

# Glossary

This glossary provides definitions of key vocabulary terms in the Grade 4 lessons. Locations of key vocabulary terms in the curriculum are included with each definition.

## A

**Acre** (URG Unit 6 p. 26; SG p. 153)  
A measure of land area equal to 43,560 square feet.

**Acute Angle** (URG Unit 2 p. 82 & Unit 9 p. 39; SG p. 50)  
An angle that measures less than 90°.

**All-partials Algorithm** (URG Unit 7 pp. 6, 72; SG p. 197)  
A paper-and-pencil method for solving multiplication problems. Each partial product is recorded on a separate line. (See also partial product.)

$$\begin{array}{r} 186 \\ \times 3 \\ \hline 18 \\ 240 \\ \hline 300 \\ \hline 558 \end{array}$$

**Angle** (URG Unit 2 p. 79; SG p. 42)  
The amount of turning or the amount of opening between two rays that have the same endpoint.

**Angle of Turning** (URG Unit 9 pp. 5, 53)  
The smallest angle through which a figure can be turned about the center of turning so that the figure coincides with itself.

**Area** (SG p. 29)  
The area of a shape is the amount of space it covers, measured in square units.

**Array** (URG Unit 4 p. 4)  
An array is an arrangement of elements into a rectangular pattern of (horizontal) rows and (vertical) columns.

**Average** (URG Unit 1 p. 53 & Unit 5 p. 5; SG pp. 13, 125)  
A number that can be used to represent a typical value in a set of data. (See also mean, median, and mode.)


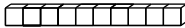
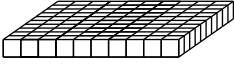

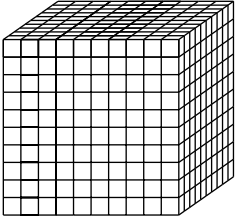

## B

**Bar Graph** (URG Unit 1 p. 32, Unit 2 p. 45 & Unit 13 p. 36)  
A conventional way of representing data. Quantities are represented by the length of a rectangular bar.

**Base (of an exponent)** (SG p. 113)  
When exponents are used, the number being multiplied. In  $3^4 = 3 \times 3 \times 3 \times 3 = 81$ , the 3 is the base and the 4 is the exponent. The 3 is multiplied by itself 4 times.

**Base-ten Board** (SG p. 68)  
A tool to help children organize base-ten pieces when they are representing numbers.

**Base-ten Pieces** (URG Unit 3 pp. 5, 42)  
A set of manipulatives used to model our number system as shown in the figure below. Note that a skinny is made of 10 bits, a flat is made of 100 bits, and a pack is made of 1000 bits.

Nickname	Picture	Shorthand
bit		.
skinny		
flat		
pack		

**Base-ten Shorthand** (URG Unit 3 pp. 6, 50)

A pictorial representation of the base-ten pieces as shown on page 365.

**Benchmarks** (URG Unit 6 pp. 53, 73; SG p. 169)

Numbers convenient for comparing and ordering numbers, e.g., 0,  $\frac{1}{2}$ , 1 are convenient benchmarks for comparing and ordering fractions.

**Best-fit Line** (URG Unit 5 pp. 5, 23, 24; SG p. 123)

The line that comes closest to the points on a point graph.

**Binning Data** (URG Unit 13 p. 34)

Placing data from a data set with a large number of values or large range into intervals in order to more easily see patterns in the data.

**Bit** (URG Unit 3 pp. 5, 39, 48 & Unit 6 p. 44;

SG p. 68)  $\square$

A cube that measures 1 cm on each edge. It is the smallest of the base-ten pieces and is often used to represent 1. (*See also* base-ten pieces.)

**C****Categorical Variable** (URG Unit 1 pp. 5, 40; SG p. 7)

Variables with values that are not numbers. (*See also* variable and value.)

**Certain Event** (SG p. 385)

An event that has a probability of 1 (100%).

**Center of Turning** (URG Unit 9 p. 53; SG p. 251)

A point on a plane figure around which it is turned. In particular, the point about which an object with turn symmetry is rotated.

**Centimeter** (SG p. 272)

A unit of length in the metric system. A centimeter is  $\frac{1}{100}$  of a meter.

**Common Fraction** (URG Unit 10 p. 39)

Any fraction that is written with a numerator and denominator that are whole numbers. For example,  $\frac{3}{4}$  and  $\frac{9}{4}$  are both common fractions. (*See also* decimal fraction.)

**Commutative Property of Multiplication** (URG Unit 3 p. 25 & Unit 4 p. 24)

This is also known as the Order Property of Multiplication. Changing the order of the factors does not change the product. For example,  $3 \times 5 = 5 \times 3 = 15$ . Using variables,  $n \times m = m \times n$ .

**Composite Number** (URG Unit 4 pp. 5, 28)

A number that has more than two distinct factors. For example, 9 has three factors (1, 3, 9) so it is a composite number.

**Convenient Number** (URG Unit 1 p. 91; SG pp. 202, 203)

A number used in computation that is close enough to give a good estimate, but is also easy to compute with mentally, e.g., 25 and 30 are convenient numbers for 27.

**Cubic Centimeter** (URG Unit 8 p. 30; SG p. 216)

The volume of a cube that is one centimeter long on each edge.

**D****Decimal** (URG Unit 3 p. 64)

1. A number written using the base-ten place value system.
2. A number containing a decimal point.

**Decimal Fraction** (URG Unit 10 p. 39)

A fraction written as a decimal. For example, 0.75 and 0.4 are decimal fractions and  $\frac{75}{100}$  and  $\frac{4}{10}$  are called common fractions.

**Decimeter** (URG Unit 10 p. 29; SG p. 271)

A unit of length in the metric system. A decimeter is  $\frac{1}{10}$  of a meter.

**Degree** (URG Unit 2 p. 81; SG p. 47)

A degree ( $^{\circ}$ ) is a unit of measure for angles. There are 360 degrees in a circle.

**Denominator** (URG Unit 10 p. 51 & Unit 12 pp. 26, 28; SG pp. 276, 326)

The number below the line in a fraction. The denominator indicates the number of equal parts in which the unit whole is divided. For example, the 5 is the denominator in the fraction  $\frac{2}{5}$ . In this case the unit whole is divided into five equal parts.

**Dividend** (URG Unit 3 p. 22; SG p. 58)

The number that is divided in a division problem, e.g., 12 is the dividend in  $12 \div 3 = 4$ .

**Division Sentence** (SG p. 58)

A number sentence involving division.

**Divisible** (URG Unit 7 p. 36; SG p. 184)

A number  $a$  is divisible by a number  $b$ , if there is no remainder when  $a$  is divided by  $b$ . For example, 12 is divisible by 4 but not by 5.

**Divisor** (URG Unit 3 p. 22 & Unit 8 p. 98; SG pp. 58, 235, 236)

In a division problem, the number by which another number is divided. In the problem  $12 \div 4 = 3$ , the 4 is the divisor, the 12 is the dividend, and the 3 is the quotient.

## E

**Edge** (URG Unit 9 p. 73; SG p. 256)

A line segment where two faces of a solid figure meet.

**Equilateral Triangle** (URG Unit 2 p. 92; SG p. 241)

A triangle with all sides and all angles equal.

**Equivalent Fractions** (URG Unit 12 pp. 30, 59; SG p. 343)

Fractions that have the same value, e.g.,  $\frac{2}{4} = \frac{1}{2}$ .

**Estimate** (URG Unit 6 p. 63 & Unit 7 p. 80; SG p. 202)

1. (verb) To find *about* how many.
2. (noun) An approximate number.

**Even Number** (SG p. 98)

Numbers that are multiples of 2 (2, 4, 6, 8, etc.) are called even numbers.

**Exponent** (URG Unit 4 p. 55; SG pp. 98, 113)

The number of times the base is multiplied by itself. In  $3^4 = 3 \times 3 \times 3 \times 3 = 81$ , the 3 is the base and the 4 is the exponent. The 3 is multiplied by itself 4 times.

**Extrapolation** (URG Unit 5 p. 24; SG p. 124)

Using patterns in data to make predictions or to estimate values that lie beyond the range of values in the set of data.

## F

**Fact Family** (URG Unit 3 pp. 22, 23; SG pp. 59, 234)

Related math facts, e.g.,  $3 \times 4 = 12$ ,  $4 \times 3 = 12$ ,  $12 \div 3 = 4$ ,  $12 \div 4 = 3$ .

**Face** (URG Unit 9 p. 73; SG p. 256)

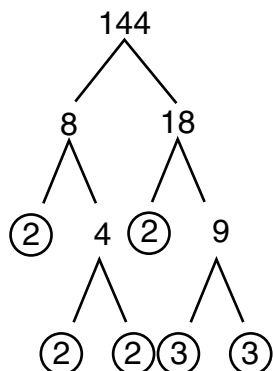
A plane figure that is one side of a solid figure.

**Factor** (URG Unit 3 p. 24 & Unit 4 p. 37; SG pp. 61, 103, 184)

1. In a multiplication problem, the numbers that are multiplied together. In the problem  $3 \times 4 = 12$ , 3 and 4 are the factors.
2. Whole numbers that can be multiplied together to get a number. That is, numbers that divide a number evenly, e.g., 1, 2, 3, 4, 6, and 12 are all the factors of 12.

**Factor Tree** (URG Unit 4 p. 53; SG p. 111)

A diagram that shows the prime factorization of a number.



**Fair Game or Fair Number Cube** (URG Unit 14 p. 39; SG p. 390)

A game in which it is equally likely that any player will win. A number cube is fair if all the faces are equally likely to appear.

**Fewest Pieces Rule** (URG Unit 3 pp. 41, 48, 49 & Unit 10 p. 42; SG p. 74)

Using the least number of base-ten pieces to represent a number. (See also base-ten pieces.)

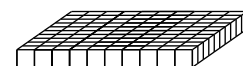
**Fixed Variables** (URG Unit 1 p. 76, Unit 2 p. 45, & Unit 5 pp. 58, 60; SG p. 141)

Variables in an experiment that are held constant or not changed.

**Flat** (URG Unit 3 pp. 5, 49 & Unit 6 p. 44; SG p. 68)

A block that measures 1 cm  $\times$  10 cm  $\times$  10 cm.

It is one of the base-ten pieces and is often used to represent 100. (See also base-ten pieces.)



**Forgiving Method of Division**

(URG Unit 13 p. 47; SG p. 366)

A paper-and-pencil method for division in which successive partial quotients are chosen and partial products are subtracted from the dividend, until the remainder is less than the divisor. The sum of the partial quotients is the quotient. For example,  $644 \div 7$  can be solved as shown at the right. This method of division is called the forgiving method because it “forgives” estimates of the partial quotients that are too low.

$$\begin{array}{r}
 92 \\
 7 \overline{)644} \\
 \underline{140} \phantom{0} \\
 504 \phantom{0} \\
 \underline{350} \phantom{0} \\
 154 \phantom{0} \\
 \underline{140} \phantom{0} \\
 14 \phantom{0} \\
 \underline{14} \phantom{0} \\
 0 \phantom{0} \\
 \hline
 92
 \end{array}$$

**Front-end Estimation** (URG Unit 3 pp. 6, 65)

Estimation by looking at the left-most digit.

**Function** (URG Unit 15 pp. 6, 60)

A rule that assigns to any input number exactly one output number. More generally, a rule that assigns to the elements of one set (the domain) exactly one element of another set (the target).

## G

## H

**Hexagon** (URG Unit 2 p. 97)

A six-sided polygon.

**Hieroglyphics** (URG Unit 11 p. 70)

An ancient Egyptian form of writing.

## I

### **Identity Property of Multiplication** (URG Unit 3 p. 25)

This is also known as the Property of One for Multiplication. One times any number is that number. Using variables,  $n \times 1 = n$ .

### **Impossible Event** (SG p. 384)

An event that has a probability of 0 or 0%.

### **Infinite** (URG Unit 9 p. 69)

Cannot be counted in a finite amount of time. More than any number.

### **Interpolation** (URG Unit 5 p. 24; SG p. 124)

Making predictions or estimating values that lie between data points in a set of data.

### **Intersect** (SG p. 238)

To meet or cross.

## J

## K

## L

### **Likely Event** (SG p. 385)

An event that has a high probability of occurring.

### **Line** (URG Unit 9 pp. 5, 29; SG p. 239)

A set of points that form a straight path extending infinitely in two directions.

### **Line Segment** (URG Unit 9 p. 29; SG p. 239)

A part of a line between and including two points called the endpoints.

### **Line of Symmetry** (URG Unit 9 pp. 6, 51)

A line is a line of symmetry for a plane figure if, when the figure is folded along this line, the two parts match exactly.

### **Line Symmetry** (URG Unit 9 pp. 6, 51; SG p. 251)

A figure has line symmetry if it has at least one line of symmetry.

### **Liter** (SG p. 219)

Metric unit used to measure volume. A liter is a little more than a quart.

## M

### **Manipulated Variable** (URG Unit 5 pp. 58, 59, 60 & Unit 10 p. 66; SG p. 140)

In an experiment, the variable with values known at the beginning of the experiment. The experimenter often chooses these values before data is collected. The manipulated variable is often called the independent variable.

### **Mass** (URG Unit 8 p. 29 & Unit 15 pp. 70, 72, 79; SG pp. 417, 418)

The amount of matter in an object.

### **Mean** (URG Unit 1 p. 53 & Unit 5 pp. 39, 40; SG pp. 125, 135)

An average of a set of numbers that is found by adding the values of the data and dividing by the number of values.

### **Measurement Division** (URG Unit 4 p. 5)

Division as equal grouping. The total number of objects and the number of objects in each group are known. The number of groups is the unknown. For example, tulip bulbs come in packages of 8. If 216 bulbs are sold, how many packages are sold?

### **Measurement Error**

The unavoidable error that occurs due to the limitations inherent to any measurement instrument.

### **Median** (URG Unit 1 p. 53 & Unit 5 pp. 39, 40; SG pp. 13, 125)

For a set with an odd number of data arranged in order, it is the middle number. For an even number of data arranged in order, it is the number halfway between the two middle numbers.

### **Megabit** (URG Unit 6 p. 45)

A base-ten model that is a cube with an edge of length 100 cm. It represents 1,000,000 since it has a volume of 1,000,000 cubic cm.

### **Meniscus** (URG Unit 8 p. 28; SG p. 221; DAB p. 101)

The curved surface formed when a liquid creeps up the side of a container (for example, a graduated cylinder).

### **Meter** (SG p. 270)

A unit of length in the metric system. A meter is a bit more than 39 inches.

### **Milliliter (ml)** (URG Unit 8 p. 30; SG p. 219)

A measure of capacity in the metric system that is the volume of a cube that is one centimeter long on each side.

### **Millimeter** (SG p. 273)

A unit of length in the metric system. A millimeter is one-thousandth of a meter i.e. one-tenth of a centimeter.

### **Millions Period** (URG Unit 6 p. 24; SG pp. 151, 158, 159)

The sequence of digits (if any) in the millions place, the ten-millions place, and the hundred millions place. In the number 12,**456**,789,987 the millions period is in bold type.

### **Multiple** (URG Unit 4 p. 28 & Unit 7 p. 65; SG pp. 98, 185)

A number is a multiple of another number if it is evenly divisible by that number. For example, 12 is a multiple of 2 since 2 divides 12 evenly.

### **Multiplicand** (URG Unit 11 pp. 5, 29)

Either of the numbers being multiplied in a multiplication problem.

## N

**Negative Number** (URG Unit 3 p. 82; SG p. 87)

A number less than zero; a number to the left of zero on a horizontal number line.

**Net** (URG Unit 9 p. 6; SG p. 258)

A way of representing the surface of a three-dimensional solid in two-dimensions. A net can be obtained by cutting the surface along edges until it can be laid flat on a plane.

**Number Sentence**

An equation or inequality with numbers. For example,  $3 \times 2 + 5 = 10 + 1$  and  $2 < 3 + 1$

**Numeral** (URG Unit 3 p. 31)

A symbol used to represent a number.

**Numerator** (URG Unit 10 p. 51 & Unit 12 pp. 26, 28; SG pp. 276, 326)

The number written above the line in a fraction. For example, the 2 is the numerator in the fraction  $\frac{2}{5}$ . (See also denominator.)

**Numerical Variable** (URG Unit 1 pp. 5, 40; SG p. 7)

Variables with values that are numbers. (See also variable and value.)

## O

**Obtuse angle** (URG Unit 2 p. 83 & Unit 9 p. 39; SG p. 51)

An angle that measures more than  $90^\circ$ .

**Odd Number** (SG p. 98)

Numbers that are not multiples of 2 (1, 3, 5, 7, etc.) are called odd numbers.

**Ones Period** (URG Unit 6 p. 25; SG pp. 151, 158)

The sequence of digits (if any) in the ones place, the tens place, and the hundreds place. In the number 12,456,789,**987** the ones period is in bold type.

**Operation** (SG p. 180)

A process that takes two numbers and results in a third. This, more precisely, is called a binary operation. For example, addition, subtraction, multiplication, and division are operations.

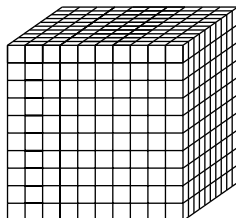
**Order of Operations** (URG Unit 7 p. 28; SG p. 180)

A convention that determines how to find the value of an expression that has more than one operation.

## P

**Pack** (URG Unit 3 pp. 5, 49; SG p. 68)

A cube that measures 10 cm on each edge. It is one of the base-ten pieces and is often used to represent 1000. (See also base-ten pieces.)



**Papyrus** (URG Unit 11 p. 72)

A type of writing paper used by the ancient Egyptians.

**Parallel Lines** (URG Unit 9 pp. 28, 31; SG p. 238)

Lines that are in the same direction. In the plane, parallel lines are lines that do not intersect.

**Parallelogram** (URG Unit 9 p. 30; SG p. 241)

A quadrilateral with two pairs of parallel sides.

**Partitive Division** (URG Unit 4 p. 5 & Unit 15 p. 4)

Division as equal sharing. The total number of objects and the number of groups are known. The number of objects in each group is the unknown. For example, Frank has 144 marbles that he divides equally into 6 groups. How many marbles are in each group?

**Perimeter** (URG Unit 2 p. 33; SG pp. 29, 33)

The distance around a two-dimensional shape.

**Period** (URG Unit 6 p. 25; SG p. 151)

A group of three places in a large number, starting on the right, often separated by commas as shown at the right.

53,426,879  
millions period    thousands period    ones period

**Perpendicular** (URG Unit 9 p. 28; SG p. 238)

Perpendicular lines are lines that meet at right angles.

**Perspective** (URG Unit 9 p. 76)

The art of drawing solid objects on a flat surface so that it produces the same impression as do the actual objects when viewed from a particular point.

**Point** (URG Unit 9 p. 38)

An exact position in the plane or in space.

**Point Graph** (URG Unit 2 p. 45)

A graph that shows the relation between two variables (say  $x$  and  $y$ ) by plotting data points  $(x, y)$  using Cartesian coordinates.

**Polygon** (URG Unit 9 p. 43; SG p. 247)

A two-dimensional connected figure made of line segments in which each endpoint of every side meets with an endpoint of exactly one other side.

**Polyhedron** (URG Unit 9 p. 79)

A connected geometric solid whose surface is made of polygons.

**Portfolio** (URG Unit 2 p. 74)

A collection of student work that shows how a student's skills, attitudes, and knowledge change over time.

**Positive Number** (URG Unit 3 p. 79; SG p. 88)

A number greater than zero; a number to the right of zero on a horizontal number line.

**Powers of Two** (URG Unit 6 p. 32; SG p. 155)

2 multiplied by itself a certain number of times.  $2^1 = 2$ ,  
 $2^2 = 2 \times 2 = 4$ ,  $2^3 = 2 \times 2 \times 2 = 8$ , etc.

**Prime Factor** (URG Unit 4 p. 53; SG p. 110)

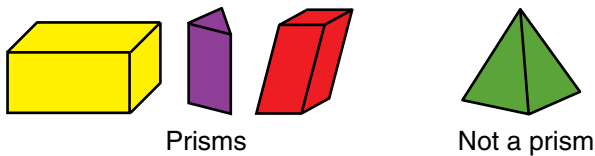
A factor of a number that is itself prime.

**Prime Number** (URG Unit 4 pp. 5, 28, 40; SG pp. 98, 104)

A number that has exactly two factors, itself and 1. For example, 7 has exactly two distinct factors, 1 and 7.

**Prism** (URG Unit 9 pp. 7, 78, 79; SG p. 259)

A polyhedron that has two congruent faces, called bases, that are parallel to each other, and all other faces are parallelograms. If the other faces are rectangles the prism is called a right prism.

**Probability** (URG Unit 14 pp. 4, 25, 39; SG pp. 385, 390)

A number from 0 to 1 (0% to 100%) that describes how likely an event is to happen. The closer that the probability of an event is to one, the more likely the event will happen.

**Product** (URG Unit 3 p. 24; SG pp. 61, 107)

The answer to a multiplication problem. In the problem  $3 \times 4 = 12$ , 12 is the product.

**Q****Quadrilateral** (URG Unit 9 pp. 30, 43; SG pp. 56, 247)

A polygon with four sides. (See also polygon.)

**Quick Paper-and-Pencil Method for Addition**

(URG Unit 3 p. 63; SG p. 79)

A classical method for adding multidigit numbers.

See example at right:

$$\begin{array}{r} 1326 \\ +575 \\ \hline 1901 \end{array}$$

**Quick Paper-and-Pencil Method for Subtraction**

(SG p. 82)

A classical method for subtraction. For example:

$$\begin{array}{r} 01121 \\ \sqrt{1237} \\ -459 \\ \hline 778 \end{array}$$

**Quotient** (URG Unit 3 p. 22 & Unit 13 p. 47;

SG pp. 58, 235, 236)

The answer to a division problem. In the problem  $12 \div 3 = 4$ , the 4 is the quotient.

**R****Ray** (URG Unit 9 pp. 29, 38; SG p. 240)

A part of a line that has one endpoint and extends indefinitely in one direction.

**Rectangle** (URG Unit 2 p. 66 & Unit 9 p. 67)

A quadrilateral with four right angles.

**Recording Sheet** (SG pp. 68, 79)

A place value chart used for addition and subtraction problems.

**Reflex Angle** (URG Unit 2 p. 83)

An angle larger than  $180^\circ$  but less than  $360^\circ$ .

**Regular** (URG Unit 9 p. 66)

A polygon is regular if all sides are of equal length and all angles are equal.

**Remainder** (URG Unit 13 p. 46)

Something that remains or is left after a whole number division problem. The portion of the dividend that is not evenly divisible by the divisor, e.g.,  $16 \div 5 = 3$  with 1 as a remainder.

**Responding Variable** (URG Unit 5 pp. 58, 60 &

Unit 10 p. 66; SG p. 140)

The variable whose values result from the experiment. Experimenters find the values of the responding variable by doing the experiment. The responding variable is often called the dependent variable.

**Rhombus** (URG Unit 2 p. 97)

A quadrilateral with four sides of equal length.

**Right Angle** (URG Unit 2 p. 82 & Unit 9 p. 39; SG p. 48)

An angle that measures  $90^\circ$ .

**Roman Numeral** (URG Unit 3 pp. 31, 32; SG p. 64)

A system of representing numbers used by the Romans. The symbol I represents 1, V represents five, X represents ten, etc.

**Rounded Number** (URG Unit 6 pp. 73, 74 & Unit 7 p. 87)

See rounding.

**Rounding** (URG Unit 6 p. 55)

Replacing a number with the nearest convenient number. Numbers are often rounded to the nearest whole number, ten, hundred, fifty, etc.

**S****Skinny** (URG Unit 3 pp. 5, 39, 48 & Unit 6 p. 44;

SG p. 68)

A block that measures  $1 \text{ cm} \times 1 \text{ cm} \times 10 \text{ cm}$ . It is one of the base-ten pieces that is often used to represent 10. (See also base-ten pieces.)

**Solid** (SG p. 256)

A three-dimensional figure that has volume  $> 0$ .

**Square** (URG Unit 2 pp. 66, 92)

- A polygon with four equal sides and four right angles.
- The square of a number is that number multiplied by itself. For example, the square of 6 is 36.

**Square Inch** (SG p. 29)

The area of a square with a side length of one inch.

**Square Number** (URG Unit 4 p. 28; SG p. 98)

A number that is the result of multiplying a whole number by itself.

**Square Root** (URG Unit 15 p. 48)

The square root of a number  $N$  is the number whose square is  $N$ . The symbol for square root is  $\sqrt{\quad}$ . For example, the square root of 25 is 5, since  $5 \times 5 = 25$ . In symbols we write  $\sqrt{25} = 5$ . The square root of 26 is not a whole number.

**Subtractive Principle** (URG Unit 3 p. 32; SG p. 66)

A method of interpreting certain Roman numerals. For example, IX represents 9 while XI represents 11.

**Super Bit** (URG Unit 6 pp. 43, 44)

A base-ten model that is a cube with an edge of length 10 cm. It represents 1,000 since it has a volume of 1,000 cubic centimeters. It is usually called a pack.

**Super Flat** (URG Unit 6 p. 44)

A base-ten model that is a rectangular solid that measures 10 cm  $\times$  100 cm  $\times$  100 cm. It represents 100,000 since it has a volume of 100,000 cubic cm.

**Super Skinny** (URG Unit 6 p. 44)

A base-ten model that is a rectangular solid that measures 10 cm  $\times$  10 cm  $\times$  100 cm. It represents 10,000 since it has a volume of 10,000 cubic cm.

**Survey** (SG p. 358)

An investigation conducted by collecting data from a sample of a population and then analyzing it. Usually surveys are used to make predictions about the entire population.

## T

**Tally** (SG p. 64)

A way of recording a count by making marks. Usually tallies are grouped in fives.  $\text{|||||}$

**Ten Percent (10%)** (URG Unit 6 p. 64 & Unit 7 p. 80)  
10 out of every hundred or  $\frac{1}{10}$ .

**Thousands Period** (URG Unit 6 p. 24; SG pp. 151, 158, 159)

The sequence of digits (if any) in the thousands place, the ten-thousands place, and the hundred-thousands place. In the number 12,456,**789**,987 the thousands period is in bold type.

**TIMS Laboratory Method**

A method that students use to organize experiments and investigations. It involves four components: picture, data table, graph, and questions. It is a way to help students learn about the scientific method.

**Translational Symmetry** (URG Unit 9 p. 6)

A pattern has translational symmetry if there is a translation that moves the pattern so it coincides with itself.

**Trapezoid** (URG Unit 2 p. 97)

A quadrilateral with exactly one pair of parallel sides.

**Triangle** (URG Unit 2 p. 97)

A polygon with three sides.

**Turn-around Facts** (URG Unit 3 p. 23; SG p. 61)

Multiplication facts that have the same factors but in a different order, e.g.,  $3 \times 4 = 12$  and  $4 \times 3 = 12$ . (See also commutative property of multiplication.)

**Turn-around Rule** (URG Unit 4 p. 24)

A term used to describe the commutative property of multiplication. (See also commutative property of multiplication.)

**Turn Symmetry** (URG Unit 9 pp. 5, 53; SG p. 251)

A figure has turn symmetry if it can be rotated around a point (called the center of turning) through an angle less than  $360^\circ$  and so that the turned figure matches the original.

**Type of Turn Symmetry** (URG Unit 9 p. 53)

The number of times a figure coincides with itself when it is rotated about its center of turning. For example, a square has 4-fold turn symmetry. This is also called  $\frac{1}{4}$  turn symmetry.

## U

**Undefined (Division by Zero)** (URG Unit 13 p. 68; SG p. 376)

We say division by 0 is undefined because there is no number that satisfies the definition of division when 0 is the divisor. For example, if there were a number  $N = 3 \div 0$ , it would be the unique number  $N$  that makes  $N \times 0 = 3$  a true statement. There is no such  $N$ .

**Unlikely Event** (SG p. 384)

An event that has small probability.

## V

**Value** (URG Unit 1 pp. 29, 40; SG pp. 3, 7)

The possible outcomes of a variable. For example, red, green, and blue are possible values for the variable *color*. Two meters and 1.65 meters are possible values for the variable *length*.

**Variable** (URG Unit 1 pp. 5, 29; SG p. 3)

1. An attribute or quantity that changes or varies. (*See also* categorical variable and numerical variable.)
2. A symbol that can stand for a variable.

**Vertex** (URG Unit 2 p. 81 & Unit 9 pp. 38, 73; SG pp. 46, 243, 256)

The common endpoint of two rays or line segments.

**Volume** (URG Unit 8 p. 29 & Unit 9 p. 88; SG p. 216)

The measure of the amount of space occupied by an object.

**Volume by Displacement** (SG p. 217; DAB p. 101)

A way of measuring volume by measuring the amount of water (or some other fluid) it displaces.

## W

**Weight** (SG p. 417)

A measure of the pull of gravity on an object. One unit for measuring weight is the pound.

## X

## Y

## Z

**Zero Property of Multiplication** (URG Unit 3 p. 25)

Any number times zero is zero. Using variables,  $n \times 0 = 0$ .