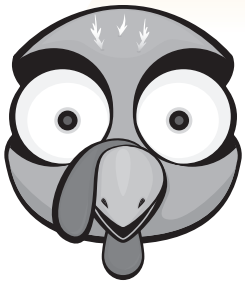
ORIGO STEPPING STONES

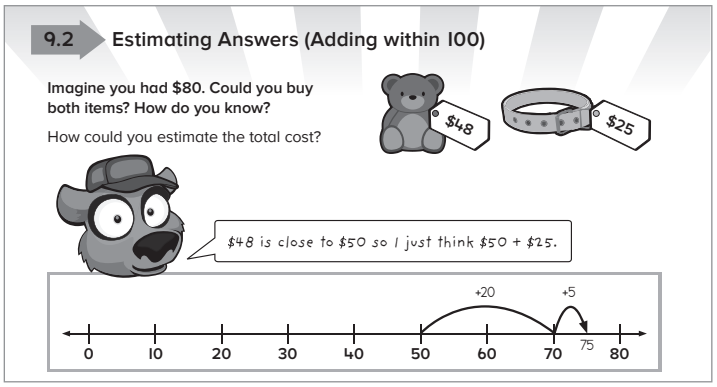


Core Focus

- Estimating answers for addition and subtraction within 100
- Using the associative property of addition to add three or four numbers
- Identifying one-half, one-fourth, and one-third of a collection or region
- Exploring and analyzing fractions and parts of a whole

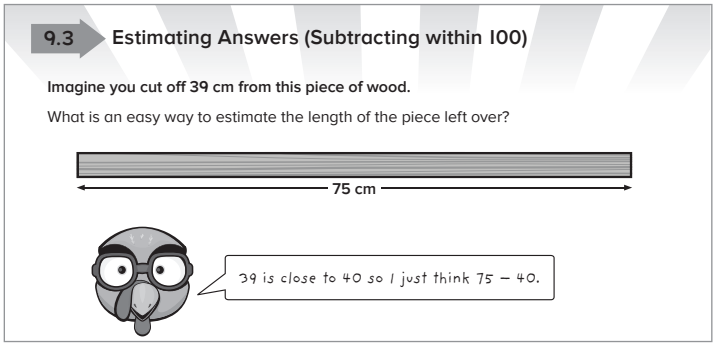
Addition and Subtraction

- Many times in real life, an exact answer is not needed and an estimate will do. Students visualize where numbers appear on a number line to decide on the closest ten.
- To estimate 48 + 23, students might think 50 + 20 = 70 (changing both addends to the closest ten). For a closer estimate, students might think 50 + 23 = 73 (changing just 48 to the closest ten).



In this lesson, students explore efficient strategies to estimate the total of two two-digit numbers that total less than 100.

- Students also use estimation strategies with mental subtraction. To estimate 84 − 39, students might think 84 − 40 = 44. This subtraction is easy to do mentally because the second number (40) is a multiple of 10. Changing the first number to a multiple of ten (80 − 39) does not make the subtraction easier.



In this lesson, students explore efficient strategies to estimate the difference between two two-digit numbers.

- When students add three or more numbers mentally, it is helpful for them to think about pairs of numbers that make ten, or multiples of ten. These pairs are called "friendly numbers." To find the total of 3 + 5 + 7, students might add the 3 and 7 first to make 10, then add the 5 to make 15.

Ideas for Home

- Children often want to find the exact answer to an addition or subtraction problem. After they solve a problem, encourage them to compare different estimates to the exact answer and discuss which estimates were closest and why. Ask, 'When is it better to change both numbers to the closest ten and when is it better to change only one?"
- Draw a simple 0 to 100 number line with the tens marked (10, 20, 30, etc.). Name two-digit numbers and ask your child to point to where the numbers are on the number line and tell you which multiple of 10 is closest.
- Tell your child about times when you estimate with addition and subtraction. Explain when it is important for you to have an exact answer (balancing a checking account) and when it is OK to have an estimate (thinking how much money will be left over after buying an item).

Glossary

- The **associative property** of addition means numbers can be added in any order.

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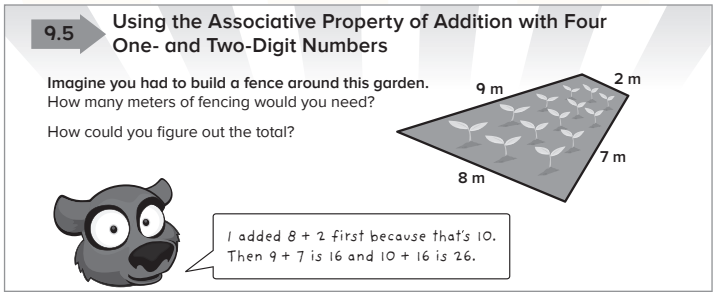
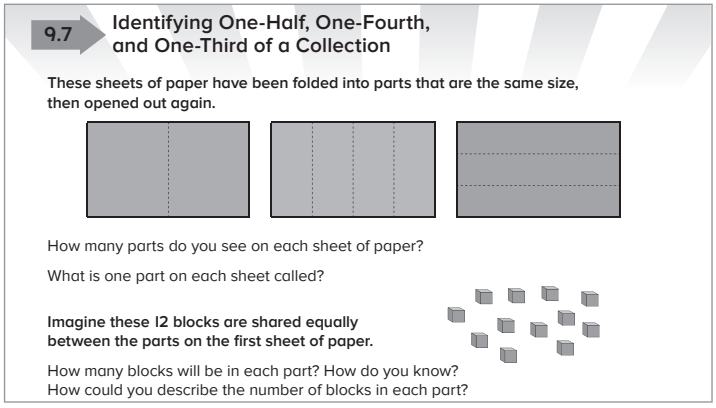


In Lesson 5, students look for "friendly" pairs of numbers to add four addends involving one- and two-digit numbers.

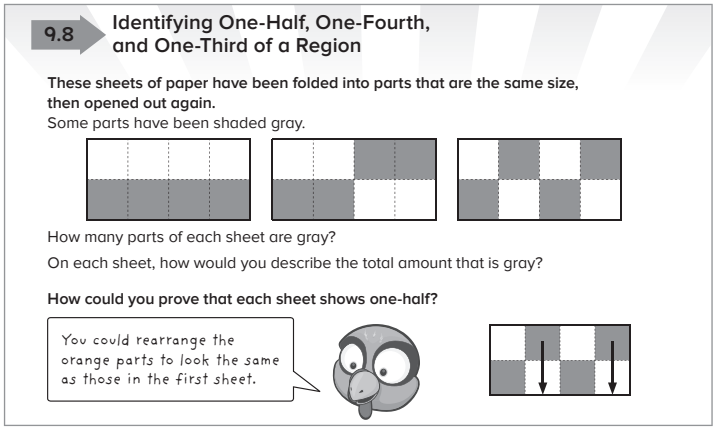
Fractions

- Students visualize three simple fractions (one-half, one-third, and one-fourth) through folding paper, working with sets of objects, and dividing geometric shapes.
- Students focus on developing the concept of fractions. They do not read or write the fractions as numerals ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$). It is important that students to realize that a fraction is one or more of a number of equal parts of a whole.



In this lesson, students relate sharing by 2, 3, and 4 to finding one-half, one-third, and one-fourth of a collection.

- Students see that fractions are proportional to the size of the whole (e.g. one-half of a pizza is much larger than one-half of a cookie).
- Students also understand that the same fraction of identical wholes does not need to look the same. One-half of a rectangle could be shown with a diagonal line from corner to corner or with a straight line down the center.



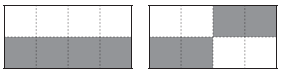
In Lesson 8, students use region models to explore different representations of one-half, one-fourth, and one-third.

Ideas for Home

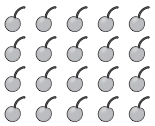
- Ask your child to find one-fourth, one-half, or one-third of a set of small items. It may be helpful to fold a piece of paper into 2, 3, or 4 parts and have your child share the objects to determine the answer. Try 20 shared by 4, 18 shared by 3, and 14 shared by 2. Encourage your child to use fraction language to describe the shares (e.g. "one-fourth of 20 is 5").
- Fold a rectangular piece of paper into eight equal parts (as shown in the Glossary). Challenge your child to color in one-half or one-fourth of the rectangle in as many ways as possible. You can also divide a rectangle into six equal parts to show one-half or one-third.
- When walking in your neighborhood, pick a landmark that is about 10 to 15 feet away (e.g. a tree or a light pole). Ask your child to walk one-half (or one-fourth or one-third) of the way to the landmark and stop. Ask how they estimated where to stop.

Glossary

- Both pictures show **one-half** of the rectangle as shaded.



- Students see that fractions can represent equal shares of a collection.



One-half of 20 is _____.

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