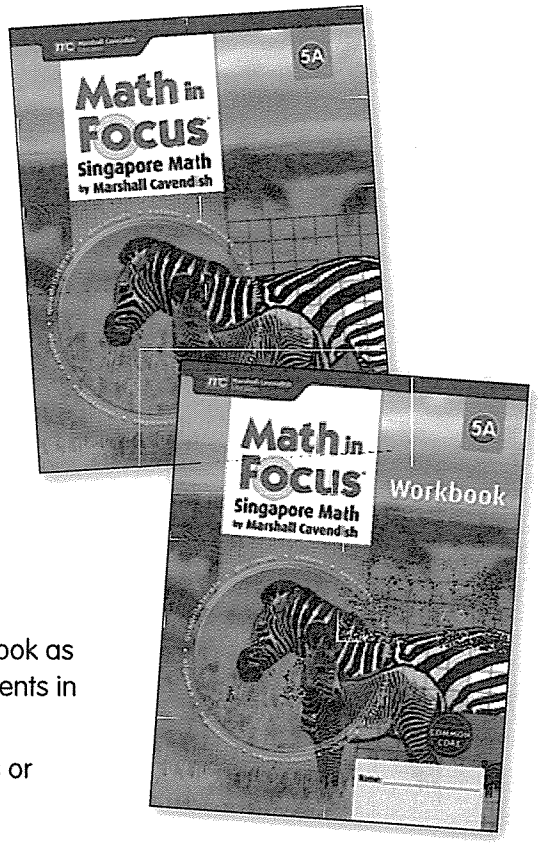
Dear Family,

Welcome to the experience of helping your child make connections in math with the *Math in Focus*® program. *Math in Focus: Singapore Math by Marshall Cavendish* is the world-class math curriculum from Singapore adapted for U.S. classrooms.



The *Math in Focus*® program consists of Student Books and Workbooks that are designed to work together. During the school day, your child will learn concepts presented in an engaging format and practice those concepts to develop a deep understanding. Your child will also work from the Student Book with other children to solve problems, participate in activities or games, and discuss their findings in class.

Your child will be assigned pages from the Workbook as individual work in class or as homework. Assignments in the Workbook will include:

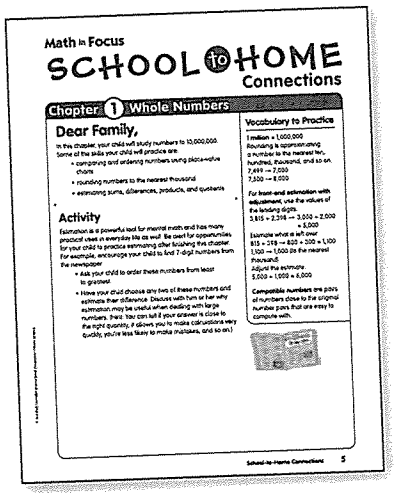
Practice problems to help reinforce the math skills or concepts

Put on Your Thinking Cap!

- **Challenging Practice** problems which will broaden your child's thinking skills and extend their understanding
- **Problem Solving** questions to challenge your child to use relevant problem-solving strategies for non-routine problems

Math in Focus® addresses topics in greater depth at each grade. This year, your fifth grader will focus on:

- building problem-solving skills and strategies
- multiplying and dividing with 2-digit numbers, fractions, mixed numbers, and decimals
- solving equations and evaluating inequalities
- finding the area of two dimensional shapes, and surface area and volume of three dimensional shapes
- using ratios and percents, and finding the probability of an event
- applying properties of angles, triangles, and four-sided figures

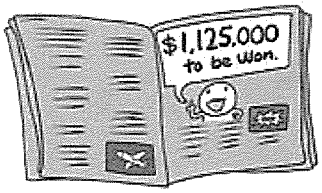

Math in Focus
SCHOOL to HOME Connections
Chapter 1 Whole Numbers
Dear Family,
Activity
Vocabulary to Practice

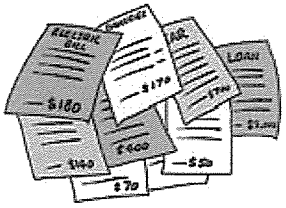
You can help your child build confidence as well as communication skills in mathematics by practicing newly acquired skills at home. Throughout the year, I will be sending home letters that will help you understand what your child will be learning in school. These letters contain activities that give you and your child an opportunity to work together to hone new skills.

You can encourage your child's efforts by taking advantage of opportunities to use math in everyday situations. Allow your child's math class-work or homework to guide you in determining the appropriate level of challenge.

While reading newspapers and magazines, invite your child to:

- estimate sums, differences, products, and quotients of large numbers
- keep an eye out for ratios, percents, and graphs



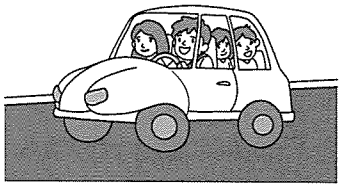


At home or at the supermarket, challenge your child to:

- decide which brand is more cost-effective
- find the surface area and volume of objects in the shape of rectangular prisms
- classify triangles and find the area of triangular figures
- use calculators to work with household bills

On car or bus trips, allow your child to:

- identify various three-dimensional shapes
- read maps with scales expressed in ratio form



I look forward to working with you and your child this year. Please contact me if you have any questions about the program or about your child's progress.

Math in Focus

SCHOOL to HOME Connections

Chapter 1 Whole Numbers

Dear Family,

In this chapter, your child will study numbers to 10,000,000. Some of the skills your child will practice are:

- comparing and ordering numbers using place-value charts
- rounding numbers to the nearest thousand
- estimating sums, differences, products, and quotients

Activity

Estimation is a powerful tool for mental math and has many practical uses in everyday life as well. Be alert for opportunities for your child to practice estimating after finishing this chapter. For example, encourage your child to find 7-digit numbers from the newspaper.

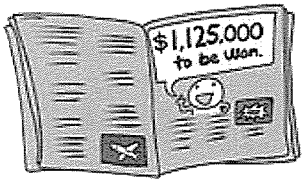
- Ask your child to order these numbers from least to greatest.
- Have your child choose any two of these numbers and estimate their difference. Discuss with him or her why estimation may be useful when dealing with large numbers. (Hint: You can tell if your answer is close to the right quantity, it allows you to make calculations very quickly, you're less likely to make mistakes, and so on.)

Vocabulary to Practice

1 **million** = 1,000,000
Rounding is approximating a number to the nearest ten, hundred, thousand, and so on.
7,499 → 7,000
7,500 → 8,000

For **front-end estimation with adjustment**, use the values of the leading digits.
3,815 + 2,398 → 3,000 + 2,000 = 5,000
Estimate what is left over.
815 + 398 → 800 + 300 = 1,100
1,100 → 1,000 (to the nearest thousand)
Adjust the estimate.
5,000 + 1,000 = 6,000

Compatible numbers are pairs of numbers close to the original number pairs that are easy to compute with.



Math in Focus

SCHOOL to HOME Connections

Chapter 2 Whole Number Multiplication and Division

Dear Family,

In this chapter, your child will study multiplication and division of 2-digit numbers. Some of the skills your child will practice are:

- using a calculator
- using patterns to multiply and divide by multiples of 10, 100, and 1,000
- multiplying by powers of ten
- estimating products and quotients
- using order of operations
- solving real-world problems

Activity

Understanding how to estimate a product is an important mental math skill. A stack of playing cards provides endless opportunities for practice. For example, invite your child to pick four number cards from a stack of cards.

- Ask your child to use these numbers to form two 2-digit numbers, and then write a multiplication problem that gives the greatest product.
- Now have your child check his or her answer using a calculator.

Vocabulary to Practice

$12 \times 30 = 360$

360 is the **product**.
12 and 30 are **factors** of 360.

$129 \div 8 = 16$ R 1

The **dividend** is 129.
The **divisor** is 8.
The **quotient** is 16.
The **remainder** is 1.

Order of operations is a set of rules stating the order to perform the four operations, when simplifying an expression involving two or more operations.

$$\begin{array}{r} 4\ 2 \\ \times\ 8\ 1 \end{array}$$

Why do you think 8 and 4 should be in the tens place?

Math in Focus

SCHOOL to HOME Connections

Chapter 3 Fractions and Mixed Numbers

Dear Family,

In this chapter, your child will learn more about fractions and mixed numbers. The work will include:

- adding and subtracting unlike fractions and mixed numbers
- understanding the relationships between fractions and division expressions
- expressing fractions, division expressions and mixed numbers as decimals
- solving real-world problems involving fractions and mixed numbers

Activity

This activity will give your child a chance to verbalize what he or she has learned about fractions. Show your child any two fractions, for example, $\frac{3}{4}$ and $\frac{4}{5}$.

- Ask your child to compare the two fractions to find which one is greater.
- Explore with your child whether it is easier to compare fractions by:

  (a) making their denominators equal, and then comparing their numerators ($\frac{3}{4} = \frac{15}{20}$ and $\frac{4}{5} = \frac{16}{20}$), or

  (b) rewriting each fraction as a decimal, and then comparing the decimals ($\frac{3}{4} = 0.75$ and $\frac{4}{5} = 0.80$).

Vocabulary to Practice

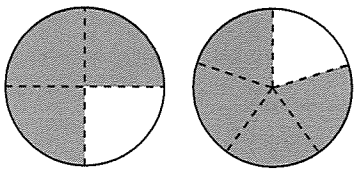
The **least common multiple** is the least number among all the multiples that two or more numbers have in common.

The **least common denominator** is the least common multiple of two or more denominators.

Equivalent fractions are fractions that have the same value.

A **division expression**: $6 \div 3$ or $3\overline{)6}$

A **mixed number** is made up of a whole number and a fraction, for example $3\frac{1}{2}$.



$\frac{3}{4}$ $\frac{4}{5}$

Which is greater?

Math in Focus

SCHOOL to HOME Connections

Chapter 4 Multiplying and Dividing Fractions and Mixed Numbers

Dear Family,

In this chapter, your child will learn to multiply and divide fractions and mixed numbers. The work will include:

- multiplying with whole numbers, proper and improper fractions, and mixed numbers
- dividing fractions by whole numbers

Here is how we find $\frac{3}{4} \times \frac{8}{9}$.

Step 1: Multiply the numerators, then multiply the denominators.	Step 2: Simplify the product.
$\frac{3}{4} \times \frac{8}{9} = \frac{24}{36}$	$\frac{24}{36} = \frac{2}{3}$

Activity

The following activity will encourage your child to express the concept behind multiplying fractions in his or her own words. Give your child a circular piece of paper and markers.

- Ask him or her to shade half the circle yellow. Then ask your child to shade $\frac{1}{4}$ of the yellow part in red.
- Now, ask your child to find the product of $\frac{1}{2}$ and $\frac{1}{4}$.
- Help your child see that the portion shaded red on the circular piece of paper is $\frac{1}{8}$ of the total circle because it is $\frac{1}{2} \times \frac{1}{4}$ of the circle.

Vocabulary to Practice

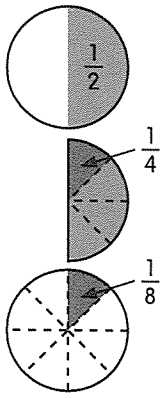
A **common factor** is a number that is a factor of two or more numbers.

A **proper fraction** has a numerator less than its denominator. Its value is less than 1.

An **improper fraction** has a numerator greater than or equal to its denominator.

A **mixed number** is made up of a whole number and a fraction.

$\frac{1}{5}$ is the **reciprocal** of $\frac{5}{1}$ or 5.



Math in Focus

SCHOOL to HOME Connections

Chapter 5 Algebra

Dear Family,

In this chapter, your child will be introduced to algebra.
Some of the skills your child will practice are:

- recognizing, writing, evaluating, and simplifying algebraic expressions
- solving simple equations
- solving real-world problems involving algebraic expressions

Vocabulary to Practice

A **numeric expression** is an expression that contains only numbers and symbols.

An **algebraic expression** is an expression that contains at least one variable.

A **variable** is a symbol, such as a letter, representing an unknown number in an algebraic expression.

To **solve** an equation means to find the value of the variable.

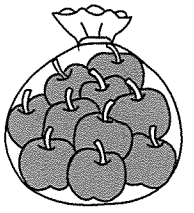
Activity

Algebra uses symbols to make statements about things rather than using words.
In algebra, we often use letters to represent numbers.
Here, a will represent the number of apples and b will represent the number of bananas.
Show your child the following statement.
Walt buys a apples at 20 cents each, and b bananas at 30 cents each.

- Ask your child to study the statement carefully and explain what each of these expressions represent:

(a) $a + b$ (b) $20a$

(c) $30b$ (d) $20a + 30b$



Answers:
(a) Total number of apples and bananas
(b) Cost of apples
(c) Cost of bananas
(d) Total cost of apples and bananas

Math in Focus

SCHOOL to HOME Connections

Chapter 6 Area

Dear Family,

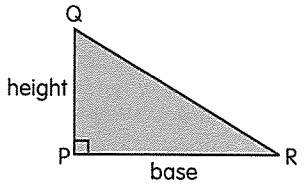
In this chapter, your child will learn to calculate the area of rectangles with fractional side lengths and triangles.

Activity

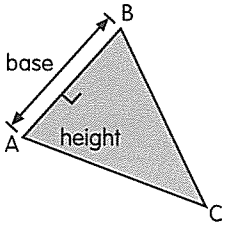
Triangles are fundamental to the study of geometry. One key aspect of studying triangles involves understanding the relationship between the base and the height. Cut out triangles of different shapes and sizes from a sheet of paper.

- Ask your child to identify examples of acute triangles, right triangles, and obtuse triangles.
- For each example, have your child point out the vertices, sides, base, and height of the triangle.

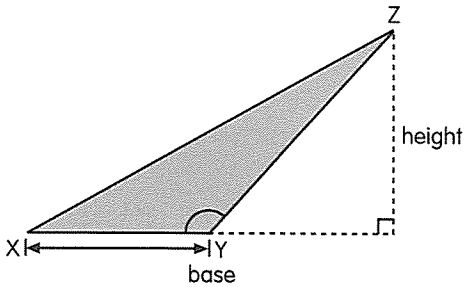
Right triangle:



Acute triangle:



Obtuse triangle:



Vocabulary to Practice

An **angle** is formed by two rays with the same endpoint.

The **vertex of a triangle** is a point on the triangle where two sides meet to form an angle.

The **base** of a triangle is the side on which the triangle lies.

Perpendicular lines are lines that form right angles.

The **height** of a triangle is the perpendicular distance from the base to the opposite vertex.

Area is the amount of surface covered.

A **right triangle** is a triangle that has a right angle.

An **acute triangle** is a triangle with every angle measuring less than 90°.

An **obtuse triangle** is a triangle with one angle measuring greater than 90°.

Math in Focus

SCHOOL to HOME Connections

Chapter 7 Ratio

Dear Family,

In this chapter, your child will learn to compare numbers using ratios. Some of the skills your child will practice are:

- reading and writing ratios, and using part-whole models to show ratios
- finding equivalent ratios
- writing ratios in fraction form
- solving real-world problems involving ratios and fractions

Activity

Ratios have many everyday applications. For example, you might find that in a class, there is 1 teacher for every 30 students. This can be expressed as, 'The ratio of teachers to students in a class is 1 : 30.' A ratio might be printed on a map to show the scale of the map. Search with your child for a map on which the scale is expressed in ratio form, for example, 1 in. : 100 mi.

- Discuss with your child what the ratio represents. (Hint: 1 inch on the map represents 100 miles in actual distance.)
- Work with him or her to calculate the actual distance between two points on the map.

Vocabulary to Practice

Ratio is a comparison of two numbers or quantities by division.

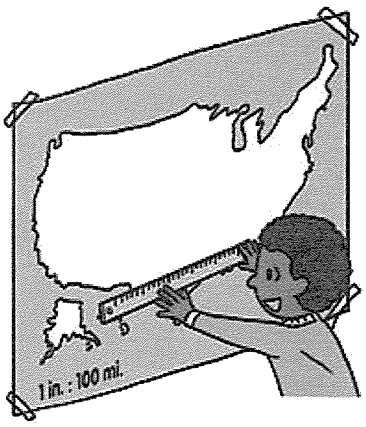
A **term** of a ratio is any of the numbers that make up the ratio.

Equivalent ratios show the same comparisons of numbers or quantities.

Greatest common factor is the greatest number among all the common factors of a set of two or more numbers.

The **simplest form of a fraction** is the form where the numerator and denominator have only 1 as a common factor.

The **simplest form of a ratio** is the form where its terms have only 1 as a common factor.



Math in Focus

SCHOOL to HOME Connections

Chapter 8 Decimals

Dear Family,

In this chapter, your child will learn more about decimals. Some of the skills your child will practice are:

- representing and interpreting thousandths in models or in place-value charts
- comparing and ordering decimals to 3 decimal places
- rounding decimals to the nearest hundredth
- rewriting decimals as fractions and mixed numbers

Activity

Decimals with three or more digits after the decimal point are generally used in scientific contexts, especially when there is a need for high levels of accuracy. Use this activity to help your child strengthen his or her fundamental understanding of decimal concepts.

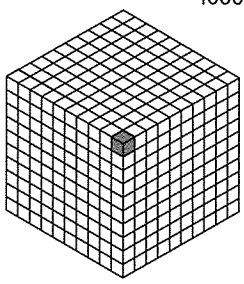
Show your child these number lines.

- Ask your child to write the correct decimals in the boxes for each number line. (1st number line: 2.31, 2.32, 2.33, 2.34, 2.35, 2.36, 2.37, 2.38, 2.39; 2nd number line: 2.301, 2.302, 2.303, 2.304, 2.305, 2.306, 2.307, 2.308, 2.309)
- Have your child use a place-value chart to explain which decimal is greater, 2.302 or 2.34. Now, have your child use the two number lines above to explain to you why 2.34 is greater than 2.302. (2.34 is greater because it lies to the right of 2.302.)

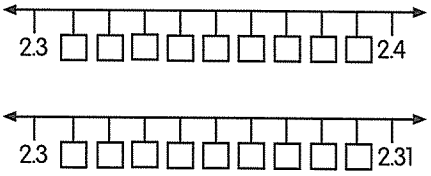
Vocabulary to Practice

0.05 is a **decimal**.
↑
decimal point

1 **thousandth** = 0.001
0.001 is **equivalent** to $\frac{1}{1000}$.



4.56 is **greater than** 4.132.
7.851 is **less than** 7.962.



Math in Focus

SCHOOL to HOME Connections

Chapter 9 Multiplying and Dividing Decimals

Dear Family,

In this chapter, your child will learn to multiply and divide decimals. The work will include:

- multiplying and dividing decimals by 1-digit whole numbers
- using patterns to multiply and divide decimals by multiples of 10, 100, or 1,000
- multiplying decimals by powers of ten
- converting metric units
- estimating decimal sums, differences, products, and quotients

Vocabulary to Practice

Price **per unit** of an item means the price of one unit of the item.

Activity

Multiplying and dividing decimals is a skill that applies to everyday situations. For example, ask your child to imagine that you want to paint his or her room. Brand A of paint costs $8.35 per can of 500 mL and Brand B costs $7.56 per can of 400 mL.

- Ask your child which brand of paint is cheaper. (Answer: Find the cost per 100 mL of each brand. Brand A: $8.35 ÷ 5 = $1.67 per 100 mL; Brand B: $7.56 ÷ 4 = $1.89 per 100 mL. Brand A is cheaper.)
- Now, ask your child to calculate the cost of buying 4.5 liters of the cheaper brand. (Answer: 4.5 L = 4,500 mL, 4500 ÷ 500 = 9. To buy 4.5 liters of paint, you have to buy 9 cans. Cost of 9 cans of Brand A = $8.35 × 9 = $75.15)
- Have your child check the answer using estimation. (Answer: Round 8.35 to 8. 8 × 9 = 72. So, the answer is reasonable.)

Math in Focus

SCHOOL to HOME Connections

Chapter 10 Percent

Dear Family,

In this chapter, your child will learn about percent.
Some of the skills your child will practice are:

- relating and comparing percents, decimals, and fractions
- expressing fractions as percents
- finding the number represented by a fraction
- solving real-world problems

Activity

Percent is a way of expressing a part of a whole, and is commonly used to express interest rates, sales tax, discount rates, and so on. Encourage your child to look out for these instances. Help him or her to appreciate the importance of calculating with percents using real-world scenarios. For example,

- Your family has a meal for $35 at a pizza restaurant and you want to tip 15% of the bill. Let your child calculate the amount to tip. ($35 × 0.15 = $5.25)
- Show your child a few receipts from your shopping trips and let him or her calculate how much you would have saved if all the items were tax-free.
- If the regular price of a book is $15, and there is a 10% discount on it, what would you pay for the book? ($15 × 0.10 = $1.50; $15 – $1.50 = $13.50)

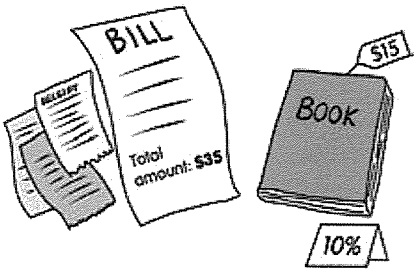
Vocabulary to Practice

Percent means 'out of 100'. The symbol for percent is %.
$75\% = \frac{75}{100} = 0.75$

Sales tax is the tax to pay upon buying a product.

A **discount** is the difference between the regular price and the reduced selling price. It is the amount you save.

Interest is the amount that a bank pays you for depositing your money with them.



Math in Focus

SCHOOL to HOME Connections

Chapter 11 Graphs and Probability

Dear Family,

During this chapter, your child will learn about graphs and probability. The work will include:

- making and interpreting line plots
- making and interpreting double bar graphs
- graphing one and two equations
- drawing tree diagrams to show all possible combinations
- using multiplication to find the number of combinations
- comparing the experimental probability and theoretical probability of events

Activity

Children use the idea of combinations and probability in everyday situations long before they formally learn these concepts. Encourage your child to look out for instances where combinations are used. Work out this problem with your child to practice skills learned in combination and probability.

- Jack and Karen play a game in which each of them first rolls a regular die and then picks a marble from a bag. The bag has 1 red marble and 1 blue marble.
- Find the total number of combinations of outcomes in this game. ($6 \times 2 = 12$)
- Draw a tree diagram to show all the possible combinations.
- The person who rolls the number 6 and picks a red marble is the winner. What is the probability of winning the game on any given turn? ($\frac{1}{12}$)

Vocabulary to Practice

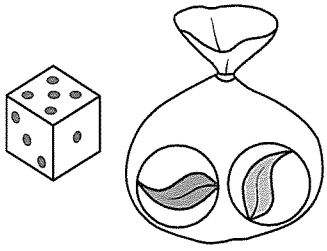
Combinations refer to the grouping of items or events. Placing these items or events in a different order does not create a new combination.

A **tree diagram** shows all possible combinations of outcomes of an event.

A **favorable outcome** is a desired result.

Probability of a favorable outcome

$$= \frac{\text{Number of favorable outcomes}}{\text{Total number of possible outcomes}}$$



Math in Focus

SCHOOL to HOME Connections

Chapter 12 Angles

Dear Family,

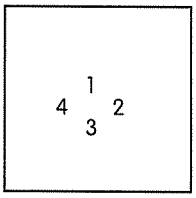
In this chapter, your child will learn to find unknown angle measures using fundamental angle properties such as:

- the sum of angle measures on a line is 180°
- the sum of angle measures around a point is 360°
- vertical angles have equal measures

Activity

It is important for children to understand and apply various properties to find unknown angle measures as they will use these extensively in their study of geometry and trigonometry. Use this activity to explore some angle properties. You will need a sheet of paper without any folds and a protractor.

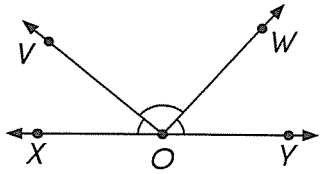
- Fold the sheet of paper into two. Unfold it and fold a second time to cross over the first fold.



- Ask your child what the sum of angles 1 and 4 is, and to explain his or her reasoning. (180°, since they are angles on a line.)
- Have your child verify this by measuring each angle with a protractor.
- Have your child list all the pairs of angles whose sum is 180°. (Angles 1 and 4, 4 and 3, 3 and 2, 2 and 1)
- Now, cut the paper to see if angle 1 can be made to fit over angle 3.
- Challenge your child to repeat and try to find vertical angles that do not fit over each other. (He or she will find that vertical angles always have equal measures.)

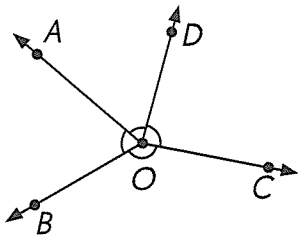
Vocabulary to Practice

Angles on a line: The sum of angle measures on a line is 180°.



$m\angle XOV + m\angle VOW + m\angle WOY = 180°$

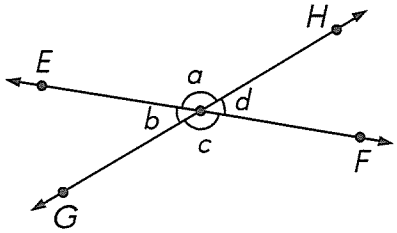
Angles at a point: The sum of angle measures at a point is 360°.



$m\angle AOD + m\angle DOC + m\angle COB + m\angle AOB = 360°$

Intersecting lines are lines that meet or cross.

Vertical angles are the congruent angles formed when two lines intersect.



Math in Focus

SCHOOL to HOME Connections

Chapter 13 Properties of Triangles and Four-Sided Figures

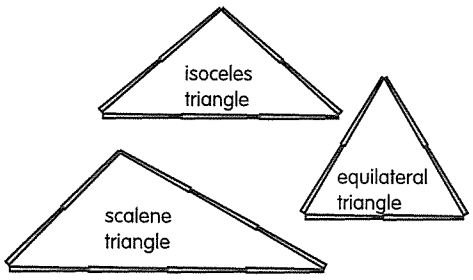
Dear Family,

In this chapter, your child will learn some basic properties of triangles and four-sided figures, and use them to find the measures of unknown angles and side lengths.

Activity

Classifying triangles according to the length of their sides, and applying the properties of these triangles is fundamental to the study of geometry. For this activity, give your child a set of toothpicks.

- Ask your child to make a triangle by arranging any number of toothpicks end-to-end.
  (Answer: Sides may be made from 3, 3, and 4 toothpicks or 1, 2, and 2 toothpicks, and so on.)
- Have your child make 5 such triangles.
  Ask your child to identify each triangle as scalene, isosceles, or equilateral. For example, a triangle with sides made of 2, 3, and 4 toothpicks is scalene, while a triangle with sides made of 3, 3, and 3 toothpicks is equilateral.
- Check with your child that each triangle made satisfies the property that the sum of the lengths of any two sides of a triangle is always greater than the length of the third side.



Vocabulary to Practice

An **equilateral triangle** is one in which all the sides are of equal length.

An **isosceles triangle** is one in which two sides are of equal length.

A **scalene triangle** is one in which all the sides have different lengths.

Some properties of triangles:
The sum of the three angle measures in any triangle is 180°.

In an isosceles triangle, the measures of the angles opposite the equal sides are equal.

Each angle in an equilateral triangle measures 60°.

The sum of the lengths of any two sides of a triangle is always greater than the length of the third side.

Math in Focus

SCHOOL to HOME Connections

Chapter 14 Surface Area and Volume

Dear Family,

In this chapter, your child will explore cubes, pyramids, and rectangular prisms, and find their surface area and volume. Some of the skills your child will practice are:

- drawing cubes and rectangular prisms on dot paper
- finding the surface area of a prism by adding the area of each face
- finding and comparing volumes of cubes, pyramids, rectangular prisms and other solids constructed from unit cubes
- using a formula to find the volume of a rectangular prism

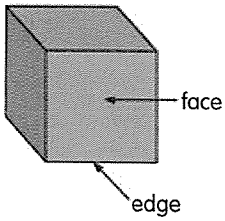
Activity

Finding the surface area and volume of three-dimensional shapes is useful in many everyday situations. For example, calculating the minimum amount of paper needed to wrap a gift or finding the volume of water needed to fill an aquarium.
Use this activity to strengthen your child's understanding of fundamental concepts relating to surface area and volume.
Use two erasers or blocks of cheese of the same size.
Cut one of them into 4 sections of equal size. Ask your child:

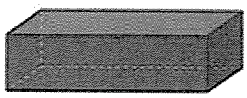
- Is the sum of the surface areas of the 4 pieces equal to the surface area of the big one? (No, the sum of the surface areas of the small pieces is greater than the surface area of the big one because there are extra end sections.)
- Is the sum of the volumes of the 4 pieces equal to the volume of the big one? (Yes)

Vocabulary to Practice

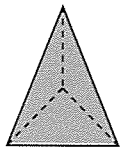
Cube



Rectangular prism

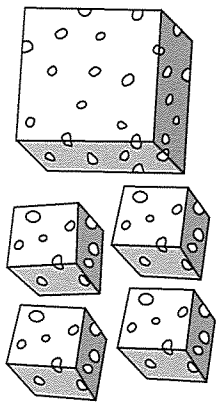


Pyramid



Surface area is the total area of the faces (including bases) and curved surfaces of a solid figure.

The **volume** of an object is the amount of space it occupies.



Math in Focus

SCHOOL to HOME Connections

Dear Family,

This has been a full year for your child in math. One aspect of learning math is that concepts and skills become solidified over time. Concepts or skills that were new earlier in the year will now seem `easy´. A great way to reinforce your child's appreciation for math is to review the year and his or her growth.

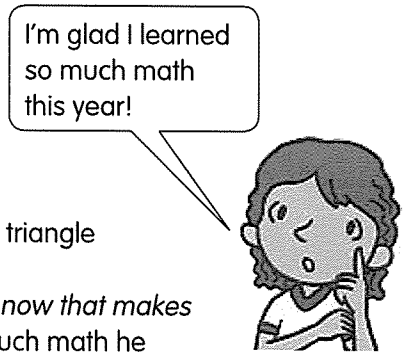
For example, ask your fifth grader to recall and explain:

- *How can you decide which number or fraction is greater?*

  2.356 or 2.37? $\frac{6}{7}$ or $\frac{8}{9}$?

- *What is the difference between the following?*

  Scalene triangle Isosceles triangle Equilateral triangle



Ask your child, *Was this always easy for you? What do you know now that makes it easier than before?* Allow your child to be pleased with how much math he or she learned this year!

Finally, take a few minutes now and then over the summer to keep math skills sharp with family math activities. Many ideas have been suggested in these chapter newsletters.

Thank you for supporting your child's efforts in math this year!