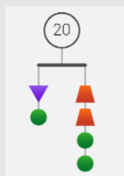
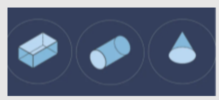
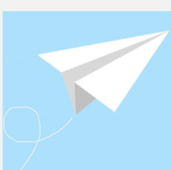
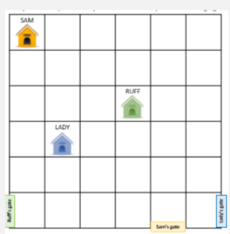
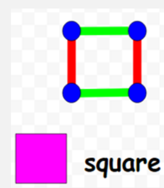
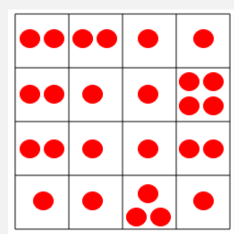
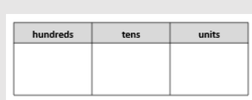
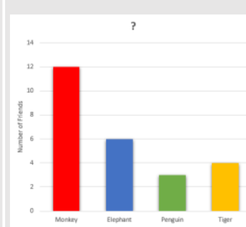
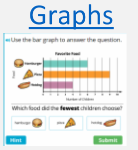
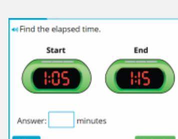
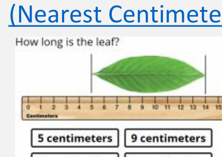
Math 1-3 Activities Menu J

Curriculum Connections

Creating Futures, Leading and Learning for All

Upper Canada District School Board

Instructions: Choose from the options below. Enjoy as many or as few as you have time for.

	A	B	C	D	E
Estimation	**Temperature (Part 1)** Consider the temperature outside, is it: hot, mild, cold, or something else? Now, estimate the temperature in degrees (Celsius). Compare your findings at: The Weather Network	**Claps in a Minute** Eli Bishop (USA) holds the world record for the most claps in a minute at 1103. Estimate how long it would take you to complete 10 claps? 100 claps? 200 claps? Other? Try it! Were your estimates close?	**Temperature (Part 2)** Consider the temperature outside again (see **A**). As before, estimate the temperature in degrees (Celsius). Compare: The Weather Network What is the temperature difference between now and before (**A** and **C**)? How many degrees warmer or colder?	**Fill the Glass** Estimate how long it would take to fill a glass of water using a tablespoon. Would it take more or less than 2 minutes? Try it! 	**Temperature (Part 3)** Once more, consider the temperature outside (see **A** and **C**). Estimate the temperature in degrees (Celsius). Compare: The Weather Network Discuss the temperature differences between **C** and **E**? **A** and **E**?
Talking about Math	Toothpick Squares 	SolveMe Mobiles 	Which Shapes are Most Similar? 	Certain, Likely, Equally Likely, Unlikely, Impossible 	**Mindful Math Minute** Get comfortable in a calm place – sit or lie down. Close your eyes. Slow your breathing. *Relax*. Count the number of breaths you take in one *peaceful* minute. Can you predict your number of breaths in 10, 15, 20 minutes? How did you develop your estimates?
	Click on each image above for question prompts and a larger view.				
Activities / Games	Flying Fun with Paper Planes 	Sam's House 	Chip, Chip, Chooray! 	Create Shapes Task Cards 	Free the Animals 
Problems	Tadpoles 	Pattern Making What patterns can you make with 3 different shapes?	What Number am I? 	Bar Graph 	**Caterpillars** It takes 5 leaves to feed 2 caterpillars every day. How many leaves would you need to feed 12 caterpillars? What about 15 caterpillars?  Original task found here.
Technology	Reading Bar Graphs 	Counting Coins up to $1.00 	Elapsed Time 	Counting Dollars and Cents 	Linear Measurement (Nearest Centimeter) 

Please click on this icon, wherever you see it, to access Indigenous content.

Choice Board Background Information:

- ✓ Choice boards were created to provide flexibility in learning at home;
- ✓ Boards were planned for divisions: K-3, 4-6, 7-8 for open, individualized learning;
- ✓ Planned with recognition that parents may currently hold various roles at home;
- ✓ Designed to enhance the materials provided by the Ministry;
- ✓ Experiential learning focus with accessible materials at home;
- ✓ Low/No tech options;
- ✓ Accessible on mobile devices.

Choice Boards - Parents Can:

- ✓ Choose as many or as few learning opportunities as desired;
- ✓ Follow the days of the week or be flexible in using the choice boards;
- ✓ Be confident that the learning is based in curriculum;
- ✓ Engage other children in the home in common experiential learning (i.e., baking, reading, playing math games, being active together);
- ✓ Click on the links provided for further learning and sample questions to ask;
- ✓ Have fun!

UPPER CANADA District School Board

Explanatory Notes: LEARN AT HOME CHOICE BOARDS FOR PARENTS AND EDUCATORS

Creating Futures, Leading and Learning for All

Choice Board Activities Provide:

- ✓ Clear connections to curriculum expectations and process skills;
- ✓ Open activities with options to individualize learning;
- ✓ Accessibility (many require little to no technology);
- ✓ Math – focus on numeracy skills;
- ✓ Literacy – focus on reading, writing, oral language and media literacy;
- ✓ French learning opportunities;
- ✓ Health and Physical Well-Being;
- ✓ Opportunities to foster connections within the household;
- ✓ Focus on conversation and thinking.

Choice Boards - Teachers Can:

- ✓ Create classroom-based choice boards for students while they are learning at home;
- ✓ Incorporate ideas from the choice boards into teaching practices, daily and weekly planning;
- ✓ Explore and incorporate new resources into classroom learning;
- ✓ Engage students and families in virtually sharing learning with one another;
- ✓ Expand on activities in order to provide individualized learning opportunities;
- ✓ Incorporate other UCDSB resources (i.e., Math Tool, VLC, links) to extend student learning.

Temperature has a big effect on our everyday life. Do we wear a winter coat or a t-shirt? Do we walk to the store or do we need to drive?

How we live our lives depends so much on our surroundings.

Watch this video and compare how different children's lives are up north to yours.

Inuit Video

Toothpick Squares

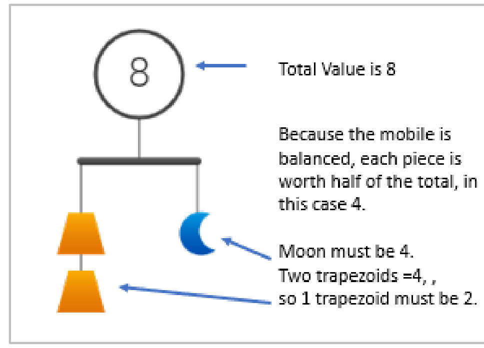
What shapes do you see?
How many squares do you see?

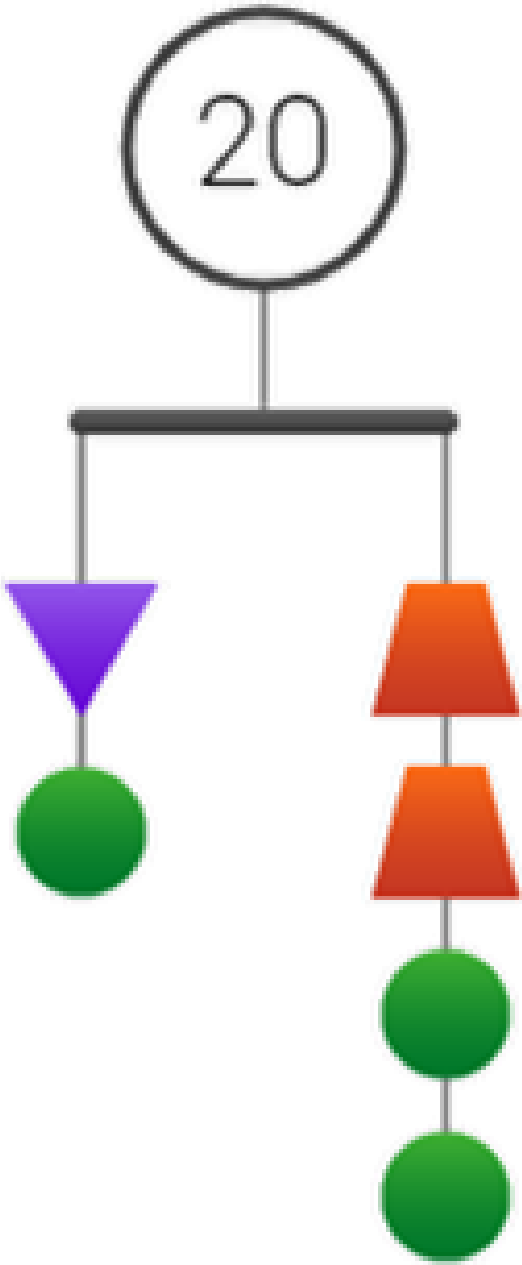
Extension:
Recreate the image using 12 toothpicks (or straws, pieces of paper, sticks…)
Can you **remove** 4 toothpicks to leave only 2 squares?
Can you **move** 3 toothpicks to make 3 squares?
Can you **move** 2 toothpicks to create 7 squares?

SolveMe Mobiles: Puzzle 12

http://solveme.edc.org/mobiles/

Example



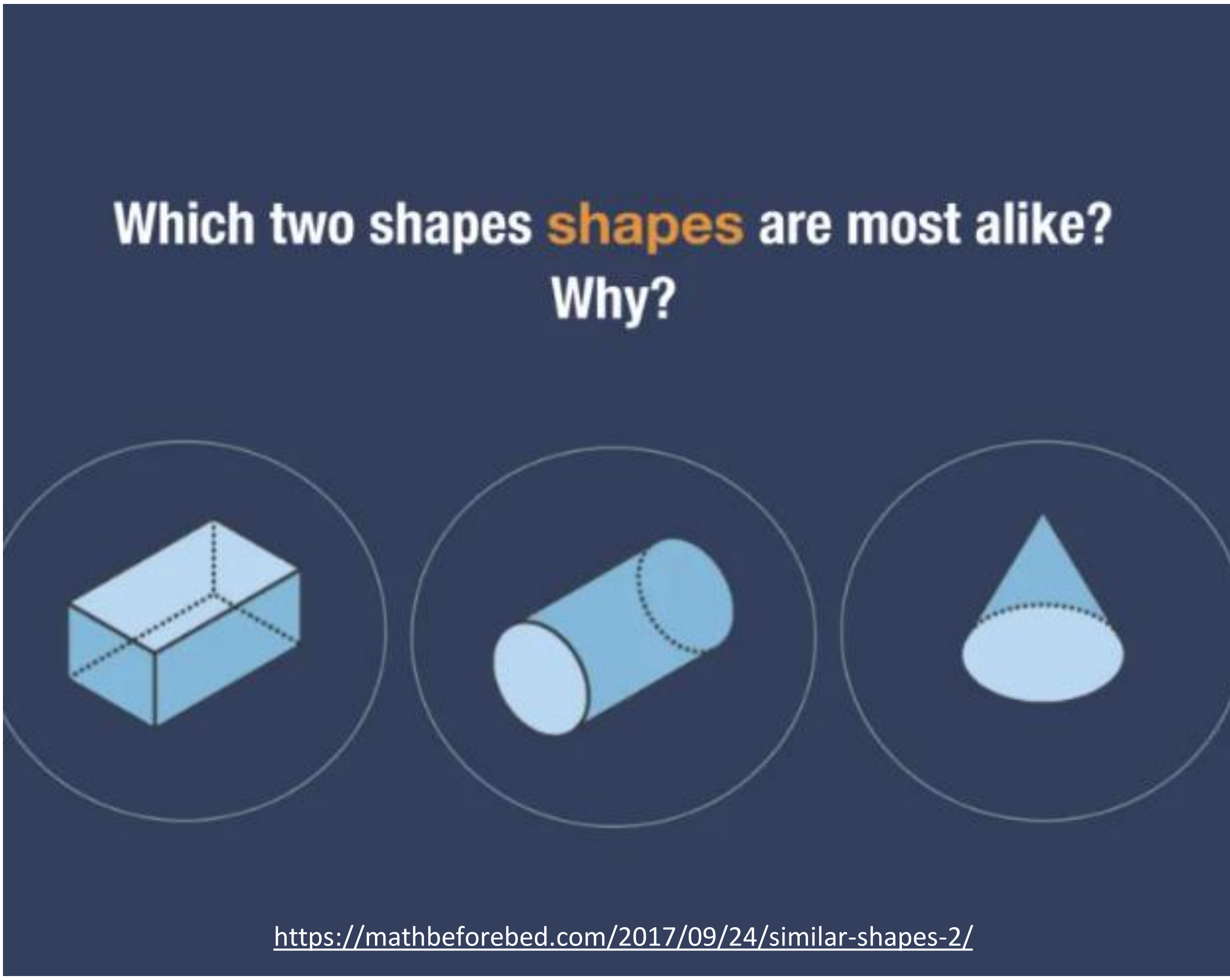


If the mobile is balanced, what are some possible values of the circle, triangle and trapezoid?

How do you know ?

If the circle has a value of 3, what is the value of the triangle and trapezoid?

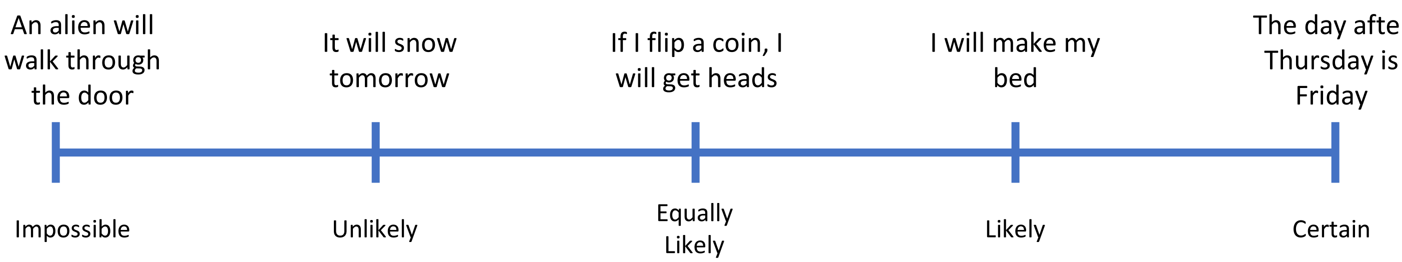
How do you know?



Explain your reasoning.

Your friend picked two other shapes. Which shapes might they have picked? What would their reasoning be?

Certain, Likely, Equally Likely, Unlikely, Impossible



Indicate if the following events are impossible, unlikely, equally likely, likely, or certain. Explain your reasoning.

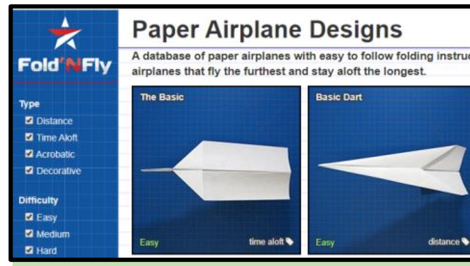
- ✓ A triangle has 3 sides.
- ✓ You will fly in a spaceship tonight.
- ✓ You will walk a dog.
- ✓ It will rain today.

Come up with your own examples of each probable outcome.

Is the probable outcome the same for each person? Why or why not?

Flying Fun with Paper Planes

Required Materials:
- ❑ Paper
- ❑ Participants
- ❑ Measuring Tape
- ❑ Recording Sheet



Need some inspiration for folding your planes. Try out some of these designs.

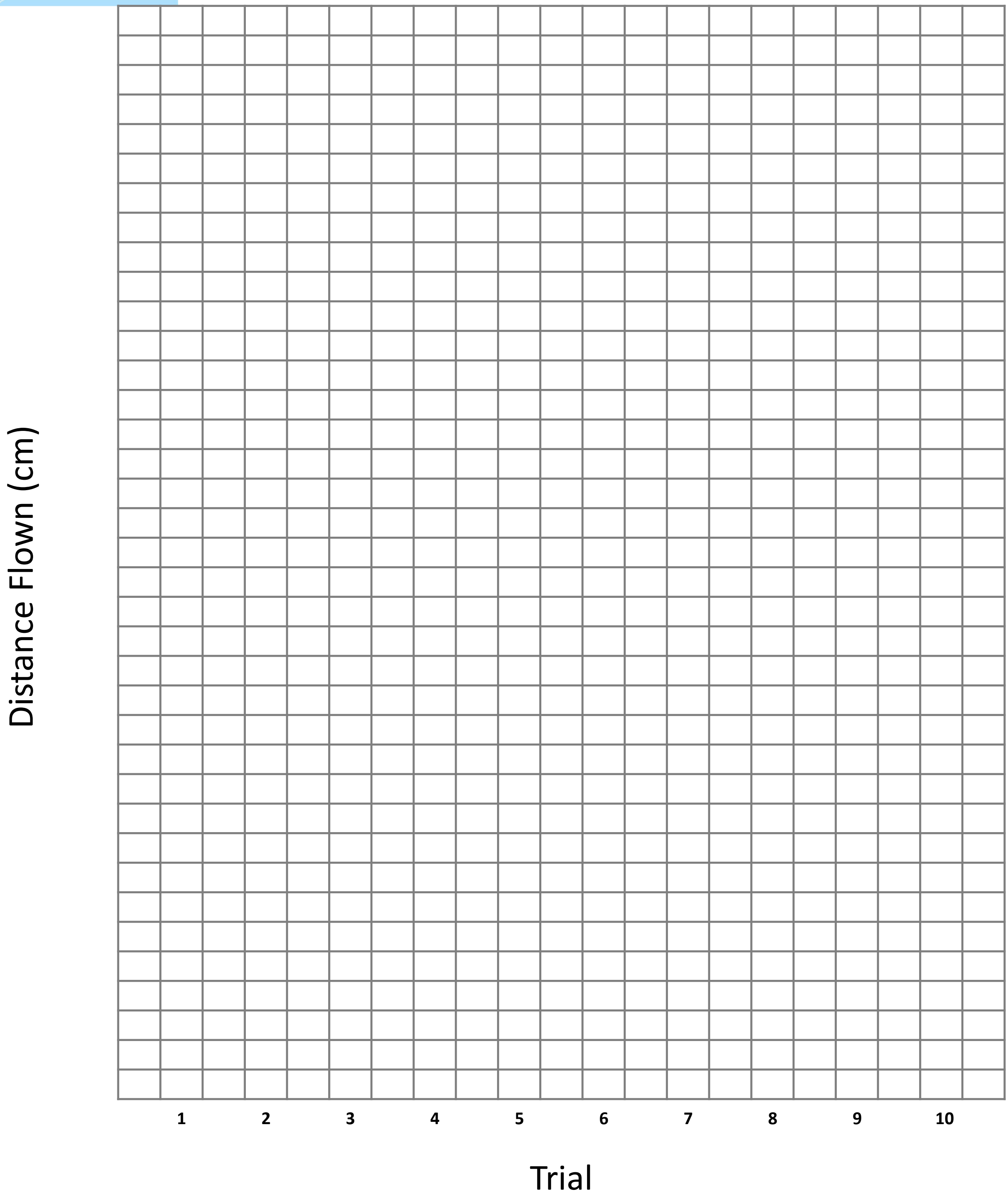
Instructions:
- ➢ Each participant makes their own paper plane.
- ➢ Participants will take turns throwing their airplanes from a designated starting point.
- ➢ Record the distance travelled in cm AND in a non-standard unit of measure (i.e., length of your foot, floor tiles, sidewalk squares).
- ➢ Repeat for 10 trials.

Analysing the Data:
- ➢ Create a graph to show the distances travelled.
    - ➢ What type of graph did you choose to make?
    - ➢ Why did you pick this graph?
- ➢ What is the range between flights (the difference between the farthest and shortest flight)?
- ➢ Is there a distance that appears most often? (This would be the mode of your data.)
- ➢ If you put your flight distances in order from smallest to largest, which distance is in the middle?
- ➢ Add the total distance travelled. If each plane flew the same distance, and the total stayed the same, how far would each plane have flown?
- ➢ If you were to throw your plane one more time, what distance do you predict it would go and why?

Extension:
- ➢ Create several different types of planes, and record the distances flown for five trials each.
- ➢ Which plane would you choose to enter into a single flight paper plane championship? Why did you pick this plane over the others?

Trial	Participant 1		Participant 2	
	cm	Non-standard unit	cm	Non-standard unit
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
Total Distance				

Flying Fun with Paper Planes - Graph



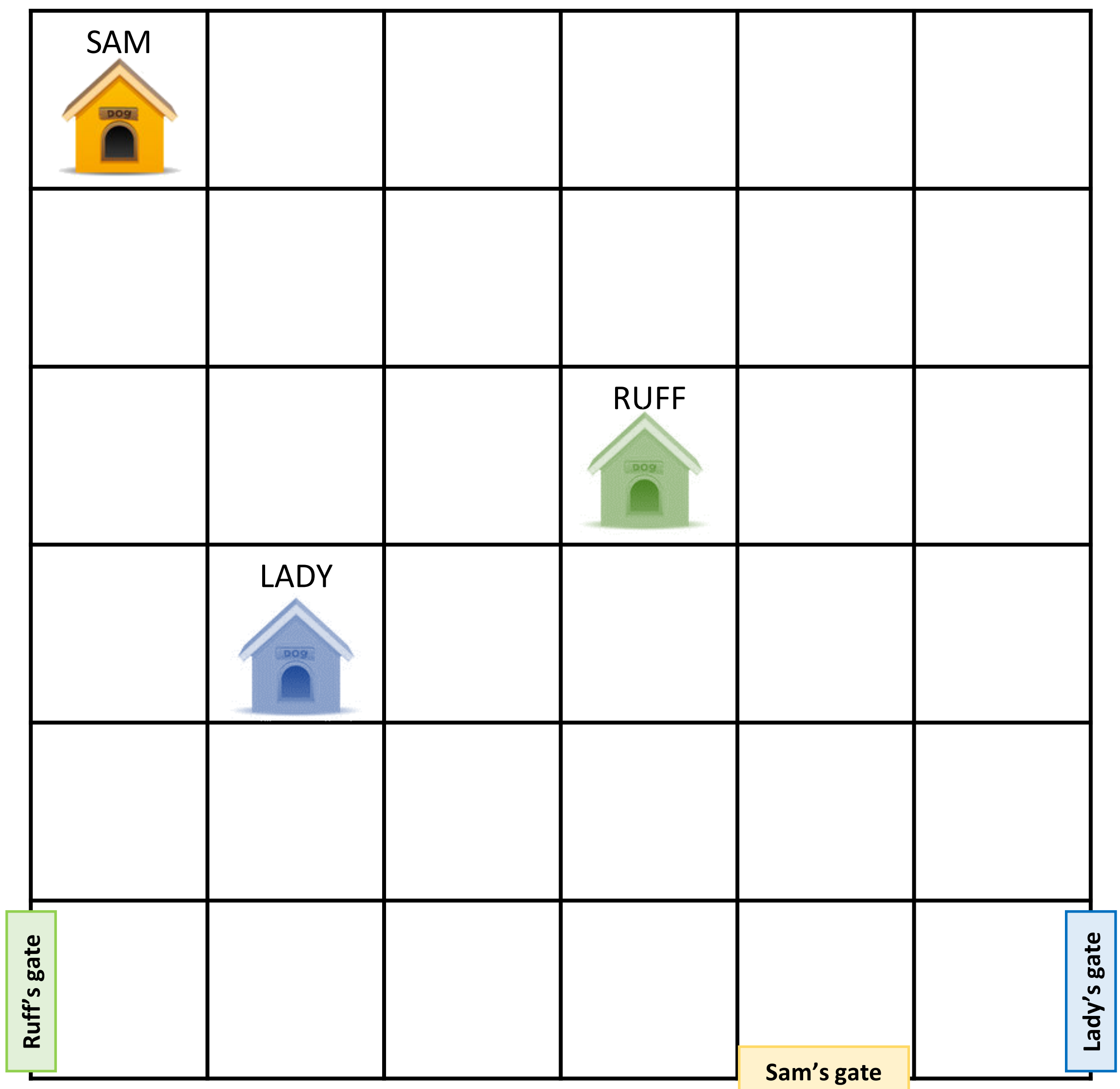
Sam’s House

https://www.mathfair.com/sams-house.html

Sam, Ruff, and Lady are three dogs whose houses are inside a yard with brick walls and square paving stones. To leave the yard, each dog has to go through its own special gate. Your task is to design paths that the dogs can follow to get to their own gates. Sam's path should be coloured yellow, Ruff's should be colored green, and Lady's should be blue.

The paths are made by colouring the paving stones. Each path must be made of coloured stones that are connected edge-to-edge (not corner-to-corner). Also, the paths are not allowed to cross. Instead of colouring, you might want to cut out about twenty yellow squares, twenty blue squares, and twenty green squares to place on the paving stones.

Describe the path that Sam, Ruff, and Lady should each take. Use your directional language.



https://www.cemc.uwaterloo.ca/resources/potw/2019-20/English/POTWB-19-NN-24-P.pdf

Adapted from: Problem of the Week
Problem B and Solution
Chip, Chip, Chooray!

Problem

At Biscuit Hill Elementary School, Chip and his sister, Charlene, have decided that they want to make cookies for all of the primary students in their school.
The recipe they found makes enough chocolate cookies, of 7 cm diameter, for 16 people.

How many batches should Chip and Charlene make so that they make enough cookies for all the students in the primary classes?

Primary Classes

Mrs. Martin	25 students
Mrs. Laing	26 students
Ms. Richmond	23 students
Mrs. Kelter	24 students
Mr. Hallett	22 students

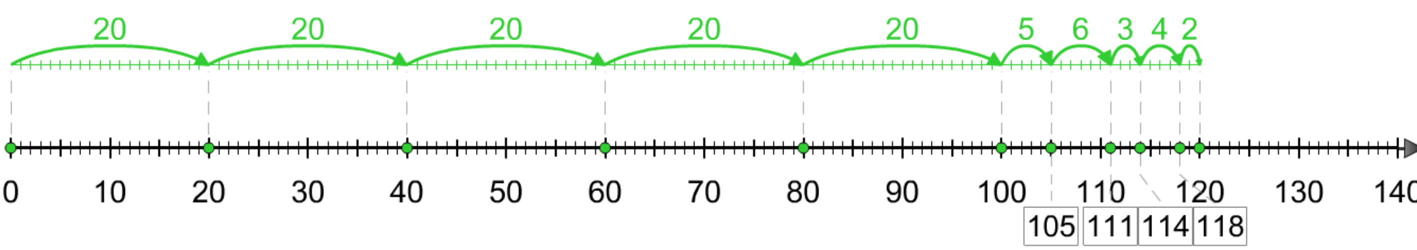
Click here for a solution.

If you bake a batch of cookies, how many cookies do you get? How many batches of your cookies would you need to make sure every student had a cookie?

Chip, Chip, Chooray!
One Potential Solution

How many cookies are needed for all the primary classes?

$$25 + 26 + 23 + 24 + 22$$
$$= 20 + 5 + 20 + 6 + 20 + 3 + 20 + 4 + 20 + 2$$
$$= 20 + 20 + 20 + 20 + 20 + 5 + 6 + 3 + 4 + 2$$
$$= 120$$



We need 120 cookies, so that each student gets a cookie.

How many batches of cookies do we need?

x2 (Doubled) x2 (Doubled) x2 (Doubled) 8 - 1

Batch(es)	1	2	4	8	7
Number of Cookies	16	32	64	128	128 – 16 = 112

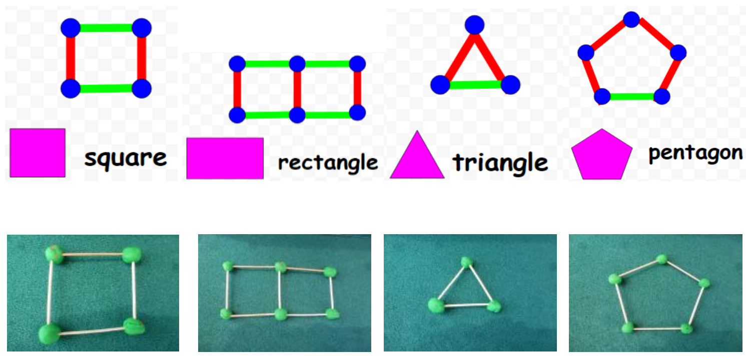
x2 (Doubled) x2 (Doubled) x2 (Doubled) 8 batches – 1 batch

We need 8 batches of cookies (7 batches is too few).

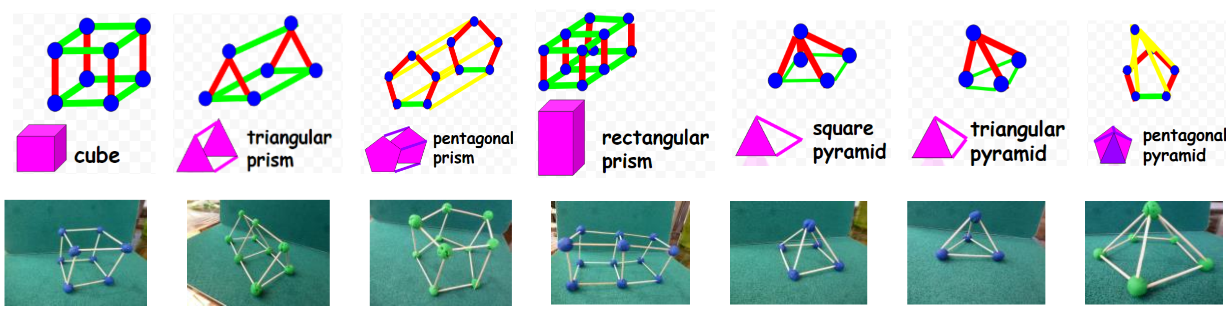
Create 2D and 3D Shapes

Task cards found [here]()

2D Figures



3D Figures



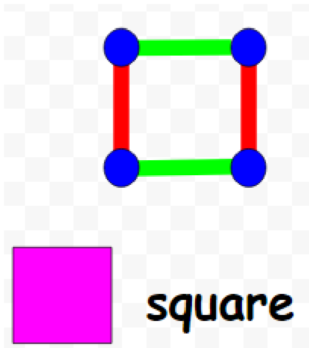
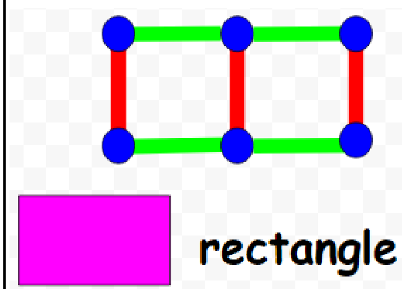
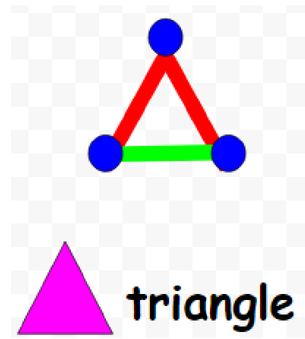
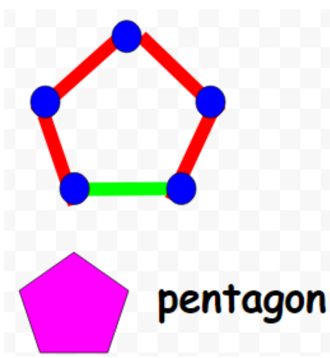
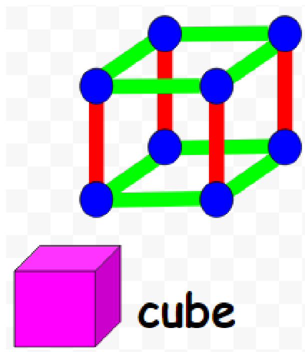
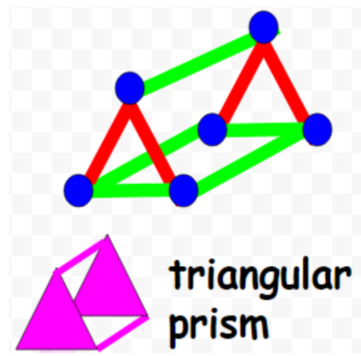
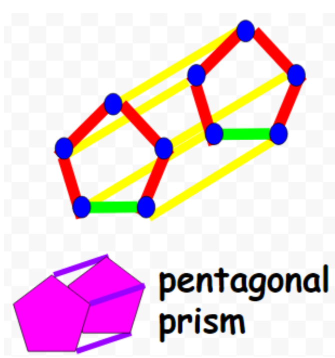
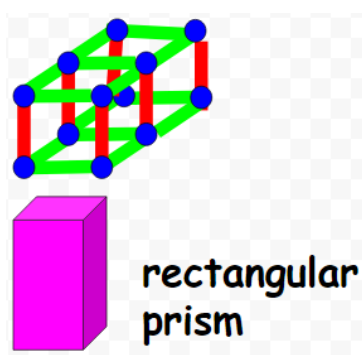
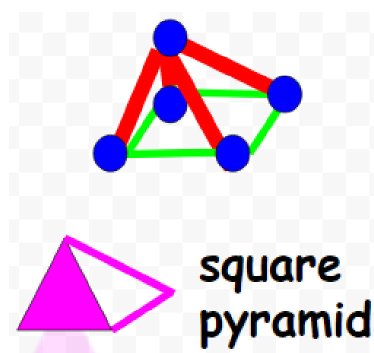
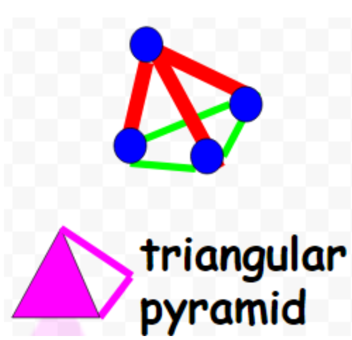
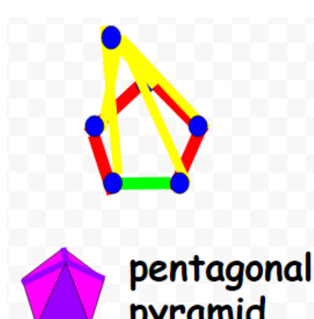
Materials:
Toothpicks, popsicle sticks, or straws
Playdough

Activity:
Use Playdough to join each of the sides together

Discussion:
Predict how many toothpicks you will need to make each 2D (flat) shape.
Were you right?
If you were to combine shapes to form a *composite* shape (i.e., 2 squares & 1 triangle combined), how many toothpicks would you need?
Design it! Were you close?
Predict how many toothpicks you will need to make each 3D shape.
Was it more or less than you expected?

Extension:
Discuss shape properties like number of corners (*vertices*), sides (*edges*), and flat surfaces (*faces*) on each.
Sketch your designs! Use colour to emphasize each corner (*vertex*), side (*edge*), and flat surface (*face*).

Task Cards

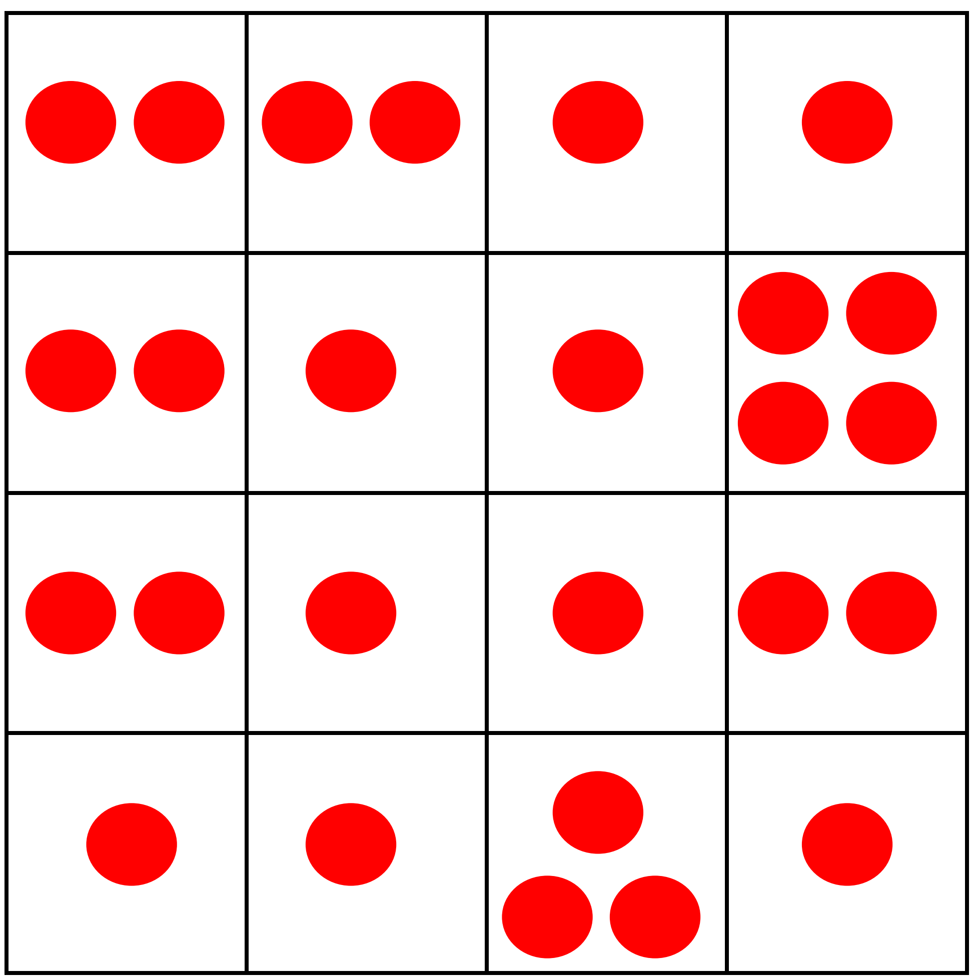
 square	 rectangle	 triangle
 pentagon	 cube	 triangular prism
 pentagonal prism	 rectangular prism	 square pyramid
 triangular pyramid	 pentagonal pyramid	

Free the Animals

https://www.mathfair.com/free-the-animals.html

In the picture below, there are sixteen square cages arranged in 4 rows of 4. Each cage contains 1, 2, 3, or 4 captured animals, represented by red circles. Your task is to free all the animals, but there are rules that must be followed: you must release *two animals at a time*; they have to be in *different cages*; and the two cages need to have a *common side*.

What strategy did you use?
What can you try differently next time?
What are the fewest moves you can find to release all the animals?



Tadpoles

Adapted from: [Parallel Tasks and Open Questions Grades K-3, OTFFEO]

There are some tadpoles in a jar.
The amount of tadpoles is more than 10 and less than 50.

❑ How many tadpoles could there be in the jar, if there were *a lot*?

❑ How many tadpoles could there be, if there were *a few*?

❑ If you were to count the tadpoles by 2's, you would land on the amount. How many could there be? How do you know?

❑ If you were to count the tadpoles by 2's and 5's, you would land on the amount. How many tadpoles could there be in the jar? How do you know?

❑ If you were to count the tadpoles by 2's, 3's, and 5's, you would land on the amount. How many tadpoles could there be in the jar? How do you know?

Try using a number line to show your work. [Here's a digital one you can use].

Pattern Making

Adapted from: [Parallel Tasks and Open Questions Grades K-3, OTFFEO]

What patterns can you make with 3 different shapes?

- [ ] Can you make a pattern with a core of 3?
- [ ] Can you make a pattern with a core of 4?
- [ ] Can you make a pattern that repeats according to one attribute?
- [ ] Can you make a pattern where the 4th and 8th shapes are the same and used only once?

Key Words:
The **core** is the part of the pattern that repeats.
Attributes are features you can describe, like shape, colour, orientation, size…

What Number am I?

Bit.ly/mathwalks2020

hundreds	tens	units

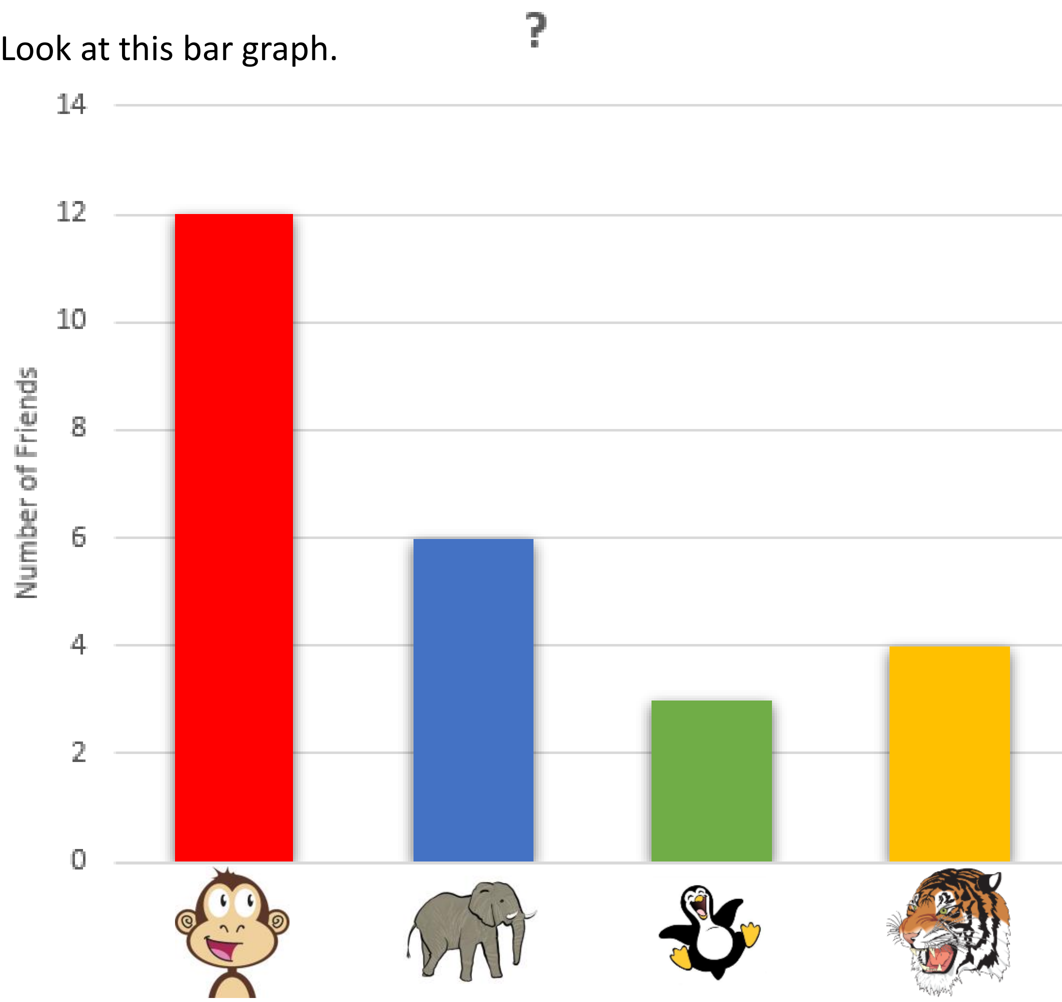
- ❑ My value is even.
- ❑ The sum of my digits is 12.
- ❑ My hundreds digit is twice my tens digit.
- ❑ The units digit is equal to the sum of the hundreds and the tens digits.

Do you need all 4 clues?
For more of these types of problems, click here.

Bar Graph

Adapted from: [Parallel Tasks and Open Questions Grades K-3, OTFFEO]

Look at this bar graph.



What do you think the survey question might have been? Explain your reasoning.

Describe 3 things that this bar graph tells us.

What two questions do you still have about this graph?

Can you show this data another way?

Grades 1 -3 Curriculum Continuum Connections

Note: highlighted expectations are addressed in this menu

	Grade 1	Grade 2	Grade 3
Process Skills	❑ Problem Solving ❑ Reasoning and Proving	❑ Reflecting ❑ Selecting Tools and Computational Strategies ❑ Connecting	❑ Representing ❑ Communicating
Number Sense and Numeration	❒ read, represent, compare, and order whole numbers to 50, and use concrete materials to investigate fractions and money amounts ❒ demonstrate an understanding of magnitude by counting forward to 100 and backwards from 20; ❒ solve problems involving the addition and subtraction of single-digit whole numbers, using a variety of strategies.	❒ read, represent, compare, and order whole numbers to 100, and use concrete materials to represent fractions and money amounts to 100¢ ❒ demonstrate an understanding of magnitude by counting forward to 200 and backwards from 50, using multiples of various numbers as starting points ❒ solve problems involving the addition and subtraction of one- and two-digit whole numbers, using a variety of strategies, and investigate multiplication and division.	❑ read, represent, compare, and order whole numbers to 1000, and use concrete materials to represent fractions and money amounts to $10 ❑ demonstrate an understanding of magnitude by counting forward and backwards by various numbers and from various starting points ❑ solve problems involving the addition and subtraction of single- and multi-digit whole numbers, using a variety of strategies, and demonstrate an understanding of multiplication and division.
Patterning and Algebra	❒ identify, describe, extend, and create repeating patterns ❒ demonstrate an understanding of the concept of equality, using concrete materials and addition and subtraction to 10	❒ identify, describe, extend, and create repeating patterns, growing patterns, and shrinking patterns ❒ demonstrate an understanding of the concept of equality between pairs of expressions, using concrete materials, symbols, and addition and subtraction to 18	❒ describe, extend, and create a variety of numeric patterns and geometric patterns ❒ demonstrate an understanding of equality between pairs of expressions, using addition and subtraction of one- and two-digit numbers
Measurement	❒ estimate, measure, and describe length, area, mass, capacity, time, and temperature, using non-standard units of the same size ❒ compare, describe, and order objects, using attributes measured in non-standard units	❒ estimate, measure, and record length, perimeter, area, mass, capacity, time, and temperature, using non-standard units and standard units ❒ compare, describe, and order objects, using attributes measured in non-standard units and standard units	❒ estimate, measure, and record length, perimeter, area, mass, capacity, time, and temperature, using standard units; ❒ compare, describe, and order objects, using attributes measured in standard units
Geometry and Spatial Sense	❒ identify common two-dimensional shapes and three-dimensional figures and sort and classify them by their attributes ❒ compose and decompose common two-dimensional shapes and three-dimensional figures ❒ describe the relative locations of objects using positional language	❒ identify two-dimensional shapes and three-dimensional figures and sort and classify them by their geometric properties ❒ compose and decompose two-dimensional shapes and three-dimensional figures ❒ describe and represent the relative locations of objects, and represent objects on a map	❒ compare two-dimensional shapes and three-dimensional figures and sort them by their geometric properties ❒ describe relationships between two-dimensional shapes, and between two-dimensional shapes and three-dimensional figures ❒ identify and describe the locations and movements of shapes and objects.
Data Management and Probability	❒ collect and organize categorical primary data and display the data using concrete graphs and pictographs without regard to the order of labels on the horizontal axis ❒ read and describe primary data presented in concrete graphs and pictographs ❒ describe the likelihood that everyday events will happen	❒ collect and organize categorical or discrete primary data and display the data, using tally charts, concrete graphs, pictographs, line plots, simple bar graphs, and other graphic organizers, with labels ordered appropriately along horizontal axes, as needed ❒ read and describe primary data presented in tally charts, concrete graphs, pictographs, line plots, simple bar graphs, and other graphic organizers ❒ describe probability in everyday situations and simple games	❒ collect and organize categorical or discrete primary data and display the data using charts and graphs, including vertical and horizontal bar graphs, with labels ordered appropriately along horizontal axes, as needed ❒ read, describe, and interpret primary data presented in charts and graphs, including vertical and horizontal bar graphs ❒ predict and investigate the frequency of a specific outcome in a simple probability experiment