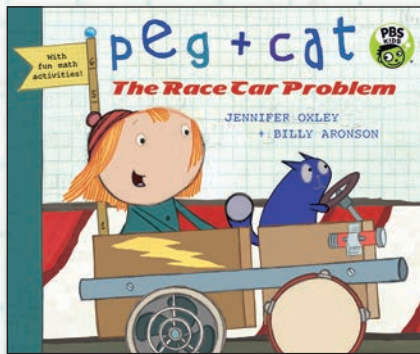


peg + cat

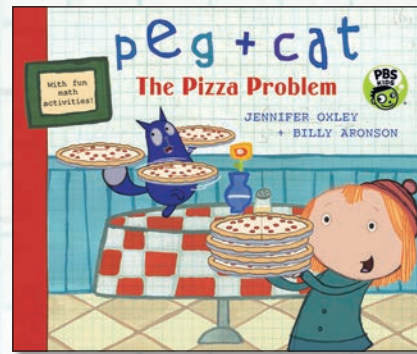
by Jennifer Oxley and Billy Aronson

About the Series

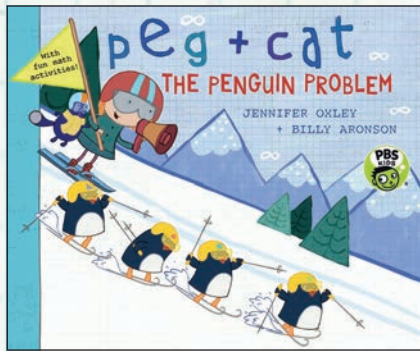
Peg and Cat, stars of their own PBS Emmy Award-winning animated TV series, zoom into picture books with adventures that test their math skills. Use this winning duo in your classroom to develop these same skills with your students!



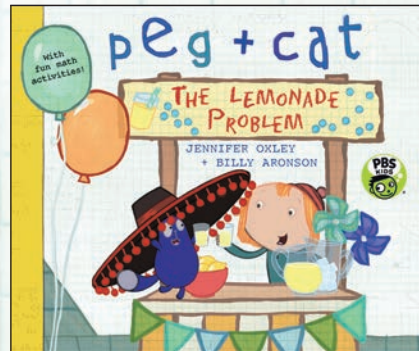
HC: 978-0-7636-7558-5
PB: 978-0-7636-9083-0



HC: 978-0-7636-7559-2
PB: 978-0-7636-9246-9



HC: 978-0-7636-9073-1



HC: 978-0-7636-9436-4

Common Core Connections

Activities in this guide were developed to correlate with specific Common Core Math Standards.

For more information on specific standards for your grade level, visit the Common Core website at www.corestandards.org.

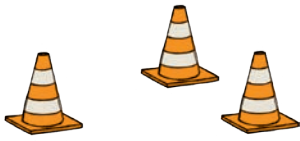
This guide was prepared by Christine Size, Elementary Math Coordinator at the Westwood Public Schools in Massachusetts.

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COMMON CORE CONNECTIONS

Content awareness and skills addressed include:

K.G.A.1, K.G.B.4–5 Identify and describe shapes. Analyze, compare, create, and compose shapes.

1.G.A.1 Distinguish between defining attributes versus non-defining attributes; build and draw shapes to possess defining attributes.

SMP 3 Construct viable arguments and critique the reasoning of others.

Peg + Cat: The Race Car Problem

Peg + Cat: The Race Car Problem is centered on the lively Peg and her cat, Cat, who work together to make a race car and persevere to win the Tallapegga Twenty car race. Students will enjoy listening to this fun book while exploring themes of geometry and numbers up to twenty. The two corresponding activities tie in to the action of the book and can be used during or after the reading.

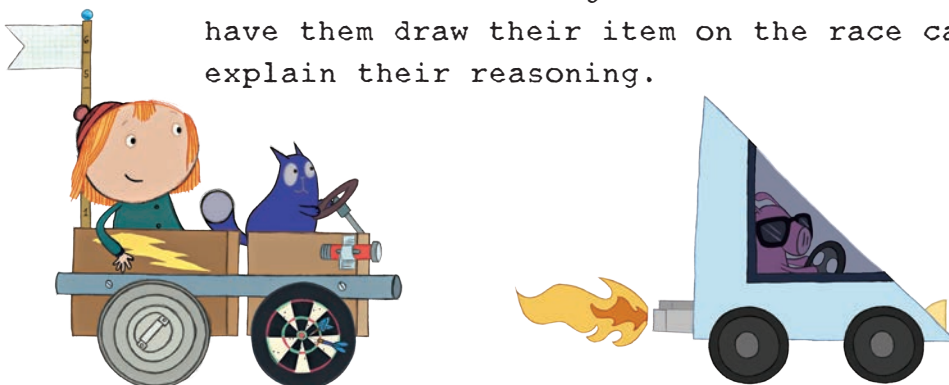
Comparing Shapes

Teacher Directions

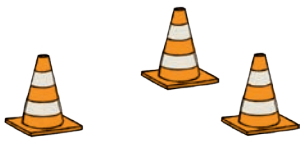
This activity highlights the differences in characteristics of shapes. At the beginning of the book, Peg and Cat are searching the junkyard for items to use as race car wheels. After a tire bursts, Cat suggests an old square television as a replacement. Students should be able to recognize that it is not a good wheel because, as a square, it has edges and won't roll easily.

Discuss with the group the characteristics of the two shapes--namely, that squares (or rectangles) have four straight edges while circles have none. Students can critique Cat's choice for a wheel and record their reasoning on the reproducible page. Ask them to find items in the room that would not be good to use as a wheel and have them explain why not.

Next in the story, Peg gets an idea from Cat to use a trash-can lid in place of the tire. Ask students to look around the classroom and locate items that would be good to use as a wheel. Then have them draw their item on the race car and explain their reasoning.



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Comparing Shapes

Name: _____

COMMON CORE CONNECTIONS

Content awareness and skills addressed include:

K.G.A.1, K.G.B.4-5 Identify and describe shapes. Analyze, compare, create, and compose shapes.

1.G.A.1 Distinguish between defining attributes versus non-defining attributes; build and draw shapes to possess defining attributes.

SMP 3 Construct viable arguments and critique the reasoning of others.

Peg and Cat are at the junkyard making a race car for the Tallapegga Twenty. They name their new car *Hot-Buttered Lightning*, because they hope it will be as swift as a bolt of greased lightning.

Suddenly, *Hot-Buttered Lightning* pops a wheel (page 6)! Cat finds a piece of junk and puts it on the car. But Peg doesn't think it's a good wheel.

Draw a picture of the piece of junk that Cat finds. Why won't Cat's piece of junk be good to use as a wheel for *Hot-Buttered Lightning*?



Four horizontal lines for writing an answer.

Then Peg sees Cat peeking out of a trash can (page 7) and she gets an idea. They can use the lid of the trash can for the race car!

Why will the lid be a good wheel for *Hot-Buttered Lightning*?

Two horizontal lines for writing an answer.

Look around your classroom. What else would be good to use as a wheel for the race car?

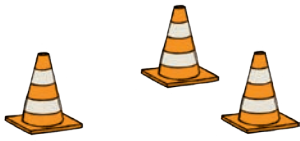
Two horizontal lines for writing an answer.

What did you find? Draw a picture of it on the race car. What makes it a good wheel for *Hot-Buttered Lightning*?

Two horizontal lines for writing an answer.



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Numbers 1-20

Teacher Directions

COMMON CORE CONNECTIONS

Content awareness and skills addressed include:

K.OA.A.1 Represent addition and subtraction with objects, fingers, mental images, drawings... verbal explanations, expressions, or equations.

K.NBT.A.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

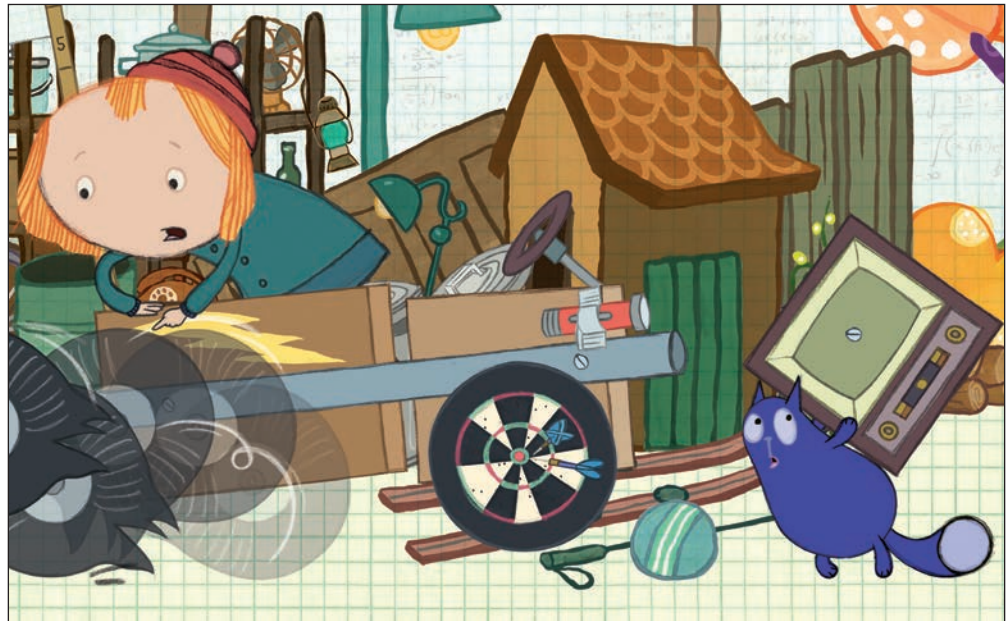
1.OA.C.6 Add and subtract within 20; use mental strategies such as counting on.

SMP 4 Model with mathematics.

SMP 7 Look for and make use of structure.

In this activity, students compare where teams are in the race on pages 18 and 19 and note how many more laps the teams have to complete the Tallapegga Twenty. Discuss whether all the teams have completed at least half of the race and who has the fewest and most laps left to do.

The two ten-frames help show each team's number of completed laps in relation to ten and to twenty. Using the reproducible page, have students color in or make a mark in the correct number of squares for each team and leave the rest of the squares blank. Then ask them to figure out the number of laps left to reach 20 and complete the partially constructed equations that represent each situation.





Numbers 1-20

Name: _____





The Pig has gone 14 laps around the track. Color in 14 boxes.

The Teens have gone 12 laps around the track. Color in 12 boxes.

He has _____ more laps to go to get to 20 laps!

They have _____ more laps to go to get to 20 laps!

14 laps + _____ laps = 20 laps

12 laps + _____ laps = 20 laps





The Pirates have gone 13 laps around the track. Color in 13 boxes.

Peg and Cat have gone 9 laps around the track. Color in 9 boxes.

They have _____ more laps to go to get to 20 laps!

They have _____ more laps to go to get to 20 laps!

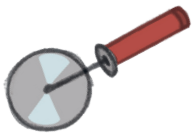
13 laps + _____ laps = 20 laps

9 laps + _____ laps = 20 laps

The team that has gone the most laps is _____.

The team with the most laps still left to go is _____.

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COMMON CORE CONNECTIONS

Content awareness and skills addressed include:

K.G.A.1–3, K.G.B.4–6 Identify and describe shapes. Analyze, compare, create, and compose shapes.

1.G.A.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) ... to create a composite shape.

1.G.A.3; 2.G.A.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares. Recognize that equal shares of identical wholes need not have the same shape.

SMP 1 Make sense of problems and persevere in solving them.

SMP 7 Look for and make use of structure.

Peg + Cat: The Pizza Problem

In *Peg + Cat: The Pizza Problem*, Peg and Cat work together to deliver their customers' orders at Peg's Pizza Place. Students will enjoy hearing this story that centers around one of their favorite foods while exploring the concept of partition. Below are prompts for discussion and an activity for acting out part of the story using halves and wholes.

Geometry and Quantity

Discussion Prompts

In the book, the guests at Peg's Pizza Place place orders for pizza pies. Peg is confused when Mora, one of the Teens, orders half a pie (page 6). "What-a-pie?" asks Peg. "Half a pie," Mora answers. This dialogue lends itself to starting a student discussion. Ask your class:

- What is a half?
- When have you heard about a half?
- Have you ever split something in half to share with someone?
- How would you know if something is a half?
- How many halves equal a whole?

Distribute paper and ask the students to draw an example of a half.



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Geometry and Quantity (continued)

Gather student ideas and drawings about *half* and post them for the whole class to see. As you discuss these ideas as a group, encourage students to edit and change their definitions of *half* until they agree on a class definition in age-appropriate language and understanding. You may want to pose questions to assess their understanding, such as:

- Are any two parts of a whole considered halves? (No, they have to be equal.)
- Can any number of parts of a whole be called halves? (No, just two equal parts.)
- Do halves have to be the same shape? (No, just equal in size, but in this case the half pizzas are the same shape.)

You can extend the conversation to include quarters.



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Ordering Station and Role Play

Teacher Directions

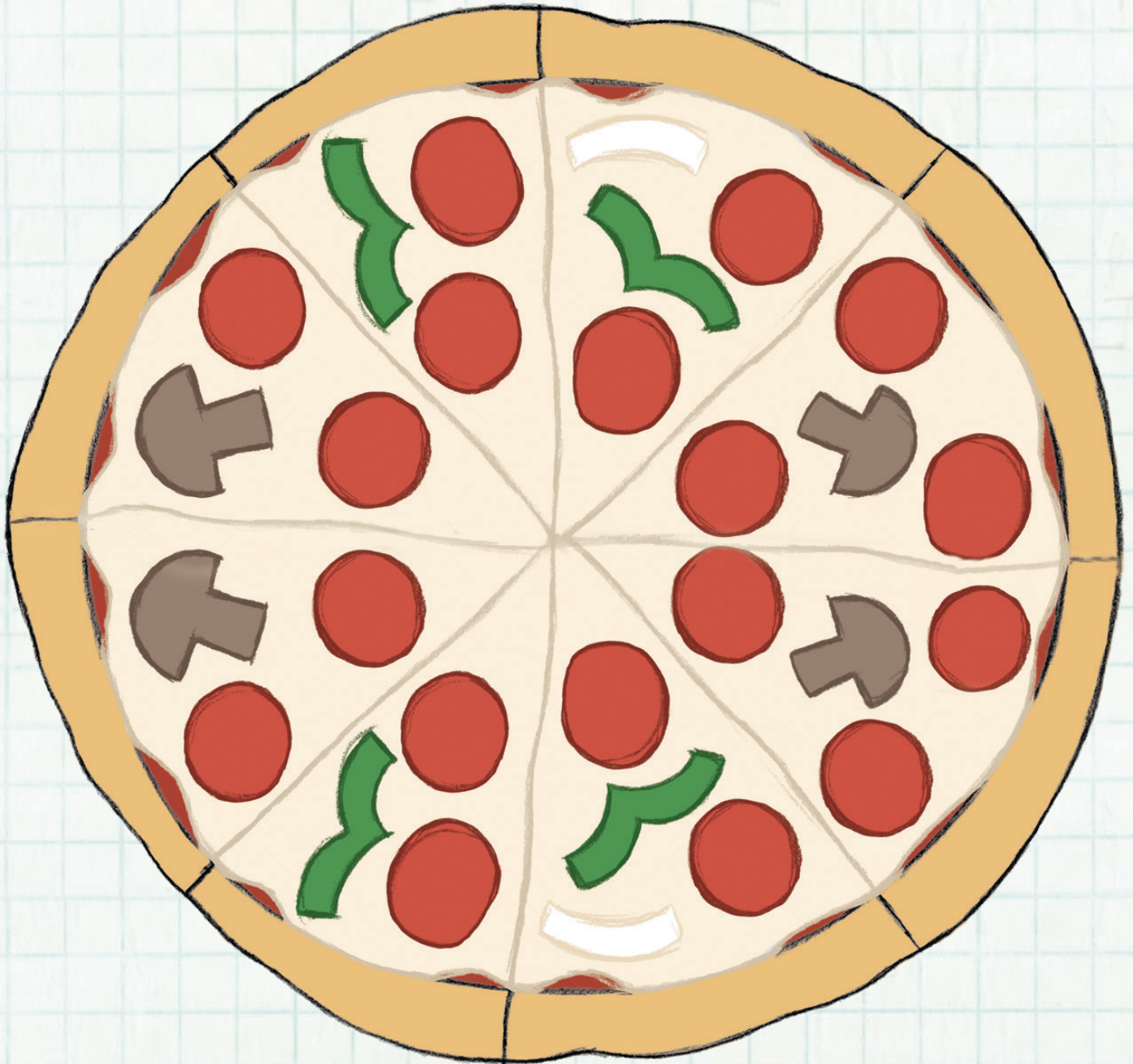
Set up a table in your classroom to serve as a dining table in Peg's Pizza Place. Make copies of the reproducible page and have students cut out the two sizes of pizza (lamine if desired). When your Peg's Pizza Place is ready, explain to your students how it is to be used.

One student plays the role of Peg, who takes the orders, and one student is Cat, who assists Peg in filling the orders. The student customers are allowed to order half or whole pizzas, like the customers in the book. For example, one of the Teens orders half a pie, and Baby Bear orders a whole pizza and another half a pizza. Peg can record the order on the ordering sheet by drawing a whole circle or half a circle while other students can practice writing 1 and $\frac{1}{2}$.



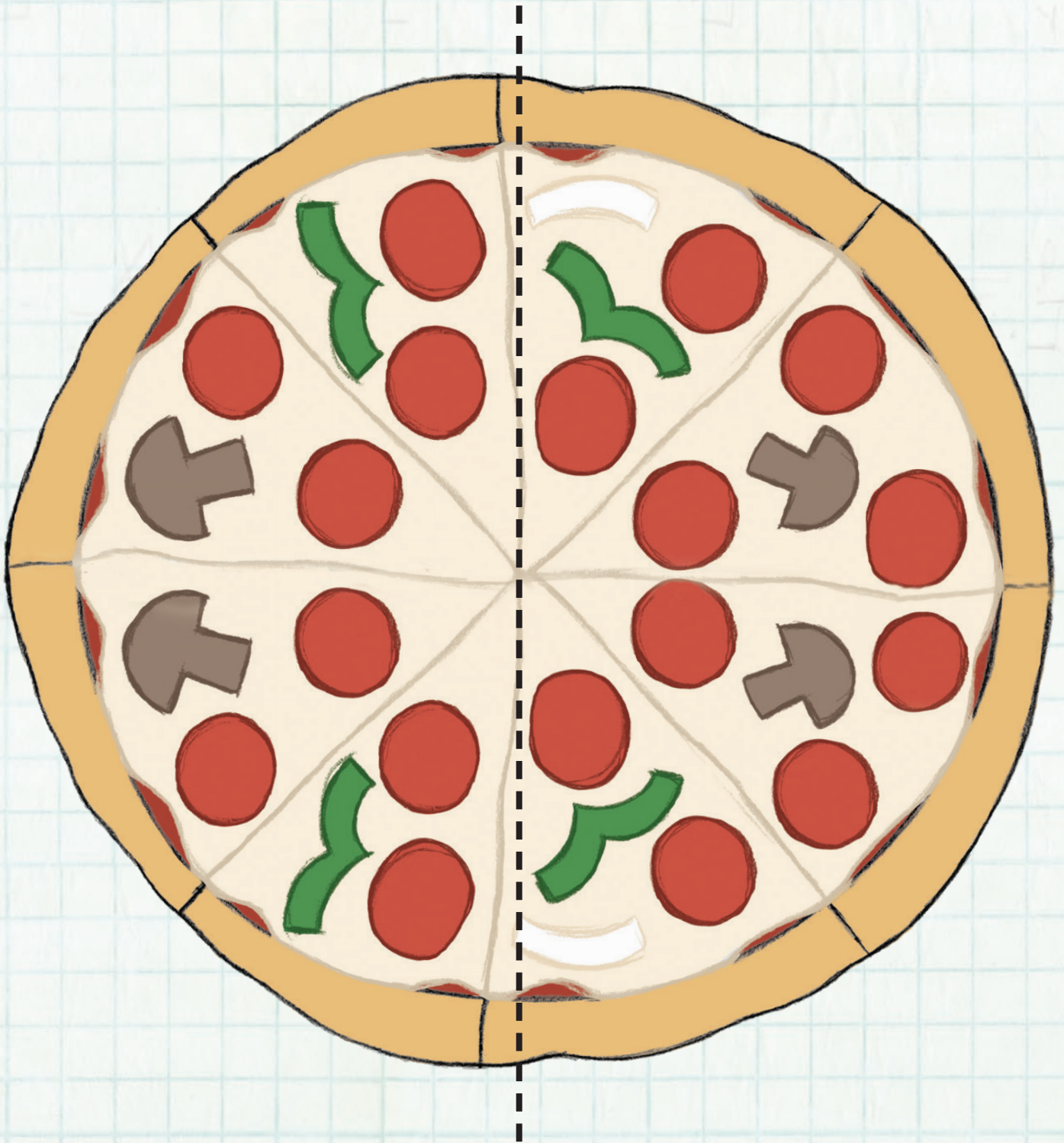
Once Peg has the orders for the customers at the table, she and Cat pick up the printouts of the half and whole pizzas. Students should discuss and share how many whole and half pizzas they need for the customers. Cat then delivers the pizzas to the customers according to their orders. Students can take turns playing the different roles, so this is a good choice for a recurring station in a math workshop. You can add quarter pizza shapes for further skill development.

Whole Pizza

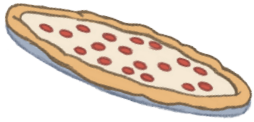


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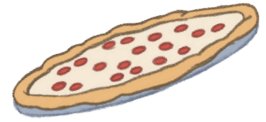
Whole Pizza Halved



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Ordering Sheet



CUSTOMER NAME	PIZZA ORDER

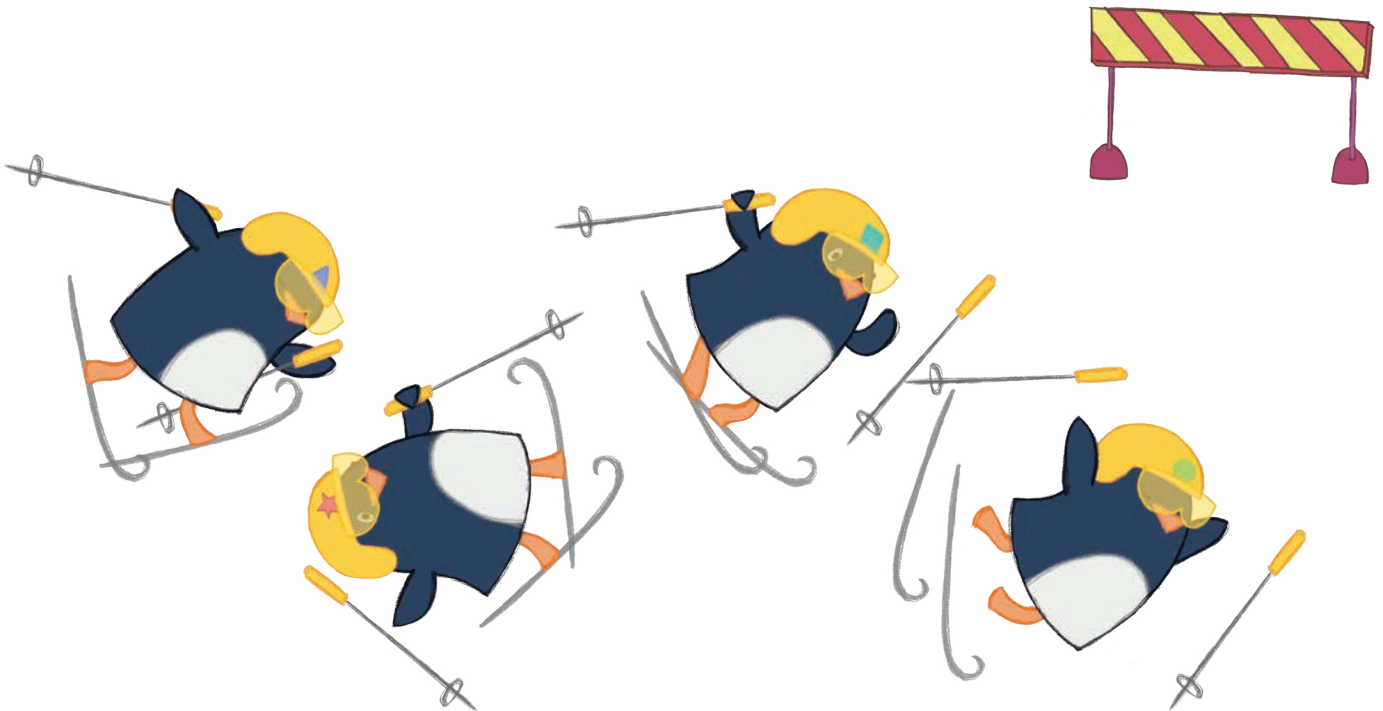
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Peg + Cat: The Penguin Problem

In *Peg + Cat: The Penguin Problem*, Peg and Cat are at the South Pole preparing to watch the ski race at the Animal Winter Games. Suddenly they spy the Penguins zooming downhill. CRASH! Skiing past hurdles can be a problem when you don't know your over, under, and in between. Peg and Cat to the rescue! Use the ideas below with the book in your classroom to develop early math skills with your students.



- Build an obstacle course in your classroom and have students give directions for getting through it using *over*, *under*, and *in between*. There may be more than one way!
- Have students draw a map using arrows to indicate directions *over*, *under*, and *in between*.
- Brainstorm a list of other directional words.
- Peg counts backward from five to calm down. Challenge your students to:
 - count backward from ten
 - count forward from 1 to 20
 - count to 100 by tens





Peg + Cat: The Lemonade Problem

In *Peg + Cat: The Lemonade Problem*, Peg and Cat decide to sell lemonade in exchange for marbles. Ten marbles per cup is too expensive for the Teens, so Peg and Cat lower the amount until they hit a price that has customers lining up. Use the story to discuss the concepts of *greater than*, *less than*, and *supply and demand* in simple terms with young students. Here are a few ideas to get you started.

- Peg sets a lot of different prices for one cup of lemonade. Have your students count marbles into cups for every price that she and Cat propose (10, 9, 5, 2, and free = 0) and label the cups with the number of marbles inside. Then ask them to combine two cups and label the combined cup with the number sentence (for example, $5 + 2 = 7$, $10 + 9 = 19$).
- Cookies or lemonade? Conduct a survey of your class as to who likes cookies best and who prefers lemonade. Then draw a bar graph to show the results. Talk about *greater than* and *less than* in terms of the number of students who prefer cookies to lemonade. Have students come up with their own questions, survey their classmates, and create their own bar graphs.
- Explain that *supply* is how much lemonade Peg and Cat have for sale and *demand* is how much the customers want to purchase that lemonade. Ask kids how they would feel if it was a very hot day and they were very, very thirsty. Would they be willing to pay more for a cup of lemonade--say, five marbles instead of two?
- The endpapers of *Peg + Cat: The Lemonade Problem* have an accurate ruler on the side. Using this ruler, have your students find three or more things of different lengths in your classroom. Ask them to create a list of the items with their lengths arranged from longest to shortest.

