Module 1
Participant Guide

Focus on Practice Standards

Closing Activity

Connecticut Core Standards for Mathematics

Grades K–5

Systems of Professional Learning

Connecticut Core Standards Systems of Professional Learning

The material in this guide was developed by Public Consulting Group in collaboration with staff from the Connecticut State Department of Education and the RESC Alliance. The development team would like to specifically thank Ellen Cohn, Charlene Tate Nichols, and Jennifer Webb from the Connecticut State Department of Education; Leslie Abbatiello from ACES; and Robb Geier, Elizabeth O'Toole, and Cheryl Liebling from Public Consulting Group.

The Systems of Professional Learning project includes a series of professional learning experiences for Connecticut Core Standards District Coaches in English Language Arts, Mathematics, Humanities, Science, Technology, Engineering, Mathematics (STEM), and Student/Educator Support Staff (SESS).

Participants will have continued support for the implementation of the new standards through virtual networking opportunities and online resources to support the training of educators throughout the state of Connecticut.

Instrumental in the design and development of the Systems of Professional Learning materials from PCG were: Sharon DeCarlo, Debra Berlin, Jennifer McGregor, Michelle Wade, Nora Kelley, Diane Stump, and Melissa Pierce.

Published 2014. Available online at http://ctcorestandards.org/

PCG Education

Public Focus. Proven Results.™

CONNECTICUT STATE DEPARTMENT OF EDUCATION

the RESC Alliance

CONNECTICUT ALLIANCE OF REGIONAL EDUCATION SERVICE CENTERS

Table of Contents

Today's Agenda

Morning Session

- Welcome and Introductions
- Understanding the Foundations of the CCS
- Supporting Change
- Understanding the Standards for Mathematical Practice: Developing Mathematical Expertise

Afternoon Session

- Supporting Students to Make Sense of Problems and Persevere in Solving Them
- Attending to Precision in Every Lesson
- Teaching with the Standards for Mathematical Practice
- Planning for Change
- Next Steps

Post-Assessment, Session Evaluation, and Wrap Up

Introductory Activity

Introductory Activity: Pre-Assessment–CCS-Math

Instructions: Check the box on the scale that best represents your knowledge or feelings about implementing the Connecticut Core Standards for Mathematics (CCS-Math) in your classroom.

Self-Assessment Questions	Strongly Disagree	Disagree	Agree	Strongly Agree
	1	2	3	4
I have an initial understanding of the CCS-Math and the embedded changes and instructional shifts.				
I am familiar with all eight of the CCS-Math Practices and can identify how they are all related.				
I know why Practice 1: *"Make sense of problems and persevere in solving them"* and Practice 6: *"Attend to precision"* are considered the two "umbrella" standards.				
I can identify evidence of the eight practices in CCS-aligned mathematics tasks.				
I can create descriptors for all eight practices, and develop formal grade level descriptions for practice 1 and Practice 6.				
I understand how instructional strategies such as questioning, engaging students in mathematical discourse, and requiring multiple representations can help students meet learning goals.				
I can identify relevant resources for implementing the CCS-Math.				

Answer the following question:

What is one thing I am hoping to take away from this session?

Section 1

Section 1: Understanding the Foundations of the Connecticut Core Standards

What Do We Know?

As you talk with your group, use the space below to take notes on what is currently known about the CCS-Math.

What do we know about the CCS-Math?

Coherence

<table>
<tr>
<td> 
</td>
<td>2nd Grade
Use Place value understanding and properties of operations to add and subtract.
5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
6. Add up to four two-digit numbers using strategies based on place value and properties of operations.
7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</td>
</tr>
<tr>
<td>1st Grade
Use Place value understanding and properties of operations to add and subtract.
4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models of drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.</td>
<td>3rd Grade
Use place value understanding and properties of operations to perform multi-digit arithmetic.
1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.</td>
</tr>
</table>

The Impact of the Shifts

As we discuss the impact of the shifts, use the space below to record your own notes.

Notes on the Impact of the Shifts

The Personal Journey of the CCS

Take a moment to think about the questions that you have about implementing the CCS-Math and record those questions in the Questions column below.

As your questions are answered throughout the session, record the answers in the Answers column.

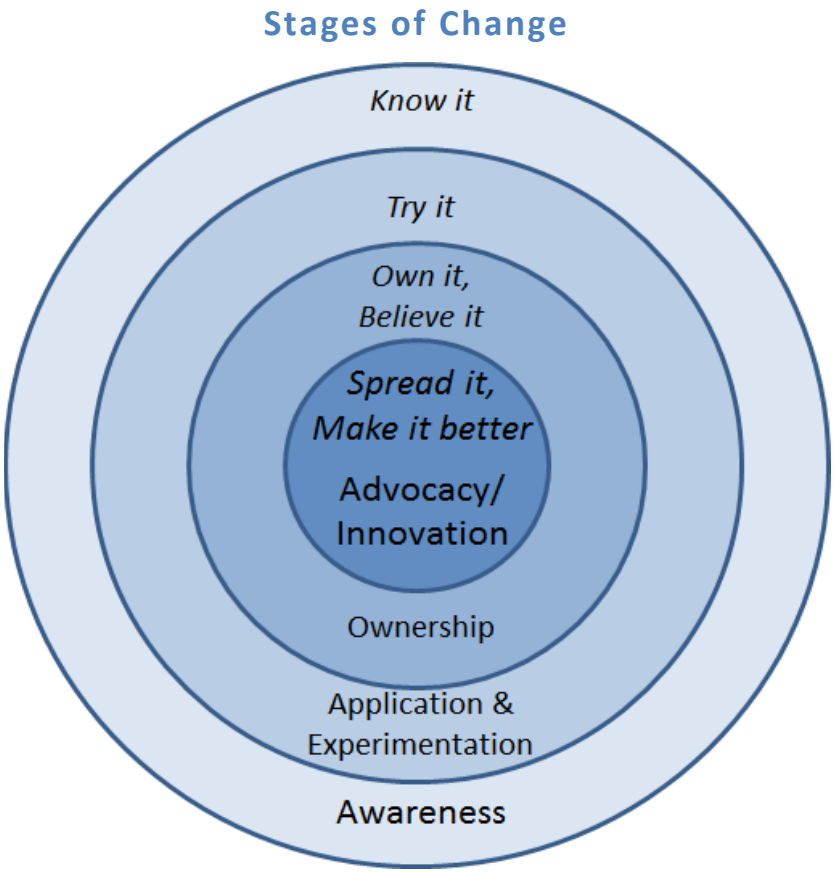
Questions	Answers

You will now watch a video from Phil Daro, one of the major figures involved in writing the Common Core Standards and a professor at Stanford University. He discusses what mathematics instruction should look like in the era of the Common Core and the need for change in mathematics teaching and learning.

(Phil Daro at CMC-North Ignite: http://www.youtube.com/watch?v=B6UQcwzyE1U)

Section 2

Section 2: Supporting Change



Stage 1 is Awareness – Simply knowing what is being asked and what it means

Stage 2 is Application and Experimentation – Getting your toes wet, trying out new strategies and perspectives

Stage 3 is Ownership – It is the moment you get buy-in; you believe in the change and take it on personally

Stage 4 is Advocacy and Innovation – This is the point where you are proficient and can help others and make improvements in the work itself

Retrieved from www.achievethecore.org

Creating an Environment for Personal Change

Think about your past experiences working with your peers. As you reflect, answer the following questions.

1. In a conversation, what is something that encourages you to speak your mind?

2. What is something that deters you from expressing your ideas?

Additional Notes:

Section 3

Section 3: Understanding the Standards for Mathematical Practice–Developing Mathematical Expertise

Problem Set

Solve each of the following eight problems and think about your process for solving each as your process will be discussed as we look at each of the eight Standards for Mathematical Practice.

Problem 1. Arrange the fractions 4/9, 5/8, and 7/12 in order from least to greatest without making common denominators or using decimals.	**Problem 2:** Andrea has 280 pieces of candy and wants to create treat bags with 8 pieces of candy in each bag. How many bags will Andrea be able to make?
Problem 3. What makes a square a square? What makes a rectangle a rectangle? Is a rectangle a square? Is a square a rectangle?	**Problem 4.** Fourth graders are going on a field trip. There are 167 students going. How many buses are needed for the trip if each bus can hold 48 students?

Problem 5. Solve the following division problems. Use a remainder in your answer. 12 ÷ 8 = ___ 36 ÷ 8 = ___ 804 ÷ 8 = ___ What observations can you make about the problems and your answers? What generalizations can you make from your observations?	**Problem 6.** Jack collected hats. He collected both baseball team and football team hats and he wanted to hang his hat collection on his wall. He started with 16 baseball team hats and some football team hats. In the morning, he hung 22 hats. If you knew how many football team hats he started with, how could you figure out how many hats he needed to hang in the afternoon?
Problem 7. Using pennies, dimes, and quarters how many different ways can you make $0.58? How do you know that there are no other ways?	**Problem 8.** Determine how many students there are in your school. You do not have to tell me the exact number but you should be close. How did you get your answer?

Understanding the Mathematical Practices

As each of the eight Standards for Mathematical Practices are discussed, use the following charts to record your notes on each.

<table>
<tr><td colspan="2">SMP1:</td></tr>
<tr><td>Instructional Supports:</td><td>Example Problem:</td></tr>
<tr><td colspan="2">Additional Notes:</td></tr>
</table>

SMP2:	
Instructional Supports:	**Example Problem:**
Additional Notes:	

SMP3:	
Instructional Supports:	**Example Problem:**
Additional Notes:	

SMP4:	
Instructional Supports:	**Example Problem:**
Additional Notes:	

SMP5:	
Instructional Supports:	**Example Problem:**
Additional Notes:	

SMP6:	
Instructional Supports:	**Example Problem:**
Additional Notes:	

SMP7:	
Instructional Supports:	**Example Problem:**
Additional Notes:	

SMP8:	
Instructional Supports:	**Example Problem:**
Additional Notes:	

Section 4

Section 4: Supporting Students to "Make sense of problems and persevere in solving them."

Two Machines, One Job

(Van de Walle, Karp, and Bay-Williams)

Solve the problem below, first on your own and then with your group. Be sure that everyone presents their individual thinking before the group begins to work together. After your group has solved the problem, transfer your solution to the chart paper provided.

Ron's Recycle Shop was started when Ron bought a used paper-shredding machine. Business was good, so Ron bought a new shredding machine. The old machine could shred a truckload of paper in 4 hours. The new machine could shred the same truckload in only 2 hours. How long will it take to shred a truckload of paper if Ron runs both shredders at the same time?

Classroom Environment that Supports Perseverance

Create a description of a classroom environment that supports perseverance.

Section 5

Section 5: Attending to Precision in Every Lesson

Video Observation Sheet

View the video Exploring the Math Practice Standards: Precision. Use the space below to make notes on the video.

(The video can be found here: https://www.teachingchannel.org/videos/exploring-math-practice-standards on the Teaching Channel website.)

Video Notes and Observations

Section 6

Section 6: Teaching with the Standards for Mathematical Practice

Asking Effective Questions

Well structured questions include three parts:

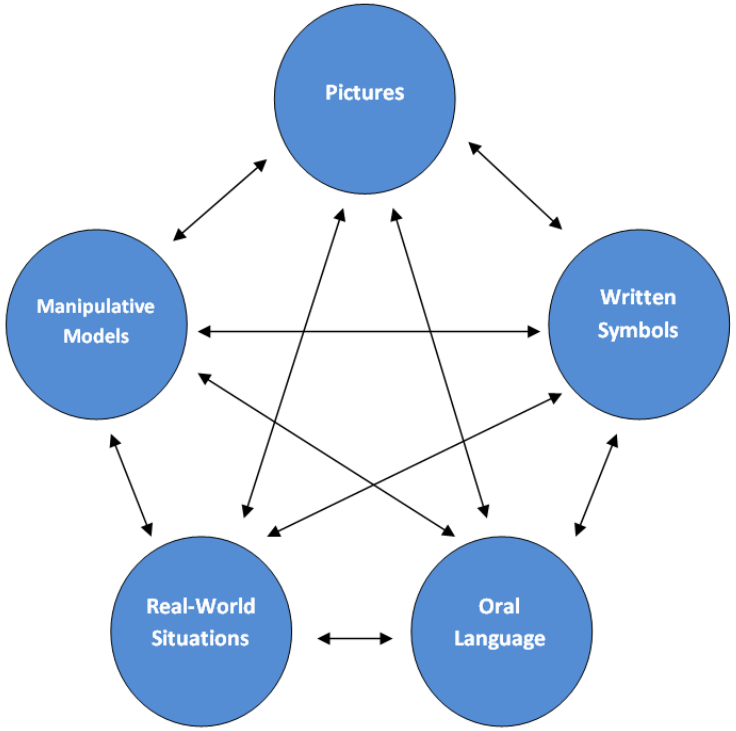
- An invitation to think
- A cognitive process
- A specific topic

1. **Anticipate Student Thinking.** Thinking about multiple ways that your students may solve a problem will allow you to anticipate and plan possible questions that the students might ask and that you can ask to stimulate their thinking and deepen student understanding.
2. **Link to Learning Goals.** By asking questions that relate back to the learning goals and the standards that the lesson focuses on, you are helping students to focus on the key skills and concepts. This link will then allow students to deepen their understanding and apply what they have learned in new situations.
3. **Pose Open-ended Questions.** Open-ended questions support and encourage a variety of approaches and responses. These questions also provide a manageable challenge for students as they are free to answer at their readiness level. An example of an open-ended question is: Instead of asking a student "What is 14 + 6?" you could ask "How many ways can you make 20?".
4. **Pose Questions that Actually Need to be Answered.** Rhetorical questions such as "Doesn't a square have four sides?" provide students with an answer without allowing them to engage in their own reasoning.
5. **Incorporate Verbs that Elicit Higher Levels of Bloom's Taxonomy.** Verbs such as *evaluate, justify, explain, describe, elaborate,* etc., prompt students to communicate their thinking and understanding.
6. **Pose Questions that Open Up the Conversation to Include Others.** Use questions such as "How does your solution relate to _____'s solution?" or "What do you think about ____'s idea?" in order to draw more students into the discussion.
7. **Keep Questions Neutral.** Try not to qualify a question as easy or hard as some students are afraid of 'hard' questions and others are easily bored with 'easy' questions. Also, be mindful of verbal and non-verbal cues such as tone of voice and facial expressions, as these can set the tone of a question.
8. **Provide wait time.** Many students need time to process information before answering a question. Teachers that allow for a wait time of 3 seconds or more after a question tend to receive a greater quantity and quality of student responses.

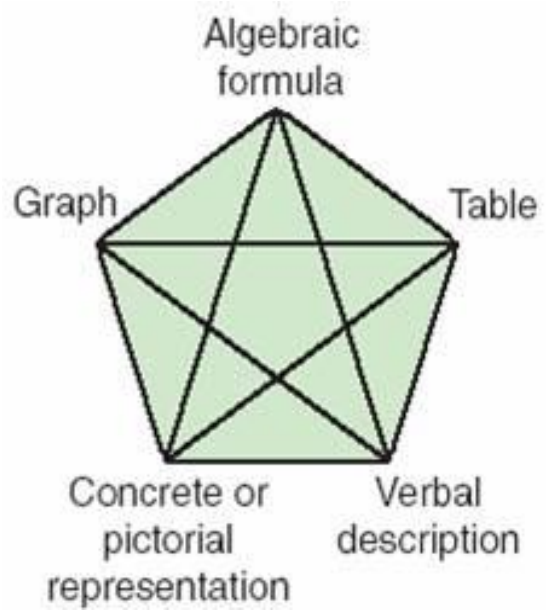
Student Achievement Division Ontario Schools (2011). *Capacity Building Series Special Edition #21 Asking Effective Questions.* Retrieved from http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_AskingEffectiveQuestions.pdf

Additional Notes:

Multiple Representations



Van de Walle, Karp, & Bay-Williams, 2013. 24.



NCTM, 2001.

Steps to Getting Grades K–5 Students Talking

Build a Community of Learners

The community of learning is embedded in the classroom culture. Have students form community agreements for how they will work together and respect each other during the learning process.

Encourage Students as Mathematicians

Encourage students to believe that they can reach their goals of being effective mathematicians. Share excitement when you hear students search for meaningful mathematics rather than just getting the right answer.

Ask Genuine Questions

Asking genuine questions that show a desire to understand another way of thinking about mathematics is a critical aspect of getting students to the point of opening up their mathematical thinking to the rest of the class. Model this type of questioning and expect students to question each other in a positive and genuine manner.

Press Students and Encourage Disequilibrium

Plan for and give the time that students need to work through productive struggle. Press for justification of thoughts and strategies, knowing that these moments offer opportunities for new learning to take place.

Promote Risk Taking

Acknowledging stages of thinking or "partial thinking" develops risk-takers and is an important move that supports effective student discourse in the mathematics classroom.

Allow Private Think Time

Allow individuals the time to privately think about the mathematics before engaging in discourse so that everyone comes into the conversation with some initial thinking. Then, before a full discussion ensues, have each tell what they thought about in order to get everyone's thinking heard.

Use Protocols

Purposefully plan the use of specific protocols to build equitable opportunities for all students to share their mathematical thinking with others.

Blanke, B. (2009). *Understanding mathematical discourse in the elementary classroom: A case study*. Retrieved from http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/11141/Dissertation_Blanke 3-29-09[Final].pdf?sequence=1

Grades K–2: Sample 2nd Grade Lesson Plan

Evaluate the lesson plan below using the specific criteria from the EQuIP Rubric. Then, in the space provided, offer suggestions for strengthening the lesson.

Odds and Evens

From Lessons for Learning for the Common Core State Standards in Mathematics: Grade 2, "Odds and Evens" (pp. 12-15), 2013, Public Schools of North Carolina. Provided with permission from the Public Schools of North Carolina 3-7-14. Retrieved from http://maccss.ncdpi.wikispaces.net/file/view/CCSSMathTasks-Grade2.pdf/464833262/CCSSMathTasks-Grade2.pdf

Content Standard: Work with equal groups of objects to gain foundations for multiplication.

2.OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

Standards for Mathematical Practice:

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.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Student Outcomes:

- I can write an equation to show that a number that is doubled has an even sum.
- I can explain why two even numbers have an even sum and why two odd numbers have an even sum and why an odd and even have an odd sum.

Materials:

- Odds and Evens game board (one for partners)
- Paperclip and pencil to use as spinner or a clear spinner to use on top of the game board
- Pencil to record on game board
- Color tiles or grid paper for students needing additional instruction
- *Two of Everything* by Lily Toy Hong
- Chart paper or a way to display the chart, marker
- Index cards with 1+1=, 2+2=, 3+3=, etc. to 10+10, one card for each set of partners
- Color tiles or grid paper to model

Directions:

1. Read *Two of Everything,* by Lily Toy Hong to the class. Chart what happens when something is put in the pot. For example, if 3 of something goes in the pot, then how many come out? 3+3=6. Continue this with at least five examples.
2. Give partners an index card with 1+1= or 2+2= or 3+3=, etc. Ask partners to find something or think of something in the real world that represents their equation. For example, 1+1= a pair of shoes, 4+4= the legs on an octopus (4 on each side), 5+5= the number of cents in a dime (nickel plus nickel)
3. Bring the cards back to the group and share the "doubles" found. Ask students about the sums. Do you notice what happens when you add two equal addends? Why do you think this happens? Brainstorm with the class and model with color tiles by creating rectangles to "prove" this concept.
4. Introduce the game Odds and Evens to the class by the teacher playing the game against the class. Player One has even numbers and Player Two has odd numbers. Each player spins one spinner and the two addends are added together. If the sum is even, Player One records it by writing the equation on a blank sheet of paper, or in their math journal, and then writing the sum in the box under EVEN. If the sum is odd, Player Two records it by writing the equation on a blank sheet of paper, or in their math journal, and then writing the sum in the box under ODD and the number goes to Player Two. The first player to fill all the blanks is the winner.
5. While the students are playing, the teacher should rotate around the room and see if students are starting to notice what is happening when an even number and an even number are added together, odd and odd, even and odd? Ask students if they played again if they would like to be the player with even numbers or the player with odd numbers and why.
6. After playing, discuss the game and the generalizations students were able to construct about even and odd numbers and what happens when you have two equal addends. As students share what they learned, the teacher could chart their ideas such as "odd + odd = even, odd + even = odd, even + even = even."

Questions to Pose:

Before

What do you know about "doubles" facts? How do we know if a number is odd or even?

During

What have you noticed about the sums you are getting while playing the game? What happens when you add two equal addends? Why do you think this happens? Are you starting to notice what is happening when an even and an even are added together, odd and odd, even and odd? If you played again, would you like to be even or odd? Why?

After

As a whole group discuss the questions listed above and focus on what student learned about odd and even addends.

Possible Misconceptions & Suggestions:

Students may think an odd number and an odd number will equal an odd number.

- Show students a rectangle made with color tiles of an odd number and make another rectangle of an odd number then match the two odd tiles together so that it becomes even.

Students may think an even number and an odd number will equal an even number.

- Repeat the task above using an odd and even number so students can see that you still have an odd tile left over.

Special Notes:

- This task addresses the second part of the standard. This task would need to come in a progression of lessons where an understanding of grouping to create an odd or even number has already been taught.
- This standard asks that students understand that two equal addends have an even sum, therefore, an extension of this lesson would be for students to understand why an even number and an odd number have an odd sum but this is not addressed in the standard.

Evaluation Notes:

Strengths	Recommendations

Grade 3–5: Sample 4th Grade Lesson Plan

Evaluate the lesson plan using the specific criteria from the EQuIP Rubric. Then provide suggestions for strengthening the lesson.

"Chips" ahoy!

This lesson will help children recognize, continue, and create number patterns, as well as find the rules for the patterns. The activities progress from concrete to semi-concrete to abstract.

Learning outcomes

Students will:

- learn how to identify, continue, and create number patterns
- identify the rule for the pattern

Time required for lesson

45 minutes

Materials/resources

- overhead projector
- hundred number chart suitable for use on the overhead
- see-through chips small enough to fit in one of the squares on the hundred number chart
- laminated hundred number charts (one for each student)
- see-through plastic chips (small enough to fit on one of the squares of the hundred number chart)
- dry erase or wet erase markers
- notebook paper and pencil

Pre-activities

- The students will need to be familiar with patterning using shapes. The teacher should have given the students time prior to the lesson to examine the hundred number charts and to make observations about the hundred number chart.
- Prior to this lesson, the teacher should prepare several number patterns for the students to complete during the lesson.

Activities

1. Review with the students shape patterns. (For example: draw circle, triangle, circle, triangle or square, square, hexagon, square, square, hexagon.) Put a few on the board for the students to solve as a class.
2. Tell students that they are going to learn about a new kind of patterning today—numerical patterns, or patterns using numbers. Demonstrate how to use the hundred number chart to complete a numerical pattern using the overhead projector, overhead projector hundred number chart, and see-through chips. Put chips on the overhead transparency and model how you will figure out the next number in the pattern. Some example patterns are: 8, 10, 12, 14 or 30, 27, 24, 21. (Be sure to alternate putting the missing blanks at the beginning, middle, and end of the row.)
3. Talk about how to find the rule for the pattern. Ask if the numbers are going up (adding) or going down (subtracting), and by how much. Model how you find the rule for the pattern with the chips.
4. Pass out the hundred number charts and at least 8–10 see-through plastic chips to each student. If you don't have enough for each student, you can put the students in pairs. Work out several more number patterns together as a class. Circulate around the class to check on student progress.
5. Finally, put several more number patterns up on the board or overhead for the student pairs to work independently. Call on students to share their answers and to explain how they got their answers.
6. The final activity is to have students create their own number patterns.
7. As students master the number patterns using chips, they can progress to using the dry or wet erase markers to help them solve the number patterns. Students can progress at their own rate while still being able to participate in the classroom activities. The goal is to eventually remove the hundred number chart, and the students will be able to solve the number patterns independently.

Assessment

- The assessment can be done by the children themselves. On notebook paper, students can create number patterns that are incomplete and these can be used to assess how they create number patterns. After the teacher has assessed how well the students created number patterns, the students can trade papers with each other. These can be the assessment as to how well they complete number patterns.
- If students make errors creating patterns, those patterns can be used to teach a lesson on correcting patterns.

Note: Although certain aspects of technology (i.e., overhead projector) are mentioned in the lesson plan, teachers, if replicating this lesson plan, should feel free to incorporate their own technology for use in their classroom.

Connecticut Core Standards: Operations & Algebraic Thinking

4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence...

Evaluation Notes:

Strengths	Recommendations

Kindergarten: Making 10

Examine the following task. Then, in the space below, provide guidance to a teacher who is considering using this task within their lesson. Help the teacher to think about questions to be asked, how students may work on the task, guidance for getting students to talk if working in groups, which of the practices they may want to focus on, the precise language, notations, and symbols they want students to use, and so forth.

Michael is starting a rock collection. He wants to have 10 rocks in his collection. He has 6 rocks in his collection right now. Michael tells Lisa that he only needs three more rocks in order to complete his collection. If Lisa gives Michael three rocks, will Michael's collect be complete? Show and tell how you know.

Instructional Suggestions

Grade 1: The Bake Sale

Examine the following task. Then, in the space below, provide guidance to a teacher who is considering using this task within their lesson. Help the teacher to think about questions to be asked, how students may work on the task, guidance for getting students to talk if working in groups, which of the practices they may want to focus on, the precise language, notations, and symbols they want students to use, and so forth.

Your class wants to sell cookies at the bake sale. Your teacher brings in bags for the cookies and 6 cookies will fit into each bag. If you have 18 cookies, how many bags can you fill? Show and tell how you know.

Instructional Suggestions

Grade 2: Making Bracelets

Examine the following task. Then, in the space below, provide guidance to a teacher who is considering using this task within their lesson. Help the teacher to think about questions to be asked, how students may work on the task, guidance for getting students to talk if working in groups, which of the practices they may want to focus on, the precise language, notations, and symbols they want students to use, and so forth.

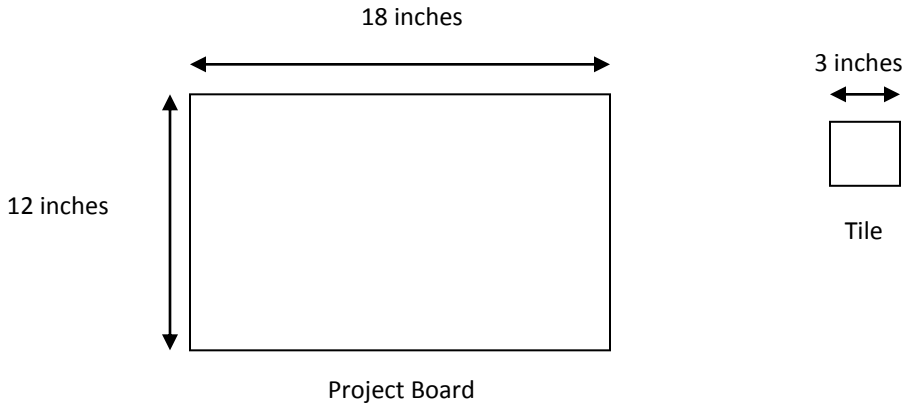
Anna and Jenna are going to the store to buy beads for making bracelets. They each buy the same three colors of beads and the same total number of beads. Anna buys 21 red beads, 37 blue beads, and 19 silver beads. Jenna buys 11 red beads and 29 blue beads. How many **silver** beads did Jenna buy? Show all of your mathematical thinking.

Instructional Suggestions

Grade 3: Tile Art

Examine the following task. Then, in the space below, provide guidance to a teacher who is considering using this task within their lesson. Help the teacher to think about questions to be asked, how students may work on the task, guidance for getting students to talk if working in groups, which of the practices they may want to focus on, the precise language, notations, and symbols they want students to use, and so forth.

A new artist wants to create a piece of art by gluing 3-inch square tiles on to a project board that measures 18 inches by 12 inches. How many tiles will the artist need to finish the project?



Instructional Suggestions

Grade 4: The Farmer

Examine the following task. Then, in the space below, provide guidance to a teacher who is considering using this task within their lesson. Help the teacher to think about questions to be asked, how students may work on the task, guidance for getting students to talk if working in groups, which of the practices they may want to focus on, the precise language, notations, and symbols they want students to use, and so forth.

A farmer uses different sizes of bags to package his vegetables he sells at the market.

Potato bags hold 12 potatoes
Carrot bags hold 6 carrots
Onion bags hold 4 onions
Tomato bags hold 8 tomatoes
Cucumber bags hold 2 cucumbers

1. On Monday, the farmer sold 24 of everything. How many of each bag did the farmer use?
2. On Tuesday, the famer only sold 8 bags of potatoes. How many potatoes were sold?
3. On Wednesday, the farmer had 52 carrots to sell. How many bags could the farmer fill? Explain how you found your answer.
4. On Thursday, the farmer only had 56 of one vegetable to sell. If the farmer filled 7 bags with this vegetable, which vegetable was sold was sold on Thursday? Show and explain how you found your answer.

Instructional Suggestions

Grade 5: The Great Card Debate

Examine the following task. Then, in the space below, provide guidance to a teacher who is considering using this task within their lesson. Help the teacher to think about questions to be asked, how students may work on the task, guidance for getting students to talk if working in groups, which of the practices they may want to focus on, the precise language, notations, and symbols they want students to use, and so forth.

Zack and Emily both collect game cards. Zack has 15 cards in his deck and Emily has 25 cards in her deck. Zack does work around his house and makes enough money every week to buy five new cards weekly. Emily helps her neighbor in the yard and makes enough money every week to buy four new cards weekly. During a recent conversation, Emily tells Zack that she will always have more cards in her deck. Zack says that because he is adding five cards to his deck each week and Emily only is adding four cards to her deck each week, he will eventually have more cards in his deck. Help Zack and Emily determine which of their statements is accurate and explain to them how you figured this out.

Instructional Suggestions

Section 7

Section 7: Planning for Change

Supporting Change

Use the space below to think through how you will communicate the Key Messages from each of the activities presented in this module. Also, think about questions that the teachers you work with may have.

Section 1: Understanding the Foundations of the Connecticut Core Standards
Key Messages:
Method of Communication:
Possible Questions:

Section 2: Supporting Change
Key Messages:
Method of Communication:
Possible Questions:

Section 3: Understanding the Standards for Mathematical Practice: Developing Mathematical Expertise
Key Messages:
Method of Communication:
Possible Questions:

Section 4: Supporting Students to "Make sense of problems and persevere in solving them."
Key Messages:
Method of Communication:
Possible Questions:

Section 5: Attending to Precision in Every Lesson
Key Messages:
Method of Communication:
Possible Questions:

Section 6: Teaching with the Standards for Mathematical Practice
Key Messages:
Method of Communication:
Possible Questions:

Closing Activities

Closing Activities

Post-Assessment–CCS-Math

Instructions: Check the box on the scale that best represents your knowledge or feelings about implementing the CCS-Math in your classroom.

Self-Assessment Questions	Strongly Disagree	Disagree	Agree	Strongly Agree
	1	2	3	4
I have an initial understanding of the CCS-Math and the embedded changes and instructional shifts.				
I am familiar with all eight of the CCS for Mathematical Practice and can identify how they are all related.				
I know why Practice 1: *"Make sense of problems and persevere in solving them"* and Practice 6: *"Attend to precision"* are considered the two "umbrella" standards.				
I can identify evidence of the eight Practices in CCS-aligned mathematics tasks.				
I can create descriptors for all eight practices, and develop formal grade level descriptions for Practice 1 and Practice 6.				
I understand how instructional strategies such as questioning, engaging students in mathematical discourse, and requiring multiple representations can help students meet learning goals.				
I understand the CCS-Math instructional shifts.				
I can identify relevant resources for implementing the CCS-Math.				