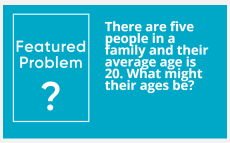
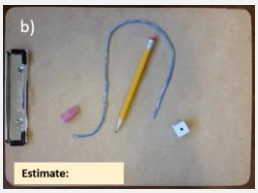
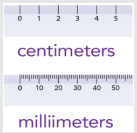
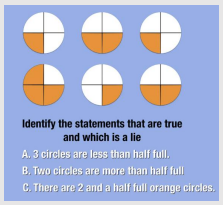
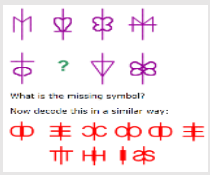
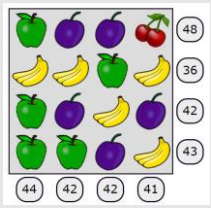
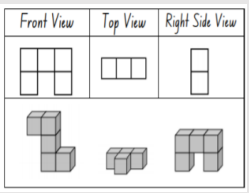
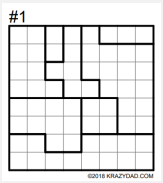
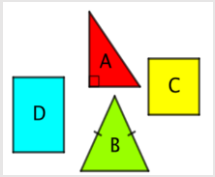
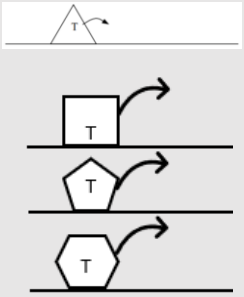
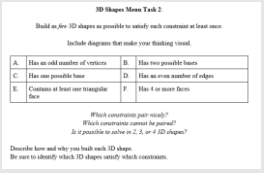
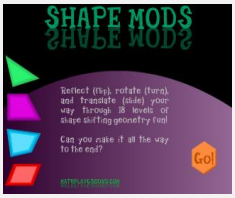
Math 4 - 6 Activities Menu I

Instructions: Each day, choose from the options below. Choose as many or as few as you have time for.

Curriculum Connections

Creating Futures, Leading and Learning for All

	A	B	C	D	E
Estimation	How Many Pizzas 	What Might Their Ages Be? 	How Long is the String? 	How Long? 	Which Has The Largest Product? 3.2 x 17 24 x 2.9 50 x 3.5 2.4 x 29 1.7 x 50 5.0 x 36
Talking about Math	Same but Different 	Two Truths and a Lie 	Hidden Meaning 	Fruity Totals 	What's The View? 
Activities / Games	Target 300 	Black Hole 	Baking At what time should you start making the bread for dinner? 	Star Battle Puzzles 	Hit the Target 
Problems	Rectangle Detective 	Alternate Dimensions 	Parking Lot Problem 	Rotating Polygons 	Menu-Math 
Technology	Hopper Hundredths 	Where Is One Whole Located? 	Shape Mods 	Factris 	Tangram Builder 

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.

Estimate How Much Pizza

https://twitter.com/rubiconpubs/status/1255535060457005057?s=20

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Sample Solution and prompts provided by Rubicon Publishing and Marian Small

SAMPLE RESPONSE

Sample Strategy 1

Students might estimate how many slices of pizza they have eaten in 3 months and adjust it if they think it is not a typical amount. They could multiply the result by the number of students in the class and divide by the number of slices in a small or large pizza.

E.g., I eat pizza about once a month. I usually have 2 slices, so I've had about 6 slices of pizza in the past 3 months. Some people might have more than 2 slices at a time, and some might have less, but I think 2 slices is pretty typical. There are 22 students in my class; I rounded 22 to 20 to estimate. My class has eaten about 20 × 6 = 120 slices of pizza in the past 3 months.
A small pizza might be cut into 4 pieces, and 120 slices would be 120 ÷ 4 = 30 pizzas.
A large pizza might be cut into 12 slices, and 120 slices might be 10 pizzas.

Sample Strategy 2

Students might estimate how many pizzas would be needed to feed everyone in the class. Then they might multiply that estimate by the number of times they think a typical student eats pizza in 3 months.

E.g., When we have pizza day at school, most people have about 2 slices of pizza. So, the 25 students in my class have about 50 slices altogether.
Since there are 8 slices in a medium pizza, I divided 50 by 8 to figure out the number of pizzas we eat altogether. There are 6 groups of 8 in 50, so we eat about 6 pizzas.
I usually eat pizza about once or twice a month, so that would be about 5 times in 3 months. I think that's pretty typical.
6 × 5 = 30
I think we've eaten about 30 pizzas.

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ADDITIONAL SUPPORT

What Could You Do If ...

Students find it difficult to decide how much pizza they have eaten, or is reasonable to eat, in 3 months.
You could ... Suggest that they break the time span down into smaller periods. For example, you could ask How often might someone eat pizza in 1 week? In 1 month?

Students worry about how many days or weeks there are in 3 months since not all months have the same number of days.
You could ... Reassure students that these numbers are estimates, so they don't need to worry about using exact numbers. The estimate won't be affected significantly by a day or two difference in a month.

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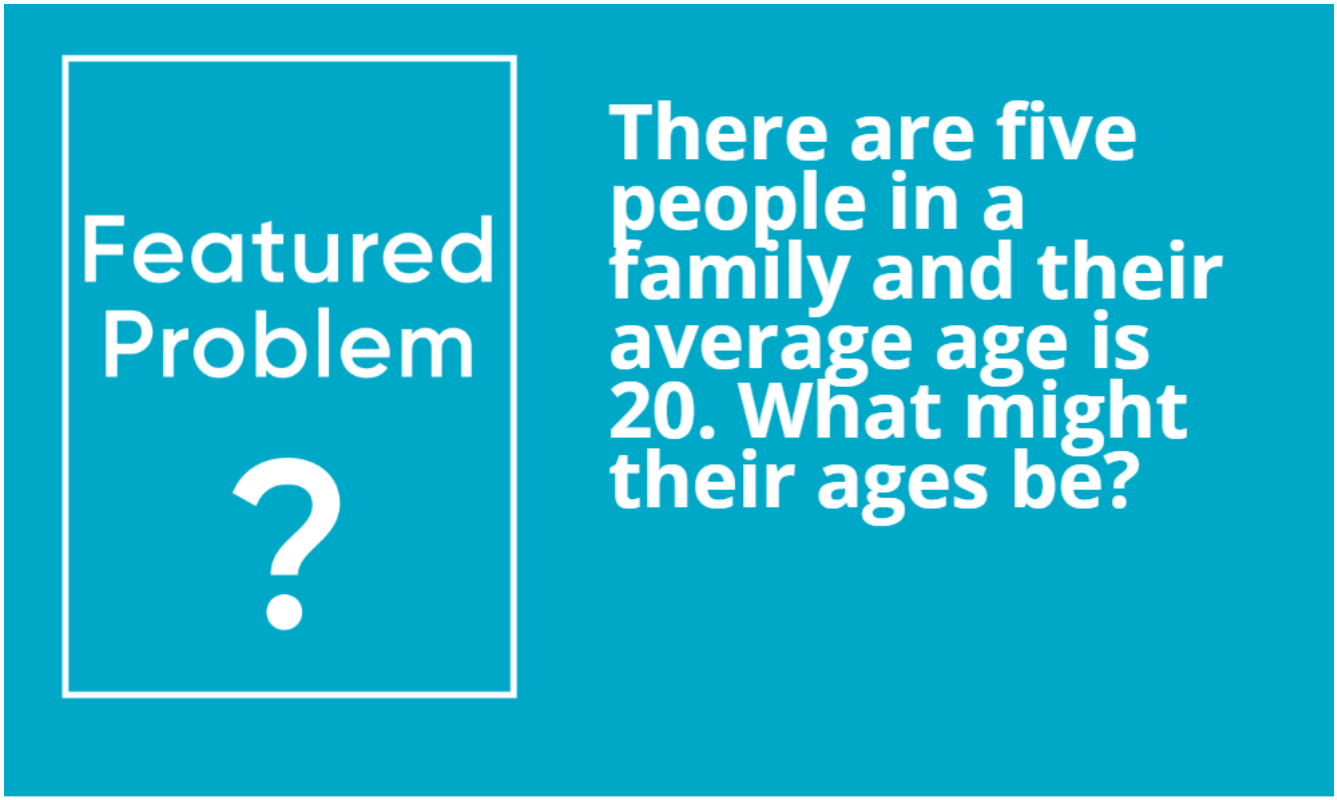
What Might Their Ages Be?



Things to Consider:

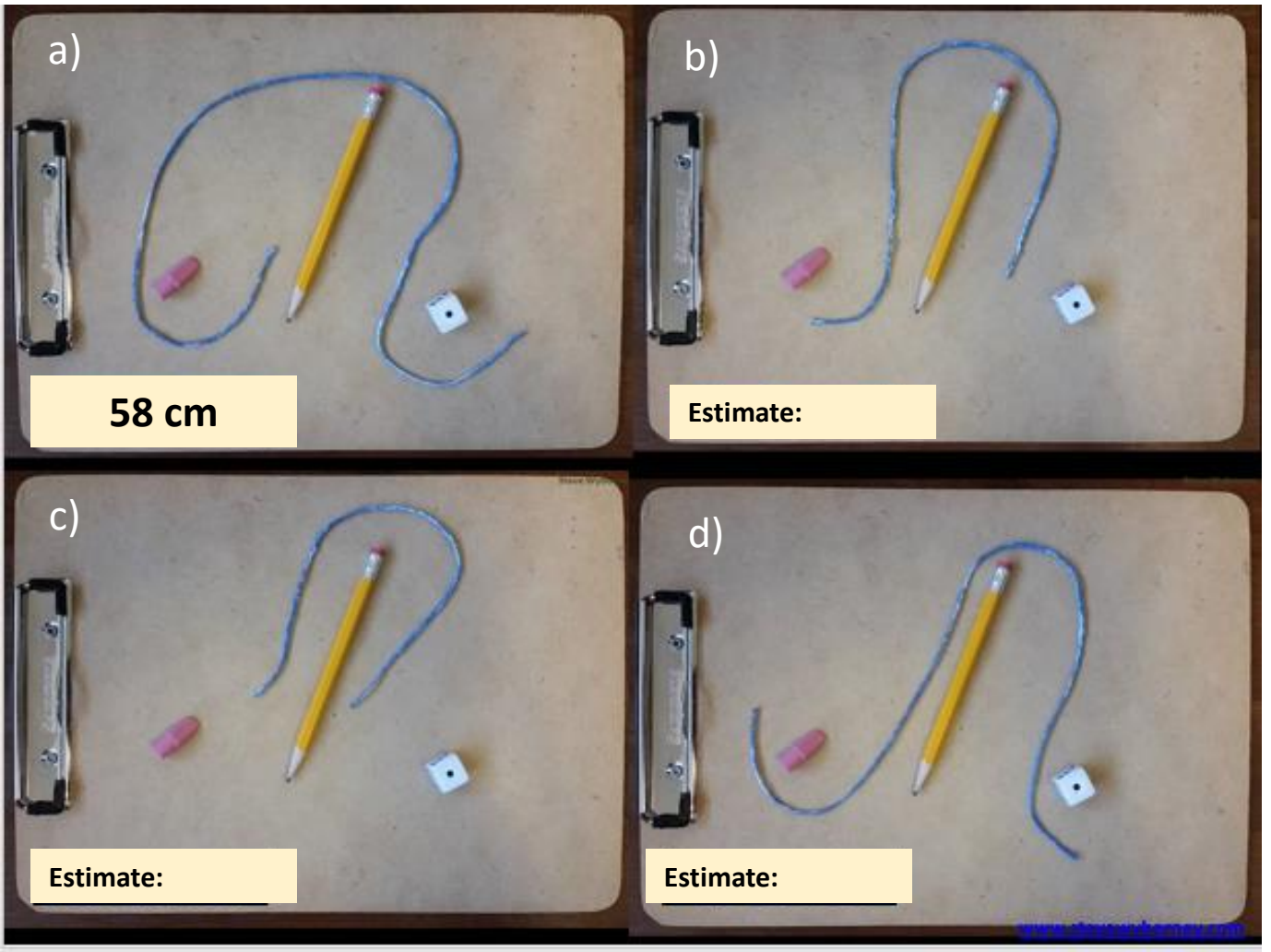
If children haven't worked on open questions before, they may be unsure how to get started. You can provide them access into this problem, by encouraging them to start with an easier problem. What if two people had an average age of 20? What might their ages be? Why? Encourage children to try that strategy for the problem with five people?

https://mathsolutions.com/at-home-learning-grades-5-6/

About How Long is Each String?

Activity from Steve Wyborney's Estimation Clipboards
https://stevewyborney.com/2018/04/the-estimation-clipboard/

For each image, give an estimate for the length of the string?
How did you come up with your estimate?



Actual lengths: b) 36 cm, c) 28 cm, d) 45 cm

How Long is “We Will Rock You?

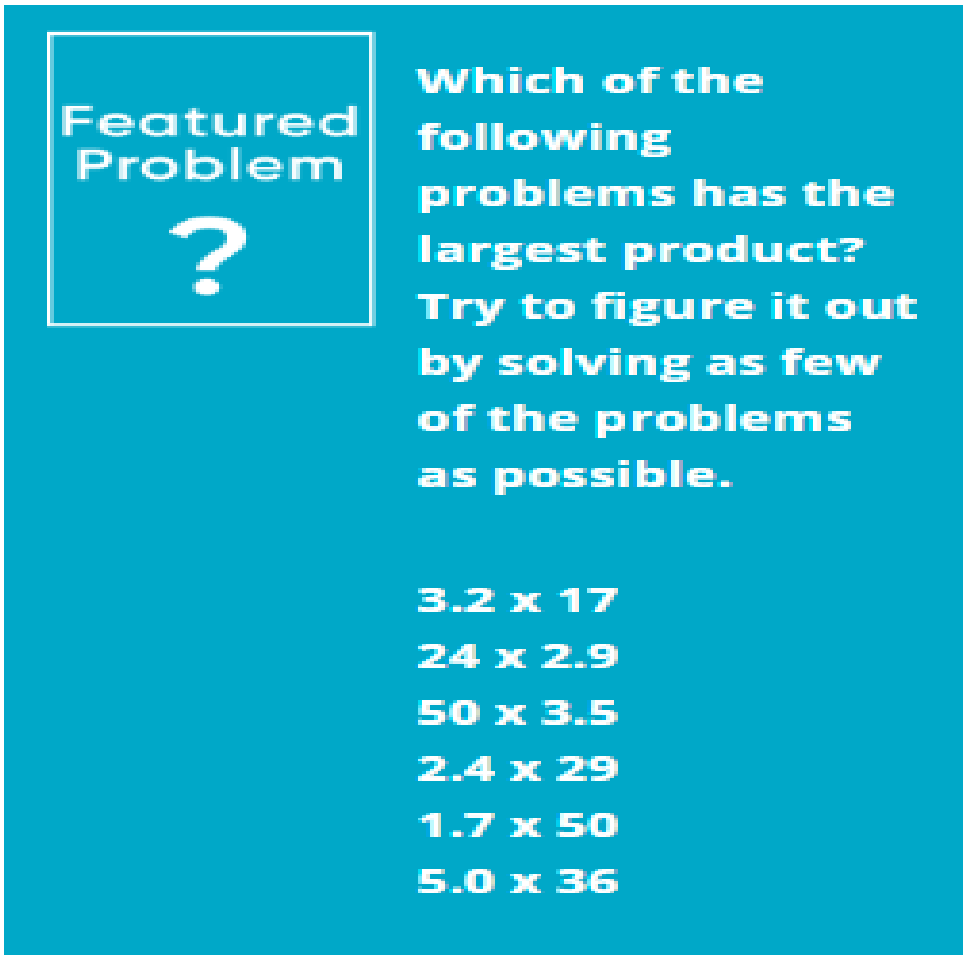
http://www.estimation180.com/day-129.html

Estimate the length of the song.

	Too Low	Too High	Just Right
Estimate			
Reasoning			

Verify your estimate here

Which Has The Largest Product?



Things to Consider:

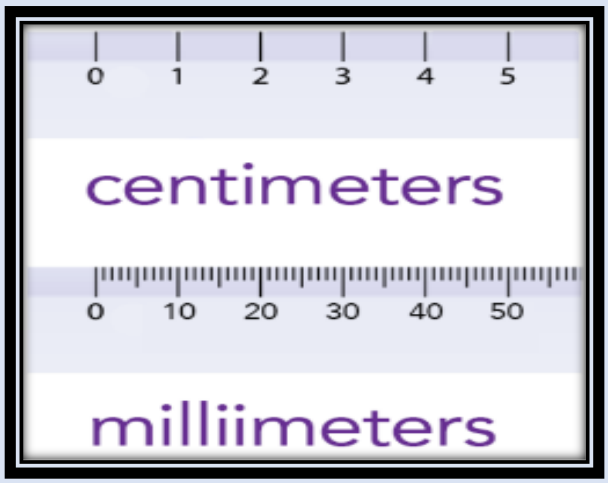
Using mental math and estimation helps students spot unreasonable answers and find errors in their calculations. Encourage students to first think about what they know about these numbers and to use mental math to predict which problem will result in the largest product. For instance, a student could mentally estimate 24 x 2.9 by thinking of it as 25 x 3. If students seem overwhelmed, start with a smaller set of problems, such as 50 x 3.5, 1.7 x 50, and 5.0 x 36.

https://mathsolutions.com/at-home-learning-grades-5-6/

Same but Different

How are the two images in each task the same?
How are they different?

Task 1



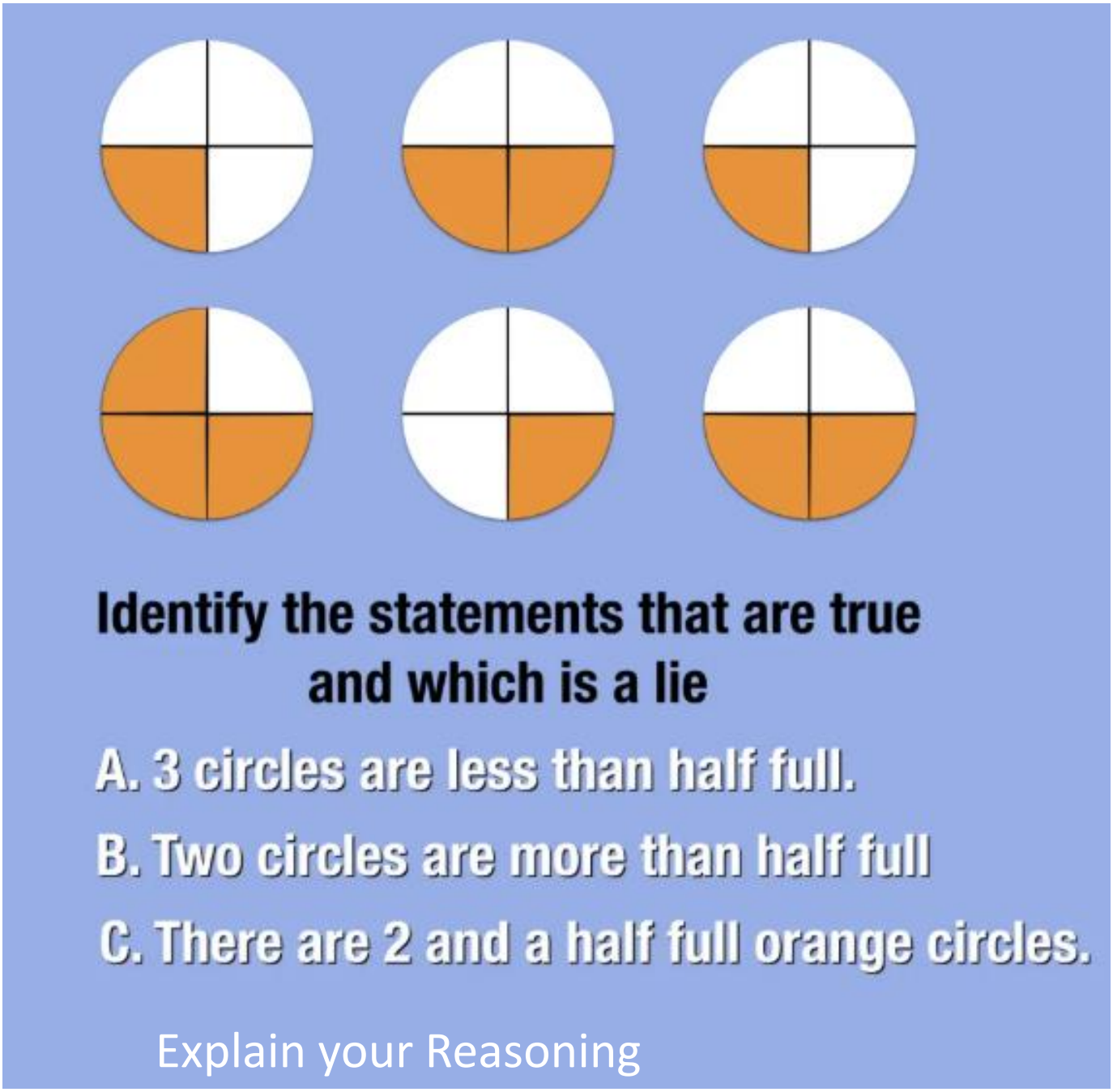
Task 2

What relationship can you identify between the two framed images?

https://www.samebutdifferentmath.com/measurement

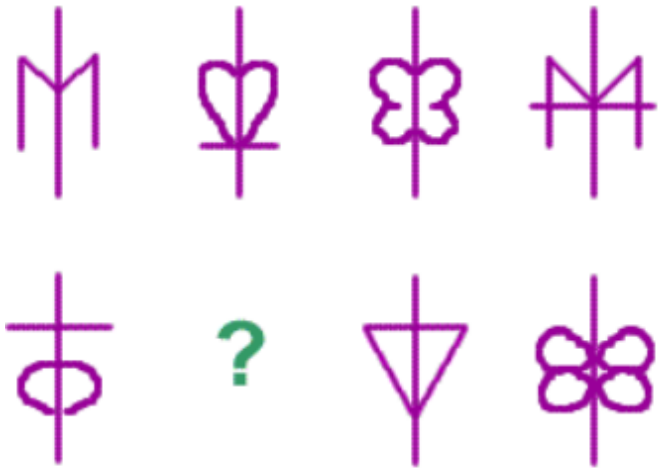
Two Truths and a Lie

http://mrorr-isageek.com/4-ways-to-use-two-truths-one-lie-in-any-math-class/



Hidden Meaning

Look carefully at the images below.
What do you notice? What do you wonder?



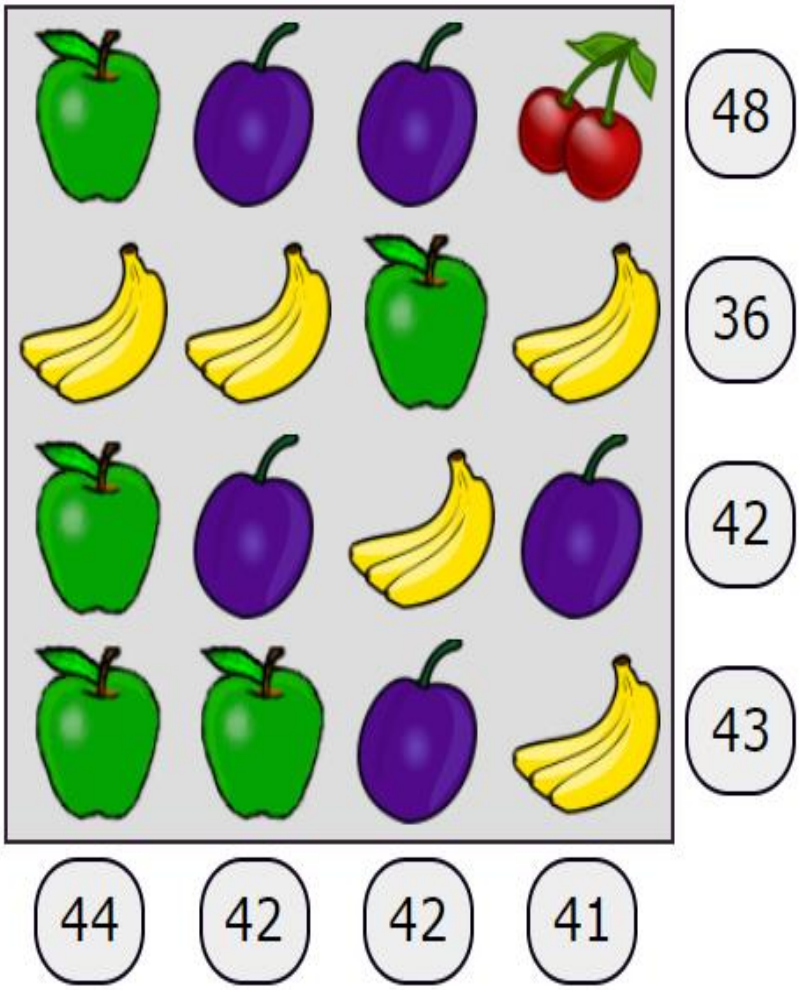
What is the missing image?
How would you describe the transformation within each image?

Now decode this in a similar way:

Create your own code using the strategies above. Challenge a family member to decipher your code☺

https://nrich.maths.org/2188

Fruity Totals

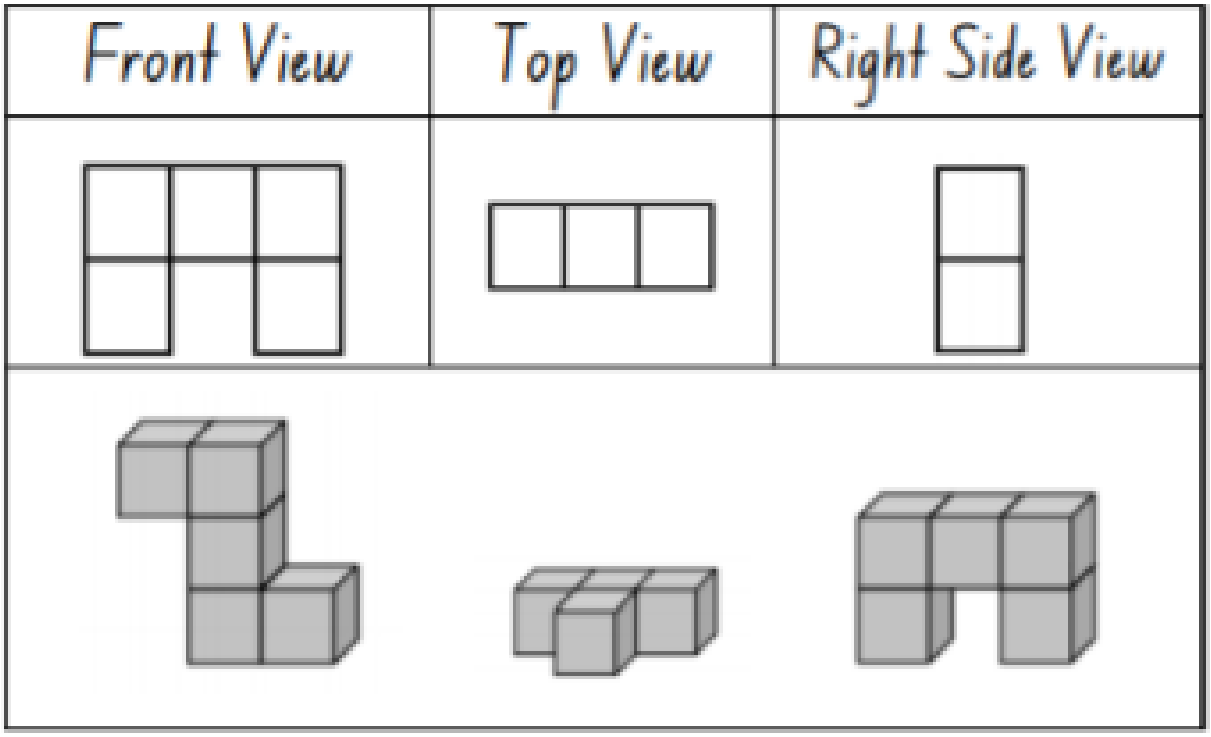


Each of the fruit has a value between 1 and 15 inclusive.
The sum of the fruit in each row and column is shown.

Click the link below for the solution and additional levels to challenge yourself:
https://nrich.maths.org/fruity

What's The View?

Which 3D model is represented by the front view, top view and right side view?
How do you know?
Which models could it be if you only saw the top view?



Click below for more practice:
http://www.mathsmentality.com.au/images/Front_Left_Right_Top_views_of_3D_objects.pdf

Target 300

You need:

A partner
1 die

Rules

The objective of the game is to be the player whose total is closest to 300 after six rolls of the die. This means that the total can be exactly 300, less than 300, or greater than 300. Each player must use all six turns.

1. Each player draws a two-column chart on a recording sheet as shown, one column for each player.
2. Player 1 rolls the die and decides whether to multiply the number rolled by 10, 20, 30, 40, or 50,m keeping in ind that each player will have six turns and the target amount is 300.
3. Both players write the multiplication sentence representing the first player's choice and product. For example, Player 1 rolls a 2 and multiplies it by 20, and both players write the multiplication sentence 2x20=40.
4. Player 1 hands the die to Player 2 and Player 2 follows the same steps as Player 1.
5. At the end of each turn, the player adds his new amount to his previous score to keep a running total.
6. At the end of siz turns, players compare scores to see whose score is closest to 300 and record underneath the chart:

Player 1	Player 2

Player 1	Player 2
2 X 20 = 40	

_____ won.
_____ was _____ points away from 300
_____ was _____ points away from 300

From Lessons for Extending Multiplication, Grades 4-5 by Maryann Wicket & Marilyn Burns. © 2001 Math Solutions Publications

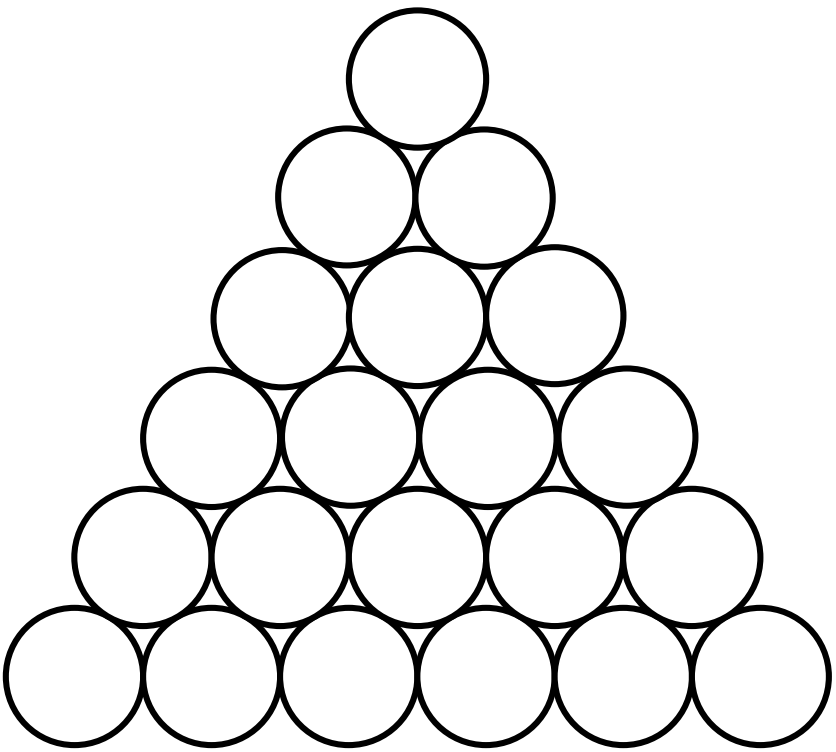
http://nsspta.org/wp/wp-content/uploads/2012/06/Math-Game-Target-300.pdfhttp://nsspta.org/wp/wp-content/uploads/2012/06/Math-Game-Target-300.pdf

Black Hole

Math with Bad Drawings Game #3

Instructions:

- ❑ Draw a pyramid of 21 circles. Draw six on the bottom row, five on top of that, four on top of that and so on.
- ❑ Then, take turns writing a 1 in the circle of your choice.
- ❑ After that, take turns writing 2, 3, and so on, in order. (You must write your numbers in order; no skipping ahead.)
- ❑ When you have each written your 10, there will be one circle left blank: the black hole.
- ❑ The black hole destroys all its neighbouring circles. Whoever has a greater sum of numbers left over – that is, whoever loses a smaller sum to the black hole – is the winner.



Scoring Sample from Math with Bad Drawings

Black Hole

Add up the sum of the numbers for each person, that are not blacked out.

Baking Bread

You are baking bread for your family. It takes 20 minutes to prepare, 55 minutes to bake and needs to cool for 45 minutes. At what time should you start making the bread if you want to eat it with dinner?

Try making this Soda Bread Recipe, by Ina Garten, for lunch or dinner. Recipe can be found here.

Ingredients	Instructions
4 Cups all purpose flour, plus extra if using currants 4 Tablespoons sugar 1 teaspoon baking soda 1 ½ teaspoons salt 4 Tablespoons cold unsalted butter, cut into ½ inch cubes 1 ¾ cup buttermilk ** 1 extra-large egg, lightly beaten 1 teaspoon grated orange zest ** If you don't have buttermilk. Put 2 Tablespoons Lemon juice, or vinegar, in a measuring cup and top up with milk to make 1 ¾ cup.	1. Read the recipe from start to finish. 2. Gather your required ingredients. 3. Preheat the oven to 375 degree Fahrenheit. 4. Line a cookie sheet with parchment paper. 5. Combine the flour, sugar, baking soda and salt in the bowl of an electric mixer fitted with the paddle attachment. 6. Add the butter and mix on low speed until the butter is mixed into the flour. 7. With a fork, lightly beat the buttermilk, egg, and orange zest together in a measuring cup. With the mixer on low speed, slowly add the mixture. 8. Combine the currants with 1 Tablespoon flour and mix into the dough. It will be very wet. 9. Dump the dough onto a well-floured board and knead it a few times into a round loaf. Place the loaf on the prepared sheet pan and lightly cut an X into the top of the bread with a serrated knife. 10. Bake for 45 to 55 minutes, or until a toothpick comes out clean. When you tap the loaf, it will have a hollow sound. 11. Cool on a baking rack.

Fry Bread is known by many different names by First Nations Peoples all over. Many people believe it is a “traditional food” of these peoples, but it isn’t. Fry Bread came to be at a time of great turmoil and suffering. It has come to represent so much more, though.

Watch the video provided below to understand more. Then maybe you can try your hand at helping make some.

Fry Bread

Star Battle Problems

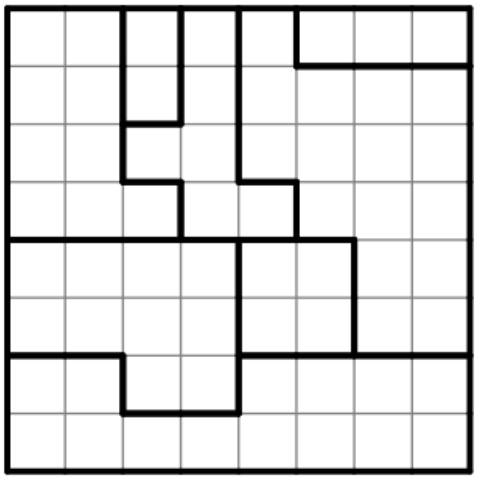
Created by KrazyDad https://krazydad.com/starbattle/

1 Star Battle Problems:

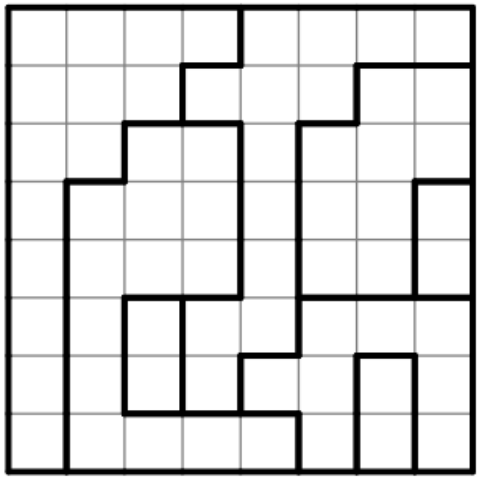
Each row, column and bolded area must contain only 1 star. Stars may not touch each other, even diagonally. When you place a star, you can eliminate all the other spaces in that row and column. Can you place each of the eight stars?

1 Star
For an in-depth tutorial click here.

#1



#2

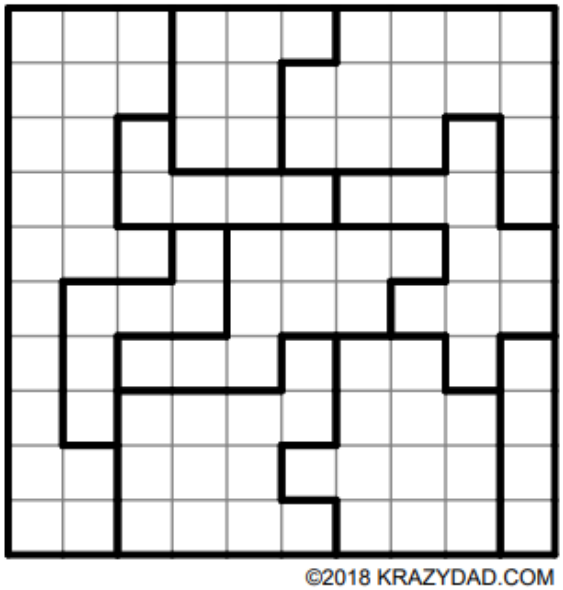


2 Star Battle Problems:

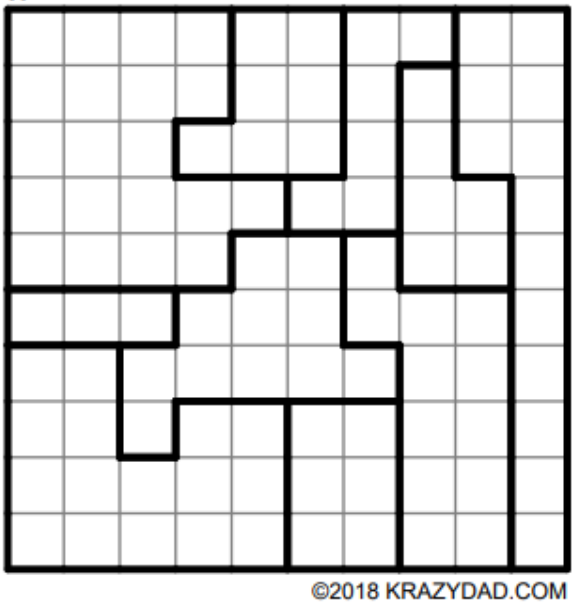
Each row, column and bolded area must contain exactly 2 stars. Stars may not touch each other, even diagonally. When you place a star, you can eliminate all the other spaces around it. Can you place each of the twenty stars?

2 Star
For an in-depth tutorial click here.

#3



#4



Hit the Target

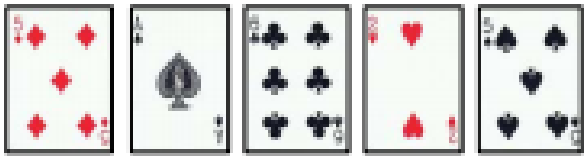
Activity from: Acing Math One Deck a Time

Players: Groups of two to five players

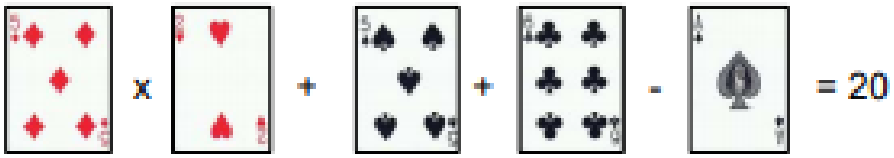
Materials: Deck of cards, Ace worth 1 or 11, Jack worth 12, Queen worth 13, King worth 14, scratch paper

Skill: Multiplication, addition, subtraction, division, order of operations, and mathematical reasoning

How to Play: Each group of 2 - 5 students selects a target number from 1-30. One of the players will turn five cards from the deck face up and the object is for students to make a number sentence using all five cards with any operations to reach the target number.



For example, suppose the target number is 20 and the cards in play are 5, 5, 6, 2, and Ace (worth 1).



One winning combination is: 5 x 2 + 5 + 6 - 1 = 20. Another is (6 x 5) - (2 x 5 x 1). Also, (6 ÷ 2) x 5 + (5 x 1) works, as do many more.

The first player to find a winning combination keeps the cards and chooses the next target number. If no combination is found in about a minute, flip over another card and try to make a combination using six cards.

To keep the game fair for players of different abilities, introduce the rule that if a player hasn't made a combination in three rounds, he or she may make combinations using four of the five cards until they make a winning combination; other players must use five.

Area of a Rectangle

https://twitter.com/rubiconpubs/status/1258057928814268419?s=20

Q The area of Rectangle A is twice the area of Rectangle B. The perimeter of Rectangle A is 20 units greater than the perimeter of Rectangle B. What could the dimensions of the two rectangles be?

How do you know?

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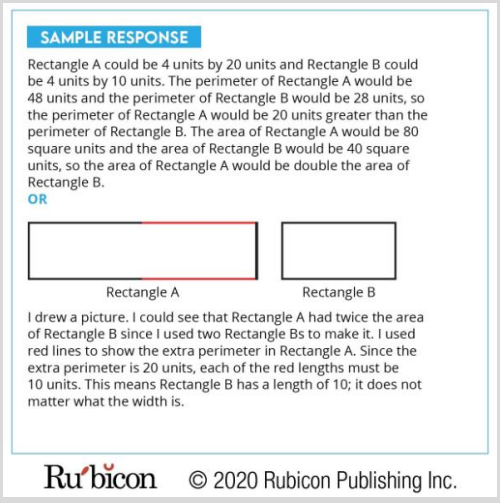
One potential solution as provided by Rubicon and Marian Small.



SAMPLE RESPONSE

Rectangle A could be 4 units by 20 units and Rectangle B could be 4 units by 10 units. The perimeter of Rectangle A would be 48 units and the perimeter of Rectangle B would be 28 units, so the perimeter of Rectangle A would be 20 units greater than the perimeter of Rectangle B. The area of Rectangle A would be 80 square units and the area of Rectangle B would be 40 square units, so the area of Rectangle A would be double the area of Rectangle B.

OR

Rectangle A Rectangle B

I drew a picture. I could see that Rectangle A had twice the area of Rectangle B since I used two Rectangle Bs to make it. I used red lines to show the extra perimeter in Rectangle A. Since the extra perimeter is 20 units, each of the red lengths must be 10 units. This means Rectangle B has a length of 10; it does not matter what the width is.

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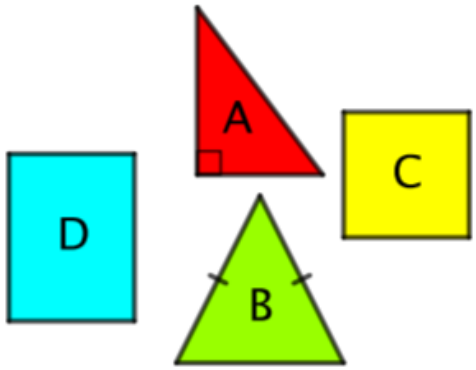
Problem of the Week

Problem B

Alternate Dimensions

The four shapes to the right are each drawn with a horizontal base and a vertical height. Figure A is a right-angled triangle, Figure B is an isosceles triangle, Figure C is a square, and Figure D is a rectangle. The figures are not drawn to scale.



Using the following clues, determine the measure of the (horizontal) base and the measure of the (vertical) height of each figure.

1. The measure of the base of Figure A is the same as the measure of the base of Figure D.
2. The measure of the base of Figure A is one unit less than the measure of the base of Figure B.
3. The side length of Figure C is the same as the measure of the base of Figure A.
4. The measure of the height of Figure B is the same as the measure of the height of Figure A and also the same as the measure of the base of Figure B.
5. The area of Figure C is 9 square units.
6. The total area of all four figures is 38 square units.

Click here for solution!

https://www.cemc.uwaterloo.ca/resources/potw/2019-20/English/POTWB-19-ME-PA-30-P.pdf

Parking Lot Problem

A parking lot permits either cars or motorcycles. All together the vehicles parked in a particular day have 60 wheels.

Use your reasoning and problem solving skills to find how many cars and how many motorcycles there could be in the parking lot this day.

How many possible combinations of cars and motorcycles can you identify? Explain your strategies in organizing the number of cars and motorcycles.

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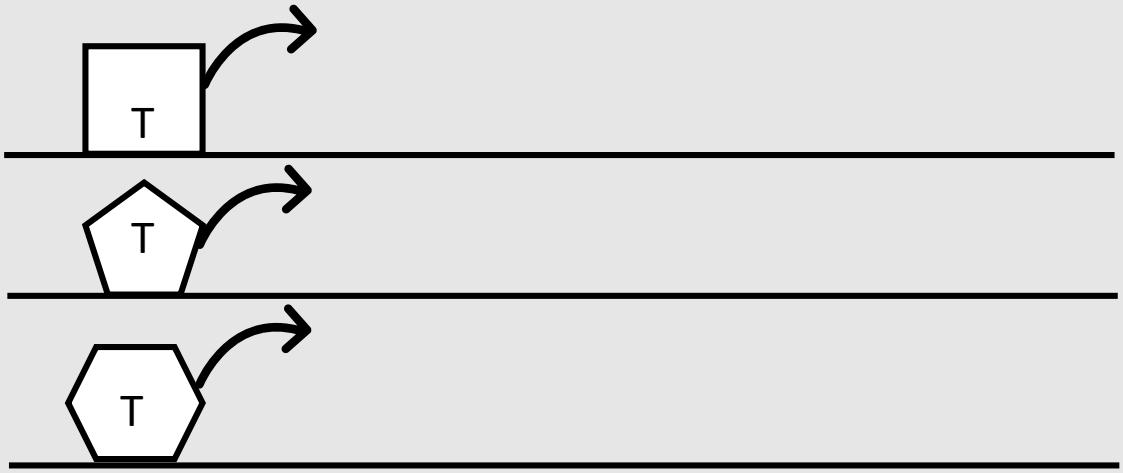
https://www.uky.edu/OtherOrgs/ARSI/www.uky.edu/pub/arsi/openresponsequestions/mathorq.pdf

Rotating Polygons

A demonstration model of a green pattern block (triangle) has a side length of 6cm. It is rolled to the right a number of times. If the triangle stops so that the letter "T" is again in the upright position, what possible distance could it have rolled?

Let's investigate other regular polygons moving in the same manner. What possible distance could the following shapes be rolled, keeping in mind the letter "T" is again in the upright position:



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https://www.uky.edu/OtherOrgs/ARSI/www.uky.edu/pub/arsi/openresponsequestions/mathorq.pdf

3D Shapes Menu Task 2:

Created by: Chad Williams.
Collected at: natbanting.com/menu-math & lapageadage.com/menu-math

Build as *few* 3D shapes as possible to satisfy each constraint at least once.
Include diagrams that make your thinking visual.

A.	Has an odd number of vertices	B.	Has two possible bases
C.	Has one possible base	D.	Has an even number of edges
E.	Contains at least one triangular face	F.	Has 4 or more faces

Which constraints pair nicely?
Which constraints cannot be paired?
Is it possible to solve in 2, 3, or 4 3D shapes?

Describe how and why you built each 3D shape.
Be sure to identify which 3D shapes satisfy which constraints.

Explore the potential of Menu Math.
More information, including the inspiration behind the tasks, can be found at Nat Bantings website http://natbanting.com/menu-math/

Grades 4 – 6: Curriculum Continuum

Note: highlighted expectations are addressed in this menu

	Grade 4	Grade 5	Grade 6
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 10 000, decimal numbers to tenths, and simple fractions, and represent money amounts to $100 ❒ demonstrate an understanding of magnitude by counting forward and backwards by 0.1 and by fractional amounts ❒ solve problems involving the addition, subtraction, multiplication, and division of single-and multi-digit whole numbers, and involving the addition and subtraction of decimal numbers to tenths and money amounts, using a variety of strategies ❑ demonstrate an understanding of proportional reasoning by investigating whole-number unit rates	❒ read, represent, compare, and order whole numbers to 100 000, decimal numbers to hundredths, proper and improper fractions, andmixed numbers ❒ demonstrate an understanding of magnitude by counting forward and backwards by 0.01 ❒ solve problems involving the multiplication and division of multi-digit whole numbers, and involving the addition and subtraction of decimal numbers to hundredths, using a variety of strategies; ❒ demonstrate an understanding of proportional reasoning by investigating whole-number rates.	❒ read, represent, compare, and order whole numbers to 1 000 000, decimal numbers to thousandths, proper and improper fractions, and mixed numbers ❒ solve problems involving the multiplication and division of whole numbers, and the addition and subtraction of decimal numbers to thousandths, using a variety of strategies ❒ demonstrate an understanding of relationships involving percent, ratio, and unit rate
Patterning and Algebra	❑ describe, extend, and create a variety of numeric and geometric patterns, make predictions related to the patterns, and investigate repeating patterns involving reflections; ❑ demonstrate an understanding of equality between pairs of expressions, using addition, subtraction, and multiplication	❑ determine, through investigation using a table of values, relationships in growing and shrinking patterns, and investigate repeating patterns involving translations; ❑ demonstrate, through investigation, an understanding of the use of variables in equations.	❑ describe and represent relationships in growing and shrinking patterns (where the terms are whole numbers), and investigate repeating patterns involving rotations; ❑ use variables in simple algebraic expressions and equations to describe relationships.
Measurement	❒ estimate, measure, and record length, perimeter, area, mass, capacity, volume, elapsed time, using a variety of strategies ❒ determine the relationships among units and measurable attributes, including the area and perimeter of rectangles.	❒ estimate, measure and represent time intervals to the nearest second estimate and determine elapsed time, with and without using a time line, given the durations of events expressed in minutes, hours, days, weeks, months, or years ❒ measure and record temperatures to determine and represent temperature changes over time ❒ estimate and measure the perimeter and area of regular and irregular polygons, using a variety of tools and strategies.	❒ estimate, measure, and record quantities, using the metric measurement system; ❒ determine the relationships among units and measurable attributes, including the area of a parallelogram, the area of a triangle, and the volume of a triangular prism.
Geometry and Spatial Sense	❑ identify quadrilaterals and three-dimensional figures and classify them by their geometric properties, and compare various angles to benchmarks; ❑ construct three-dimensional figures, using two-dimensional shapes; ❑ identify and describe the location of an object, using a grid map, and reflect two-dimensional shapes	❒ identify and classify two-dimensional shapes by side and angle properties, and compare and sort three-dimensional figures; ❒ identify and construct nets of prisms and pyramids; ❒ identify and describe the location of an object, using the cardinal directions, and translate two-dimensional shapes	❒ classify and construct polygons and angles; ❒ sketch three-dimensional figures, and construct three-dimensional figures from drawings; ❒ describe location in the first quadrant of a coordinate system, and rotate two-dimensional shapes
Data Management and Probability	❒ collect and organize discrete primary data and display the data using charts and graphs, including stem-and-leaf plots and double bar graphs ❒ read, describe, and interpret primary data and secondary data presented in charts and graphs, including stem-and-leaf plots and double bar graphs ❒ predict the results of a simple probability experiment, then conduct the experiment and compare the prediction to the results	❒ collect and organize discrete or continuous primary data and secondary data and display the data using charts and graphs, including broken-line graphs ❒ read, describe, and interpret primary data and secondary data presented in charts and graphs, including broken-line graphs ❒ represent as a fraction the probability that a specific outcome will occur in a simple probability experiment, using systematic lists and area models.	❒ collect and organize discrete or continuous primary data and secondary data and display the data using charts and graphs, including continuous line graphs; ❒ read, describe, and interpret data, and explain relationships between sets of data; ❒ determine the theoretical probability of an outcome in a probability experiment and use it to predict the frequency of the outcome.