Unfinished Learning Series
Math Community of Practice

Session 3:
Plan & Take Action Part I
Planning & Delivering Acceleration Supports

Diagnosing Unfinished Learning Reflection
• What went well and what was challenging? • What did you learn? What might you do the same or differently next time?

Access Accelerate Math Landing Page
Accelerate Math

Access Accelerate Math Resources
Grade 7 Module 3 Lessons 12-15 Google Slides

Planning for Action Case Study Part I

Using the evidence from student work on the Eureka Acceleration Tool diagnostic screener, Ms. Hutchins formed four flexible groups based on student strengths, learning needs, and what she knows about her students' working preferences and schedules.

Learning Need	Evidence or from Diagnostic & Classwork	Strengths	Group
Develop conceptual understanding creating an equation from a real world scenario	Did not set up equation to find answer	Problem-Solving Listens to others speak	Malayah Kamal Joseph
Develop conceptual understanding creating an equation from a real world scenario	Confused about which operation to use to solve equation numerator and denominator Did not set up an equation to find answer	Makes real world connections	Jeremiah **Meet with Mrs. Teal*
Develop accuracy with solving equations by performing the inverse operation	Made minor mathematical error when attempting to perform inverse operation	Work well together Explain reasoning	Bryce Richard
Develop accuracy with solving equations by performing the inverse operation	Made minor mathematical error when attempting to perform inverse operation	Notice patterns	Neveah Edwin Anniyah

After assigning students to fluid groups, Ms. Hutchins determines she will begin the small group sessions with 3 of the 4 groups two weeks before starting the solving equations and inequalities topic with the class, and with the fourth group the week prior to starting instruction on the grade level content.

Ms. Hutchins' school, Brightwood Academy, built a forty-five minute acceleration block into the daily schedule. Ms. Hutchins creates a schedule along with Mrs. Teal, a special education teacher with whom she often plans and co-teaches. They meet every Thursday during their common planning time to plan for small group sessions, reassess learning needs and adjust groups based on student work from sessions and class.

Week 1	Ms. Hutchins' Acceleration Block	Mrs. Teals' Acceleration Block
Monday March 8th	Malayah, Kamal, Joseph	
Tuesday March 9th	Malayah, Kamal, Joseph	Jeremiah
Wednesday March 10th	Bryce, Richard	Jeremiah
Thursday March 11th	Bryce, Richard	Jeremiah
Friday, March 12th	Plan based on evidence from session 1 & classwork	
Week 2	**Ms. Hutchins' Acceleration Block**	**Ms. Teals' Acceleration Block**
Monday March 22nd	Neveah, Edwin Anniyah	Bryce, Richard *(if needed)*
Tuesday March 23rd	Neveah, Edwin Anniyah	Bryce, Richard *(if needed)*
Wednesday March 24th	Malayah, Kamal, Joseph	Jeremiah
Thursday March 25th	Malayah, Kamal, Joseph	Jeremiah
Friday, March 26th	Plan based on evidence from session 1-2 & classwork	

After planning for flexible groups and the timing of the sessions, Ms. Hutchins and Mrs. Teal turn their attention to planning for the content they will deliver in the small group sessions. They begin by going to the Louisiana Believes Accelerate Math landing page to identify acceleration support resources for the upcoming module lessons. Mrs. Teal has already been using the session 1 resources for Module 3 lessons 7-11 with Jeremiah. As she monitored Jeremiah's work in the previous week's tutoring session, she noted Jeremiah had an emerging understanding of solving one step. As a result, she'll focus on the additional practice problems from the Module 3 lessons 7- 11 session 2 resources that target solving equations using angle relationships before starting the Module 3 Lesson 12-15 content. Knowing Jeremiah's strength around making real world connections, she also plans to bring in some real world objects to model the problems with concrete representations and connect to the visual models in the session materials. She

also identifies the “Must-do” practice problems she will prioritize in the lesson 12-15 content based on Jeremiah’s strengths and learning needs.

Ms. Hutchins plans to deliver the Module 3, Lessons 12-15 content to Malayah, Kamal, Joseph, Bryce, and Richard in the two weeks prior to starting the grade level lessons. She also identifies the “Must-do” practice problems she will prioritize with each group based on their learning needs. During the second week, she plans to use some of the additional practice items the groups did not complete during the first week session if needed based on evidence in the student work, or engage students in the Module 3, Lessons 16-20 content if needed based on evidence from classwork. Because Neveah, Edwin, and Anniyah’s work on the diagnostic screener did demonstrate some understanding of solving the equation but made errors when performing the inverse operation to isolate the variable. Ms. Hutchins anticipates they will need less time for the upcoming topic so she plans to meet with them twice during the second week of the acceleration cycle. She will also engage them in Module 3, Lessons 12-15 content if warranted by the evidence in their classwork. Ms. Hutchins and Mrs. Teal also decide Bryce and Richard will meet with Mrs. Teal for the session 2 content if needed based on their lesson 11 classwork and exit ticket.

Group	**Must-Do Problems**
Malayah, Kamal, Joseph	Slides 10, 16, 19
Jeremiah	Slides 10, 11, 16, 19, 20
Bryce, Richard	Slides 10, 16, 17, 19
Neveah, Edwin Anniyah	Slides 11, 19, 20

Finally, Ms. Hutchins and Mrs. Teal make a plan for preparing the materials they will need for the Module 3, Lessons 12-15 sessions. They note they will need white boards, markers, graph paper and colored pencils. Ms. Franklin, the grades 6-12, mathematics content lead, coordinates a group of volunteers who help prepare instructional materials needed for acceleration sessions. Ms. Hutchins fills out the *Volunteer Instructional Materials Prep* form with the logistical information for the materials and attaches the graph paper template to be copied for the session. Before closing out their planning meeting, they discuss the student work they will need to bring to their next meeting so they can monitor student progress and adjust groups and plans for week 2.

Breakout Room Discussion Questions
• What do you notice about how Ms. Hutchins planned for acceleration? • How does the plan address the learning needs identified from the diagnostic screener student work?

Whole Class Acceleration Supports Examples

Acceleration Support Example #1

Incorporate the warm up tasks below to build understanding of solving one step equations algebraically and using models. At the end of the week, reassess student understanding of this concept using a variation of item 7 from the diagnostic screener.

Day 1 Warm Up	**Day 2 Warm Up**
If you know the answer, state it. Then use a tape diagram to demonstrate why this is the correct answer. $j + 12 = 25$	Find the solution to the equation algebraically. Check your answer. $k - 16 = 4$
Day 3 Warm Up	**Day 4 Warm Up**
Use a tape diagram to find the solution of $\frac{r}{10} = 4$	Use any method of your choice to find the solution to the following equation $12 = 3v$.
Reassess	
Use tape diagrams and equations to solve the problem with visual models and algebraic methods. Alyssa is twice as old as Brittany, and Jazmyn is 15 years older than Alyssa. If Jazmyn is 35 years old, how old is Brittany? *Let a represent Alyssa's age in years and b represent Brittany's age in years.*	

Acceleration Support Example #2

Eureka, Grade 7, Module 3, Lesson 7 Problem Set # 2

2. Tell whether each number is a solution to the problem modeled by the following equation.

   Mystery Number: Five more than -8 times a number is 29. What is the number?

   Let the mystery number be represented by n.

   The equation is $5 + (-8)n = 29$.

   a. Is 3 a solution to the equation? Why or why not?

   b. Is -4 a solution to the equation? Why or why not?

   c. Is -3 a solution to the equation? Why or why not?

   d. What is the mystery number?

During this lesson, place students in small groups and allow them each part of this problem. As students are working, circulate to identify common trends among their solutions (correct and incorrect answers). Select two to share the work of their group.Have the class respond to the following questions: ***"What is similar about these approaches and the logic used to find the solution? What is different about these approaches and the logic used to find the solution?"***

Similar	Different
• Both show the given values multiplied by -8. • Both add 5 to the product of -8 and the given values • Both are able to identify the mystery number	• The product of the given values and -8 have different signs. • One group thought -3 was the mystery number while the other group though the mystery number was 3.

Ask students to think, pair, share, ***"Why are the outcomes different even though they used the same operation?"***

Discuss, ***"What impact does the sign of the number have on the product of two numbers? What is the impact of the sum of two numbers with different signs? Write a statement that explains both of these rules.***

Stamp the Idea: The sign of the number has a major impact on the solution when performing any operation. We must pay attention to our signs!!

Acceleration Support Example #3

Eureka, Grade 6, Module 4, Lesson 28

Students work in small groups through a series of stations focused on using tape diagrams to find the solution to a real world scenario modeled by an equation. Students have to create the equation, model the equation with a tape diagram and solve the equation using the tape diagram. Each group will then be randomly selected to present their solutions to one of the problems to another group. If the group is incorrect, the other group must uncover the error and support the other group with correcting their answers.

Station One: Use tape diagrams to solve the problem.

Raeana is twice as old as Madeline, and Laura is 10 years older than Raeana. If Laura is 50 years old, how old is Madeline? Let m represent Madeline's age in years, and let r represent Raeana's age in years.

Station Two: Use tape diagrams to solve the problem.

Carli has 90 apps on her phone. Braylen has half the amount of apps as Theiss. If Carli has three times the amount of apps as Theiss, how many apps does Braylen have? Let b represent the number of Braylen's apps and t represent the number of Theiss's apps.

Station Three: Use tape diagrams to solve the problem.

Reggie ran for 180 yards during the last football game, which is 40 more yards than his previous personal best. Monte ran 50 more yards than Adrian during the same game. If Monte ran the same amount of yards Reggie ran in one game for his previous personal best, how many yards did Adrian run? Let r represent the number of yards Reggie ran during his previous personal best and a represent the number of yards Adrian ran.

Station Four: Use tape diagrams to solve the problem.

Lance rides his bike downhill at a pace of 60 miles per hour. When Lance is riding uphill, he rides 8 miles per hour slower than on flat roads. If Lance's downhill speed is 4 times faster than his flat-road speed, how fast does he travel uphill? Let f represent Lance's pace on flat roads in miles per hour and u represent Lance's pace uphill in miles per hour.

Pose the following questions for a My Favorite Mistake discussion:

- What do you notice about the tape diagrams this student drew?
- What did this student do correctly?
- What flawed reasoning or errors might be in this student's work?
- What questions might you ask this student?
- What might you say to this student to help him/her revise their number lines?
- What can we learn from this mistake?

Acceleration Support Example #4

Engage the class in a mini-lesson using the first example from grade 6, Module 4 Lesson 34. This example focuses interpreting real world statements and translating them into inequalities paying special attention to words like "at least," "more than," "at most," etc. Based on recent evidence from the Topic C diagnostic and classwork, I anticipate students will need this reminder about how to interpret these expressions correctly. After using this example as model, students will explore how to translate these expressions by completing #1,2, and 4 from the problem set.

Eureka, Grade 6, Module 4 Lesson 34

Begin with a discussion of what each of these statements means. Have students share possible amounts of money that could fit the given statement to build toward a graph and an inequality.

Example 1

	Statement	Inequality	Graph
a.	Caleb has at least \$5.	$c \geq 5$	
b.	Tarek has more than \$5.	$t > 5$	
c.	Vanessa has at most \$5.	$v \leq 5$	
d.	Li Chen has less than \$5.	$L < 5$	

MP.4

- How much money could Caleb have?
  - *He could have* \$5, \$5.01, \$5.90, \$6, \$7, \$8, \$9, …. *More simply, he could have* \$5 *or any amount greater than* \$5.
- How would we show this as an inequality?
  - $c \geq 5$, *where c is the amount of money that Caleb has in dollars*
- What numbers on the graph do we need to show as a solution?
  - 5 *is a solution and everything to the right.*
- Because we want to include 5 in the solution, we will draw a solid circle over the 5 and then an arrow to the right to show that all the numbers 5 and greater are part of the solution.

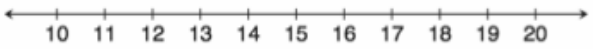
- How does the statement about Tarek differ from the statement about Caleb?
  - *Tarek has more than* \$5, *but he cannot have exactly* \$5, *where Caleb might have had exactly* \$5.
- So, how would we show this as an inequality?
  - $t > 5$, *where* t *is the amount of money Tarek has in dollars*
- When we graph the inequality for Tarek, we still want a circle on the 5, but this time it will not be solid to show that 5 is not included in the solution.
- What does "at most" mean in Vanessa's example?
  - *Vanessa could have* \$5 *but no more than* 5. *So, she could have less than* \$5, *including* \$4, \$3, \$2, \$1, \$0, *or even a negative amount if she owes someone money.*
- How would we write this as an inequality?
  - $v \leq 5$, *where* v *is the amount of money Vanessa has in dollars*
- How would you show this on the graph?
  - *We would put a circle on the* 5 *and then an arrow toward the smaller numbers.*
- Would we have a solid or an open circle?
  - *It would be solid to show that* 5 *is part of the solution.*
- Would the inequality and graph for Li Chen be the same as Vanessa's solution? Why or why not?
  - *No. They would be similar but not exactly the same. Li Chen cannot have* \$5 *exactly. So, the circle in the graph would be open, and the inequality would be* $L < 5$, *where* L *represents the amount of money Li Chen has in dollars.*

MP.4

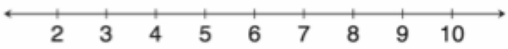
Problem Set

Write and graph an inequality for each problem.

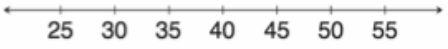
1. At least 13



2. Less than 7



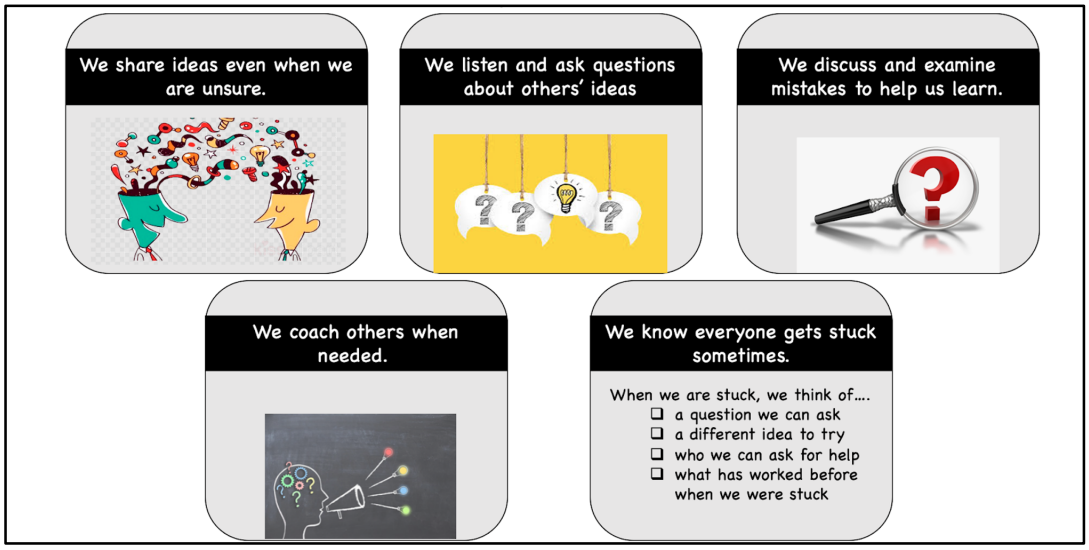
4. Eva saves \$60 each week. Since she needs to save at least \$2,400 to go on a trip to Europe, she will need to save for at least 40 weeks.



Delivering Acceleration Supports Case Study I

Ms. Hutchins begins the lesson by welcoming her students and having them share one thing that they are truly great at and one thing they are currently getting better at. She starts every session this way to learn more about her students and keep a pulse on how students are seeing themselves as learners. Ms. Hutchins then reminds students of their math norms and names that in today's session she wants the group to work on asking questions about other's ideas.

7A Community Math Norms



She shows the session 1 welcome slide to share the objective they will be working on today, and asks students to share something they think they already know about solving inequalities.

After completing the table containing the symbols used in equations and inequalities, Ms. Hutchins guides students through the first sets of slides. She is allowing students to share their thinking and is guiding the conversation. Students are debating about solutions to the equations and inequalities. Ms. Hutchins gives students a set of problems where they must identify the values that make the equation and inequalities true. Students engage in a great conversation about how to figure out the solutions to the problems. While the students are discussing the solutions to these problems, Ms. Hutchins is monitoring what each student is saying and capturing notes on her monitoring tool. Ms.Hutchins then gives them a series of problems where they have to identify values that make the equation or inequality false. Ms. Hutchins notes Kamal was able to identify values that made the equations or inequalities true, but struggled to identify values that made the equations or inequalities false. She asks a student to volunteer to explain their thinking on how they identified values that made the inequality false and Malayah volunteers. Malayah explains how she found a value that made the inequality $y + 6 \geq 16$ true. She first explained that the variable must be isolated and to do this we must subtract 6 from both sides of the inequality. The result of this step is $y \geq 10$. She shows the graph of the solution and explains that any value that is not shaded on the number line would be a value that would make the inequality false. Ms.Hutchins asks if any other students agree or disagree with

Malayah's answer. Joseph says he agrees but found the solution a different way. Ms. Hutchins asks Joseph to explain his thinking to the class. Joseph explains when looking at the inequality $y + 6 \geq 16$, he knew that numbers 10 and larger would make the inequality true since $10 + 6 \geq 16$ is a true statement since the symbol implies greater than or equal to. Joseph says he then tried numbers smaller than 10 like 8 and 5 and in both cases the resulting inequality was false since $8 + 6 \geq 16$ is less than 16 and $5 + 6 \geq 16$ is also less than 16.

Once Joseph finishes his explanation, Ms; Hutchins asks if there is anyone who had a different answer before Malayah and Joseph shared their approaches and now can see the mistake they made. A few students raise their hand, including Kamal. Ms. Hutchins asks Kamal to explain what he learns about the mistake he made while listening to his classmates. Kamal explained that seeing his classmates explain their thinking, he was able to identify his own mistake. He then explained his mistake and how to correct the error to the class.

Ms. Hutchins closes the session by asking students to share something they learned about finding solutions to equations and inequalities while listening to another classmate during today's session. After the session, Ms. Hutchins jots down some notes and questions she wants to be sure to focus on during tomorrow's session based on what she noticed in the students' work during the session.

Delivering Acceleration Supports Case Study II

Ms. Fields begins her lesson by instructing students to read the session objective and get their materials ready. She tells students that they will be working on solving equations and inequalities so they can catch up and be ready for 7th grade math content. Ms. Fields then tells students what each of the symbols mean and how they can be used in an equation or inequality. She then does a think aloud to explain to students how to find solutions to the equations and inequalities on slides slides 8 and how to determine values that are not solutions on slide 9. Ms. Fields asked students to complete slides 10 and 11 on their whiteboards. She asked them to show the final solution to each problem so she could track their progress. Jaleel correctly answers the problems on slide 10 and begins working on slide 11. Brian answers the first problem correctly, but gets stuck while working on the second. Ms. Fields tells Brian what mistake he is making and shows him how to correct the error. She then instructs him to complete the final problem on slide 10.

Ms. Fields: You all are making good progress. Can someone tell me the solution to the first problem on slide 11?
Brian: Any number that is greater than 5.

Ms. Fields: Yes, that's true because any number greater than 5 will be larger than 15 after being multiplied by 3. Are there any other values that would also make the equation false?

Jaleel: Any number that is less than 5 will also make the equation false.

Ms. Fields: That is correct. Great job!

Ms. Fields closes the lesson by asking students if they have any questions. None of the students respond. She tells them they are showing improvement and they will continue practicing tomorrow.

Access Ms. Hutchins' Monitoring Tool
Monitoring Tool

Pause Point
• To what extent is this work with planning and delivering acceleration supports currently happening at your school/in your classroom? • What has been successful and/or what conditions are in place to support this work happening? • What has been challenging? • What potential barriers might you anticipate?