Today's Objectives:
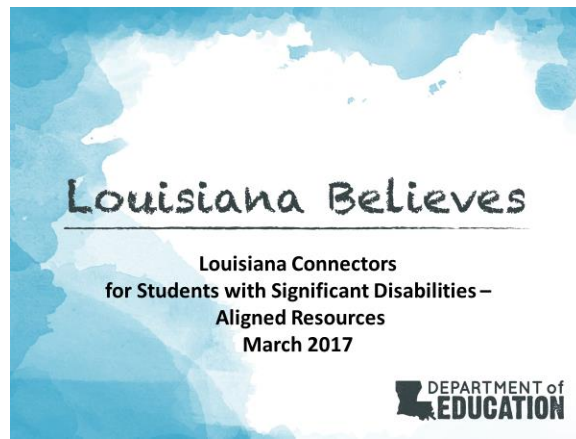
🔶 Supervisors will be able to name and describe instructional resources aligned to LA Connectors

🔶 Supervisors will be able to plan for carrying this work forward across the district

Definition:

> ✓ A Louisiana Connector is …

Rationale:

> • High Expectations -
>
> • Access -
>
> • Opportunity -
>
> • Collaboration -
>
> • Inclusion –

Case Study Vignette: Eliza

Student Background: Eliza is a 15-year-old entering the 9th grade. She has Angelman Syndrome: no speech, walks with difficulty in balance, and has a severe intellectual disability. Eliza's strength is her social skill. She will seek out interaction through walking to someone, showing materials, and vocalizing a calling sound. Eliza has emerging literacy and numeracy skills. Neither was emphasized in her school career to date, so she is entering high school with a minimal foundation in academics. Eliza has only done math embedded in a daily routine like finding three cups to set a table. She can put one cup with one plate through one-to-one correspondence.

Teacher Planning: Mr. Gomez is a specialist who teaches high school algebra to Eliza. While the general education algebra class is working to create equations in one variable to solve problems (A1: A-CED.A.1), Mr. Gomez wants to find a way to make writing mathematical equations meaningful for Eliza given her limited numeracy skills. He consults the **Louisiana Connector Crosswalks** to determine the aligned standard for Eliza. Mr. Gomez then reviews the Eureka lesson aligned to the Louisiana Student Standards; it models equation formation based on a real-world problem found in a print shop. He consults the **Student Response Mode Guide** to determine the best way for Eliza to demonstrate understanding throughout this lesson. He then consults the aligned **Essential Element Card for LC.A1:CED.A.1** and creates a goal for building equations to model simple arithmetic operations. Mr. Gomez decides that for a student with emerging skills like Eliza, he will begin with limited options and have her make selections from physical manipulatives. He uses the **Adapting Lesson Plans Guide** to support his reworking of the Eureka lesson plan into one specifically suited for Eliza.
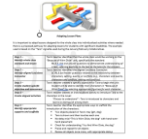
High- Quality, Standards-Based, Instruction for Eliza: Mr. Gomez tells Eliza that her job is to set up boxes of some number of books by evenly distributing the total number of books to five different boxes. He writes (5*b*) for five boxes of books. The *b* means they do not know how many books go in each box yet. Eliza knows she has a total of 25 books to evenly distribute to five boxes. He has Eliza help to create the equation by selecting numbers to put on the equation: 5*b* = 25.

Mr. Gomez sets up the task of getting the books ready to distribute into five different boxes. Eliza can count with one-to-one correspondence, so Mr. Gomez uses a large number line to help Eliza keep track of how many books she's distributed, ensuring she uses all 25 books. Eliza puts a book in each of the five boxes, using the number line to help her count the total number of books distributed, and she circles the last number counted after giving each box exactly one book (i.e., she circles the number 5 to represent having distributed five books total). Eliza continues to distribute the books one at a time while Mr. Gomez ensures she's utilizing the number line to keep count. When Eliza finishes distributing all 25 books, Mr. Gomez asks Eliza to tell him how many books went into each box. Mr. Gomez then asks Eliza to use the number line to defend her answer that each box received five books. Finally, Mr. Gomez brings Eliza back to the equation she wrote to connect the concrete activity to solving the equation: If 5*b* = 25, then *b* = 5. Moving between the concrete activity of distributing books to abstractness of the number line and equation that models the situation, connecting all three, will help to bridge Eliza's emerging numeracy understandings and skills to the expectation of the Louisiana Connector.

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Mr. Gomez can repeat this process changing the number of books, the number of boxes, or both, allowing for Eliza's understanding of how equations can be used to model and solve real-world problems. He can increase the complexity of the problem Eliza is trying to solve by asking, "If the store can only sell boxes of 5 books, how many boxes can we sell?" Asking this question when the numerical answer to the equation is not a whole number will force Eliza to think more deeply about the problem, connecting the need for the algebraic skills to solving real-world problems. In later lessons, Mr. Gomez can alter the way he presents the problem to lead Eliza to writing inequalities, such as, "If the store can only sell boxes of 5 books, what is the maximum number of boxes the store can sell?"

Chart for Aligned Resources

Directions: Below is a chart for the aligned resources that are currently in development. Examine the resource your group has been assigned. Then, in the chart, attempt to describe what the document is/ does and list all of the possible uses for this resource your group can imagine. Copies of each of the resources will be provided in this handout.

Resource	Image	Description	Possible Uses
Louisiana Connectors/ Crosswalks with Louisiana Student Standards			
Louisiana Connectors Essential Elements Cards			
Student Response Modes			
Lesson Plan Adaption			
Case Study Vignettes for Exemplary Instruction			

Louisiana Connectors

Crosswalk with Louisiana Student Standards

Algebra I	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**

A1: A-SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.
  a. Factor a quadratic expression to reveal the zeros of the function it defines.
  b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.
  c. Use the properties of exponents to transform expressions for exponential functions emphasizing integer exponents. For example, *the growth of bacteria can be modeled by either* $f(t) = 3^{(t+2)}$ *or* $g(t) = 9(3^t)$ *because the expression* $3^{(t+2)}$ *can be rewritten as* $(3^t)(3^2) = 9(3^t)$.
	LAC.A1: A-SSE.B.3 Factor a quadratic expression.

A1: A-APR.A.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	**LAC.A1: A-APR.A.1a** Understand the definition of a polynomial. **LAC.A1: A-APR.A.1b** Understand the concepts of combining like terms and closure. **LAC.A1: A-APR.A.1c** Add, subtract, and multiply polynomials and understand how closure applies under these operations.
A1: A-APR.B.3 Identify zeros of quadratic functions, and use the zeros to sketch a graph of the function defined by the polynomial.	**LAC.A1: A-APR.B.3** Find the zeros of a polynomial when the polynomial is factored.
A1: A-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear, quadratic, and exponential functions.*	**LAC.A1: A-CED.A.1** Translate a real-world problem into a one variable linear equation.
A1: A-CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	No Louisiana Connectors written for this standard.
A1: A-CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*	No Louisiana Connectors written for this standard.
A1: A-CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.*	**LAC.A1: A-CED.A.4** Solve multi-variable formulas or literal equations, for a specific variable.

DEPARTMENT of EDUCATION

Louisiana Connector Essential Elements Card

-draft-

Louisiana Student Standard A1: A-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear, quadratic, and exponential functions.*

Louisiana Connector LC.A1: A-CED.A.1 Translate a real-world problem into a one variable linear equation.

Concrete Understandings:	Representations:
• Match an equation with one variable to a real-world context.	• Create a pictorial array of a simple equation to translate wording. • Know the following vocabulary and symbols: +, -, X, ÷, =, linear, variable.

Suggested Instructional Strategies:

- Task analysis
  - Present the story problem based on a real-world, relevant context and provide a template for recording facts/operation to solve the real-world problem.
  - Highlight key information in the problem; strike through irrelevant information.
  - Identify what question is being asked (define *x*).
  - Identify the facts.
  - Fill in the facts in the order presented in the story problem on the template.
  - Determine the operation(s) (+, - X, ÷).
  - Identify what operation should be completed first.
  - Fill in the operation.
  - State the equation.
  - Solve for *x*.
  - Answer the problem statement.

Suggested Supports and Scaffolds:

- Counters
- Multiplication chart
- Calculator

Adapting Lesson Plans

-draft-

It is important to adapt lessons designed for the whole class into individualized activities where needed. Here is a proposed pathway for adapting lessons for students with significant disabilities. Use the following to analyze how Eliza's teachers adapted a lesson based on her strengths.

Step 1 – *Identify whole class* *standard and lesson*	
Step 2 – *Identify aligned Louisiana* *Connector*	
Step 3 – *Create student-specific* *objective and assessment*	
Step 4 – *Create aligned activities*	
Step 5 – *Identify appropriate* *supports and scaffolds*	

Instructional Resources – Student Response Modes – draft –

It is important to identify the best way for your student to show what they know in each lesson. Here are some options to consider:

- **Point to the correct response when given an array -** The number of options in the array may vary depending on the student's current skills. An array of four is often used with one correct answer, at least one plausible incorrect answer, and two other distractors. Be sure to vary the location of the correct answer in the array. This array can be placed on the students' communication system.

- **Pull-off -** Some students have difficulty pointing but may be able to make a selection when the responses are attached to a page. The array of four options is used, but the student pulls the correct response.

- **Eye gaze -** Students who do not have the motor skills to point, but have vision, may be able to indicate the response by looking at the correct option. The array can be attached to each corner of a piece of see-through plexiglass (available from most hardware stores). By looking through the plexiglass, the teacher can see where the student focuses his or her eyes to indicate the answer.

- **Say or Type -** Some students can verbalize the correct answer. This answer may be given after viewing an array of options or by generating the answer when asked a question. Other students may be able to generate the answer by typing a response. Saying or typing the answer provides students with the most flexibility to describe what they know.

- **Show -** Some learning can be demonstrating through showing the answer. The student may be able to indicate the area of the rectangle by moving his or her hand across the shape. Or, a student may answer a comprehension question by pantomiming the answer.

- **Write or type on computer -** Sometimes the student may be able to write the answer, for example, by writing the correct number in an equation or writing the name of the main character in a story.

- **Use material from the lesson -** Students may be able to show the correct math answer by using a number card or plastic numbers or with other manipulatives. Similarly, in language arts, the student may use a picture on the page in the book or prop that is used with a story to answer a comprehension question. Remember: the response mode needs to be something students can do without assistance once they learn the material.

Feedback:

- Louisiana Connectors Crosswalks with Louisiana Student Standards
- Louisiana Connectors Essential Elements Cards
- Student Response Modes
- Lesson Plan Adaption
- Case Study Vignettes for Exemplary Instruction

What works and why?	*What could be better and how?*

Next Steps for Supervisors:

Who? Cohort for SWSD or Individual T.L.s…	*Where and when? Calendar subsequent training*