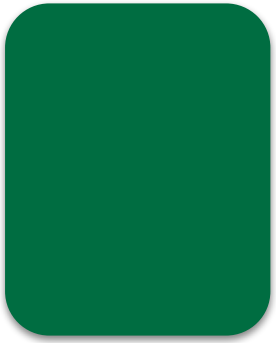
Building on Discourse Virtual – Session 2

Rev 5/30/23 (ce)

Welcome to Building on Discourse!

Session 2: Mathematical Goals Guide Discourse

Session Facilitators



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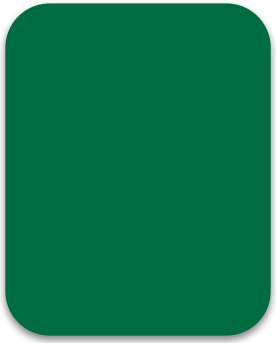

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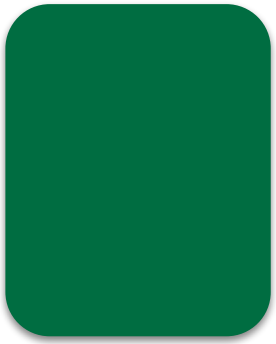
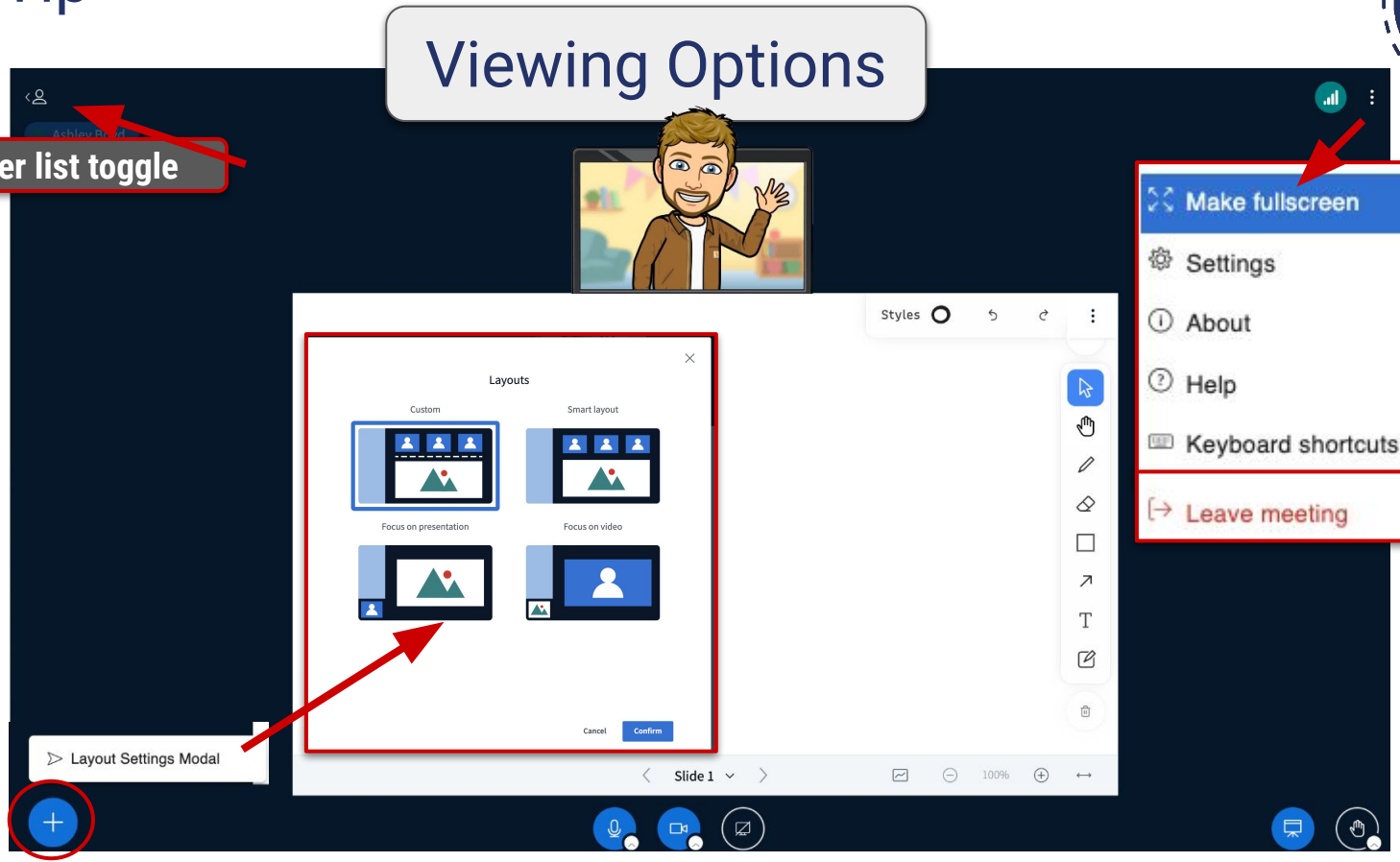
Support



Regional Professional Learning Coordinator

Tech Tip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User list toggle
Make fullscreen
Settings
About
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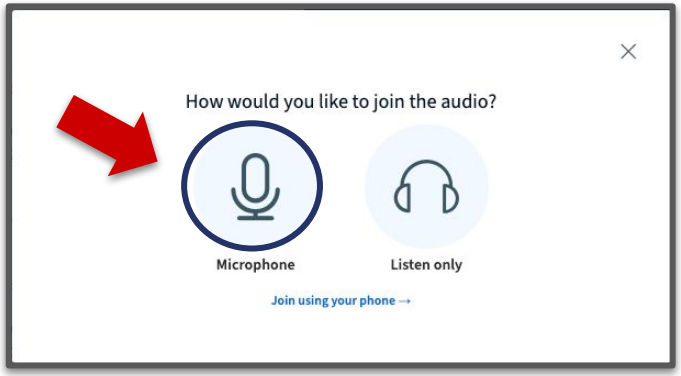
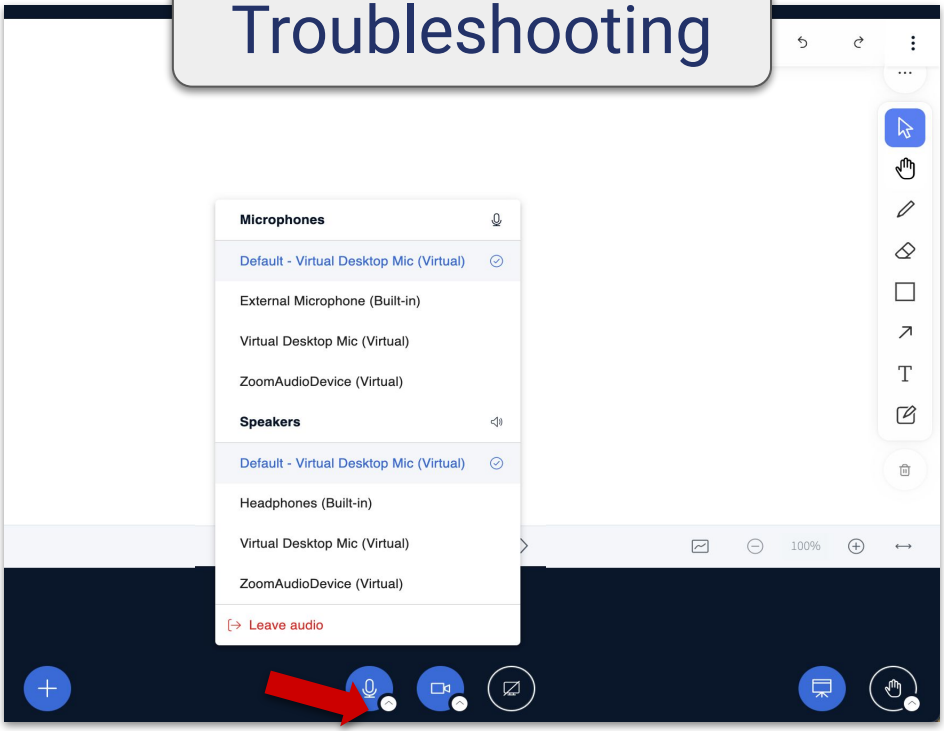
Tech Tip

Audio



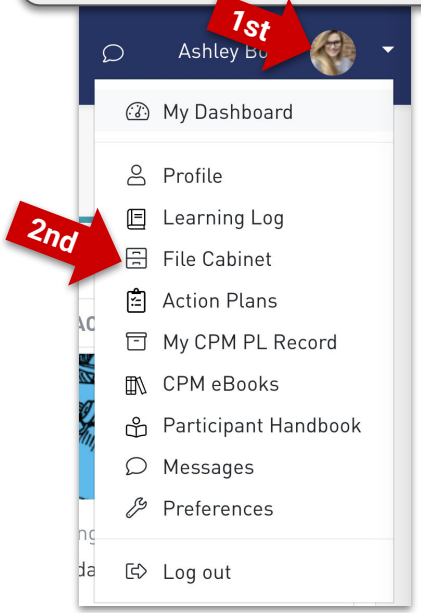
Troubleshooting

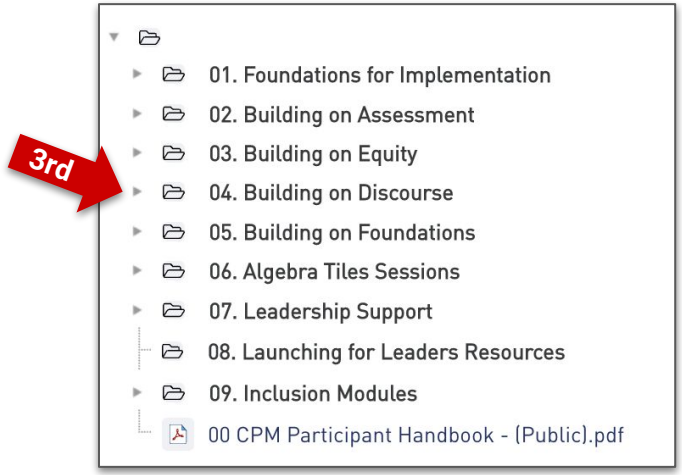


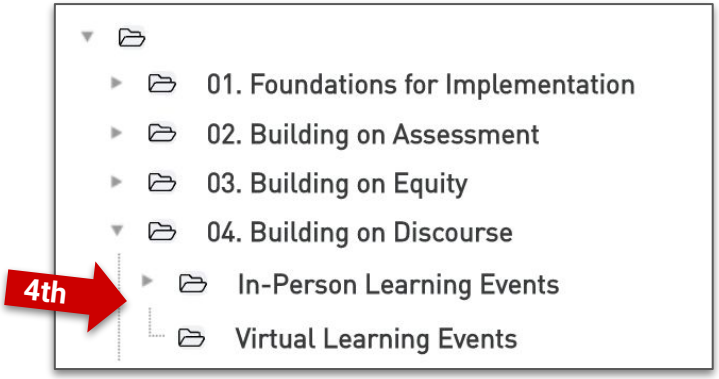
Tech Tip

Getting Session Resources

File Cabinet







Opening

Session 2 Outcomes

Together we will:

+ Experience the Effective Mathematics Teaching Practices through the design of the *5 Practices*.
+ Better understand how facilitating meaningful mathematical discourse develops an equitable, student-centered classroom.
+ Understand how mathematical goals drive meaningful mathematical discourse.

Opening

Agenda

Focus: Building on Discourse

- ☐ Icebreaker
- ☐ Selecting Rich Tasks
- ☐ Establishing Math Goals
- ☐ Anticipating Responses
- ☐ Closure

Welcome

Equity Principles

- The goal of teaching is to help all students transition from dependent to independent learners.
- Relationships are of vital importance.
- Student uniqueness is an asset, not a deficit.
- Reflection is a crucial part of growth.

Click on your name and set your status to thumbs-up if you are ready to begin.

CPM uses these principles to guide our vision and mission of More Math for More People.

Agenda

Session 2

Focus: Building on Discourse

- [x] Icebreaker
- [ ] Selecting Rich Tasks
- [ ] Establishing Math Goals
- [ ] Anticipating Responses
- [ ] Closure

Agenda

Session 2

Focus: Building on Discourse

- [x] Icebreaker
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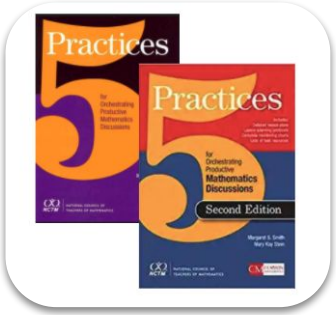
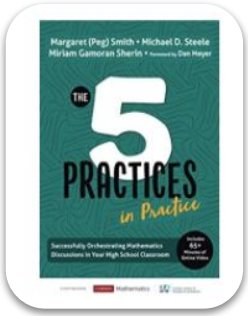
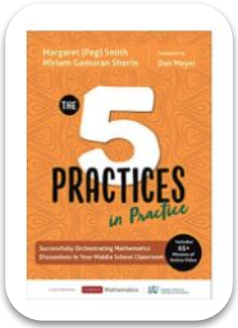
Selecting Rich Tasks

5 Practices – Resources







What are the *5 Practices*?

- **Anticipating**
- Monitoring
- Selecting
- Sequencing
- Connecting

Selecting Rich Tasks

Focusing Learning

Learning Target:

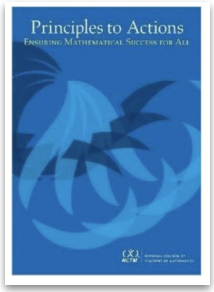
Understand the traits of a rich task.

Selecting Rich Tasks

Effective Mathematics Teaching Practice

Implement Tasks that Promote Reasoning and Problem Solving

"Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies."



(NCTM, Principles to Actions, 2014)

Selecting Rich Tasks

What is a Rich Task?

Think-Ink (1 minute)

Think and type in the Public Chat your response to the following prompt:

What makes a task rich versus just “a task”?

Share (2 minutes)

When prompted, hit “send” to share your thinking with your colleagues.

Selecting Rich Tasks

What is a Rich Task?

Teacher

A rich task should:

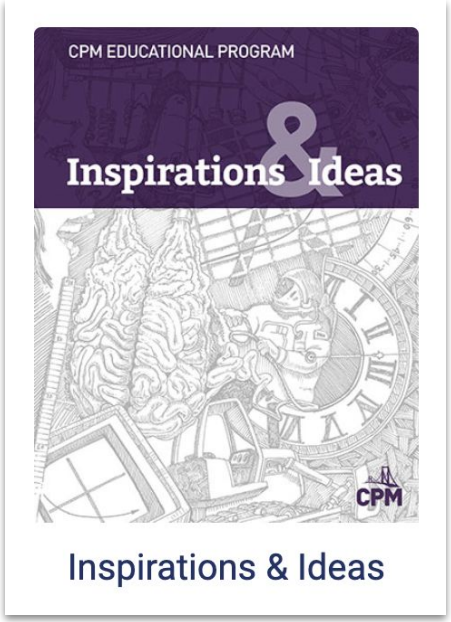
- build on students' current understanding;
- engage in exploration;
- allow multiple entry points;
- require justification or explanation;
- make connections; and
- provide opportunities to look for patterns, make conjectures, and/or form generalizations.

Selecting Rich Tasks

Adjusting for the *5 Practices*

Adjustments to the I & I Problem 4-17:

- We selected **<u>one</u>** of the core problems to be used for a rich task.
- We used two additional problems from the lesson to help frame the connections.



Selecting Rich Tasks

Justify Your Choice

What made your problem/lesson a rich task?

How is your task different from other tasks?

A rich task should:

- build on students' current understanding;
- engage in exploration;
- allow multiple entry points;
- require justification or explanation;
- make connections; and
- provide opportunities to look for patterns, make conjectures, and/or form generalizations.

Selecting Rich Tasks

Reflection on Learning Target and Success Criteria

Learning Target:

Understand the traits of a rich task.

Success Criteria:

1. Identify a task from your course that has the traits of a rich task.
2. **In your On-Demand module**, consider how a potential task could be modified to be made richer, either through removing scaffolds or shifting the focus.
3. **In your On-Demand module**, you will Identify how the traits of a rich task promote an equitable classroom culture.

Establishing Math Goals

Agenda

Focus: Building on Discourse

- [x] Icebreaker
- [x] Selecting Rich Tasks
- [x] Establishing Math Goals
- [ ] Anticipating Responses
- [ ] Closure

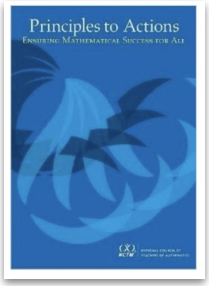
Establishing Math Goals

Effective Mathematics Teaching Practice

Establish Mathematics Goals to Focus Learning

"Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within the learning progressions, and uses the goals to guide instructional decisions."

(NCTM, Principles to Actions, p. 12)



Establishing Math Goals

Focusing Learning

Learning Target:
Understand how a learning goal focuses students' learning while maintaining the richness of the task.

Establishing Math Goals

Learning Goals – What are they?

Elevator Talk with your "Icebreaker Teams"

Facilitator & **Resource Manager** **Recorder/Reporter** & **Task Manager**

Respond with your partner about the following questions:

What is the intent of a learning goal?

How do you determine the goal for your lessons?

Establishing Math Goals

Learning Goal Thoughts

Teacher

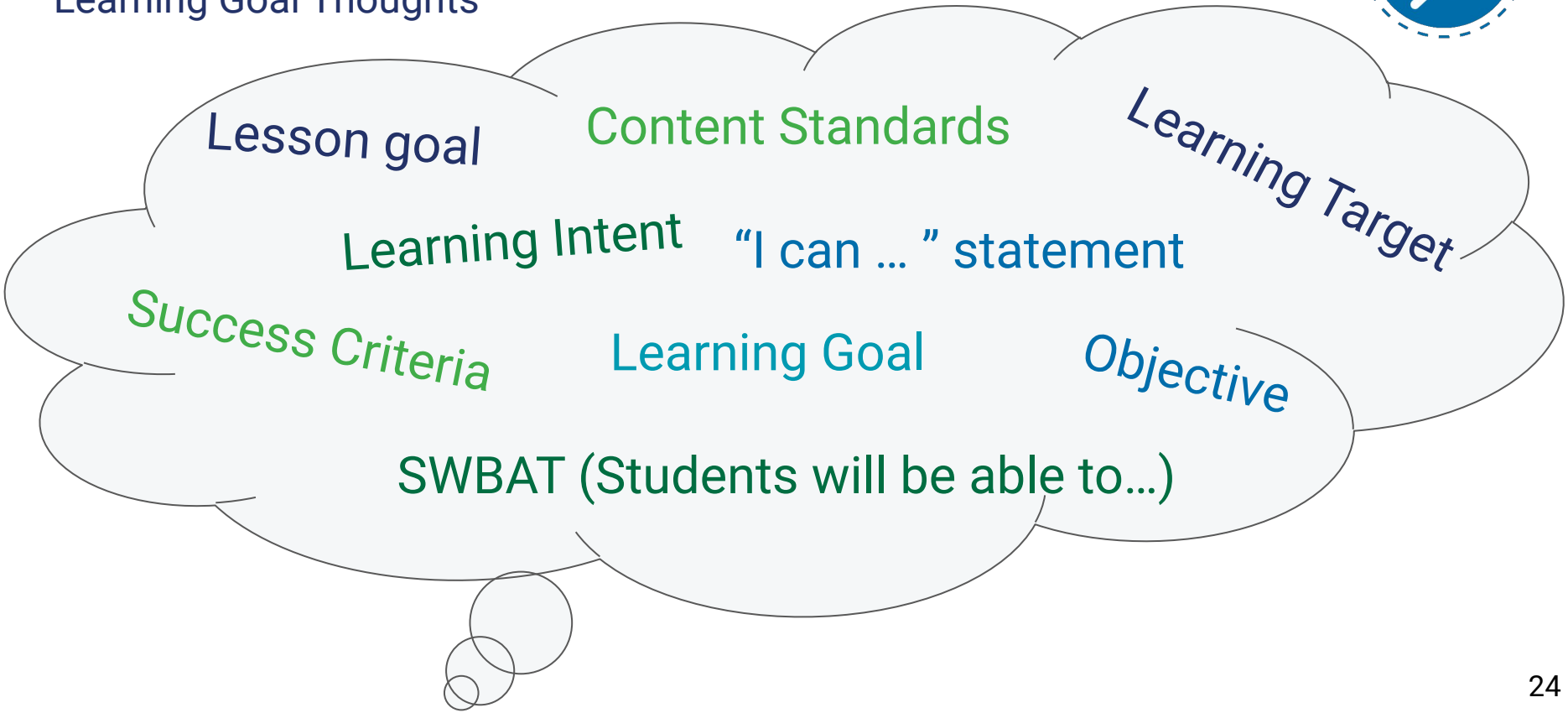
Public Chat Waterfall

Type in the the Public Chat **one or two words** that summarize what you and your partner discussed about learning goals. **WAIT to hit "send."**

When directed, post your response in Public Chat.

Establishing Math Goals

Learning Goal Thoughts



Establishing Math Goals

Establishing the Learning Goal

*"The learning goals **explicitly state** what students **will understand about mathematics** as a result of engaging in a particular lesson. The learning goal needs to be stated with sufficient specificity such that it can **guide your decision making** during the lesson."*

Smith, M.S. & Sherin, M. G. (2019). The 5 Practices in practice: Successfully orchestrating mathematics discussions in your middle school classroom. Corwin, 14–15.

Establishing Math Goals

Connecting the Learning Goal to the Lesson

Establishing Math Goals

Determining the Learning Goal

What will students understand about math?

What would we see students doing or saying?

What might students need to solve the problem?

What connections would we want students to make?

Establishing Math Goals

Determining the Learning Goal – How Far Did She Run?

What will students understand about math?

What would we see students doing or saying?

Part:Part, Part:Whole, Using multipliers, Explaining how to keep the proportion equivalent

What might students need to solve the problem?

Blocks, Colored pencils, Giant One, Prior work with ratios

What connections would we want students to make?

Equivalence between representations and to the given ratio

Establishing Math Goals

Possible Learning Goals

Learning Goal Option #5

Students will recognize that a proportion consists of two equivalent ratios: part-to-part or part-to-whole. They will be able to explain multiple ways to determine the missing value, found by the same multiplier.

Reasoning about why we selected this as our goal includes:

- It brings focus beyond procedural learning.
- It allows students to make connections to the math.
- It is specific enough for a lesson without being too broad.
- It does not remove the richness of the task.

Establishing Math Goals

Establishing the Learning Goal

“Formulating clear, explicit learning goals sets the stage for everything else.”

(Hiebert et al., *Preparing Teachers to Learn from Teaching*, 2007, p.57)

Establishing Math Goals

Reflection on Learning Target and Success Criteria

Learning Target:

Understand how a learning goal focuses students' learning while maintaining the richness of the task.

Success Criteria:

1. Write a learning goal for your task that focuses on what students will understand about mathematics.
2. Consider how the learning goal will support students in making mathematical connections and how the goal will support teachers' instructional moves.

Building on Discourse

Agenda

Focus: Building on Discourse

- [x] Icebreaker
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Anticipating Student Responses

Focusing Learning

Learning Target:
Determine different student entry points and paths through the rich task.

Anticipating Student Responses

Getting Inside the Problem

When anticipating, keep these focus questions in mind:

- What are the entry points to this problem?
- What prior knowledge do students need in order to solve this problem?
- What student strategies did you anticipate?
- What misconceptions might students have?

Gallery Walk through other teams responses.

Anticipating Student Responses

Reflection on Learning Target and Success Criteria

*"This practice involves taking a close look at the task to identify the **different strategies** you expect students to use and to think about **how you want to respond** to those strategies during instruction."*

(Smith & Sherin, 2019)

Learning Target:
Determine different entry points and paths through the rich task.

Success Criteria:

1. Find multiple solution strategies for your rich task.
2. Consider how students will approach this problem, including where they might struggle.

Closure

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Closure

Focusing Learning

Learning Target:
Consider how the *5 Practices* support effective teaching and equitable classroom culture.

Closure

Selecting Tasks, Setting Goals, & Anticipating

0. Selecting a rich task and writing a lesson goal:

- Select a rich task.
- Identify specific lesson goals.
- Select and plan the activity.

1. Anticipating:

- Anticipate student strategies.
- Do the problem in many *different* ways.

Closure

Reflection on Learning Target and Success Criteria

*"Research shows that when schools **fully integrate** social, emotional, and academic development into K-12 education, academic **performance improves**, students are **more engaged** in school, and as a result, they are **more likely to graduate** from high school and attend and graduate from college."*

(Aspen Institute, 2019)

Learning Target:
Consider how the *5 Practices* support effective teaching and equitable classroom culture.

Success Criteria:

1. Name teacher moves that address Practices 0 and 1.
2. In your on-demand work, you will critique the effect of classroom culture on meaningful mathematical discourse.

Closure

Outcomes

Together, we will…

+ Experience the Effective Mathematics Teaching Practices through the design of the *5 Practices*.
+ Better understand how facilitating meaningful mathematical discourse develops an equitable, student-centered classroom.
+ Understand how mathematical goals drive meaningful mathematical discourse.

Closure

- Parking Lot
- Attendance & Feedback

Either scan the QR code

OR

Enter passcode in the Portal

XXXXXX

- Homework:
  - **Complete** Activity 2: Prior to Session 3, found in the Building on Discourse On-Demand Module.
  - **Print** a copy of the resources “Blank Monitoring & Circulation Chart” from the File Cabinet prior to the start of Session 4.

CPM

More Math For More People