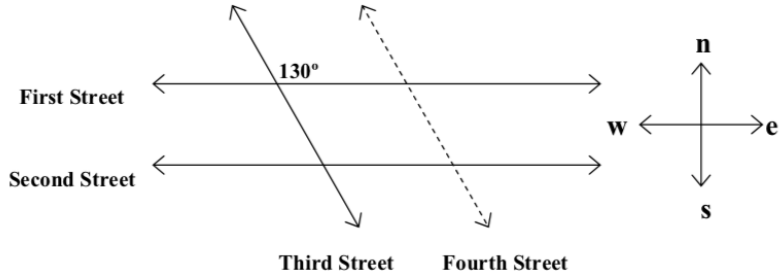
Further Work with Angles		Further Work with Angles
The mayor wants another road to be built parallel to Third Street. What does the angle measure need to be for the southeast part of the intersection of First and Fourth Street?  		One supplementary angle is 12 degrees less than twice the other. Find the two supplementary angles.
Further Work with Polygons		**Further Work with Polygons**
A bird sanctuary sets up its watchtowers for bird watching so that each one can see the adjacent tower. The field of vision of a watchtower is 120°. If all the watchtowers have the adjacent watchtowers just at the edge of their field of vision, and they are all evenly spaced apart, what regular polygon will they form?		Archeologists unearthed parts of two adjacent walls of an ancient castle. Before it was unearthed, they knew from ancient texts that the castle was shaped like a regular polygon, but nobody knew how many sides it had. Some said 6, others 8, and some even said 100. From the information in the figure, how many sides did the castle really have? 

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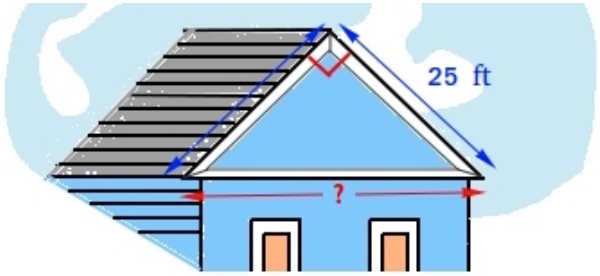
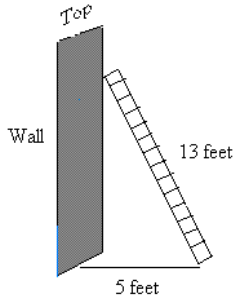
Pythagoras		Pythagoras
The diagram below shows the roof of a house. Suppose you need to replace a beam that connects the two sides of the symmetrical roof. How long should the beam be?  		Javier leaves school to go home. He walks 6 blocks North and then 8 blocks west. How far is Javier from the school?
Pythagoras		**Area and Perimeter**
A 13 feet ladder is placed 5 feet away from a wall. The distance from the ground straight up to the top of the wall is 13 feet. Will the ladder reach the top of the wall?  		Rajan's garden is 8 feet long and 2 feet wide. What is the total area of his garden?

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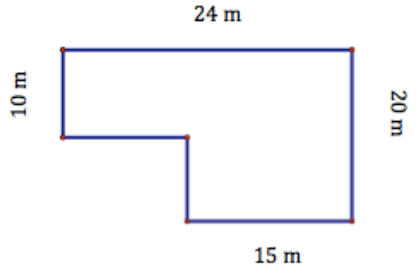
Area and Perimeter		Area and Perimeter
Kingston is getting fencing for his garden. His garden is 3 meters long and 4 meters wide. How many meters of fencing will he need?		Elijah and Carlos are making a race for field day. Below is a map of the course. How many meters is the course? Alayanna wants to plant wild flowers in the area enclosed by the race. How many square meters would they plant flowers? 
Area and Perimeter		**Area and Perimeter**
Maya and Ella are sisters. They are having an argument about who has the bigger room. Maya's room is 10 feet by 16 feet. Ella's room is 12 feet by 14 feet. Who has the bigger room and how do you know?		Maricela's mom is ordering new carpet for the living room. Maricela measures the room and finds that it is 20 feet long and 18 feet wide. The carpet her mom picked out is $8 per square foot. How much will it cost to carpet the whole room?

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Area and Perimeter		Area and Perimeter
Mateo has a triangular-shaped plot of land that has a base of 15 meters and a height of 6 meters. Evy has a rhombic-shaped plot of land with one diagonal measuring 8 meters and the other diagonal measuring 10 meters. Who has a larger plot of land? Explain how you know.		Halayna is tiling a patio. She wants it in the shape of a regular hexagon with side lengths of 45.6 centimeters. Tiles are sold in square centimeters. How much tile will she need?
Circle (Area and Circumference)		**Circle (Area and Circumference)**
Titan is making a pie for π day. He served his pie on a 14-inch diameter dish. He wants to make the dish more festive by tying a ribbon around it, how much ribbon will he need?		Nonah wants to break the world record for baking the largest pie. If she makes the pie with a 20-foot diameter, then how much space would it take up?

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Volume and Surface Area		Volume and Surface Area
Lola is making paper boxes. Her favorite box measures 2.2 cm by 4.6 cm by 3.3 cm. How much paper does it use?		Harrison is building a raised garden bed in his backyard. The bed will be $3\frac{1}{2}$ feet wide, $6\frac{1}{4}$ feet long, and 2 feet deep. How much soil will he need to fill it?
Volume and Surface Area		**Volume and Surface Area**
Shrey is studying pyramids of the world and their sizes. He decides the best way to compare the pyramids is by volume. The Pyramid of Cestius has a square base of 29.6 meters and a height of 37 meters. One of the pyramids of Giza, Khufu, has a square base of 230.34 meters and a height of 146.7 meters. How much larger is the pyramid Khufu than the pyramid Cestius?		Mukuhi is looking to purchase sunscreen. Which bottle is a better deal? How do you know? 

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Commutative and Distributive Properties		Commutative and Distributive Properties
Moseh is planting a vegetable garden. He plants 5 rows of kale with 4 plants in each row and 4 rows of lettuce with 5 plants in each row. Does he have more kale or more lettuce? Which property of multiplication does this demonstrate?		A basketball uniform consists of a jersey and shorts. The jerseys cost $24 and the shorts cost $15. Use the distributive law to show what it would cost to purchase uniforms for 18 players.
Multiples and Factors		**Multiples and Factors**
In a room there are two cuckoo clocks. The cuckoo in the first clock pops out every 7 minutes and the one in the second clock every 8 minutes. They both popped out at 12 noon. At what time will they next pop out together?		What is the smallest number of sweets a shopkeeper could buy so that he could pack all of them in bags containing either 12 or 14 sweets?

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Multiples and Factors		Multiples and Factors
Qamar is knitting blankets. In row one, the pattern is worked in multiples of 8. In row two, the pattern is worked in multiples of 6. Qamar wants to make 3 blankets of different sizes. How many stiches could he cast on that would work for both rows one and two of his pattern?		What is the smallest number of football players that can be made into teams of 10 or 12 (leaving nobody out)?
Multiples and Factors		**Multiples and Factors**
What is the shortest length of wire that can be cut into pieces of 3m, 5m, or 10m with no wire left over?		A choir director wants to divide the choir into smaller groups. There are 24 sopranos, 60 altos, and 36 tenors. Each group will have the same number of each type of voice. How many groups can the choir director make?

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Multiples and Factors		Multiples and Factors
Ming has 15 quarters, 30 dimes and 48 nickels. He wants to group his money so that each group has the same number of each coin. What is the greatest number of groups he can make?		Morgan has 20 table tennis balls and 16 table tennis paddles. She wants to sell packages of balls and paddles bundled together. What is the greatest number of packages she can sell with no leftover balls or paddles?
Multiples and Factors		**Multiples and Factors**
A florist has 36 roses, 27 tulips, and 18 carnations she must use to create bouquets. What is the largest number of bouquets she can make without having any flowers left over?		Say you have 60 pencils, 90 pens and 120 tablets and you want to make packages of pencils, pens and tablets to donate to students who cannot afford these supplies. What is the maximum number of packages you can make using all items?

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Divisibility		Divisibility
Candy Land has 2,304 chocolate covered cherries. The chocolates will be sold in bags of less then 10 chocolates. How could they choose to package the chocolates so that the bags are all the same and there are none left over?		Olive and Lilah were digging outside at recess and found a treasure chest. Inside, there were 2,874 gold coins. Can they share the coins evenly between themselves and their favorite teacher, Amber, without there being any left over?
Measurement		**Measurement**
Madiba is measuring two line segments. The first line segment is 30 cm long. The second line segment is 500 mm long. How long are the two line segments together?		Marius rode 2 kilometers on his bike. His sister Larissa rode 3000 meters on her bike. Who rode the farthest and how much farther did they ride?

Operations		Operations
Yathziry gave everyone in the class 14 grapes. There are 24 students in the class. How many grapes did she give out?		Lucia bought 6 bags of chicken feed for her chickens for $42.00. Each bag cost the same amount. How much did each bag of chicken feed cost?
Operations		**Operations**
NaJiahya did gymnastic tricks for her gym fundraiser. She collected $132. She did 12 tricks. How much did she receive for each trick?		Senetneb skis down the hill 14 times each morning and 11 times each evening. How many times will she ski down the hill in 5 days?

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Operations		Operations
Maryama counts the doors and windows in a city block downtown Saint Paul. In one building, she counts 41 windows and 16 doors. She noticed that all five buildings on the block have the same number of doors and windows. How many windows and doors are there in all?		Rana went to the zoo to watch the keepers feed the animals. While she was watching the Giant Pandas, she asked the zookeeper how much bamboo each panda ate. He said, "Ling-ling eats 32 pounds of bamboo a day. Xing-ling eats 53 pounds a day." How many pounds of bamboo does the zoo need to have to feed these two Giant Pandas for the month of January?
Operations		**Operations**
Murray enjoys looking at the dinosaur exhibit at the museum. He noticed that the length of the sauropod at the end of the Jurassic period could be as long as 40 meters. He asked the curator how many sauropods would fit end to end inside the exhibit. The curator told him that four and one half would fit inside the exhibit hall. How long is the exhibit hall?		Ava was doing research on bats. She found out that there were 1,200 different species of bats in the world. Of these different types of bats, 770 eat insects. Most of the remaining bats are frugivores, which means that they eat fruit. Only about 27 different species eat things other than fruit or insects. How many different species of bats are fruit eaters?

Operations		Operations
Samantha the hippo weighed 2,230 pounds. Her baby Tiny, weighed 537 pounds. The zookeeper needs to order a strong enough trailer for both hippos. How much did Samantha and Tiny weigh together?		Brenda the Brave sets off to climb a mountain, which is 12,000 feet high. She plans to climb 5,000 feet each day, before resting for the night. A mischievous mountain spirit, however decides to test Brenda's resolve. Each night, Brenda's sleeping bag, with her soundly asleep in it, is magically moved 2,000 feet back down the mountain. How many days does it take her to climb the mountain?
Operations		**Squares and Cubes of Numbers**
In a video game, Calissa has collected 1,347 items for her village. Donovan has the same game. He has collected 974 items for his village. How many more items does Calissa have than Donovan?		Cedar makes a quilt square that measures 6 inches on one side, Alanis makes 3 squares that each measure 4 inches on one side, and Ethan makes 6 squares that each measure 2 inches on one side. Can they sew their squares into a rectangle? Make a sketch of their quilt. If they sew their squares together, what would the area of their quilt be?

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Squares and Cubes of Numbers		Fractions
Eamon and Crosby are building a model city with 1.5-inch cubes. Eamon makes a solid tower that measures 2 cubes wide, 3 cubes long, and 4 cubes high. Next to it, Crosby makes a square field with 4 cubes on one side. How many cubes did they use altogether?		Alice knit 6 scarves this winter. She used 9 skeins of yarn. How many skeins of yarn did each scarf take?
Fractions		**Fractions**
At Jahari's farm $\frac{4}{5}$ of his cats are black and $\frac{1}{5}$ of his cats are white. How many more of his cats are black than white?		Nyla picked $3\frac{1}{3}$ pounds of beans off her bean plants in her garden. She also picked $1\frac{5}{8}$ pounds of strawberries. How many pounds of beans and strawberries did she pick?

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Fractions		Fractions
Jaylen mows his Grandmother's lawn. He mowed $\frac{1}{4}$ of it on Saturday and $\frac{1}{2}$ of it on Sunday. How much does he have left to mow?		William tried to make a basket 21 times while practicing basketball. He made a basket $\frac{2}{3}$ of the time. How many baskets did he make?
Fractions		**Fractions**
Lemon, our class gecko, weighs $12\frac{1}{4}$ ounces. Lightning, the blue-tongued skink in our neighboring class, weighs $5\frac{1}{4}$ ounces. How many more ounces does Lemon weigh than Lightning?		Alison has 3 tomato plants. One is called Big Boy, one is called Bushel Boy, and one is called Cherrie Boy. Big Boy produced 66 tomatoes. Bushel Boy produced 33 tomatoes. Cherrie Boy produced 99 tomatoes. What is the fraction of tomatoes produced between Big Boy and Cherrie Boy? What is the fraction of tomatoes produced between Bushel Boy and Cherrie Boy?

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Decimal Fractions		Decimal Fractions
Padee's sunflower plant grew 120.54 cm over the summer. When she planted it in May it measured 12.009 cm in height. How tall was her sunflower plant at the end of the summer?		Raven's tomato plant measured 15.035 cm when she planted it in May. By August it was 85.16 cm tall. How much did her plant grow from May to August?
Squaring and Cubing or Roots		**Squaring and Cubing or Roots**
Ezra has a square bedroom. He measures one wall to be 3 meters. What is the area of his bedroom?		A square placemat has an area of 169 square inches. Thalia wants to decorate the mat with some ribbon around the edges. Ribbon is sold by the foot. How many feet of ribbon will she need to buy?

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Squaring and Cubing or Roots		Squaring and Cubing or Roots
Marionna made a cube box that measures 24.5 cm on one side. She wants to fill it with sand. How much sand will she need?		Abbigayle has a swimming pool that is a perfect cube. It has a volume of 4,096 cubic feet. What are the dimensions of her pool?
Signed Numbers		**Signed Numbers**
Miriam's credit card statement showed that she owed $250. She made a payment of $200, then she charged $38 for gasoline. She returned a bathing suit for a refund of $15. What is her new balance?		The population of a small town is changing at a rate of -255 people per year. How long will it take for the change in population to be -2,040 people?

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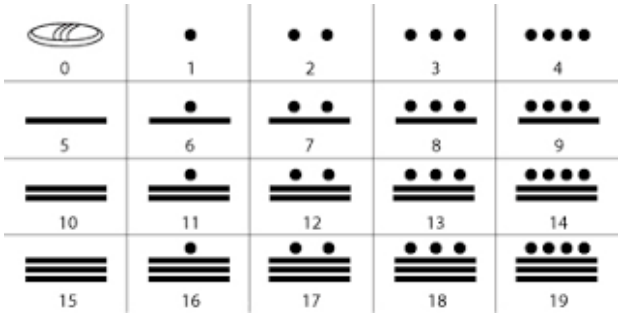
Signed Numbers		Signed Numbers
Antarctica is coldest place on Earth. The temperature on the coast is -10℃ and it is 50° colder at the highest elevations in the interior. What is the temperature at the highest elevations of the interior?		Yakutsk, Russia is the coldest major city on Earth. On Monday, the temperature was 16°F. The temperature fell 5 degrees everyday for a week. What was the temperature the following Monday?
Powers of Numbers		**Powers of Numbers**
Jason has 25 minnows. He expects the population to triple every year. How many minnows will he have in 5 years?		Alvance is studying a species of bacteria. It starts with two cells, but doubles in size every hour. How many cells will there be after 6 hours?

Other Number Bases		Other Number Bases
 Mayans used a base 20 number system as illustrated above. Using this chart, how would the Mayans write the number 425?		Milo is working on a computer program that uses binary (base 2). Milo wants to write the number 45 in binary. What would he write?
Other Number Bases		**Ratio and Proportion**
Raphael's class wants to know how old he is. He claims to have been raised by aliens with three fingers, who therefore use a base 3 number system. He says he is 1112 in base 3. How old is he in base 10?		Jasmine and wisteria are the Nakamura family's two favorite flowers, planted in rows in their Japanese flower garden. Of every 21 rows, 16 are jasmine. If they have 40 rows of wisteria, how many rows of jasmine do they have?

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Ratio and Proportion		Ratio and Proportion
Medieval coins are made of various metals and have different values. For example, 1 schilling = 6 pfennigs, and 2 pfennigs = 4 hellers. Find the value of 3 schillings and 8 hellers in terms of pfennigs. How many hellers are in a schilling? How many pfennigs equal 8 hellers? If King Arthur has 3 schillings and King George has 2 pfennigs and 6 hellers, which king's coins have more value? If a loaf of bread costs 2 hellers and you give the baker a schilling, how much change will you get?		If Bakisa works for an hour and a half, she can make one and a half quilt squares. If she works 7 hours a day for 12 days, how many quilt squares will she make?
Algebra		**Algebra**
Write an expression to represent the following situation. Marlene is having a birthday party. She wants to give each friend a gift bag with a large candy bar and a notebook. Write an expression that would show the total cost (c) if each large candy bar costs $1.40 and notebooks cost $2. Use n to represent the number of friends she invites.		At the store, you find a pair of jeans and a t-shirt. Together, they'll cost $80.20. The jeans cost three times the cost of the t-shirt. How much does each cost? Write an equation to represent this problem.

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Time		Time
Rashad started reading his new book at 11:45 am. It was so interesting that he couldn't put it down. At 12:50 pm he finished reading the last page. How long did it take Rashad to read the entire book?		Erick's kitchen sink got clogged, so he called a plumber. The plumber arrived at 3:45 pm and finished fixing the sink at 5:05 pm. How long did it take the plumber to fix the sink?
Time		**Time**
Jess left the house at quarter to noon. She went to the post office, returned books to the library, and bought groceries at the store. She returned home at quarter past two in the afternoon. How long was she running errands?		Marayah went to a basketball game. The game started at a quarter to three and lasted for three hours and fifty minutes. What time was it when the game ended?

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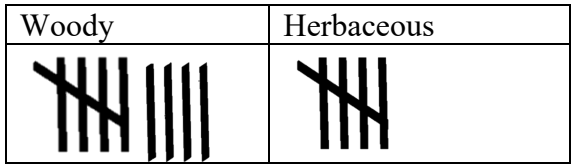
Money		Money
Thiago has $48.00- 2 twenty dollar bills, 1 five dollar bill and 3 one dollar bills. He wants to change them to as many five dollar bills as he can. How many five dollar bills will he have?		Iman bought a bike that cost $109.99. The tax he paid was $1.70. How much did he pay altogether?
Money		**Money**
For her trip to Widji, Estefani bought some new hiking boots for $29.95. She also bought a rain poncho for $13.66 and sunglasses for $7.88. There was no tax. What was her total bill?		Nemo bought a sleeping bag for his trip to Eagle Bluff. It cost $37.84. He gave the clerk 2 twenty-dollar bills. There was no tax. How much change did he get back?

Percent		Percent
At the sewing store, Junia bought a bag of mixed buttons. The bag included 80 buttons, of which 20% were large. How many large buttons did Junia get?		At the craft store, Weston bought a bag of brown and yellow marbles. The bag contained 10 marbles, and 40% of them were brown. How many brown marbles did Weston receive?
Percent		**Data Analysis**
A bookstore has 50 employees. 10% of the employees work part-time. How many part-time employees does the bookstore have?		Emerson and Curran went around to all the classes and made a tally chart for woody and herbaceous stem plants.  How many more woody stems were there then herbaceous stems?

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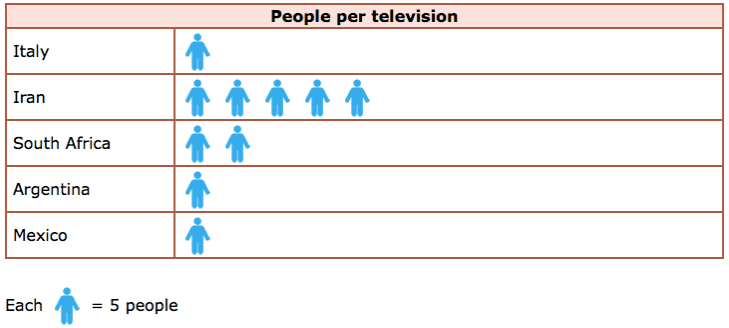
Data Analysis		Statistics/Probability
According to the pictograph below, how many televisions per person are in South Africa?  		Griffin is doing a survey with the oldest children in his class about their screen time per week. Here were the results (in hours): 7, 9, 8, 8.5, 7, 7, 4.5, 7, 7, 35 What is the mode for his data set? What is the mean? Which number better describes how much time his classmates spend on screen time? Explain your answer.
Statistics/Probability		**References for visuals, accessed January 2020**
Jovany is doing a magic trick with playing cards. He asks Jaden to pick a card. Then he takes it and shuffles it back into the deck. What is the probability that he can randomly select Jaden's card from a standard deck of cards?		https://www.basic-mathematics.com/pythagorean-theorem-word-problems.html https://studyres.com/doc/1758878/word-problems http://mtcorps.pbworks.com/f/2010June29-PreAlg3b-missinganglesLP.pdf https://www.uen.org/core/math/downloads/7thGrade_Ch06_StudentWorkbook.pdf https://www.bigideasmath.com/protected/content/ipe/grade%207/07/g7_07_03.pdf IXL.COM

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