STUDENT
ACHIEVEMENT
PARTNERS

Creating Conditions to Thrive in Math Classrooms

Environments and practices that support students' social, emotional, and academic development

June 22, 2022

Welcome!

Take a minute to introduce yourself in the chat box. (name/pronouns/location/role)

Join Our Network!

www.achievethecore.org/ca-signup

Introductions

Jennie Beltramini

Student Achievement Partners

Astrid Fossum

Student Achievement Partners

hello!

Karina Calderón

Saddleback Valley USD
California

Jasmine Costello

Student Achievement Partners

Engage with Us!

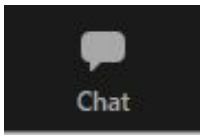
Please feel free to tweet during and after the webinar using #coreadvocates

- @achievethecore
- @JennieBeltro
- @AstridFossum
- @srta_kcalderon

After the webinar:

➔ Access to the recording and resources will be emailed to you.

During the webinar:

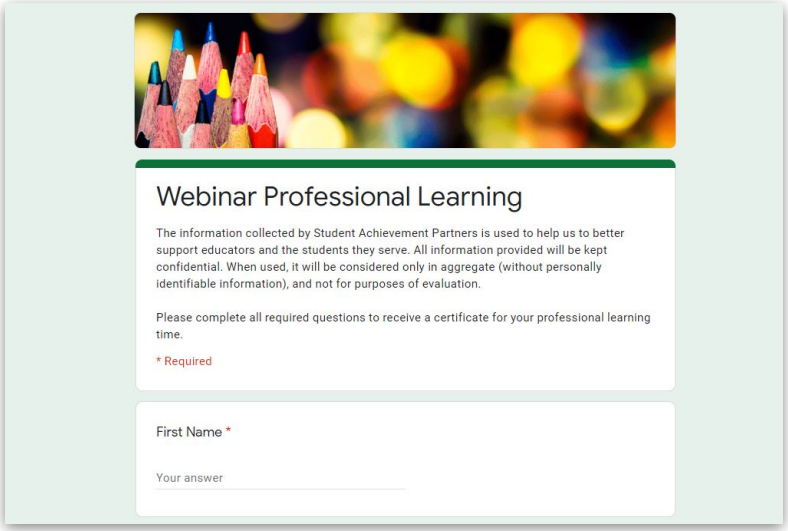


Ask questions, chat with us and other participants, share resources!
Need help? Private chat Jasmine Costello

Professional Learning Certificate Will Be Provided

We value your feedback!

At the end of the webinar you will be given a link to take a brief feedback survey.Those who complete the survey will be emailed a certificate for 1-hour of professional learning!



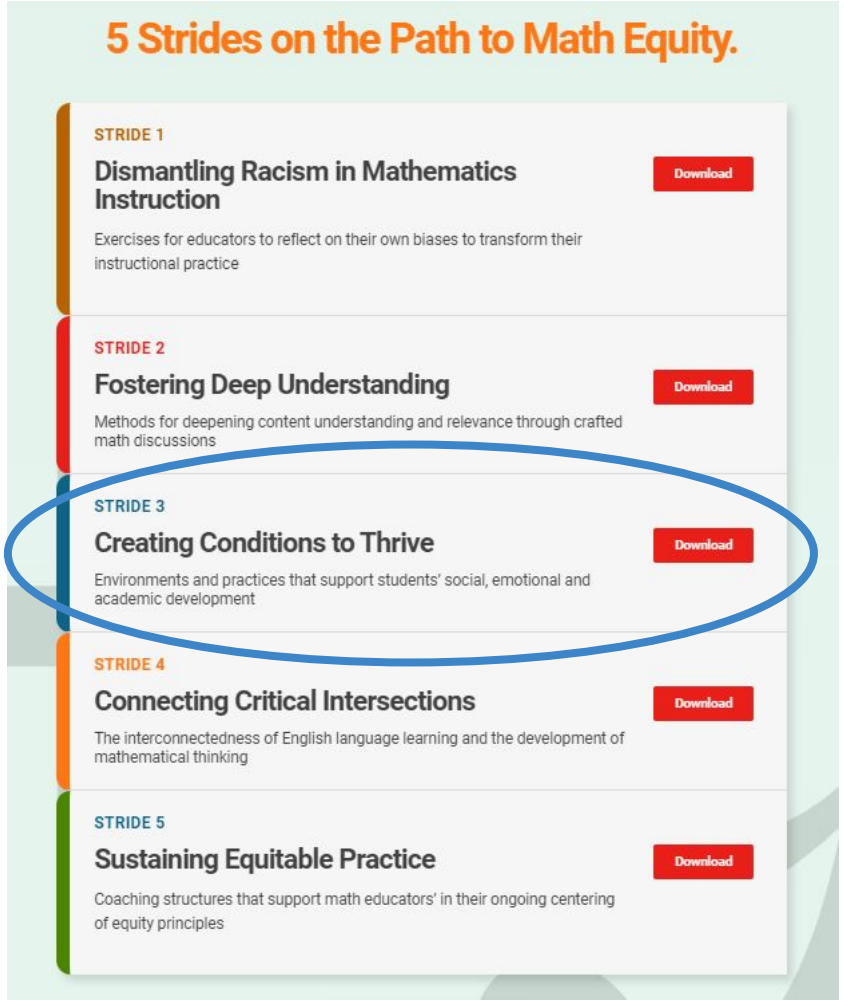
Goals of the Webinar

- ✓ Understanding of Social Emotional Academic Development (SEAD) in Math Classrooms
- ✓ Planning and strategies that focus on belonging, identity, discourse and agency (SEAD themes)
- ✓ Sharing resources that will support students social emotional needs while engaging with mathematics

Resource Sheet:
https://bit.ly/SEADresourcesheet

Introduction to SEAD

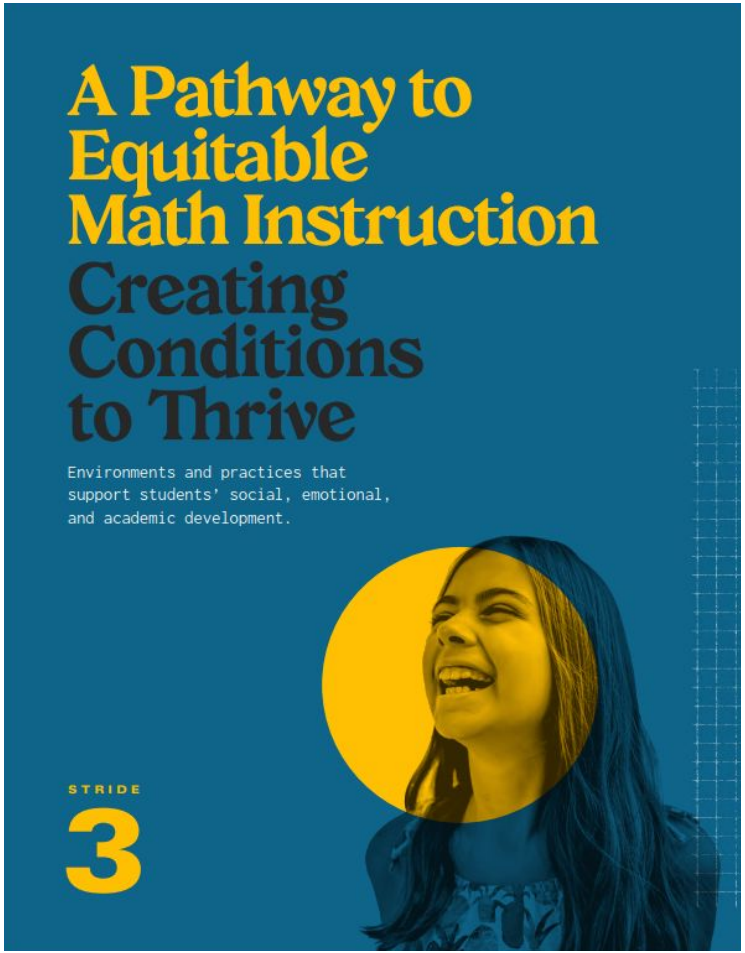
equitablemath.org



Stride 3

“Math teachers are most familiar with the math standards themselves; they are somewhat familiar with the Standards for Mathematical Practice (SMPs), but SEAD may be new. To strengthen social emotional classroom instruction that prioritizes SEAD themes, rather than adding “another thing to do,” a research-based resource has been developed using the lens of equity that connects SEAD themes, SMPs, and proposed student and teacher actions.”

https://bit.ly/SEADinMath



SEAD Themes

SEAD Themes

Definitions taken from National Council of Teachers of Mathematics (NCTM), with equity additions from CASEL (November 2018).

AGENCY

- **NCTM**: The presentation of one's identity to oneself and to others, combining identity (who we are) with what we can do (agency). Agency is evident in a student's self-awareness and self-management, and his/her sense of confidence and knowledge about academic work.
- **CASEL** further describes the characteristic of agency in mathematics:
  - Cultural competence: a historically grounded, strengths-focused facility with the relational skills that are valued in the students' culture of origin.
  - Cultural fluency which refers to the capacity to effectively learn about and negotiate cultural differences.

BELONGING

- "Belonging is a sense of fitting in or feeling like you are an important member of a group." (*vocabulary.com*)
- "To be a member of (a club, organization, etc.)" (*Merriam Webster Learner's Dictionary*)
- **CASEL** further describes the characteristic of belonging in mathematics:
  - Examine what it means to belong to a group or community, including how ethnicity and race impacts one's sense of self and beliefs. (A healthy sense of ethnic-racial identity is important for *psychological*, *academic*, and *social* well-being.)
  - Engage in initiatives and co-create solutions that are inclusive, equitable, and mutually supportive.

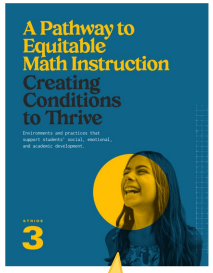
DISCOURSE

- **NCTM**: Discourse includes ways of representing, thinking, talking, agreeing, and disagreeing—the way ideas are exchanged and what the ideas entail; and as being shaped by the tasks in which students engage as well as by the nature of the learning.
- **CASEL** further describes the characteristic of discourse in mathematics:
  - Encouraging student academic talk in mathematics instruction.
  - Increasing student talk time so that it is balanced with or exceeds teacher talk within lessons.
  - Creating opportunities for students to understand the viewpoints of others, including both/multiple sides of an issue.

IDENTITY

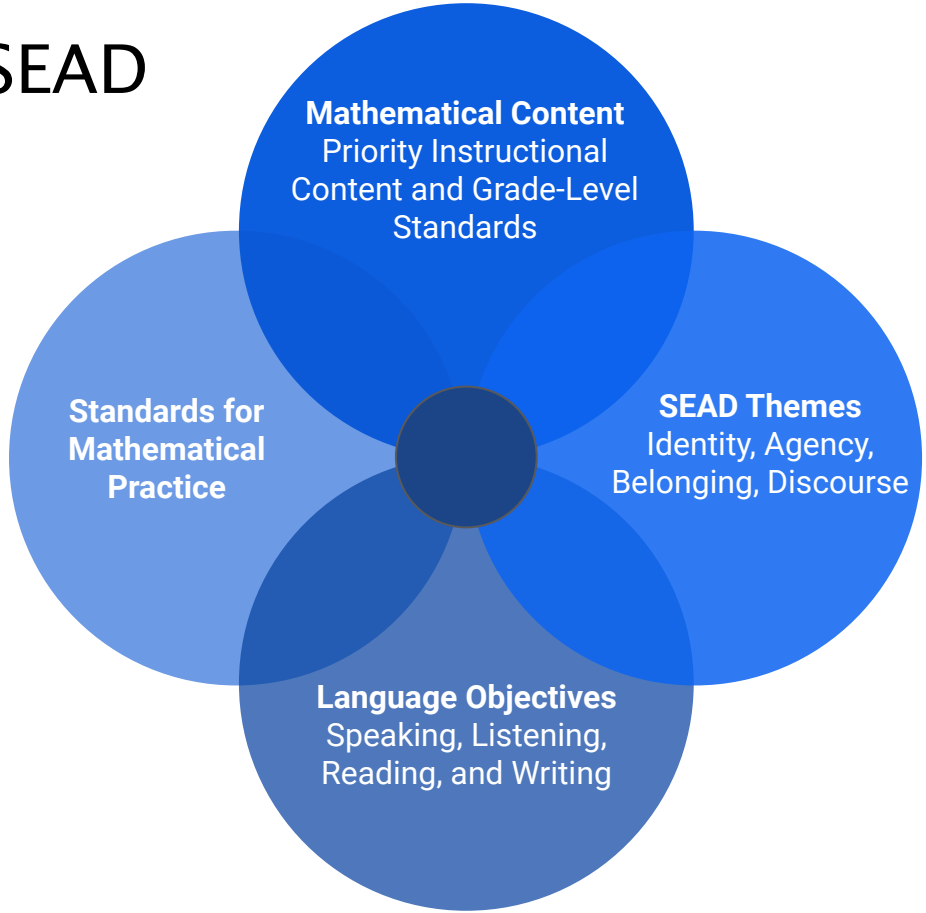
- **NCTM**: The dispositions and deeply held beliefs that students develop about their ability to participate and perform effectively in mathematical contexts, and their ability to use mathematics in powerful ways across the contexts of their lives.
- **CASEL** further describes the characteristic of identity in mathematics:
  - Understand the links between personal and sociocultural identities that are defined by cultural and/or family values, ethnicity, race, socioeconomic status, gender, and other factors.
  - Ground oneself in and affirm one's cultural heritage(s) or communities (This can be especially important for students of color, and reduce *psychological distress* and *risky behaviors*, protect against the negative *health impacts* of racial discrimination, and promote a range of positive social and emotional outcomes, including *school engagement* and *prosocial behaviors*.)

Find SEAD Theme Guidebooks included in the Stride 3 toolkit.



Pg. 6

Planning for SEAD



Example

a) Helen raised $15 for the food bank last year and she raised 3 times as much money this year. How much money did she raise this year?

b) Sandra raised $15 for the PTA and Nita raised $45. How many times as much money did Nita raise as compared to Sandra?

c) Luis raised $45 for the animal shelter, which was 3 times as much money as Anthony raised. How much money did Anthony raise?

Practices

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Content

Operations and Algebraic Thinking 4.OA

Use the four operations with whole numbers to solve problems.

1. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.[1]

a) Helen raised $15 for the food bank last year and she raised 3 times as much money this year. How much money did she raise this year?

b) Sandra raised $15 for the PTA and Nita raised $45. How many times as much money did Nita raise as compared to Sandra?

c) Luis raised $45 for the animal shelter, which was 3 times as much money as Anthony raised. How much money did Anthony raise?

SEAD?

Practices

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Content

Operations and Algebraic Thinking 4.OA

Use the four operations with whole numbers to solve problems.

1. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.[1]

a) Helen raised $15 for the food bank last year and she raised 3 times as much money this year. How much money did she raise this year?

b) Sandra raised $15 for the PTA and Nita raised $45. How many times as much money did Nita raise as compared to Sandra?

c) Luis raised $45 for the animal shelter, which was 3 times as much money as Anthony raised. How much money did Anthony raise?

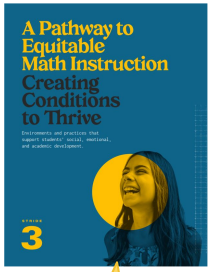
Practices

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

SUMMARY OF INTERSECTIONS OF SEAD THEMES WITH SMPS

SMP	IDENTITY	DISCOURSE	AGENCY	BELONGING
SMP 1 Make sense of problems and persevere in solving them.	●	●	●	
SMP 2 Reason abstractly and quantitatively.	●	○		○
SMP 3 Construct viable arguments and critique the reasoning of others.	●	●	●	○
SMP 4 Model with mathematics.	●		●	
SMP 5 Use appropriate tools strategically.	●			
SMP 6 Attend to precision.	●	●		
SMP 7 Look for and make use of structure.	●			
SMP 8 Look for and express regularity in repeated reasoning.	○			



Pg. 9

a) Helen raised $15 for the food bank last year and she raised 3 times as much money this year. How much money did she raise this year?

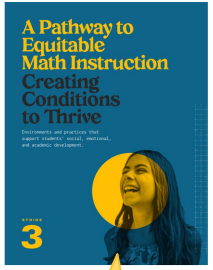
b) Sandra raised $15 for the PTA and Nita raised $45. How many times as much money did Nita raise as compared to Sandra?

c) Luis raised $45 for the animal shelter, which was 3 times as much money as Anthony raised. How much money did Anthony raise?

Practices

Mathematical Practices

1. Make sense of problems and persevere in solving them.



Pgs. 16-17

SEAD Themes

Discourse

"Build a safe community where mathematical discourse supports active listening, promotes diverse perspectives and insights, and allows students to consider others' reasoning to advance their own mathematical understanding."

Use a Math Language Routine, such as Stronger and Clearer Each Time, for students to discuss their reasoning.

Identity

"Position students as mathematically competent by encouraging them to construct mathematical arguments and engage in the reasoning of others."

Use the 5 Practices for Orchestrating Productive Mathematics Discussions to strategically select students to share their reasoning and solutions with the class.

Planning for SEAD and Centering Multilingual Learners

1 in 4

students in K-12 schools are emerging bilingual or multilingual

*NYU Steinhardt

Positioning Multilingual Learners for Success in Mathematics

A joint position statement from NCSM: Leadership in Mathematics in Education and TODOS: Mathematics for ALL (Fall, 2021)

We acknowledge that:

- The use of students' first language is a human right (Skutnabb-Kangas, 2000) and should be promoted in the mathematics classroom;
- Mathematics is a human activity;
- Race, class, culture, language, and their intersections play key roles in the teaching and learning of mathematics (see The Mo(ve)ment to Prioritize Antiracist Mathematics: Planning for This and Every School Year);
- Multilingual learners should be viewed as students who possess knowledge, strengths, and resources (i.e., asset-based rather than deficit-based lens);
- Every mathematics teacher is a language teacher — particularly the academic language used to formulate and communicate mathematics learning (Lager, 2006); and
- Leaders and teachers from mathematics and second-language acquisition should work collaboratively to accomplish this work, in cooperation with families.

a) Helen raised $15 for the food bank last year and she raised 3 times as much money this year. How much money did she raise this year?

b) Sandra raised $15 for the PTA and Nita raised $45. How many times as much money did Nita raise as compared to Sandra?

c) Luis raised $45 for the animal shelter, which was 3 times as much money as Anthony raised. How much money did Anthony raise?

Content

Operations and Algebraic Thinking 4.OA

Use the four operations with whole numbers to solve problems.

1. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.[1]

Practices

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

SEAD

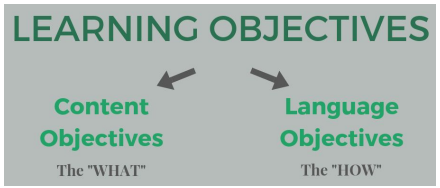
Identity

Use the 5 Practices for Orchestrating Productive Mathematics Discussions to strategically select students to share their reasoning and solutions with the class.

Discourse

Use a Math Language Routine, such as Stronger and Clearer Each Time, for students to discuss their reasoning.

Language



- ➔ Students will describe the strategies they used to solve the problems.
- ➔ Students will listen to their partners describe the strategies they used to solve the problems.

SEAD Examples

SEAD Lesson Planning Template

1. IDENTIFY THE PRIORITY MATH STANDARD

2. IDENTIFY THE SEAD THEME

Find SEAD Theme Guidebooks included in Stride 3 toolkit.

- [ ] IDENTITY
- [ ] DISCOURSE
- [ ] AGENCY
- [ ] BELONGING

3. IDENTIFY THE SMP(S) TO SUPPORT THE SEAD THEME

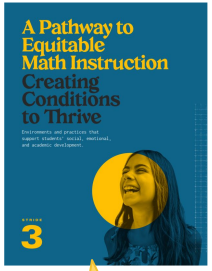
- [ ] **SMP 1**: Make sense of problems and persevere in solving them.
- [ ] **SMP 2**: Reason abstractly and quantitatively.
- [ ] **SMP 3**: Construct viable arguments and critique the reasoning of others.
- [ ] **SMP 4**: Model with mathematics.
- [ ] **SMP 5**: Use appropriate tools strategically.
- [ ] **SMP 6**: Attend to precision.
- [ ] **SMP 7**: Look for and make use of structure.
- [ ] **SMP 8**: Look for and express regularity in repeated reasoning.

4. CREATE / IMPLEMENT / REFLECT ON SEAD STRATEGY

5. IDENTIFY THE STUDENT ACTIONS

6. IDENTIFY THE TEACHER ACTIONS

7. SUMMARY OF PRACTICE / BEST PRACTICES / REFLECTION



Pgs. 13-14

How to Use the Lesson Planning Template

1. Identify the Priority Math Standard
2. Identify the Social, Emotional, And Academic Development (SEAD) Theme
3. Identify the Standard(s) for Mathematical Practice (SMP) to Support the SEAD Theme
4. Create / Implement / Reflect on SEAD Strategy
5. Identify the Student Actions
6. Identify the Teacher Actions
7. Summary of Practice / Best Practices / Reflection

Using the Template as a Lesson Planning Process

The template can be used in the planning stages of a lesson, helping to ground the SEAD theme into the math content and the SMP chosen. What examples appeal to you? What sample actions might you choose? What will you watch for in the lesson?

Using the Template as a Reflection Process

The template can also be used after a lesson is conducted, as a check-in and reflection about what the teacher noticed in the lesson. Did you see evidence of students demonstrating the SEAD theme (maybe strongly, maybe beginning steps)? Did that SEAD theme and that SMP chosen help students access the math content? How might you adjust any parts of the lesson to increase that access?

Social, Emotional, and Academic Development (SEAD) Lesson Plan for Mathematics

GRADE LEVEL/COURSE AND MATH STANDARD(S)

<Identify the grade level/course content standards addressed in the lesson>

LESSON OBJECTIVE/GOAL

<Identify the lesson objective(s)/goal(s) in student friendly or teacher language>

-

LANGUAGE OBJECTIVE(S)/GOAL(S)

<Identify the language objective(s)/goal(s) in student friendly or teacher language>

-

INTRODUCTION

<Provide a brief description of the intention of the lesson>

The tasks are teacher created and utilize the lesson planning template from Stride 3: *A Pathway to Equitable Math Instruction: Creating Conditions to Thrive* (pages 13–14).

The lesson is intended to:

-

SEAD THEME

<Identify the Social Emotional Academic Development Theme>

- ☐ Identity
- ☐ Discourse
- ☐ Agency
- ☐ Belonging

SMP(S) TO SUPPORT THE SEAD THEME

<Identify the Lessons Targeted Standard(s) for Mathematical Practice>

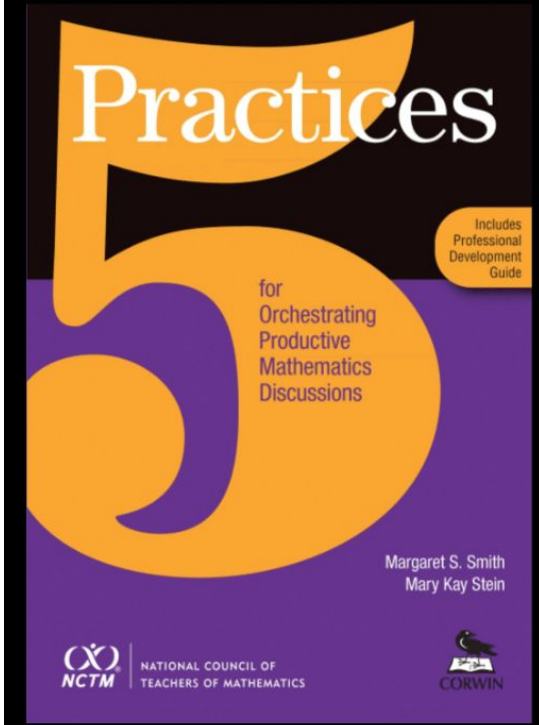
- ☐ SMP 1: Make sense of problems and persevere in solving them.
- ☐ SMP 2: Reason abstractly and quantitatively.
- ☐ SMP 3: Construct viable arguments and critique the reasoning of others.
- ☐ SMP 4: Model with mathematics.
- ☐ SMP 5: Use appropriate tools strategically.
- ☐ SMP 6: Attend to precision.
- ☐ SMP 7: Look for and make use of structure.
- ☐ SMP 8: Look for and express regularity in repeated reasoning.

STEPS

<Include teacher actions and student actions of the lessons. These may include step by step directions, tasks, question prompts, and language routines>

SUMMARY/REFLECTION OF LESSON

<Include a summary of practice, or self-reflection on strengths and areas for growth of the lesson>



1. Anticipate

- Do the problem yourself
- What are students likely to produce?
- Which problems will most likely be the most useful in addressing the mathematics?

2. Monitor

- Listen, observe, identify key strategies
- Keep track of approaches
- Ask questions of students to get them back on track or to think more deeply

3. Select

- CRUCIAL STEP – what do you want to highlight?
- Purposefully select those that will advance mathematical ideas

4. Sequence

- In what order do you want to present the student work samples?
- Do you want the most common? Present misconceptions first?
- How will students share their work? Draw on board? Put under doc cam?

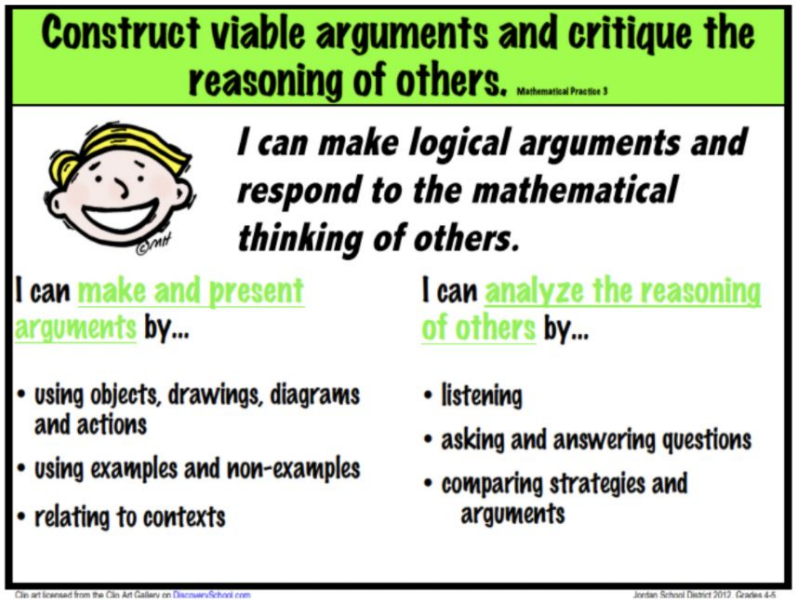
5. Connect

- Craft questions to make the mathematics visible.
- Compare and contrast 2 or 3 students' work – what are the mathematical relationships?
- What do parts of student's work represent in the original problem? The solution? Work done in the past?

Example: SEAD in a 5th grade lesson

SEAD Theme: Discourse

SMP3: Construct viable arguments and critique the reasoning of others.



Example: SEAD in a 5th grade lesson

SEAD Theme: Discourse

SMP3: Construct viable arguments and critique the reasoning of others.

Five brothers are going to take turns watching their family's new puppy.

Five brothers are going to take turns watching their family's new puppy. Each brother will watch the puppy for a part of the day.

If they all watch him for an equal length of time, how much time will each brother spend watching the puppy?

Five brothers are going to take turns watching their family's new puppy. Each brother will watch the puppy for part of the day.

a. Five brothers are going to take turns watching their family's new puppy. How much time will each brother spend watching the puppy in a single day if they all watch him for an equal length of time? Write your answer

i. Using only hours,

ii. Using a whole number of hours and a whole number of minutes, and

iii. Using only minutes.

Task adopted from Illustrative Math

Example: SEAD in a 5th grade lesson

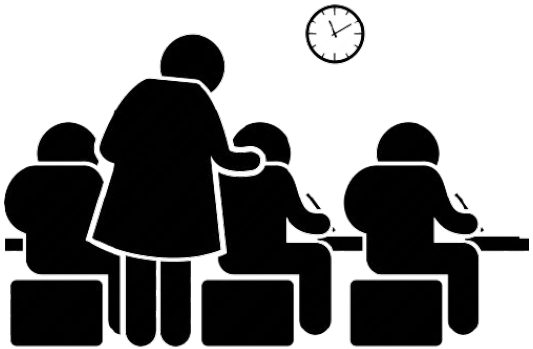
Planned teacher and student actions

Teacher actions:

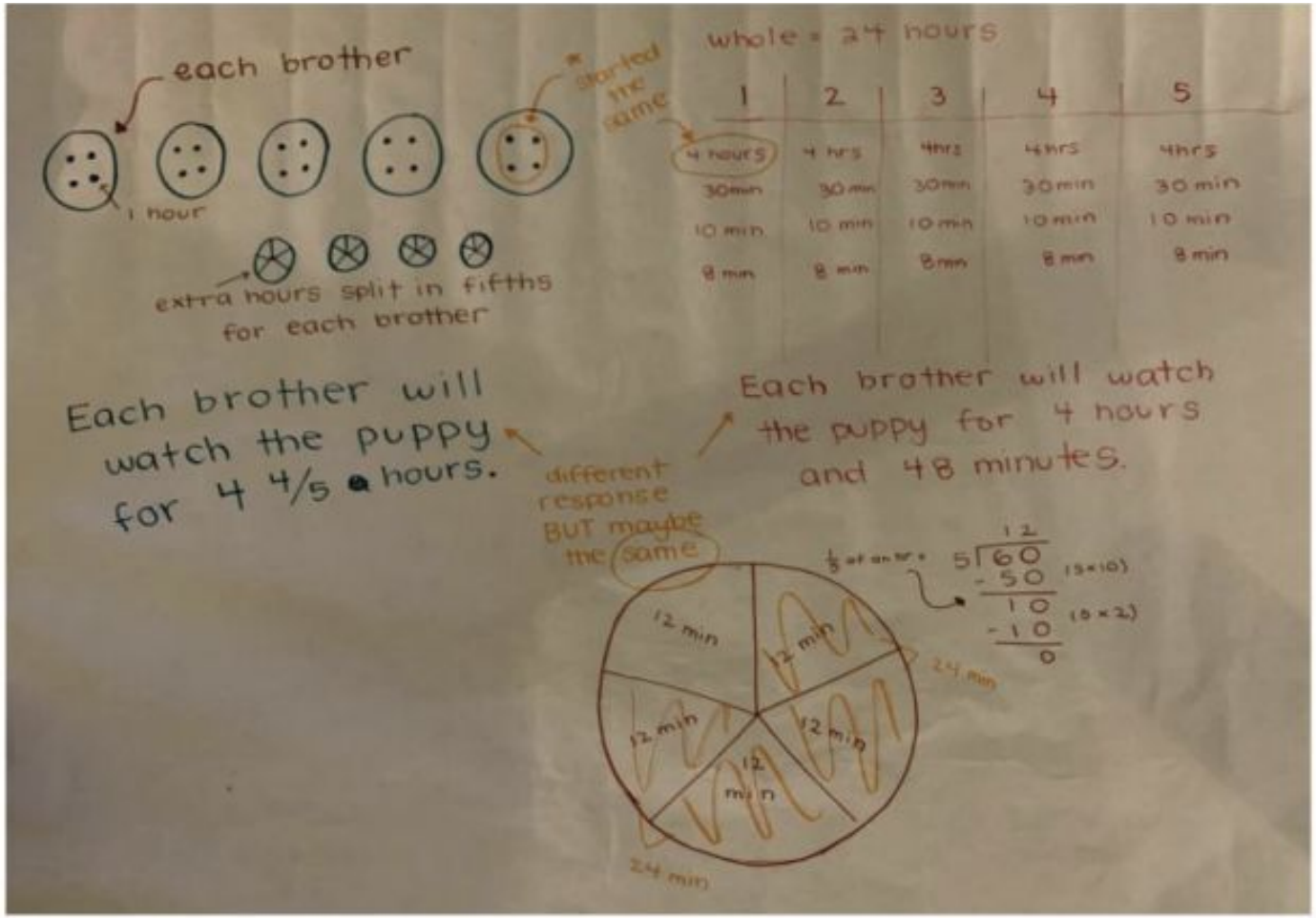
- Prompts students to participate in choral reading of numberless task
- Asks guiding questions when launching tasks
- Monitors students working, asks clarifying questions, supports students as needed
- Selects students' strategies to share with the whole class

Student actions:

- sense making
- comparing and connecting strategies during share out
- sharing their thinking and advancing it with the ideas of peers



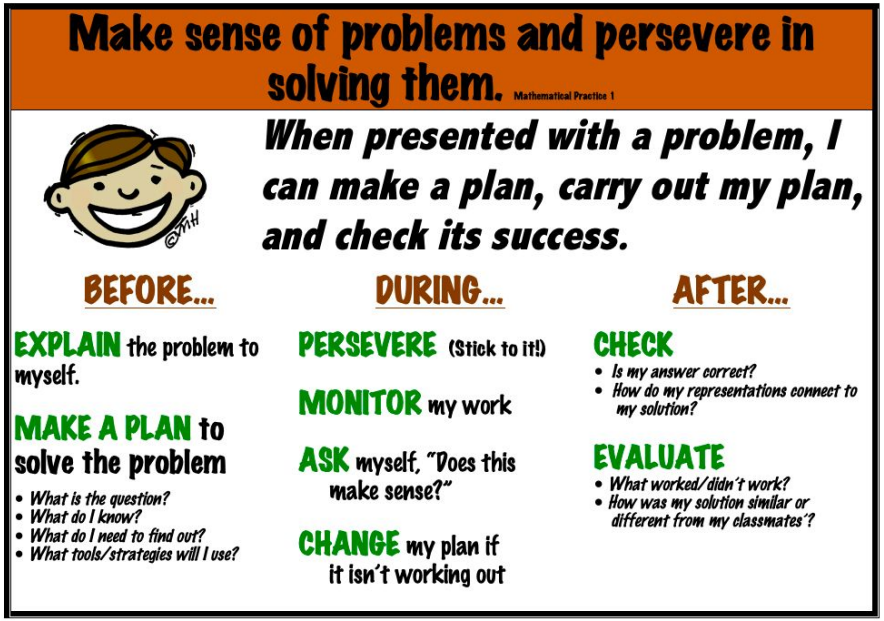
Charted strategies of selected student work shared to whole class



Example: SEAD in a 5th grade lesson

SEAD Theme: Belonging

SMP: Make sense of problems and persevere in solving them.



Example: SEAD in a 5th grade lesson

SEAD Theme: Belonging

SMP: Make sense of problems and persevere in solving them.

I can make sense of problems and persevere in solving them.

Srta. Calderón has a digital scale. She was curious, so she weighed a marshmallow. The marshmallow weighed 7.2 g. How much would you expect 10 marshmallows to weigh?

Task adopted from Illustrative Mathematics

a. Kipton has a digital scale. He puts a marshmallow on the scale and it reads 7.2 grams. How much would you expect 10 marshmallows to weigh? Why?

b. Kipton takes the marshmallows off the scale. He then puts on 10 jellybeans and then scale reads 12.0 grams. How much would you expect 1 jellybean to weigh? Why?

c. Kipton then takes off the jellybeans and puts on 10 brand-new pink erasers. The scale reads 312.4 grams. How much would you expect 1,000 pink erasers to weigh? Why?

Example: SEAD in a 5th grade lesson

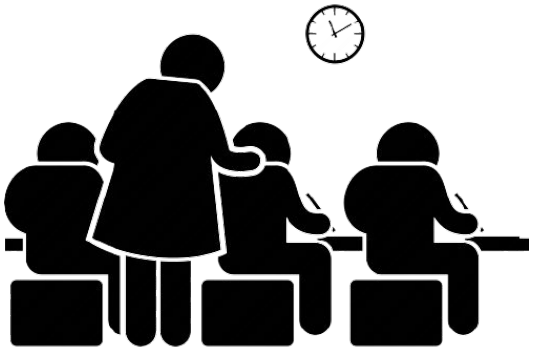
Planned teacher and student actions

Teacher actions:

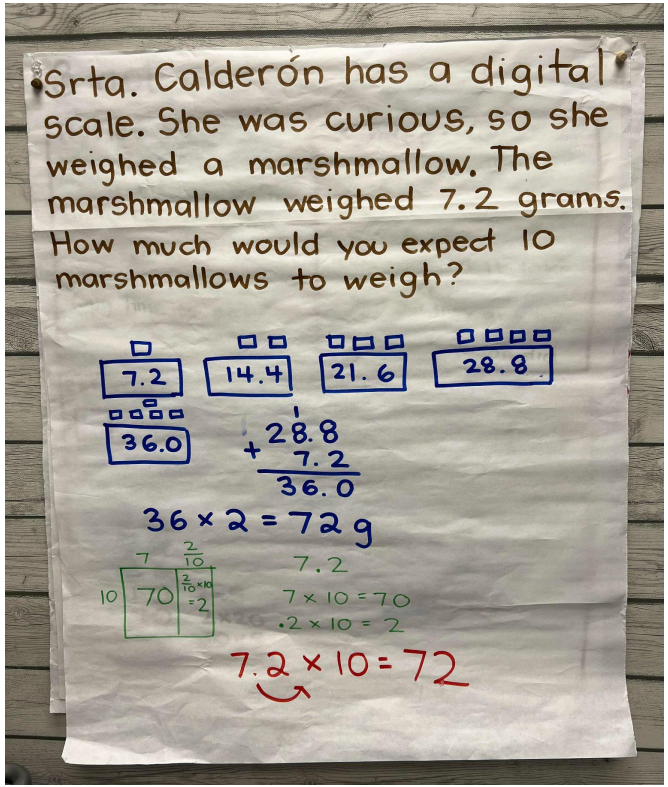
- Prompts students to participate in 3 reads MLR
- Asks guiding questions when launching tasks
- Monitors students working, asks clarifying questions, supports students as needed
- Selects students' strategies to share with the whole class

Student actions:

- sense making
- Attend to efficiency of strategies during share out
- Recognize that a digit in one place represents 10 times as much as it represents in the place to its right



Example: SEAD in a 5th grade lesson



Resources and Learning

Resources on achievethecore.org

Integrating Mathematics and Social, Emotional, and Academic Development (SEAD) in the Classroom

Authors: Jennie Beltramini, Jasmine Costello, Astrid Fossum

The resources on this page are designed to support educators developing or adapting lessons to incorporate social, emotional, and academic development (SEAD) themes with grade-level mathematics aligned to the Standards for Mathematical Practice and college- and career-ready standards. While attending to social emotional learning (SEL) is a helpful step towards creating classrooms where students
comprehensive
mathematicians
the the content

Lesson Template: Integrating Mathematics and SEAD Themes

FILE TYPE	DOWNLOADS	FILE SIZE
pdf	<500	236KB

View File | Download

CREATING CONDITIONS TO THRIVE IN THE MATH CLASSROOM

Environments and practices that support students' social, emotional, and academic development

Register Now!

Creating Conditions to Thrive in Math Classrooms

(August 1st - October 17th)

This course will walk you through each of the four SEAD themes (identity, belonging, discourse, and agency) and offer concrete strategies to integrate each of the themes into your Math classroom!

This course also…

- Is designed for K-12 educators
- Includes on-demand content with optional synchronous learning opportunities
- Contains approx. 16 hrs of self-paced content
- Includes the opportunity to register with colleagues!
- Offers a Professional Learning Certificate upon completion

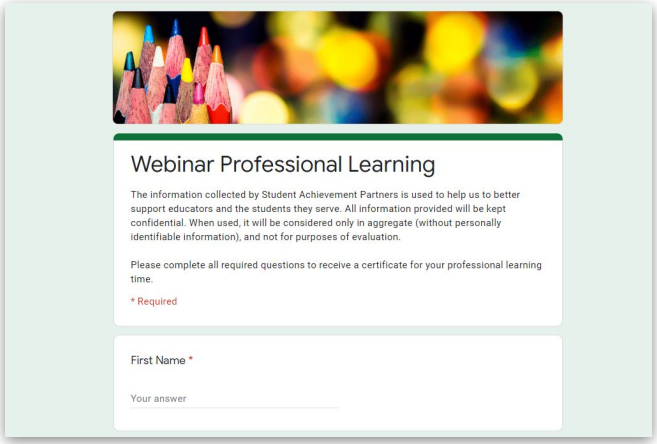
Questions?

Use the Chat to type your questions to our presenters.

Professional Learning Certificate - 1 hour

Those who complete the survey will be emailed a certificate for 1-hour of professional learning!

https://bit.ly/3bfuOet



We value your feedback!

https://bit.ly/3yf4XMY