Tips for Helping at Home

- Questions to ask:

  What is it that you don't understand (have the student be specific)?

  What about putting things in order?

  Could you try it with simpler numbers?

  Can you guess and check?

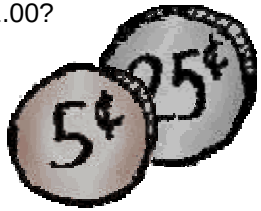
  Does this make sense?

  What can you do to explain your answer to show others what you are thinking?

  Does your answer seem reasonable?

- Your child will be teaching you several games that can be played cooperatively. Later in the unit, your child will be asked to look for patterns in magazines or newspapers or on pieces of fabric, gift wrap, or wallpaper.

- Students will be solving problems involving money. It would help them to have an assortment of coins to work with. You can also involve your child in solving problems involving money. How much will two items cost together? How much change will you get for $1.00? What is the total value of all the coins in a purse or pocket?



Mathematical Emphasis:

Investigation 1—How Many Hundreds?

- Grouping things for more efficient counting
- Recording numbers for more efficient mental arithmetic
- Finding out how many more are needed
- Estimating how many hundreds are in the total of a group of three-digit numbers
- Communicating about mathematical thinking through written and spoken language
- Exploring materials that will be used throughout this curriculum through written and spoken language

Investigation 2—How many dollars?

- Grouping coins for more efficient counting
- Recognizing value of U.S. coins
- Recognizing the decimal point on the calculator

Investigation 3—Using Number Patterns

- Using known answers to find others
- Subtracting on a 300 chart and with a calculator
- Adding and subtracting multiples of ten

Investigation 4—Making Geometric Patterns

- Distinguishing between geometric patterns and random designs
- Distinguishing between mirror symmetry and rotational symmetry
- Writing about designs

Websites

http://cms.everett.k12.wa.us/math

http://tiger.towson.edu/~mlackn1/mathwebsitestudent.htm#Geometry

http://www.funbrain.com/cashreg/index.html

Investigations in Number, Data, and Space

Grade 4

Mathematical Thinking at Grade 4

Everett Public Schools

Vocabulary

Symmetry: showing an exact duplicate of a shape on an opposite side of a line (mirror symmetry) or around a central point (rotational symmetry)

Line of symmetry: a line that divides a shape into two halves that are a mirror image of each other

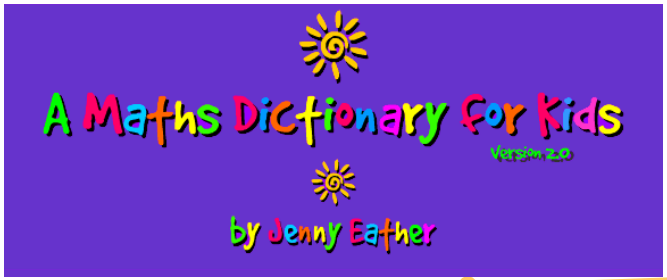
Expression: one or more numbers, variables, and/or operation symbols. Examples: 6, 6+6, 6x, 6 + 6 - 3

Equation: a math sentence showing two parts as equal. An equation uses an equals sign between 2 expressions. Examples: 6 + 6 = 12, 6 + 6 - 3 = 5 + 4

Congruent: having exactly the same shape and size

Glossary

http://www.amathsdictionaryforkids.com/

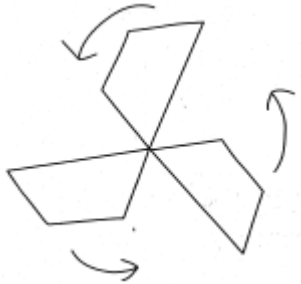


Understanding Symmetry

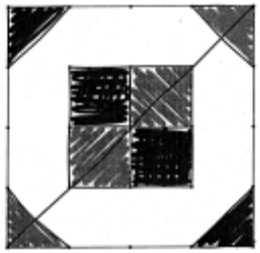
In this Investigation, students will be asked to make symmetrical designs and explain how they know they are symmetrical.

Some designs will display mirror symmetry. "My design is symmetrical because if you fold it, it will end up on the same side."

It is more difficult to create a design that has only rotational symmetry. "My design is rotational be-cause you can turn it around and see the same thing."



Some students will discover that they can make designs that have both types of symmetry.



Hidden Coins

Materials

- One dollar in real coins: 2 quarters, 3 dimes, 3 nickels, and 5 pennies
- A small paper bag you can *reach* into but not *see* into. Put the coins in the bag.

Players: 2 or 3 (can also be a solitaire game)

How to Play

1. Players agree on a sum of money less than $1.00 that one player will try to pick from the bag. Some easy amounts require only 1 or 2 coins— for example, 10¢ or 35¢. More difficult amounts require more cons—for example, 23¢, 47¢, 66¢, or 92¢.
2. Reach into the bag and take out one coin at a time until you have the target amount of money. If you take a coin that will not help you make the target amount, put it back.
3. When all players agree that the target amount has been picked out, return the coins to the bag.
4. Choose a different amount of money, and start again. Take turns.

Variation: After one player picks out the right amount, the next player tries to make the same amount of money with different coins.