key Authors In Their Own Words:	
The ability to detect and process meaningful nonverbal information in sound.	Flanagan et al., as cited in Schneider and McGrew, 2012
Abilities that depend on sound as input and on the functioning of our hearing apparatus. A key characteristic is the extent to which an individual can cognitively control (i.e., handle the competition between signal and noise) the perception of auditory information. The Ga domain circumscribes a wide range of abilities involve din the interpretation and organization of sounds, such as discriminating patterns in sound and musical structure (often under background noise and/or distorting conditions) and the ability to analyze, manipulate, comprehend, and synthesize sound elements, groups of sounds, or sound patterns.	Newton & McGrew 2010

Auditory Processing Speed

Processing Speed as applied to perception of auditory stimuli. Auditory Processing Speed may involve processing sounds in isolation or in combination, but could also refer to how well an individual can quickly process more complex auditory input, such as language. In the COMPARES, Auditory Processing Speed is subsumed under Processing Speed, in general. See “Processing Speed.”

Cognitive Abilities

“Cognitive Abilities” is listed as a “basic psychological process” by California Education Code (California Department of Education: Section 3030 (b)(10), Title 5, CCR). Cognitive Abilities is an umbrella term, according to Code, which includes Association, Conceptualization, and Expression. These terms are defined individually within the Glossary.

Conceptualization

Conceptualization is the mental/psychological process of understanding or grasping the significance and meaning of increasingly complex information and ideas, including abstract thinking and reasoning. Conceptualization is listed as a “basic psychological process” by California Education Code (California Department of Education: Section 3030 (b)(10), Title 5, CCR). Conceptualization is also known as Fluid Reasoning (Gf) and Problem-Solving. See “Fluid Reasoning.”

Crystallized Knowledge

Crystallized Knowledge, also called Crystallized Abilities, refers to a person’s knowledge base or general fund of information that has been accumulated and remembered over time. It involves knowledge of one’s culture, as well as verbal or language-based learning that has been acquired during general life experiences and formal schooling. When a student lacks background knowledge and/or language development to support academic learning, the student may demonstrate difficulty with comprehension of directions and material read, as well as difficulty with oral expression and content of written language. In the COMPARES, Crystallized

Knowledge is subsumed under the category of Language Processing. See "Language Processing" and "Expression" in the Glossary.

Executive Functions

"Executive Functions" is an umbrella term that refers to a set of mental skills that work together to help direct, manage, regulate, and control a person's cognitions and behavior towards achieving goals, and are coordinated primarily, although not exclusively, in the frontal lobe of the brain. Executive Functions are variously referred to as Executive Functioning, Executive Processes, the Central Executive, Executive Control, Mental Control, or Cognitive Control, and includes aspects of memory known as Executive Memory, Executive Working Memory, or Working Memory. While this term does not have one agreed-upon definition among researchers, some of the component parts may include metacognition (including initiation of problem-solving or activity, paying attention and using working memory, planning/organizing problem-solving approaches, using strategies, organization of materials and environment, consciously integrating past experience with present action, self-monitoring) and behavioral regulation (including ability to inhibit impulsive responses, to shift/switch/transition and adjust flexibly to changes in routine or task demands, managing time, space, and attention, and to exercise emotional self-control/emotional modulation). Executive functions mature late, after gradual development (Dehn, 2014a).

Key Authors In Their Own Words:	
An array of mental processes responsible for regulating cognitive functions during purposeful, goal-directed, problem-solving behavior.	Dehn, 2014a
Executive functioning is a higher-level psychological process that includes an array of mental processes responsible for cuing, directing, and coordinating multiple aspects of perception, cognition, emotion, and behavior during purposeful, goal-directed, problem-solving behavior. The different executive functions, which are analogous to a board of directors, monitor and manage cognitive functions. The complexity of executive functioning is illustrated by McCloskey and Perkins (2013), who identify 32 different self-regulation executive functions organized under the six executive clusters of attention, engagement, optimization, evaluation, efficiency, and memory.	Dehn, 2014a
Executive function often is understood as two broadly conceptualized areas that are related to the brain's frontal lobes: cognitive control and behavioral/emotional control. The cognitive aspects of executive functioning includes concept generation (Gc/Glr); problem solving (Gf); attentional shifting (attention; Gs), planning; organizing; working memory (Gsm); and retrieval fluency (Glr). The behavioral/emotional aspects of executive functioning relate to the inhibitory controls of behavior (e.g., impulsivity, regulation of emotional tone, etc.) (See Miller, 2007).	Flanagan et al., 2013
Definitions of selected executive functions include *Working Memory Capacity, Concept Formation and Generation, Planning, Reasoning, and Problem-Solving, Retrieval Fluency, and Attention.*	Flanagan et al., 2013

Executive Memory

See “Executive Working Memory.”

Executive Working Memory

Executive Working Memory, also called Executive Memory, refers to the Working Memory – Executive Functions interface, including processes that work together to coordinate relations between the brain’s memory subsystems. See “Working Memory” and “Executive Functions.”

Key Authors In Their Own Words:	
Executive Working Memory is distinct from broad executive processes in that it is restricted to the management of memory systems. It is similar to Baddeley’s central executive in that it involves coordinating interaction between memory subsystems and inhibiting irrelevant memory items. In particular, executive working memory is involved whenever tasks require the coordination of storage and processing. Executive working memory also enacts strategies that extend short-term memory span and guide retrieval of information stored in long-term memory. Executive working memory is not domain specific and does not itself have any storage capacity; working memory storage capacity is provided by the working memory operations component.	Dehn, 2008
Executive Working Memory, also called Executive Memory, helps coordinate the memory systems of the brain, including helping an individual to access strategies to support and enhance successful short-term and long-term memory use.	Dehn, 2008
Executive working memory is involved whenever an individual must simultaneously store and process information. Tasks that introduce interference or a secondary processing task while requiring the retention of information will necessarily involve the central executive.	Dehn, 2014a

Expression

Expression is the mental/psychological process of conveying the meaning of information to others via oral, written, or gestural language. Expression is listed as a “basic psychological process” by California Education Code (California Department of Education: Section 3030 (b)(10), Title 5, CCR). Oral Language matures late, after gradual development, and is associated with the Frontal and Temporal lobes of the brain (Dehn, 2014a). See “Language Processing” and “Crystallized Knowledge.”

Key Authors In Their Own Words:	
Expressional Fluency (FE): The ability to rapidly think of different ways of expressing an idea.	Flanagan et al., 2013
Communication Ability (CM): The ability to use speech to communicate one’s thoughts clearly.	Flanagan et al., 2013

Fine Motor Skills

Fine Motor Skills involve use of the small muscles of the body to perform precise movements during activities like grasping minute objects, buttoning clothing, and writing. Typically, a reference to Fine Motor Skills in relation to writing means the use of small muscles in an individual's hand, fingers, and wrist, although a complex task like writing also involves other muscles. Strength, dexterity, control, and speed are factors in successful Fine Motor performance. Fine motor processing matures early after gradual development and is associated with the Frontal and Parietal lobes of the brain. See "Graphomotor Skills," "Processing Speed," "Psychomotor Abilities," "Sensory-Motor Skills," and "Visual Motor Skills" in the Glossary.

Key Authors In Their Own Words:	
[Fine Motor Processing includes] The processes, such as motor planning, involved in the control and coordination of small muscle movements that occur in the fingers	Dehn, 2014a

Fluid Reasoning

Fluid Reasoning, also known as Conceptualization or Problem-Solving, is found within the Cognitive Abilities section of the COMPARES. Fluid Reasoning refers to a type of verbal or nonverbal thinking that an individual may use when faced with a relatively new task that cannot be performed automatically. This type of thinking includes such things as forming and recognizing concepts (e.g., how are a dog, cat, and cow alike?), identifying and perceiving relationships (e.g., sun is to morning as moon is to night), drawing inferences (e.g., after reading a story, answer the question), and reorganizing or transforming information. Overall, this ability can be thought of as a problem-solving type of intelligence. Fluid reasoning is associated with the Frontal and Parietal lobes of the brain (Dehn, 2014a). Fluid reasoning skills maturation occurs gradually, making this process one of the last to fully develop, typically taking until late adolescence (Dehn, 2014a).

Key Authors In Their Own Words:	
The ability to reason deductively and inductively, especially when solving novel problems.	Dehn, 2014a
Fluid reasoning is the ability to reason, form concepts, and solve problems, particularly when confronted with a novel task or unfamiliar situation. It involves both deductive and inductive reasoning…From an assessment perspective, fluid reasoning can be divided into verbal and nonverbal domains.	Dehn, 2014a
Fluid Reasoning (Gf) as CHC Broad Ability: The deliberate but flexible control of attention to solve novel, on-the-spot problems that cannot be performed by relying exclusively on previously learned habits, schemas, and scripts	Flanagan et al., as cited in Schneider & McGrew, 2012
Novel reasoning and problem-solving: ability to solve problems that are unfamiliar	Flanagan et al., 2013

Key Authors In Their Own Words:	
Processes are minimally dependent on prior learning.	Flanagan et al., 2013
Involves manipulating rules, abstracting, generalizing, and identifying logical relationships.	Flanagan et al., 2013
Fluid reasoning is evident in inferential reasoning, concept formation, classification of unfamiliar stimuli, categorization, and extrapolation of reasonable estimates in ambiguous situations.	Flanagan et al., as cited in Schneider & McGrew, 2012
The use of deliberate and controlled mental operations, often in a flexible manner, to solve novel problems that cannot be performed automatically. Mental operations often include drawing inferences, concept formation, classification, generalization, generating and testing hypothesis, identifying relations, comprehending implications, problem solving, extrapolating, and transforming information. Inductive and deductive reasoning are generally considered the hallmark indicators of Gf. Gf has been linked to cognitive complexity, which is typically defined as the greater use of a wide and diverse array of elementary cognitive processes during performance. Historically is often referred to as fluid intelligence.	Newton & McGrew, 2010

Graphomotor Skills

Graphomotor Skills is a sub-area within the Sensory-Motor Skills section of the COMPARES. As distinct from Fine Motor and Visual-Motor Skills, Graphomotor Skills refers to the highly specialized motor processes involved in writing using an implement such as a pencil or pen. To form a letter when writing, an individual uses Graphomotor Skills to coordinate finger muscles efficiently, to maneuver the pencil in the right directions with the right pressure. See "Sensory-Motor Skills."

Key Authors In Their Own Words:	
Fine motor functioning and skills that produce written symbols are part of a larger construct known as graphomotor abilities…involve more than just control of fine motor movements…also include sensory awareness of the fingers, visual-motor integration, and retrieval of symbol shapes stored in long-term memory…Graphomotor difficulties…also referred to as dysgraphia…	Dehn, 2014a

Graphomotor Speed

Graphomotor Speed is how quickly a person can perform graphomotor tasks. See "Graphomotor Skills," "Sensory-Motor Skills," "Sensory-Motor Speed," and "Processing Speed."

Key Authors In Their Own Words:	
CHC Narrow Ability Writing Speed (WS): The ability to copy or generate text quickly.	Flanagan et al., 2013
The rate at which words or sentences can be generated or copied.	Flanagan et al., 2013

Language Processing

Language Processing in the COMPARES is found in the Cognitive Abilities section and refers to communication skills including both receptive (understanding language) skills and expressive (constructing language) skills, and overlaps with several other areas. The areas of overlap include Expression (which focuses specifically on Oral Expression), Auditory Processing (which focuses more on the sounds of language rather than meaning), and Crystallized Knowledge (which is subsumed into the category of Language Processing). Oral Language matures late, after gradual development, and is associated with the Frontal and Temporal lobes of the brain (Dehn, 2014a). See "Expression," "Auditory Processing," and "Crystallized Knowledge."

Key Authors In Their Own Words:	
Oral Language Processing: The linguistic processes that allow one to communicate effectively, such as the ability to construct meaningful sentences."	Dehn, 2014a
Language Development: General understanding of spoken language at the level of words, idioms, and sentences.	Flanagan et al., 2013
Listening Ability: The ability to understand speech.	Flanagan et al., 2013

Long-Term Recall

Long-Term Recall, also called Long-Term Retrieval, is listed under Memory within the Cognitive Abilities section of the COMPARES and refers to an individual's ability to take in and store a variety of information (e.g., ideas, names, concepts) in one's mind, and then retrieve this information at a later time using association. Long-Term Recall includes the processes of encoding, storing, consolidating, and retrieving information. Long-Term Recall matures early, after gradual development and is associated with the Temporal, Parietal, Occipital, and Frontal lobes of the brain (Dehn, 2014a). See "Memory" and "Rapid Naming Skills."

Key Authors In Their Own Words:	
Long-Term Recall: Delayed recall of new learning and the long-term memory processes of encoding, consolidation, storage, and fluent retrieval.	Dehn, 2014a

Key Authors In Their Own Words:	
Long-term memory is dynamic; it's not a passive repository of information. Even during sleep the brain is constantly processing and updating g memory representations.	Dehn, 2010
For its part, long-term memory supports short-term memory functioning. Long-term memory representations directly enhance short-term span. When information enters short-term memory, related information in long-term storage is immediately and automatically activated.	Dehn, 2010
Long-Term Storage and Retrieval (Glr) as CHC Broad Ability: The ability to store, consolidate, and retrieve information over periods of time measured in minutes, hours, days, and years.	Flanagan et al., as cited in Schneider & McGrew, 2012
Long-Term Retrieval (Glr) Ability to store information (e.g., concepts, words, facts), consolidate it, and fluently retrieve it at a later time (e.g., minutes, hours, days, and years) through association.	Flanagan et al., 2013

Long-Term Retrieval

Another term for "Long Term Recall." See "Long-Term Recall."

Memory

Memory is an umbrella term for remembered learning that includes the processes required to encode, consolidate, store, and retrieve verbal and nonverbal information, whether on a shorter-term or longer-term basis, whether visual, auditory, or motor. Memory is listed under Cognitive Abilities in the COMPARES as well as under Auditory Processing, Visual Processing, and Sensory-Motor Processing. The California Education Code term "Association" refers to remembering information and establishing systems for relating remembered-units to each other, and is interpreted as another way of referencing aspects of memory. (See "Association" in Glossary.) Theoreticians have created a number of models of memory, with varying terms assigned. In one conceptualization, there are three memory systems: short-term, working memory, and long-term memory, all of which involve taking in information, storing it for a period of time, and recalling it; short-term memory is considered a subcomponent of working memory (Dehn, 2008; 2014). In another conceptualization, short-term memory and long-term retrieval are two of the CHC broad abilities, and involve holding/storing information for use either within a few seconds, or for later retrieval through association (Flanagan et al., 2012; Flanagan et al., 2013). See "Working Memory," "Short-Term Memory," "Long-Term Retrieval," "Rapid Naming Skills," "Auditory Memory," "Visual Memory," and "Sensory-Motor Memory" in the Glossary.

Oral Expression

See "Expression" and "Language Processing."

Oral Motor Skills

Oral motor skills is a sub-area of Sensory-Motor Skills in the COMPARES and refers to how well an individual can move the muscles of the face (including mouth, jaw, tongue, and lips) in order to produce speech.

Oral Motor Speed

Oral motor speed refers to how quickly an individual can move the muscles of the face (including mouth, jaw, tongue, and lips) in order to produce speech. See "Oral Motor Skills."

Key Authors In Their Own Words:	
Speed of Articulation: The ability to rapidly perform successive articulations with the speech musculature.	Flanagan et al., 2013

Orthographic Processing

Orthographic Processing is a sub-area of Visual Processing in the COMPARES and refers more to processing the "look" of a word than to its phonologic structure. Although there appears to be no absolute consensus definition of the term, Orthographic Processing relies on visual coding and visual memory to allow a reader to retain the images of letters or symbols, patterns of letters, or of an entire word, so that the learner may fluently read or write the word or symbol later. Additional shades of meaning for Orthographic Processing include the concept of the individual understanding the conventions of written language, having knowledge of conventional spelling, spelling rules, and spelling patterns, and understanding the representation of word boundaries, stops and pauses in speech, and tonal inflection. The English language is thought to have a "deep" orthography, because the writing system does not have consistent or one-to-one correspondence between the phonemes in speech and the written code.

Key Authors In Their Own Words:	
Orthographic processing is a type of visual-spatial processing that might be more closely related with academic learning than broad visual-spatial processing. Orthographic processing is the ability to rapidly map graphemes (letters and groups of letters) to phonemes. Children with orthographic processing difficulties have particular problems remembering letter sequences and spelling words that contain irregular spelling patterns because they do not have mental images of words stored in memory.	Dehn, 2014a
Orthographic processing or awareness (the ability to rapidly map graphemes to phonemes) may be more related to the perceptual speed tasks found on cognitive tests (e.g., Symbol Search on the Wechsler Scales).	Flanagan et al., 2013

Phonological Memory

Phonological Memory, also known as Phonological Short-Term Memory or Phonological Working Memory, involves coding of auditory and verbal information into short-term storage for brief retention and then immediate recall. Phonological Short-Term Memory is conceptualized by some memory theorists as having a passive storage component and a rehearsal component. See "Memory," "Auditory Memory," and "Phonological Processing."

Key Authors In Their Own Words:	
Although frequently referred to as auditory or verbal short-term memory, phonological short-term memory is a more appropriate term, because auditory input is processed and encoded phonologically (Dehn, 2008).	Dehn, 2014a; 2010
Phonological short-term memory, also referred to as the phonological loop or the articulatory loop, is a limited capacity, speech-based store of verbal information (Baddeley, 1986; 1983).	Dehn, 2014a
Short-term phonological capacity is analogous to an audio tape recorder loop of a specific length. Words or other auditory units are recorded in the order they are perceived, and they will quickly decay or be recorded over by new auditory units unless rehearsal re-records them onto the tape. Amazingly, this phonological loop is only two seconds in duration, regardless of the individual's age.	Dehn, 2014a; 2010
The exact nature of the relationship between phonological short-term memory and phonological processing is not entirely known but certainly the two processes are integrally related (Hulme & Mackenzie, 1992)…It is possible that phonological processing is the underlying process that determines the capacity and functioning of phonological short-term memory.	Dehn, 2008
Baddeley (1986), who developed the predominant working memory model, subdivides phonological short-term memory into passive phonological storage and subvocal, articulatory rehearsal.	Dehn, 2010
…there is clear neurological evidence supporting the division of phonological short-term memory into a passive storage component and a rehearsal component.	Dehn, 2010

Phonological Processing

Phonological Processing is a sub-area of Auditory Processing in the COMPARES, and includes phonemic awareness, sound discrimination, phonetic coding, and Phonological Memory. This type of processing involves the ability to hear, manipulate and, in the case of Phonological Memory, remember phonemes. Phonological Processing matures early after gradual development and is associated with the Temporal and Parietal lobes of the brain (Dehn, 2014a). See "Auditory Processing" and "Phonological Memory."

Key Authors In Their Own Words:	
The manipulation of phonemes, the smallest units of speech that are used to forms syllables and words.	Dehn, 2014a

Key Authors In Their Own Words:	
Phonemic awareness – the understanding that words (spoken and written) can be divided into discrete sounds – is an important dimension of phonological processing	Dehn, 2014a
Phonetic Coding (PC): The ability to hear phonemes distinctly.	Flanagan et al., 2013
Speech Sound Discrimination (US): The ability to detect and discriminate differences in speech sounds (other than phonemes) under conditions of little distraction or distortion.	Flanagan et al., 2013
Phonetic Coding (PC): Ability to code, process, and be sensitive to nuances in phonemic information (speech sounds) in Gsm. Includes the ability to identify, isolate, blend or transform sounds of speech. Frequently referred to as phonological or phonemic awareness.	Newton & McGrew, 2010
Speech/Sound Discrimination (US): Ability to detect and discriminate differences in phonemes or speech sounds under conditions of little or no distraction or distortion.	Newton & McGrew, 2010

Processing Speed

In theory, Processing Speed measures how quickly an individual can process input, whether visually, auditorily, or motorically, but, due to the impossibility of measuring the actual speed of thinking, it is measured at the output level, using hands or voice to respond to a prompt. The COMPARES lists the relationship ratings of Processing Speed under the Cognitive Abilities section, although speed of visual processing, speed of auditory (and language) processing, and speed of sensory-motor processing are also listed under their respective sections, as well, to acknowledge that there may be differences among different types of speeded responses, depending on the modality involved. Processing speed matures early after rapid development and is not associated with a particular area of the brain, but may be related to the amount of interconnectivity within the brain and myelination, with greater myelination permitting faster transmission (Dehn, 2014a). Processing Speed has an exceptionally strong relationship with Working Memory. See "Visual Processing Speed," "Auditory Processing Speed," "Sensory-Motor Speed," "Rapid Naming Skills," "Retrieval Fluency," and "Working Memory."

Key Authors In Their Own Words:	
Processing speed refers to how quickly information is processed and how efficiently simple cognitive tasks are executed over a sustained period. Processing speed is typically tested with tasks requiring the examinee to perform relatively easy overlearned procedures that require little reasoning or higher-level complex processing. Broad processing speed can be divided into simple processing speed, which reflects the mental speed required to perform undemanding attentional tasks such as target detection, and complex processing speed, which reflects the total time to complete more demanding tasks, such as a task that involves decisions."	*Dehn, 2014a*

Key Authors In Their Own Words:	
Processing Speed (Gs) as CHC Broad Ability, as defined in Schneider and McGrew 2012: The ability to perform simple, repetitive cognitive tasks quickly and fluently	*Flanagan et al., as cited in Schneider & McGrew, 2012*
Processing Speed (Gs): "Speed of processing, particularly when required to focus attention for one to three minutes." "Usually measured by tasks that require the ability to perform simple, repetitive tasks quickly and accurately."	*Flanagan et al., 2013*
Rate of Test-Taking (R9): "The speed and fluency with which simple cognitive tests are completed."	*Flanagan et al 2013*

Psychomotor Abilities

Psychomotor Abilities include skills that rely on a unity of cognitive functions and physical movements to achieve a goal. Examples of Psychomotor Abilities include eye-hand coordination, balance, reaction time, finger dexterity, and arm-hand steadiness. The term "Psychomotor Abilities" overlaps with other Glossary terms such as "Fine Motor Skills," "Graphomotor Skills," "Visual Motor Skills" and "Sensory-Motor Skills."

Key Authors In Their Own Words:	
[Psychomotor Abilities include] The abilities to perform physical body motor movements (e.g., movement of fingers, hands, legs) with precision, coordination, or strength.	Flanagan et al., as cited in Schneider & McGrew, 2012
[Psychomotor Abilities include] The abilities to perform physical body motor movements (e.g., movement of fingers, hands, legs) with precision, coordination, or strength. Movement or motor behaviors are typically the result of mental activity.	Newton & McGrew, 2010

Rapid Naming Skills

Rapid Naming Skills, also known as Rapid Automatic Naming (RAN) and Rapid Automatized Naming, taps into a visual-verbal, cross-modal connection to see how quickly and correctly an individual can view and then name aloud letters, numbers, objects, pictures, or colors. Researchers in recent years have used RAN to measure a variety of skills, including long-term retrieval, phonological processing, orthographic processing, processing speed, and as a predictive measure of future reading success. There appears to be no definitive consensus as to the theoretical constructs underlying RAN. RAN is listed in the COMPARES next to the Memory section within the Cognitive Abilities section.

Key Authors In Their Own Words:	
The skills of rapid automatic naming (RAN) or naming facility are subsets of long-term recall, and are a specific type of retrieval.	Dehn, 2014a

Key Authors In Their Own Words:	
In RAN, the examinee is directed to quickly name pictures of common objects or other well-known stimuli. "Naming is typically a less-demanding retrieval activity than recalling semantically related items, especially when naming involves a limited class such as colors. Consequently, RAN performance is an indication of poor retrieval speed more so than inefficient search mechanisms."	Dehn, 2010
The ability to rapidly call objects by their names."	Flanagan et al., 2013

Sensorimotor Memory

Sensorimotor Memory, also known as Motor Learning or Muscle Memory, is a type of procedural learning that involves repeating a physical task until it is learned to automaticity. The repetition of the motor movement leads to consolidation into memory, so that the action ultimately can be performed without conscious effort. The movements involved with writing by hand are thought to create a Sensorimotor Memory, which allows writing to become easier with practice.

Sensorimotor Skills

Another spelling for Sensory-Motor Skills. See "Sensory-Motor Skills."

Sensorimotor Speed

Sensorimotor Speed is how quickly a person can perform sensorimotor tasks using their Sensory-Motor Skills. See also "Psychomotor Abilities," "Sensory-Motor Skills," and "Processing Speed."

Key Authors In Their Own Words:	
Psychomotor Speed (Gps) as CHC Broad Ability: The speed and fluidity with which physical body movements can be made.	Flanagan et al., as cited in Schneider and McGrew, 2012

Sensory-Motor Skills

Sensory-Motor Skills or Sensory-Motor Integration is the mental/psychological process that involves engaging perceptual and cognitive skills to organize physical output. As a basic psychological process involved in learning, sensory-motor skills chiefly involve fine-motor and graphomotor output. The sensory-motor process may include measures of visual-motor integration, motor speed, and overall fine-/gross-motor skills. Sensory-Motor Skills is listed as a "basic psychological process" by California Education Code (California Department of Education: Section 3030 (b)(10), Title 5, CCR). Fine motor processing matures early after gradual development, and is associated with the frontal and parietal lobes of the brain (Dehn, 2014a). See "Fine Motor Skills," "Graphomotor Skills," "Oral Motor Speed," "Psychomotor Abilities," "Sensorimotor Memory," "Sensorimotor Speed," "Visual Motor Skills," and "Processing Speed" in Glossary.

Key Authors In Their Own Words:	
[Fine Motor Processing includes] The processes, such as motor planning, involved in the control and coordination of small muscle movements that occur in the fingers	Dehn, 2014a
[Psychomotor Abilities include] The abilities to perform physical body motor movements (e.g., movement of fingers, hands, legs) with precision, coordination, or strength	Flanagan et al., as cited in Schneider & McGrew, 2012
[Psychomotor Abilities include] The abilities to perform physical body motor movements (e.g., movement of fingers, hands, legs) with precision, coordination, or strength. Movement or motor behaviors are typically the result of mental activity	Newton & McGrew, 2010

Short-Term Memory

Short-Term Memory refers to the temporary, passive retention of a small amount of information, whether involving auditory-verbal-phonological or visuospatial components. In the COMPARES, Short-Term Memory is subsumed under the Memory sub-area within the Cognitive Abilities section, as well as being part of Auditory Memory, Phonological Memory, and Visual Memory. In the Glossary, see "Memory," "Working Memory," "Auditory Memory," "Phonological Memory," "Phonological Processing," "Visual Memory," and "Visual-Spatial Memory."

Key Authors In Their Own Words:	
Short-term memory, defined as the passive storage of verbal and visuospatial information, can bypass working memory and automatically encode information into long-term memory, as well as automatically activate long-term memory representations. Short-term memory structures and processes are limited to those that are passive, instantaneous, and fairly automatic. In this integrated model, short-term memory components consist of phonological short-term memory and visuospatial short-term memory, as described in Baddeley's model, but without the conscious rehearsal aspects that are the responsibility of working memory.	Dehn, 2008
In contemporary memory models, short-term memory is thought to be embedded within the working memory system. In an unconscious mode, short-term memory can operate independently of working memory, but whenever short-term memory content is being managed, working memory is performing that executive function. Both short-term memory and working memory can be divided into auditory-verbal and visuospatial components.	Dehn, 2008; 2010
Short-Term Memory (Gsm) as CHC Broad Ability: The ability to encode, maintain, and manipulate information in one's immediate awareness.	Flanagan et al., as cited in Schneider & McGrew, 2012

Key Authors In Their Own Words:	
Ability to hold information in immediate awareness and use or transform it within a few seconds	Flanagan et al., 2013

Sound Discrimination

Sound Discrimination is an element of Auditory Perception and a part of Auditory Processing and refers to the particular skill of discerning differences among sounds. Sound Discrimination is subsumed under the categories of Phonological Processing and Auditory Processing within the COMPARES. See "Phonological Processing," "Auditory Perception" and "Auditory Processing" in Glossary.

Key Authors In Their Own Words:	
Speech Sounds Discrimination (US): The ability to detect and discriminate differences in speech sounds (other than phonemes) under conditions of little distraction or distortion.	Flanagan et al., 2013
Resistance to Auditory Stimulus Distortion (UR): The ability to hear words correctly even under conditions of distortion or loud background noise.	Flanagan et al., 2013

Specific Learning Disability (as it is related to processing areas)

The Federal definition of "Specific Learning Disability" related to processing areas states that the term means "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia." The definition also states, "The term does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of intellectual disabilities, of emotional disturbance, or of environmental, cultural, or economic disadvantage." *P.L. 108-476 (IDEA), Title 34, CFR 300.8(c)(10)*

The complete California definition of "Specific Learning Disability" may be reviewed at the SELPA website (*Special Education Eligibility Guidelines*). In regard to processing areas, the California Code of Regulations states that, "A pupil has a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an *impaired* ability to listen, think, speak, read, write, spell, or do mathematical calculations, and has a severe discrepancy between intellectual ability and achievement in one or more of the *academic* areas specified in *Section 56337(a) of the Education Code*. For the purpose of *Section 3030 (b)(10)*: (1) Basic psychological processes include attention, visual processing, auditory processing, sensory-motor skills, cognitive abilities including association, conceptualization and expression."

Visual Discrimination

Visual Discrimination is an element of Visual Perception and a part of Visual Processing and refers to the particular skill of discerning likenesses and differences to distinguish among visually-presented prompts, considering variations in size, shape, pattern, form, position, orientation, or color, despite the presence of distracting visual information. Visual Discrimination is subsumed under the category of Visual-Spatial Processing within the COMPARES. See "Visual Processing" and "Visual-Spatial Processing."

Key Authors In Their Own Words:	
Flexibility of Closure (CF): The ability to identify a visual figure or pattern embedded in a complex distracting visual pattern or array, when one knows in advance what the pattern is.	Flanagan et al., 2013

Visual Memory

Visual Memory is remembering what has been seen, with a focus on static features of the object, such as shape and color. Variously called Visual Memory, Visual Short-Term Memory, Visual Working Memory, Visuospatial Memory, Visuospatial Short-term Memory, Visuospatial Working Memory, Long-Term Visual Memory, Orthographic Memory, and similar terms, Visual Memory may be found in the COMPARES under Visual Processing as well as under Cognitive Abilities: Memory. See also "Memory" and particular types of memory in Glossary.

Key Authors In Their Own Words:	
The main distinction between visuospatial short-term memory and visuospatial working memory is that the short-term component involves only passive retention of information, whereas visuospatial working memory adds a processing component, such as reversing the sequence of objects or manipulating an image.	Dehn, 2010
Visuospatial short-term memory is another passive short-term memory subcomponent that briefly stores visual (object and color) and spatial (location and direction) information. Visuospatial information is refreshed automatically and continually as objects in the environment change and as the focus of attention changes.	Dehn, 2008
Visuospatial Working Memory, another aspect of working memory operations, combines visuospatial information held in both short- and long-term working memory. For example, visuospatial working memory is involved whenever images are being manipulated.	Dehn, 2008
Visual Memory: (MV): The ability to remember complex visual images over short periods of time (less than 30 seconds).	Flanagan et al., 2013
Visual Memory (MV): Ability to form and store a mental representation or image of a visual shape or configuration (typically during a brief study period), over at least a few seconds, and then recognize or recall it later (during the test phase).	Newton & McGrew, 2010

Visual-Motor Skills

Visual-Motor Skills refers to the use of the eyes (visual-perceptual component) and hands (motor component) working together to perform a task. Visual-Motor Integration, commonly referred to as Eye-Hand Coordination, is the ability to integrate visual input successfully with motor output. See "Fine Motor Skills," "Graphomotor Skills," "Psychomotor Abilities," "Sensorimotor Speed," and "Sensory-Motor Skills."

Visual Perception

Visual Perception is the mental/psychological process of deriving meaning from visual stimuli and using the visual information for the purpose of learning. See "Visual Processing" and "Visual-Spatial Processing."

Visual Processing

Visual Processing is the mental/psychological construct defined by cognitive mechanisms that are involved in the retention, processing, and organization of visual information so as to demonstrate accurate perception, as distinct from visual acuity. This type of cognitive processing ability involves the ability to generate, perceive, analyze, synthesize, manipulate, and transform visual patterns and stimuli. Measures of the visual process may include factors such as spatial awareness, visual-perceptual skills, perceptual organization, visual mental manipulation, and perceptual discrimination. Visual Processing is subsumed under the category of Visual-Spatial Processing in the COMPARES. Visual Processing is listed as a "basic psychological process" by California Education Code (California Department of Education: Section 3030 (b)(10), Title 5, CCR). Visual-Spatial Processing matures early, after gradual development and is associated with the Occipital, Parietal, and Temporal lobes of the brain (Dehn, 2014a). See "Visual-Spatial Processing," "Orthographic Processing," "Visual Memory," "Visual Processing Speed," and "Processing Speed" in Glossary.

Key Authors In Their Own Words:	
[Visual-Spatial Processing is] The ability to perceive, analyze, synthesize, manipulate, and transform visual patterns and images, including those generated internally. The visual aspect applies to processing static characteristics of an image. The spatial component processes location and movement.	Dehn, 2014a
Ability to analyze and synthesize visual information.	Flanagan et al., 2013
The ability to make use of simulated mental imagery (often in conjunction with currently perceived images) to solve problems.	Flanagan et al., as cited in Schneider & McGrew, 2012
The ability to generate, store, retrieve, and transform visual images and sensations. Gv abilities are typically measured by tasks (viz., figural or geometric stimuli) that require the perception and transformation of visual shapes, forms, images, and/or tasks that require maintaining spatial orientation with regard to objects that may change or move through space	Newton & McGrew, 2010

Visual Processing Speed

Visual Processing Speed is Processing Speed as applied to perception of visual stimuli. In the COMPARES, Visual Processing Speed is subsumed under "Processing Speed," as most current measures of processing speed include a visual component. See "Processing Speed."

Key Authors In Their Own Words:	
Perceptual Speed (P): The ability with which visual stimuli can be compared for similarity or difference.	Flanagan et al., 2013
Closure Speed (CS): The ability to quickly identify a familiar meaningful visual object from incomplete (e.g., vague, partially obscured, disconnected) visual stimuli, without knowing in advance what the object is.	Flanagan et al., 2013

Visual-Spatial Memory

Visual-Spatial Memory refers to remembering visual and spatial information, including both visual aspects (such as an object's shape and color) and spatial aspects (such as an object's location, position, motion, or direction). Although meanings differ among these terms, Visual-Spatial Memory is variously known as Visual Memory, Spatial Memory, Visual-Spatial Memory, Visual-Spatial Short-Term Memory, Visual-Spatial Working Memory, Visuospatial Memory, Visuospatial Short-Term Memory, and Visuospatial Working Memory. See "Memory" and particular types of memory in Glossary.

Key Authors In Their Own Words:	
Visual-spatial short-term memory involves the immediate storage of visual and spatial information, such as objects and their location (Dehn, 2008)…The visual subcomponent is responsible for storage of static visual information (i.e., information about objects' shape and color), and the spatial subcomponent is responsible for the storage of dynamic spatial information (e.g., information about location, motion, and direction)."	Dehn, 2014a
The main distinction between visual-spatial short-term memory and visual-spatial working memory is that the short-term component involves only passive retention of information, whereas visual-spatial working memory adds a processing component, such as reversing the sequence of objects of manipulating an image (Dehn, 2008). Visual-spatial working memory is involved in the generation, manipulation, and maintenance of visual imagery (Gathercole & Baddeley, 1993).	Dehn, 2014a
Visual Memory (MV): The ability to remember complex visual images over short periods of time (less than 30 seconds).	Flanagan et al., 2013

Visual-Spatial Processing

Visual-Spatial Processing includes both visual processing and spatial processing. A pure measure of visual-spatial processing does not load on problem-solving, which would instead tap into Fluid Reasoning. Visual Processing is listed as a "basic psychological process" by California Education Code (California Department of Education: Section 3030 (b)(10), Title 5, CCR) and is subsumed under the category of Visual-Spatial Processing in the COMPARES. Visual-Spatial Processing matures early, after gradual development and is associated with the Occipital, Parietal, and Temporal lobes of the brain (Dehn, 2014a).

Key Authors In Their Own Words:	
Visual-spatial processing refers to the ability to perceive, analyze, synthesize, manipulative, and transform visual patterns and images, including those generated internally. The visual and spatial dimensions are easily differentiated. The visual aspect involves processing of stimulus characteristics, such as shape and color. The spatial dimension processes the location and movement of visual stimuli; for example, mental rotation of an image requires spatial processing	Dehn, 2013
[Visualization is] The ability to perceive complex patterns and mentally simulate how they might look when transformed (e.g., rotated, changed in size, partially obscured).	Flanagan et al., 2013

Working Memory

Working Memory involves simultaneously holding in memory and manipulating information, whether the remembered stimuli are auditory-verbal-phonological or visual-spatial or both. While the term "Working Memory" is sometimes used synonymously with "Short-Term Memory" in conversation, this casual use fails to recognize an essential distinction between the two: Short-Term Memory involves holding and recalling information without performing any major transformational operations on it, whereas Working Memory specifically involves transforming the information in some way, such as re-ordering it, combining it in novel ways, or integrating the new information with previously learned information. In the COMPARES, Working Memory is found under the Memory section of Cognitive Abilities, as well as under Auditory Memory, Visual Memory, and Executive Functions. Working Memory matures late, after gradual development, and is associated with the Frontal, Parietal, Temporal, and Occipital lobes of the brain. In the Glossary, see "Memory," "Short-Term Memory," "Auditory Memory," "Phonological Memory," "Visual Memory," "Visual-Spatial Memory," and "Executive Working Memory."

Key Authors In Their Own Words:	
The limited capacity to retain information while simultaneously processing the same or other information for a short period. In the model adopted in this book, short-term memory is considered a subcomponent of working memory.	Dehn, 2014a

Key Authors In Their Own Words:	
Working memory is the ability to briefly retain information while simultaneously processing the same or other information. In the classroom, working memory is required for such activities as mental arithmetic, taking notes while listening, and comprehending while reading. Essentially, working memory is the combination of cognitive processing and short-term storage of information.	Dehn, 2014b
In this text, working memory is defined as the management, manipulation, and transformation of information drawn from short-term and long-term memory…working memory is a cognitive process whose primary function is to facilitate and enhance the capacity of encoding, storage, and retrieval functions that are essential for learning and higher level processing of information.	Dehn, 2008
Working Memory Capacity (MW): The ability to direct the focus of attention to perform relatively simple manipulations, combinations, and transformations of information within primary memory while avoiding distracting stimuli and engaging in strategic/controlled searches for information in secondary memory.	Flanagan et al., 2013