

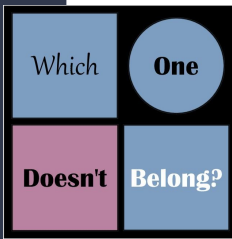
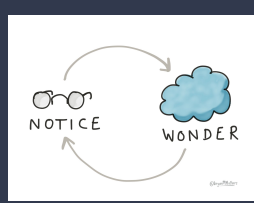


Illustrative Mathematics at P.S. 133

June 5th, 2023
8:30am - 10:30am

Math Leads: Nicolaou, Scarpulla, Reilly, Rosica, Barilla, Gold

Mathematics at P.S. 133



Engage Your Students With **3-ACT MATH TASKS**



Student Achievement/
Conceptual Understanding

RICH MATH ROUTINES

DISCUSSION TOOLS

Discussion Protocols

MULTI-TIERED SYSTEMS OF SUPPORT (MTSS)

MATH TEACHER LEAD TEAMS

Math Task Protocol

1. Unpack the Task
2. Solve Independently
3. Talk about the Math

Stick Together!
Write your individual response on a post-it. Stick your response in the boxes. Discuss your findings with your group. Collaborate and write your combined answer below.

Combined Answer:

PROGRESSION OF DISCOURSE

ANYTHING ELSE YOU CAN ADD?

ANYTHING ELSE WE MAY BE MISSING?

If this is true, then that must mean...
 How did we look at this step...
 Remember when... What now we can see that...
 So what I think you are saying is...
 I have evidence to support that...
 When you put it like that...
 My idea changed when...
 This lets me know that...
 So far, what I am learning is...
 I used to think...but now I think...

Can you tell me more about...
 I didn't understand...
 Can you explain in a different way?
 My thinking is similar to...
 What I heard you say...
 I wonder why... because...
 I can add on...
 I want to add on to what... said...
 I noticed that...
 This reminds me of... because...
 I disagree with... because...
 I think... because...

TALK MOVES

Talk Moves are designed to create a classroom culture where students are regularly respected for their ideas, listen, and respond to one another. Each gesture serves a different purpose in modeling and/or maintaining a dynamic conversation.

- ANSWER**: Shows you've listened and indicate that a student has had enough time to think and is prepared with an answer.
- CONFLICTED**: The raised hand and flat hand indicates a student is unsure of the content, the answer, or the context of the conversation.
- ADD ON**: A hand gesture that indicates a student wants to add or build onto a peer's original idea.
- DISAGREE**: A hand gesture that indicates a student has an alternative opinion or response.
- REPEAT**: A hand gesture that indicates a student wants to repeat or clarify what they said.
- AGREE**: A hand gesture that indicates a student agrees with a peer's statement.
- LIPGUIT**: A hand gesture that indicates a student is unsure of the content, the answer, or the context of the conversation.
- CLARIFY**: A hand gesture that indicates a student wants to clarify or ask for more information.

Student Discourse Listening, Speaking & Language Checklist Grades 3,4,5

Discourse Category	What is expected of me...	I am working on this...	I got this!
Listening	During discussions, I listen to my classmates and I ask questions with the help from my teacher. *To push myself even further, I can spark discussion by asking my own questions to my classmates.		
Speaking	During discussions, I am able to share my ideas clearly with my class. *To push myself even further, I can evidence my ideas clearly with facts and evidence.		
Language	When I am asked, I can use 2 vocabulary words during our class discussions and/or in my writing. *To push myself even further, I can use more than 2 vocabulary words during class discussions and/or in my writing.		

Routines

Math routines are embedded in each lesson and directly connect with the standards addressed in the lesson.

Warm-up Routines	Lesson Activity Routines
Act It Out	Math Language Routines (MLRs)
Choral Count	MLR1: Stronger and Clearer Each Time
Estimation Exploration	MLR2: Collect and Display
How Many Do You See?	MLR3: Clarify, Critique, Correct
Notice and Wonder	MLR4: Information Gap
Number Talk	MLR5: Co-craft Questions
Questions About Us	MLR6: Three Reads
True or False?	MLR7: Compare and Connect
What Do You Know About ____?	MLR8: Discussion Supports
Which One Doesn't Belong?	Other Lesson Activity Routines

3. Establish a Mathematics Instructional Focus

Each district will select a mathematics focus from the below list for the 2022-2023 school year to support their schools in implementing instruction aligned to the vision.

A. Provide **mathematics instruction that is culturally responsive and sustaining** by:

- promoting pedagogical knowledge and mathematical thinking,
- leveraging cultural and linguistic funds of knowledge, and
- attending to issues of power and social justice in mathematics education.

B. **Implement high-quality, coherent, research-based core mathematics curriculum.**

Ensuring that every child has access to a coherent trajectory of learning, aligned to the Next Generation Learning Standards, that provides opportunities for individual and collaborative sense-making, through open tasks that connect students' understanding of the real world to mathematical concepts.

C. **Integrate mathematics instructional routines into instruction.**

Instructional Routines support all students, but are essential for supporting students in need of intervention, students with disabilities, as well as multilingual learners to participate in academic discourse and mathematics sense-making.

D. **Focus on NYC Public Schools' Foundational Mathematics Standards by grade level.**

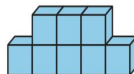
These standards support teachers in knowing where to invest additional time so that students can develop a strong foundation, including solid conceptual understanding, procedural fluency, and the ability to apply math to solve problems inside and outside the math classroom.

Which one doesn't belong?

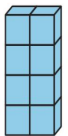
A



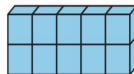
B



C



D



What is the value of $0.42 \div 5$?

Record an estimate that is:

too low	about right	too high

- How do you know $0.42 \div 5$ is more than 8 hundredths?
- Why is 8 hundredths a good estimate for the value of $0.42 \div 5$?

Vertically Aligned Centers

IM K-5
MATH

Centers Navigation Tool

Click on your grade level to explore your grade's centers:

Grade K

Grade 1

Grade 2

Grade 3

Grade 4

Grade 5

Counting, Place Value and Fractions (without Operations)

Operations & Algebraic Thinking and Fractions (with Operations)

Measurement, Data and Geometry

	K	1	2	3	4	5
Tower Build	✓					
Less, Same, More	✓					
Subtraction Towers	✓					
Grab and Count	✓					
Number Races	✓					
Counting Collections	✓					
Write Numbers	✓					
Get Your Numbers in Order	✓					
Greatest of them All	✓					
Number Line Scoot	✓					
Mystery Number	✓					
Secret Fractions	✓					
Tic Tac Round	✓					

	K	1	2	3	4	5
Roll and Add	✓					
Find the Value of Expressions	✓					
Make or Break Apart Numbers	✓					
5 Frames	✓					
Math Fingers	✓					
Bingo	✓					
Math Libs	✓					
Find the Pair	✓					
Check it Off	✓					
What's Behind my Back?	✓					
Shake and Spill	✓					
Math Stories	✓					
Capture Squares	✓					
Target Numbers	✓					
How Close?	✓					
Compare	✓					

Five in a Row: Addition and Subtraction
 Five in a Row: Multiplication and Division
 Number Puzzles: Addition and Subtraction
 Number Puzzles: Multiplication and Division
 Jump the Line
 Rectangle Rumble
 Rolling for Fractions
 Find the Number
 Watch Your Remainder

	K	1	2	3	4	5
Connecting Cubes	✓					
Build Shapes	✓					
Pattern Blocks	✓					
Match Mine	✓					
Geoblocks	✓					
Which One?	✓					
Picture Books	✓					
Sort and Display	✓					
Estimate and Measure	✓					
Target Measurements	✓					
How are They the Same?	✓					
Can You Draw it?	✓					
Would You Rather?	✓					
Creating Line Plots	✓					
Can You Build It?	✓					
Symmetrical Designs	✓					

2. Develop a [Multi-Tiered System of Supports for Mathematics \(MTSS-M\)](#)

By the end of the 2023-2024 school year, every school will develop a fully implemented MTSS for Mathematics.

The expectations for the 2022-2023 are:

- **Administer math screeners** three times a year.
- **Utilize data** from multiple sources to identify, implement and progress monitor **improvements to core instruction**.
- **Provide interventions** focused on [NYC Public Schools Foundational Mathematics Standards](#) if students fall behind, even after strengthening core instruction.

Five in a Row Addition and Subtraction Stage 3 Gameboard



12	14	12	8	11
15	17	16	10	19
18	13	FREE	15	14
9	17	10	13	7
19	16	11	9	18

Five in a Row Addition and Subtraction Stage 7 Gameboard



Directions:

- Partner A: Put a paper clip on 2 numbers in the grey rows. Cover the sum of the 2 numbers with a counter.
- Partner B: Move 1 of the paper clips, add the numbers, and cover the sum with a counter.
- Take turns. The first partner to cover 5 squares in a row wins.

704	669	621	442	784
497	695	323	956	44
586	413	784	576	614
297	386	378	867	532
873	99	134	531	665

263	100	352	65	10
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34	432	604	313	521
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Open Tasks that Promote Discussion

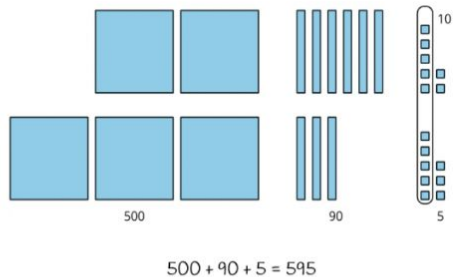
2nd Grade Task

B. Implement high-quality, coherent, research-based core mathematics curriculum.

Ensuring that every child has access to a coherent trajectory of learning, aligned to the Next Generation Learning Standards, that provides opportunities for individual and collaborative sense-making, through open tasks that connect students' understanding of the real world to mathematical concepts.

Noah and Kiran showed how they found the value of $267 + 338$.

Noah's Work



Kiran's work

Kiran's work uses a number line to solve $267 + 338$. The number line starts at 0 and has a 5 and a 10 marked. He has drawn jumps of 200, 300, 60, 30, 7, and 8. The equations below the number line are $200 + 300 = 500$, $60 + 30 = 90$, $7 + 8 = 15$, $500 + 90 + 15$, $500 + 90 + 10 + 5$, and $500 + 100 + 5 = 605$.

- 1) How is Noah and Kiran's work the same? How is it different?
- 2) Which student found the correct value? Explain or show your thinking.



Open Tasks that Promote Discussion

4th Grade Task

Questionable Lockers

Launch

In your small group, discuss what you notice and wonder about the picture.



The picture shows lockers in a school hallway.

The 20 students in Tyler's fourth-grade class are playing a game in a hallway that is lined with 20 lockers in a row.

B. Implement high-quality, coherent, research-based core mathematics curriculum.

Ensuring that every child has access to a coherent trajectory of learning, aligned to the Next Generation Learning Standards, that provides opportunities for individual and collaborative sense-making, through open tasks that connect students' understanding of the real world to mathematical concepts.



- The first student starts with the first locker and goes down the hallway and opens all the lockers.
- The second student starts with the second locker and goes down the hallway and shuts every other locker.
- The third student stops at every third locker and opens the locker if it is closed or closes the locker if it is open.

This process continues until all 20 students in the class have touched the lockers.

Embracing Authentic Discussions

iM Talking Math

Invitational 1



Grade K	<p>What kinds of toys do you see?</p> <p>What can you tell me about the toys?</p>
Grade 1	<p>How many toys are round? How many have straight sides?</p> <p>Do you think there are more round toys or toys with straight sides? Why?</p> <p>(K.MD and 1.MD)</p>
Grade 2	<p>Complete the sentences:</p> <p>There are 2 more _____ than _____.</p> <p>There are 8 _____.</p> <p>In this picture there are groups of _____.</p> <p>The number of _____ is less than the number of _____.</p> <p>(1.MD and 2.MD.10)</p>
Grade 3	<p>Pick four kinds of toys and count them.</p> <p>If you made a picture graph about the number of each kind, what could you use as a symbol for each toy?</p> <p>(2.MD)</p>

Focus on Data

Note: Invitational prompts are sometimes tagged to prior grade level standards.

iM Talking Math

Invitational 2



Grade K	<p>What can you count in the picture? How would you count them? (K.CC)</p>
Grade 1	<p>How many more puppies would make 10 puppies?</p> <p>How many puppies could join these puppies so there would be more than 10 puppies in all? Explain. (K.OA.4 and 1.OA.2)</p>
Grade 2	<p>Some of these puppies jumped out of the basket and 2 were left in the basket. How many puppies jumped out? Write an equation to show the situation. (1.OA.1)</p>
Grade 3	<p>There are 5 puppies in the basket. Count by fives to 30. How could counting by fives help you find out how many puppies would be in 6 such baskets? (2.NBT.2 and 3.OA.1)</p>
Grade 4	<p>We see 5 puppies can sit in a basket. How many baskets would there need to be for 45 puppies?</p> <p>How many baskets would be needed for 52 puppies? Explain your thinking. (3.OA.3 and 4.OA.3)</p>
Grade 5	<p>Two of these puppies weigh 263 grams each and three of the puppies weigh 315 grams each. Find the weight of all the puppies. (4.NBT.4 and 5.OA.1)</p>

Focus on Counting & Operations

Note: Invitational prompts are sometimes tagged to prior grade level standards.

ENGAGING STUDENTS: SPARKING CURIOSITY

5.8 Inspire Math Video: First Showing



Actions ▾

Assign ▾

Instructional video

Materials

About this video

1 Whoopee



Teaching notes

Materials:









- Video: *Whoopee!*
- Chart paper with a chart with three column headings: record-setting things, what we might count or measure, measurement units

Instruction:

- "We will watch a short video together. Be prepared to share your thinking and answer some questions."
- Show the video *Whoopee!*
- "What are some record-setting events we saw in the video?" (highest climber, fastest runner, largest pumpkin, farthest trip)
- Record responses in the column labeled "record-setting events".
- Note: Students will have another opportunity to add to this list after watching the video a second time. The goal here is not to capture all the things, just to start a list and revisit measurement units. [Here is a sample completed table.](#)
- "What do you think is measured for each world-record? What else could be measured? Each group will be..."

Standards for Mathematical Practice

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

Standard for Mathematical Practice	Student Friendly Language
1. Make sense of problems and persevere in solving them. 	<ul style="list-style-type: none">● I can try many times to understand and solve a math problem.
2. Reason abstractly and quantitatively. 	<ul style="list-style-type: none">● I can think about the math problem in my head, first.
3. Construct viable arguments and critique the reasoning of others. 	<ul style="list-style-type: none">● I can make a plan, called a strategy, to solve the problem and discuss other students' strategies too.
4. Model with mathematics. 	<ul style="list-style-type: none">● I can use math symbols and numbers to solve the problem.
5. Use appropriate tools strategically. 	<ul style="list-style-type: none">● I can use math tools, pictures, drawings, and objects to solve the problem.
6. Attend to precision. 	<ul style="list-style-type: none">● I can check to see if my strategy and calculations are correct.
7. Look for and make use of structure 	<ul style="list-style-type: none">● I can use what I already know about math to solve the problem.
8. Look for and express regularity in repeated reasoning. 	<ul style="list-style-type: none">● I can use a strategy that I used to solve another math problem.

Wiki Included in



Welcome to Imagine Learning EL Education K-8 Language Arts Curriculum

The EL Education K-8 Language Arts Curriculum was created to support your students to build skills and content knowledge, to meet college- and career-ready standards, and, at the same time, to become more confident and collaborat...



Illustrative Mathematics® K-12 with Accelerated 6/7

ILLUSTRATIVE MATHEMATICS

Favorites



Materials/Teacher Prep

- Certain parts of the lesson (card sorts, some activities) are not in the student workbook

Grade 2 ▾

Unit 1 ▾

Lesson

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

LESSON 1

Add and Subtract Within 10

PREPARATION

LESSON

Lesson Purpose

The purpose of this lesson is for students to add and subtract within 10.

Required Materials

Materials to Gather

[Connecting cubes or counters](#)

Materials to Copy

Number Cards (0-10)

Required Preparation

Activity 1:

- Create a set of number cards for each group of 2.
- The number cards will be used in upcoming lessons and throughout the year. Consider copying the cards on cardstock or laminating them for future use.
- Create the math community poster for display in the lesson synthesis.

Print Formatted
Materials

Teachers with a valid work email address can [click here to register or sign in](#) for free access to Cool Down, Teacher Guide, and PowerPoint materials.

Student Task Statements	pdf	docx
Lesson Cover Page	pdf	docx
Cool Down		Log In
Teacher Guide		Log In
Teacher Presentation Materials	pdf	docx
Blackline Masters	zip	

Support for Families

For Families

View materials for:



En Español: Kínder



En Español: Grado 1



En Español: Grado 2



En Español: Grado 3



En Español: Grado 4



En Español: Grado 5

For Teachers

View materials for:



En Español: Kínder



En Español: Grado 1



En Español: Grado 2



En Español: Grado 3



En Español: Grado 4



En Español: Grado 5