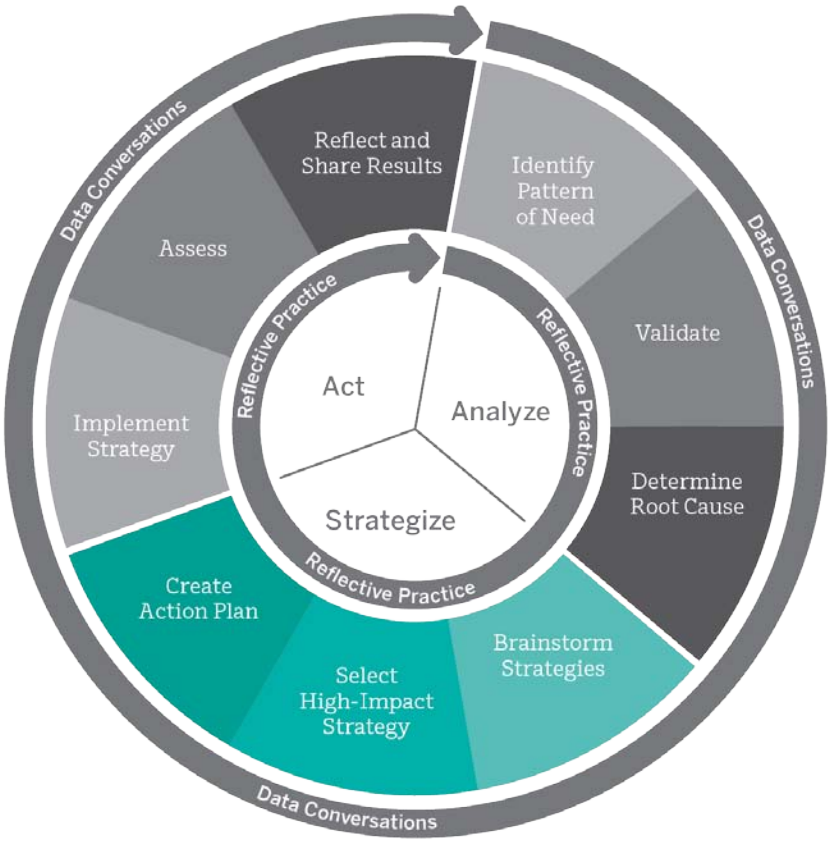
Strategize

Data Use Professional Development Series
Rhode Island Department of Education



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Brainstorm Strategies

Overview

Brainstorming purposeful instructional strategies is the next step in the Cycle of Inquiry. The primary purpose of this stage is to identify, from a potentially large list, which actions will benefit students most. Although these strategies can vary in their complexity, they should always be informed by the hypotheses developed during data analysis.

Early in the brainstorming process it is helpful to generate as many ideas as possible. Depending on the Pattern of Need and corresponding hypotheses, these strategies might include actions like communicating with a parent, grouping students for extra help during lunch, or setting a unique goal for a struggling student.

Opening Discussion: Brainstorm Strategies

Discuss the following before starting the first exercise. This discussion allows you to unpack educators' varying approaches to brainstorming.

1. Ask educators to describe an instructional challenge they faced in the last year. Encourage them to give context to the challenge.

2. Ask educators to describe the strategy they employed to combat the challenge. Encourage them to share their brainstorming process. Who did they use as a resource? How did they arrive at that strategy?

3. Discuss the value of collaborative brainstorming. Why does collaboration around a particular challenge often yield greater results?

Exercise 3.1: Brainstorm Strategies

Purpose:

Educators will generate a list of possible strategies by collaborating with colleagues and select a high-impact strategy to focus on for their Cycle of Inquiry.

Objectives

Upon completion of the Exercise 3.1, educators will be able to:

- Generate a variety of strategies
- Explain how strategies address a Pattern of Need
- Eliminate unrealistic strategies
- Select high-impact strategies

Materials Needed (for each educator):

- *Short Cycle of Inquiry* template
- *Cause of Pattern of Need* hypothesis written in Exercise 2.7 (Analyze Packet)
- *Exercise 3.1 Reflections* handout

Time:

Approximately 15 minutes

Instructions:

1. Ask educators to work in pairs to revisit their *Pattern of Need* hypothesis from Exercise 2.7.
2. Provide educators with a copy of the *Short Cycle of Inquiry* handout. Direct educators to enter their hypothesis where the template says “Potential Actionable Cause”.
3. Explain that brainstorming about strategies remains focused on a potential actionable cause and Pattern of Need that educators have previously identified.
4. Reinforce the value of collaboration in brainstorming. Direct educators to work in small groups or pairs to list strategies for each of their hypotheses/causes (Step 1). Encourage educators to generate as many relevant strategies as they can in the first portion of the activity.

5. After 7-8 minutes, instruct educators to begin selecting high-impact strategies from their list (Step 2). During this activity, educators will only be working on the Brainstorm Strategies section. In Exercise 3.2, educators will work on the next section.
6. Invite educators to share their process and strategies, if time permits.

Reflection:

1. When the discussion concludes, ask each educator to complete *the Exercise 3.1 Reflections* handout.
2. Record the results of the *Exercise 3.1 Reflections* in the *Data Use Professional Development Series Log.*

Short Cycle of Inquiry

Analyze

Data Source	

Cluster	Characteristics and Evidence	
1		
2		
3		

Pattern of Need	

Potential Actionable Cause	

Strategize

Brainstorm Strategies:

Step 1: Generate Ideas: What strategies could be implemented to address the Pattern of Need?

1	
2	
3	
4	
5	
6	

Step 2: Cross out strategies that are not evidence-based.

Step 3: Cross out strategies that are not within your direct control.

Step 4: Cross out strategies that are unrealistic to address with currently available resources.

Which high-impact strategy from the brainstormed list will be implemented to address the Pattern of Need?

Action Plan

What standard (e.g., CCSS, NGSS, GLE/GSE) or aspect of a standard will you address?	
□ Whole Class □ Small Group – Students: _____ Plan:	
What resources will you need?	When will you implement?
How will you assess?	When will you assess?

□ Stakeholder(s), if necessary, receive a copy of plan
□ Rigor of instruction matches rigor or assessment
□ Rigor of instruction matches rigor of standard
□ Timeline for plan is appropriate and realistic
□ Assessment is objective and measurable
□ Resources are readily available

Act

After implementing Action Plan:

Assessment results

Next Steps

Exercise 3.1: Reflections

Describe the high-impact strategy you selected to address your Pattern of Need.

Rate your ability to use brainstorming to select a high-impact strategy to address a Pattern of Need.

Cannot do it	Can do it with significant support	Can do it with some support	Can do it independently
1	2	3	4

Information I still need or want to pursue further:

Exercise 3.2: Create Action Plan

Purpose:

Educators will use a potential actionable cause developed from a Pattern of Need to create an Action Plan.

Objectives:

Upon completion of this exercise, educators will be able to:

- Develop an Action Plan to address a Pattern of Need

Materials Needed (for each educator):

- *Short Cycle of Inquiry* handout from Exercise 3.1
- Cause of Pattern of Need hypothesis written in Exercise 2.7 (Analyze Packet)
- *Exercise 3.2 Reflections* handout

Time:

Approximately 15 minutes

Instructions:

1. Instruct educators to refer back to their *Short Cycle of Inquiry* template from Exercise 3.1.
2. Discuss the importance of creating realistic and actionable plans around high-impact strategies.
3. Explain each portion of the *Action Plan* piece of the template, answering any questions educators may have. Point out that the Action Plan template focuses on the standard/s, instructional plan, resources, and plans for assessing the instructional plan.
4. Direct educators to complete the Action Plan piece in accordance to their Hypothesis/Potential Actionable Cause and Pattern of Need.
5. Instruct educators to share the components of their *Action Plan* with their partners. Encourage partners to challenge one another for thoroughness by using the checklist below the chart.
6. Note that at the end of the *Short Cycle of Inquiry* template there is an Act section. In this exercise, the educators are not completing this section, but encourage them to think about how they might answer these questions after they have implemented their Action Plan.

Reflection:

1. When the discussion concludes, ask each educator to complete the *Exercise 3.2 Reflections* handout.
2. Record the results of the *Exercise 3.2 Reflections* in the *Data Use Professional Development.*

Exercise 3.2: Reflections

Summarize the Action Plan you created based on your identified Pattern of Need.

Rate your ability to create an Action Plan for a Pattern of Need.

Cannot do it	Can do it with significant support	Can do it with some support	Can do it independently
1	2	3	4

Information I still need or want to pursue further:

Exercise 3.3: Effort and Impact

Purpose:

Educators will use a protocol to prioritize potential actionable strategies via a matrix.

Objectives:

Upon completion of this exercise, educators will be able to:

- Determine the impact of potential strategies on the Pattern of Need
- Determine the amount of effort needed to address potential strategies

Materials Needed (for each educator):

- Exercise 3.3 Sample Scenario for Effort/Impact
- Effort/Impact Matrix
- Sticky notes
- Pattern of Need and Root Cause from Fishbone Exercise
- Exercise 3.3 Reflections handout

Time:

Approximately 30 minutes

Note to Facilitator:
Prior to beginning this exercise, have educators analyze a data set, identify a Pattern of Need, and construct a working hypothesis. Educators should have completed Root Cause Analysis exercises before participating in this exercise.

Instructions:

1. Discuss the criteria (i.e., “amount of effort” and “impact on students”) for the numbered quadrants on the Effort/Impact Matrix.
2. Ask, “How do these criteria relate to the possible strategies for the Pattern of Need you have identified?” Responses may include:
    - *It’s a visual representation that relates the effort of pursuing a strategy to the impact it would have on students.*
    - *It allows us to take a more nuanced view of strategies.*
    - *It helps us prioritize what strategies are worth pursuing.*

    Before proceeding, educators should come to a shared understanding of the criteria.
3. Once educators have agreed on what the criteria mean, ask, “Which quadrant is the most desirable? Which quadrant is the least desirable?” Responses may include:
    - *Quadrant 1 because it’s the most efficient.*
    - *Quadrant 2 because it might yield the most impact.*
    - *The quadrants themselves don’t matter as much as the impact.*
4. Review the Sample Scenario with educators, pausing at each step to discuss.

Apply to your own data

Instructions:

1. Have educators brainstorm a series of potential strategies (all strategies, not just actionable) for the Pattern of Need and write each strategy on a sticky note.

2. In their SDLTs, have educators eliminate all strategies/stickies that are not actionable, or are beyond their control.

3. With the remaining strategies/stickies, ask educators to identify up to four strategies. These will be the strategies they place on the Effort/Impact Matrix.

4. Model the process of sorting the strategies: Ask, “In which quadrant would you place the first strategy?” Place the sticky note in the quadrant the educators select. Allow time for the group to ask and answer any questions they may have about the process.

    - Why might we place this sticky note in this quadrant?
    - What presumptions are contributing to your decision?

5. Once the activity has been completed, ask educators which strategies they believe they should act upon.

Exercise 3.3 Sample Scenario for Effort/Impact

Identify a Pattern of Need:

Math teachers Mrs. Swanson and Mr. Monroe get together after their most recent unit assessment. They examine the results and quickly identify a Pattern of Need.

40 out of 62 students scored a 1 or 2 out of 4 on questions dealing with multi-step problems.

Identify a Root Cause (through the fishbone analysis):

The problem-solving process is not granular enough; what the students think of as one step can be many more.

Identify Potential Strategies:

- Introduce a step-by-step problem-solving procedure
- Create anchor charts to support the use of the problem-solving procedure
- Find special math program to add to student tablets
- Create a graphic organizer to break down steps of problem-solving process
- Have students explain each step in writing
- Create a cross-grade peer tutoring program with an emphasis on problem solving
- Focus lesson on one step of the problem-solving process and conduct repeated practice on that step
- Adjust all Do Now problems to be multi-step problems
- Send at-home assignments for parents to work on multi-step problems with students
- Have students highlight key words in problems
- Review exemplars as a class
- Send struggling students to Math Coach for interventions

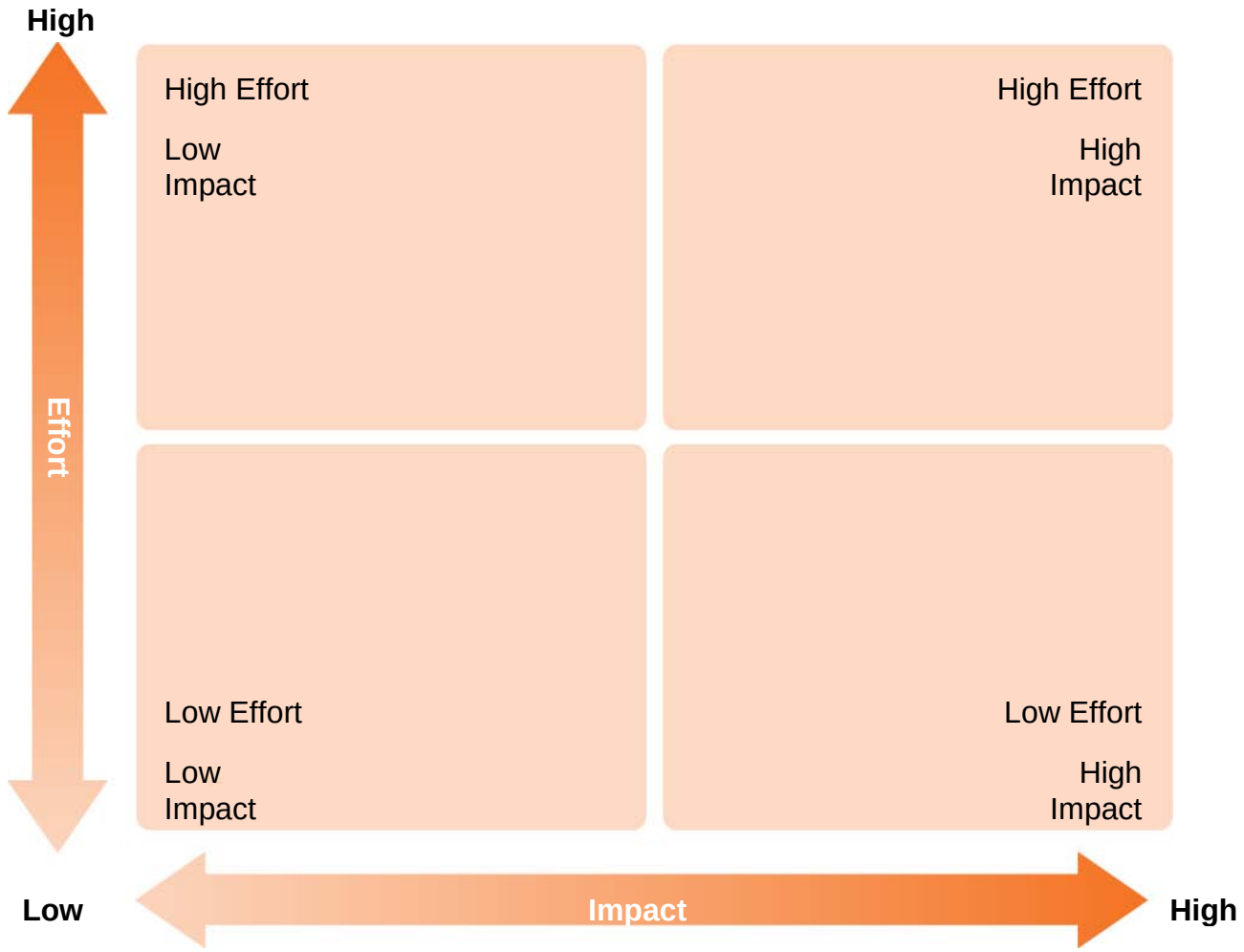
Identify the potential strategies that are most actionable:

- Create anchor charts to support the use of the problem-solving procedure
- Create graphic organizer to break down steps of problem-solving process
- Have students explain each step in writing
- Focus lesson on one step of the problem-solving process and conduct repeated practice on that step

Discussion Questions for mapping potential causes to the Effort/Impact Matrix:

- Where might the first strategy belong on the matrix? Why? (Note: same question for strategies 2-4. Encourage discussion and divergent thinking. The process of discussing where potential strategies fit into the matrix is essential. It can surface important issues.)
- Now that we've placed the different strategies on the matrix, which would be the most valuable to pursue? Why? (Note: There is no "right" answer to this question. Important considerations are school and district goals, available resources, etc. The answer will be situational.)
- How does this process guide the rest of the Cycle of Inquiry?
- How have we refined our initial hypothesis?
- For what kinds of decisions would this protocol be appropriate?

Effort/Impact Matrix



Exercise 3.3: Reflections

Handout

What is the purpose of the Effort/Impact Matrix?

Rate your ability to prioritize Root Causes using the Effort/Impact Matrix.

Cannot do it	Can do it with significant support	Can do it with some support	Can do it independently
1	2	3	4

Information I still need or want to pursue further:

Exercise 3.4: Types of Flexible Small Groups

Purpose

To further enhance the flexible grouping skills of educators.

Objectives

By the end of this activity, educators will be able to:

- Identify the type of small group (i.e., short-term, long-term, spontaneous) represented in each scenario
- Describe ways that flexible small groups can be implemented in their classroom

Materials Needed (for each educator)

- *Types of Flexible Small Groups* handout
- *Flexible Small Group Scenarios* handout
- *Exercise 3.3 Reflections* sheet

Procedure

1. Provide each educator with a copy of the *Types of Flexible Small Groups* handout.
2. Have educators break into pairs and give each pair a copy of the *Flexible Small Group Scenarios* handout.
3. Instruct the pairs to label the scenarios as one of the following three categories: short-term flexible groups, long-term flexible groups, and spontaneous flexible groups.
4. Review responses with educators, providing clarification and encouraging conversation when necessary.
5. Once all the scenarios have been labeled, have educators share examples of how they use these different types of groups within their classrooms.

Note to Facilitator

If educators are unable to provide examples of how they currently use the different groupings, encourage them to think of ways groupings could be used. Also, encourage them to experiment with the different types of groupings and report back to the group on their experience.

Answers for Scenario

Scenarios 1, 4, and 7 represent long-term flexible groups.

Scenarios 3, 5, and 9 represent short-term flexible groups.

Scenarios 2, 6, and 8 represent spontaneous flexible groups.

Types of Flexible Small Groups

Long-Term Flexible Groups	Short-Term Flexible Groups	Spontaneous Flexible Groups
Require students receive explicit small-group instruction over a period of time.	May be used to teach a temporary group of students a particular procedure, skill, strategy, or concept they have yet to learn and/or apply.	Created using low-stakes data; are periodically created, modified, or disbanded to meet new needs as they arise.
Groups shift based on benchmark or other cumulative assessments.	May be used to advance students who have already demonstrated mastery.	Addresses the immediate needs of students.
Groups may be together for a month leading up to a marking period and/or between testing cycles.	Groups may last for a couple of days to a couple of weeks depending on the needs of the students.	Groups may last from 10-15 minutes, up to an entire class period.

Flexible Small-Group Scenarios

Label the scenarios as one of the following three categories: short-term flexible groups, long-term flexible groups, and spontaneous flexible groups.

1. Students who score below proficiency on a strand of the NECAP may be placed into an intervention class to work on weak skill areas. Conversely, students who score above proficiency may be placed into an enrichment group.
2. A math teacher grades a quiz and notices a pattern of students who were not lining up their decimals. Students who made this mistake may be pulled into a small group for additional explanation and practice. After practice and completion of sample problems, students would then be released.
3. In a language arts class, a group of students is not able to identify the author's purpose from class readings. A teacher may create a group with these students to provide explicit instruction on the concept of author's purpose while the rest of the class continues to work on reading and identifying the author's purpose or other literary element.
4. Teachers review reading benchmark data and may assign students to a text that matches the proper reading level. This may take the form of a guided reading group or novel study, and may be useful in a language arts class or in science and social studies.
5. Weekly exit tickets from a math class indicate that some students mastered the concept of one-step equations. The teacher believes students may be ready to tackle two-step equations. A teacher may group these students and provide instruction on solving two-step equations while other students work toward mastery of solving one-step equations.
6. A social studies teacher who monitors progress during independent work notices a pattern of students confusing the Constitution with the Declaration of Independence. Students that did not distinguish between the two documents may be pulled into a small group and released once they make the distinction.

7. Math benchmarks indicate that some students are performing well above grade-level. This may be addressed through the math class as teachers meet with these students to provide instruction on work that is more in-depth and of higher complexity than what was assigned from the textbook. Other students may continue to work from the textbook, while those who scored below grade-level may receive a greater level of support and scaffolding from the teacher through a different small group.
8. In a language arts class, while students read their writing pieces aloud, the teacher notices that some students are not using strong leads. The teacher calls these students into a small group and practices hooks and leads. Students resume regular writing class after practicing this skill.
9. Science teachers notice a pattern of students who complete labs adequately but do not write the labs using the appropriate reporting framework. A teacher may group these students for the purpose of reviewing the lab write-up. Other students may work on their lab or lab write-up independently.

Exercise 3.4: Reflections

Handout

Describe how you will use short-term, long-term, or spontaneous flexible groups in your classroom.

Rate your ability to describe ways you could use flexible groups in your classroom.

Cannot do it	Can do it with significant support	Can do it with some support	Can do it independently
1	2	3	4

Information I still need or want to pursue further:

Exercise 3.5: Using Two Data Sets to Create Flexible Small Groups

Purpose

To create small instructional groups based on two different sources of data to inform differentiatied instruction.

Objectives

By the end of this activity educators will be able to:

- Develop a grid of 9 or 12
- Compare two data sources to create small groups

Materials Needed (for each educator)

- *Sample 9-Grid* handout
- *Sample 9-Grid Data Set* handout
- *Blank 12-Grid* handout
- *12-Grid Data Set* handout
- *Exercise 3.5 Reflections* sheet

Procedure

1. Provide each educator with the *Sample 9-Grid* and *Sample 9-Grid Data Set* handouts.
2. Explain that the 9-Grid is a method of comparing two data points. The grid aids in developing small groups for differentiated instruction.
3. Ask educators to describe how the data is recorded in the 9-Grid.
   Possible responses include:
   - *Two reading scores listed*
   - *Ranges for proficiency listed for each assessment, different ranges for each*
   - *Students are listed on the horizontal and vertical lines in the appropriate range for their score*
   - *When students intersect in columns and rows, their names are written in center of grid*

- *Students seemed to gravitate to center of matrix*

4. Provide each educator with the *12-Grid Data Set* and a blank *12-Grid* handout.
5. Ask educators to examine the *12-Grid Data Set* and discuss what they notice.
   Possible responses include:
   - *Scores for an end-of-unit science test*
   - *Scores for reading informational text*
   - *Levels for proficiency and mastery listed*
   - *Not easy to notice patterns when data presented in this format*
6. Explain that educators use the 12-Grid to compare two data sources to create groups of students with similar needs.
7. Ask educators to work in pairs to record the two data points on the grid and record where student names intersect.
8. When educators have completed grid, ask them to describe how this might impact their instruction.
   Possible responses include:
   - *May provide reading materials about content at a lower reading level for those students who have lower reading scores*
   - *May ask students at the mastery level of both skills to peer-assist students who are at proficiency level*
   - *May provide additional content resources/instruction for students at mastery level for informational reading but not for content*
9. Have educators discuss which type of small flexible grouping (i.e., short-term, long-term, spontaneous) they think would be appropriate for the small groups they have created using the grid.

Sample 9-Grid Data Set

Students	Phonemic Awareness
Allyson	16
Cody	45
Colin	48
Dan	39
David	53
Debbie	51
Elsie	31
Esther	7
Fernando	54
Hugh	35
Jessie	20
Joel	54
Jules	50
Julianne	2
Julio	39
Liza	34
Mark	42
Matt	41
Max E	3
Max F	11
Rosalinda	37
Sharon	28
Ted	14
Todd	54

Students	Alphabetic Principles
Allyson	24
Cody	34
Colin	37
Dan	15
David	26
Debbie	41
Elsie	21
Esther	17
Fernando	42
Hugh	26
Jessie	17
Joel	36
Jules	24
Julianne	5
Julio	22
Liza	23
Mark	26
Matt	25
Max E	8
Max F	14
Rosalinda	39
Sharon	20
Ted	16
Todd	24

Sample 9-Grid

Data Point A: Alphabetic Principles				
	Level 3 34-45 Cody, Colin, Debbie, Fernando, Joel, Rosalinda		Rosalinda	Cody, Colin, Debbie, Fernando, Joel
	Level 2 20-33 Allyson, David, Elsie, Hugh, Jules, Julio, Liza, Mark, Matt, Sharon, Todd	Allyson	Elsie, Hugh, Julio, Liza, Sharon	David, Jules, Mark, Matt, Todd
	Level 1 0-19 Dan, Esther, Jessie, Julianne, Max E, Max F, Ted	Esther, Jessie, Julianne, Max E, Max F, Ted	Dan	

Level 1 0-25	**Level 2** 26-40	**Level 3** 41-55
Esther, Jessie, Julianne, Max E, Max F, Ted, Allyson	Dan, Elsie, Hugh, Julio, Liza, Sharon, Rosalinda	Cody, Colin, Debbie, Fernando, Joel, David, Jules, Mark, Matt, Todd

Data Point B: Phonemic Awareness

9-Grid

Data Point A:				
	Level 3			
	Level 2			
	Level 1			

	Level 1	**Level 2**	**Level 3**
	Data Point B:		

12-Grid

Data Point A:				
	Level 3			
	Level 3			
	Level 2			
	Level 1			
		Level 1	**Level 2**	**Level 3**
		Data Point B:		

12-Grid Data Set

Student	9th Grade Science Exam score
Al	52
Bo	72
Cam	89
Don	55
Eli	80
Fran	77
Gwen	92
Hector	60
Iris	69
Jake	75
Ken	88
Leo	70
Matt	85
Neepa	45
Ollie	74
Pam	82
Quinn	66
Rene	87
Sue	70
Trey	68
Uma	95
Vic	81
Wally	80
Xavier	35
Youn	67

Student	8th Grade NECAP Reading Level
Al	1
Bo	3
Cam	4
Don	1
Eli	2
Fran	2
Gwen	4
Hector	1
Iris	2
Jake	3
Ken	4
Leo	3
Matt	3
Neepa	2
Ollie	3
Pam	3
Quinn	3
Rene	4
Sue	2
Trey	3
Uma	4
Vic	3
Wally	2
Xavier	2
Youn	3

Response Guide for 12-Grid

Data Point A: NECAP Reading				
	Level 3 Cam, Gwen, Ken, Rene, Uma			Cam, Gwen, Ken, Rene, Uma
	Level 3 Bo, Jake, Leo, Matt, Ollie, Pam, Quinn, Trey, Vic, Youn		Bo, Jake, Leo, Matt, Ollie, Pam, Quinn, Trey, Vic, Youn	
	Level 2 Eli, Fran, Iris, Neepa, Sue, Wally, Xavier	Neepa, Xavier	Eli, Fran, Iris, Sue, Wally	
	Level 1 Al, Don, Hector	Al, Don, Hector		
		Level 1 0-65	**Level 2** 66-85	**Level 3** 86-100
		Al, Don, Hector, Neepa, Xavier	Bo, Eli, Fran, Iris, Jake, Leo, Matt, Ollie, Pam, Quinn, Sue, Trey, Vic, Wally, Youn	Cam, Gwen, Ken, Rene, Uma
		Data Point B: Science Exam		

Exercise 3.5: Reflections

Handout

Describe one example of how you will use two data sources by creating a 9- and/or 12-Grid to identify small groups.

Rate your ability to use two data sources and a 9- and/or 12-Grid to identify small groups.

Cannot do it	Can do it with significant support	Can do it with some support	Can do it independently
1	2	3	4

Information I still need or want to pursue further:

Exercise 3.6: Which Assessment Could Be Used?

Purpose

To make purposeful assessment choices based on informational needs and student academic outcomes.

Objectives

By the end of this activity educators will be able to:

- Match a variety of assessment practices, both formative and summative, to different tasks

Materials Needed (for each educator)

- *Assessment Descriptions* handout
- *Which Assessment Could Be Used?* handout
- *Exercise 3.6 Reflections* sheet

Procedure

1. Provide each educator with a copy of the *Assessment Description* handout.
2. As a group, ask educators to provide an example of each of the types listed.
3. Either independently or collaboratively, complete the *Which Assessment Could Be Used?* handout.
4. Discuss the importance of matching the assessment to the purpose of collecting information.

Assessment Descriptions

Norm-Referenced Assessments When the results of a standardized or a pre-made assessment are reported in the form of a percentile rank, the assessment has been normed. This occurs when a representative pool of students takes the assessment before the assessment is widely administered. These scores are distributed evenly along a bell curve, creating a “normal” group of students. Students’ performances are compared with the performance of the “normal” group.
Criterion-Referenced Assessments Criterion-referenced assessments are designed to measure a student’s level of mastery on a set of criteria, such as the Rhode Island state standards on the NECAP. Used to inform instruction and measure outcomes, criterion-referenced tests (CRTs) can be educator-, district-, or state-designed. CRTs are frequently used at the state level as end-of-course exams and year-end mastery assessments. With CRTs, a variety of item types can be used to assess students’ knowledge, skills, and abilities.
Universal Screeners Universal screeners are usually administered three times yearly to proactively identify those students who may be at risk of failure. Screeners are typically short, targeted on specific skills, and designed to identify or predict students who may be at risk. Once the level of risk is determined by the screener, appropriate interventions can be implemented and monitored.
Common Assessments or Tasks Common assessments are given at specific points in the school year. They are assessments that are collaboratively designed by grade-level or course teams and evaluate the knowledge of students as they progress through the curriculum. The design tends to mirror district and state assessments.
Formative Classroom Assessments Classroom formative assessment is a set of practices and strategies that enable educators to gather evidence about student learning and immediately alter instructional practice. This evidence is also used as a feedback mechanism for students to improve their own learning.
Summative Classroom Assessments Summative classroom assessments are given periodically to gather evidence about student learning at a particular point in time. Summative classroom assessments are generally used as part of the grading process. Some examples are end-of-unit or chapter tests, end-of-term or semester exams, and essays or research papers.
Portfolio Assessments Portfolios, a collection of individual student work, are generally used to document student learning within a specific, extended time period. While there are two major groups of portfolios used in education — product and process — there are many varieties within each category, including Achievement, Assessment, Celebration, Competence, Growth, Performance, Project, and Showcase portfolios. Each portfolio type has specific objectives and meets specific needs.

Performance Tasks

These are items or assessments that require students to apply their understanding to complete a demonstration, performance, or product that can be judged on clear performance criteria.

Which Assessment Could Be Used?

Directions: Read each situation. Decide which assessment tool would yield the most meaningful data for the situation. There may be more than one appropriate tool. In the space provided, explain the reason for selecting each assessment.

Assessment Types Formative Classroom Assessment Common Assessment or Task Criterion-Referenced Assessment Summative Classroom Assessment Performance Task Portfolio Assessment Universal Screener Norm-Referenced Assessment
As first-quarter parent report card conferences approach, a teacher wants to prepare her sixth grade students to discuss their writing progress with the parents.
As a critical skill to learning social studies content, a social studies teacher is focusing on improving students' comprehension of informational text. The teacher would like to measure the students' progress during the year and include this as a Student Learning Objective.
A ninth grade geography class has viewed a video about cultural diffusion. Before the teacher links that topic to cultural diasporas, she wants to ensure the students have a firm understanding of cultural diffusion.
It is the beginning of the school year and the first-grade team needs to assess skill levels of students for grouping purposes.

A teacher has witnessed her 12th grade physics students recall their knowledge readily. Now she wants to see them use that knowledge by creating a model to represent a physics concept.
It is the point in the year when the district wants to determine how well students are progressing toward meeting standards.
A sixth grade social studies teacher is approaching the end of a unit on the Civil War and wants to assess student learning as a whole.

Which Assessment Could Be Used?

Directions: Read each situation. Decide which assessment tool would yield the most meaningful data for the situation. There may be more than one choice. In the space provided, explain the reason for selecting each assessment.

Assessment Types Formative Classroom Assessment Common Assessment or Task Criterion-Referenced Assessment Summative Classroom Assessment Performance Task Portfolio Assessment Universal Screener Norm-Referenced Assessment
As first-quarter parent report card conferences approach, a teacher wants to prepare her sixth grade students to discuss their writing progress with the parents.
Portfolio: To show growth over time with a product such as writing, this is a viable choice if they have been using the same rubric to assess the writing.
As a critical skill to learning social studies content, a social studies teacher is focusing on improving students' comprehension of informational text. The teacher would like to measure the students' progress during the year and include this as a Student Learning Objective.
Common Assessment: The district common reading assessment is designed to reflect grade-level proficiency in reading comprehension.
A ninth grade geography class has viewed a video about cultural diffusion. Before the teacher links that topic to cultural diasporas, she wants to ensure the students have a firm understanding of cultural diffusion.
Formative Classroom Assessment: Any type of quick assessment, such as Thumbs Up/Thumbs Down, Think-Pair-Share, Quick Write, etc., where the teacher can see and hear student feedback, helps guide classroom decision-making, making classroom formative assessment a good selection.
It is the beginning of the school year and the first-grade team needs to assess skill levels of students for grouping purposes.

Universal Screener: The team is assessing the entire grade for grouping purposes (during one of the key times of year screeners are given). Additionally, universal screeners expose learning gaps, and some can be quick to administer and easy to score.
A teacher has witnessed her 12th grade physics students recall their knowledge readily. Now she wants to see them use that knowledge by creating a model to represent a physics concept.
Performance: The key here is creating a model. The teacher already knows the students can perform recall tasks and wants them to stretch beyond the basics by using their knowledge in meaningful ways.
It is the point in the year when the district wants to determine how well students are progressing toward meeting standards.
Common Assessment: A district mandate, the common assessment is a measure of student progress toward meeting standards.
A sixth grade social studies teacher is approaching the end of a unit on the Civil War and wants to assess student learning as a whole.
Summative Classroom Assessment: A summative classroom assessment is meant to assess student learning over a particular point in time, either a unit or grading period.

Exercise 3.6: Reflections

Handout

Describe two different types of assessments you will use in the next two weeks as well as the instructional needs for each assessment.

Rate your ability to match different types of assessment with instructional needs.

Cannot do it	Can do it with significant support	Can do it with some support	Can do it independently
1	2	3	4

Information I still need or want to pursue further:

Exercise 3.7: Evaluating Assessments using Webb's Depth of Knowledge (DOK)

Purpose

To help educators use Webb's DOK to evaluate and create assessments.

Objectives

By the end of this activity educators will be able to:

- Describe the four levels of DOK
- Identify the DOK for a standard and for an assessment item
- Create an assessment item that aligns with the DOK of a standard

Materials Needed (for each educator)

- *Depth of Knowledge Description* handout
- *Depth of Knowledge* handout
- *Exercise 3.6 Reflections* sheet
- Copy of an assessment (formative, interim, or summative)
- *Depth of Knowledge: Assessment Review* handout

Procedure

1. Ask educators to review the *Depth of Knowledge Descriptions* handout and match the level with the questions below.
2. Working independently or collaboratively, have educators identify the DOK of the assessments in the *Depth of Knowledge* handout.
3. Ask educators to share their responses and discuss.
4. Note to educators that there were no examples of Level 4. A Level 4 DOK requires extended thinking and mastery. A Level 4 DOK would be used in a summative assessment, not in a formative assessment or check for understanding. Discuss what a Level 4 item might look like/sound like. .
5. Have educators examine the assessment they brought with them and identify the standards and DOK of the questions using the *Depth of Knowledge: Assessment Review* handout.

6. Working independently or collaboratively, have educators create an additional assessment item that aligns with a standard's DOK.
7. Ask, *Why is it important to determine the cognitive complexity of an item?*

   Possible responses:

   - *The cognitive complexity of an item helps determine whether the item is as demanding as the content curriculum and standard requires.*
   - *It is important to vary the cognitive complexity of items — you don't want to always assess students at the same level of cognitive complexity.*
   - *Helps educators create more cognitively engaging and challenging tasks, giving them a boost to reach the next level.*
   - *Giving students items with a range of cognitive complexity can tease out nuances in student achievement.*
8. Educators share with others in the group.

Webb's Depth of Knowledge

Level 1: Recall • Requires recall of fact, information, or procedure • Identify, state, list, define, recognize, use, measure
Level 2: Skill/Concept • Requires engagement in mental processing beyond a habitual response. Students use information/conceptual knowledge to make decisions as to how to approach the problem or activity. • Classify, organize, estimate, compare, infer, summarize
Level 3: Strategic Thinking • Requires reasoning, developing a plan, following a sequence of steps, some complexity, and more than one possible answer • Generalize, draw a conclusion, support, hypothesize, investigate
Level 4: Extended Thinking • Requires an investigation, time to think and process multiple conditions of the problem • Make connections, synthesize, prove, analyze, design, carry out

It's not always about the verb!

Describe one cause of the War of 1812.
Describe the similarities between the War of 1812 and the American Civil War.
Describe the impact the War of 1812 and the American Civil War have had on modern-day America.

Depth of Knowledge

<table>
<tr><th>Standard</th><th>Question</th><th>DOK</th><th>Part/All of Standard</th></tr>
<tr><td>RL.8.2
Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.</td><td>Which lines from Selection 2 portray the theme of the poem?
a. “Drowned, but it was wrong: Icarus
Had swum away, coming at last to the city”
b. “They would have answered with a shocked, uncomprehending stare”
c. “Can the genius of the hero fall
To the middle stature of the merely talented”
d. “Constructs small wings and tries to fly
To the lighting fixture on the ceiling”</td><td></td><td></td></tr>
<tr><td>RST.9-10.8
Assess the extent to which the reasoning and evidence in a text support the author’s claim or a recommendation for solving a scientific or technical problem.</td><td>Constructed-Response Item:
In Selection 3, evaluate the claim that time cloaking has practical applications. Be sure to consider how scientists assess the possibilities for future use and what shortcomings might be evident. Cite strong and thorough textual evidence to support your answer.</td><td></td><td></td></tr>
<tr><td>M(N&O)–3–3
Demonstrates conceptual understanding of mathematical operations by describing or illustrating the inverse relationship between addition and subtraction of whole numbers; and the relationship between repeated addition and multiplication using models, number lines, or explanations.</td><td>Sandy is solving this problem.
5 x 6 =
How could Sandy use counters to solve this problem?
a. Make 11 groups with 1 counter in each group.
b. Make 30 groups with 5 counters in each group.
c. Make 5 groups with 6 counters in each group.
d. Make 6 groups with 30 counters in each group.</td><td></td><td></td></tr>
<tr><td>05.NF.03
Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers (e.g., by using visual fraction models or equations to represent the problem).</td><td>This table shows the number of students in different classes who are in the math club.
Students in Math Club
<table><tr><th>Class</th><th>Boys</th><th>Girls</th></tr><tr><td>Mrs. Smith</td><td>3</td><td>4</td></tr><tr><td>Ms. Jones</td><td>4</td><td>6</td></tr><tr><td>Mr. Brown</td><td>3</td><td>4</td></tr></table>1. What fraction of students in the math club are boys in Mrs. Smith’s class?
2. What fraction of the students in the math club are girls?
3. Some more girls joined the math club, but no more boys joined. The number of girls in the math club is now 2/3 of the total number of members. How many more girls joined the math club? Show your work or explain how you know.</td><td></td><td></td></tr>
</table>

Depth of Knowledge Response Guide

<table>
<tr><th>Standard</th><th>Question</th><th>DOK</th><th>Part/All of Standard</th></tr>
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Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.</td><td>Which lines from Selection 2 portrays the theme of the poem?
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To the middle stature of the merely talented”
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<tr><td>RST.9-10.8
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In Selection 3, evaluate the claim that time cloaking has practical applications. Be sure to consider how scientists assess the possibilities for future use and what shortcomings might be evident. Cite strong and thorough textual evidence to support your answer.</td><td>3</td><td></td></tr>
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<tr><td>05.NF.03
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</table>

Depth of Knowledge: Assessment Review

Examine your own assessment and identify the standards assessed and Depth of Knowledge of the questions. Record here.

Standard	Question	DOK
Additional Assessment Item: Create one additional assessment item that aligns with a standard and a specific DOK level. Consider how you might increase the level of rigor on the item.		
Standard	**Question**	**DOK**

Exercise 3.7: Reflections

Handout

Describe one standard you will teach in the next few weeks and list an assessment item that aligns with the standard's Depth of Knowledge.

Rate your ability to evaluate an assessment item's Depth of Knowledge.

Cannot do it	Can do it with significant support	Can do it with some support	Can do it independently
1	2	3	4

Information I still need or want to pursue further:

Exercise 3.8: Creating Assessments that Check for Understanding

Purpose

To examine criteria for creating effective assessments that check for understanding.

Objectives

By the end of this activity educators will be able to:

- Create an effective assessment that checks for understanding.

Materials Needed (for each educator)

- *Check for Understanding Scenarios* handout
- *Characteristics of Effective Checks for Understanding* handout
- Scrap pieces of paper
- *Exercise 3.8 Reflections* sheet

Procedure

1. Use a "whip around" (Douglas & Frey, 2007) to have educators share their check for understanding strategies:
    - Ask educators to individually jot down on a scrap piece of paper at least three strategies they have used to check students' understanding.
    - When they have completed this, have educators stand up.
    - Educators take turns sharing one strategy.
    - Educators check off strategies on their list that are also shared by others in the group.
    - Educators sit when all their strategies have been shared.
    - Educators continue to take turns sharing until all educators are seated.
2. Provide each educator with a copy of the *Characteristics of Effective Checks for Understanding* handout to review and continue adding characteristics to the list.
3. Provide each educator with a copy of the *Check for Understanding Scenarios* handout to compare with the characteristics.
4. If any scenarios do not match the characteristics, ask educators to provide feedback for improvement.

- *May not always be practical to use varying levels of complexity for a quick check for understanding.*
- *Diagnosing common errors and misconceptions may be relevant for some standards, but may not be appropriate for all.*

5. Working in pairs or independently, educators write two examples of their own checks for understanding.
6. Educators take turns going around the room sharing their checks for understanding and the challenges they faced writing them.
7. Discuss with educators the difference between a check for understanding and a check for mastery of a standard, which requires summative assessment.

   Possible responses include:

   - *Check for understanding measures one standard or one aspect of a standard, while summative needs to assess all aspects of the standard.*
   - *Summative assessments may need to measure multiple standards at one time to assess the big idea of the standard rather than just individual strands.*

7. Provide each educator with the *Exercise 3.8 Reflections* sheet to complete.

Characteristics of Effective Checks for Understanding

Characteristics	Matches Characteristics?
Measures only one standard or one aspect of a standard	
Uses an item type that is appropriate for the standard	
Helps diagnose a common error or misconception for the topic	
Uses varying levels of cognitive complexity (DOK)	
Can be completed in the time available	
Encourages student effort	

Check for Understanding Scenarios

RL.3.4 Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.

After reading an excerpt, the teacher handed students a copy of said excerpt. She then asked students to highlight the phrases/words within the text that helped them understand the unknown word.

MA.8.EE.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes.

At the close of a lesson on evaluating the square root of perfect squares, a math teacher wrote on the board the equation $x^2 = 64$ and the following responses:

a. $x = 32$
b. $x = 64^2$
c. $x = 128$
d. $x = \sqrt{64}$

Using an electronic student response system, students were given a few minutes to work out the problem and asked to select the appropriate response.

Answer D is correct and the remaining three choices are based on common errors students make with square root problems.

WHST.9-10.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

WHST.9-10.2b Develop the topic with well-chosen, relevant and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

A 10th grade social studies class completed a lesson analyzing causes of the Civil War. The teacher has provided students with an exit ticket that articulates both the topic and audience of an informative writing text: The North is responsible for starting the Civil War. The exit ticket asks students to provide at least three pieces of evidence they would include in their informative writing (were they to write about this very topic) which support this topic. Students are encouraged to select "relevant facts," "extended definitions," "concrete details," "quotations," or "other information/examples appropriate" from their lesson readings and resources.

Exercise 3.8: Reflections

Handout

Describe two strategies you will use in the next two weeks to check students' understanding.

Rate your ability to create an assessment to check for understanding.

Cannot do it	Can do it with significant support	Can do it with some support	Can do it independently
1	2	3	4

Information I still need or want to pursue further:

References

Douglas, F. & Frey, N. (2007). *Checking for Understanding*. Association for Supervision and Curriculum Development, Alexandria, VA.