Describing Patterns

Diagram #	Number of Blocks

Figure 1   Figure 2   Figure 3

Describe the pattern in detail.

How many squares will there be in the 4th diagram?

1st   2nd   3rd   4th

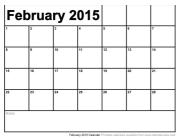| Diagram #	Number of Blocks

$$\frac{1}{9} = 0.\overline{1}$$

Describe the pattern:

$$\frac{2}{9} = 0.\overline{2}$$

Write 5 as a decimal number using bar notation.

$$\frac{3}{9} = 0.\overline{3}$$

Use the pattern to write $0.\overline{7}$ as a fraction.

February 2015

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

Notes:

February 2015 Calendar Printable calendars available from www.calendarcraze.com

Choose any 4 numbers that form a 2x2 square on the calendar. Multiply the diagonal numbers in the square. Repeat using 4 different numbers. Repeat again. Describe the pattern.

Variables and Expressions

Value: a known amount.

Variable: A letter that is used to represent some unknown value.

Constant: a number that does not change. It increases or decreases the value of an expression.

Numerical Coefficient: a number that multiplies the variable.

Expression: Any single number, variable or combination of operations (+,-,x,—)

Three employees work at the food bank. Every day, some volunteers arrive to help out. What is an expression for the number of people working at the food bank?

What is the **value** of the **constant**?

Here is a pattern of toothpick triangles. Write an expression for the perimeter of a triangle in this pattern in relation to the base. What is the value of the **numerical coefficient.**

Sandy is sharing some grapes equally among her 4 friends. What is an expression for the number of grapes each friend gets?

Tyrone's family is entering a fishing contest. Five of her family do not catch any fish. How many of her family members do catch fish?

A group of students are talking between classes. Two friends leave the group. What is an expression for the number in the group after the friends leave? **Label the parts of the expression.**

You walk into a store to buy 4 boxes of cereal. What is an expression for the cost of 4 boxes of cereal? **Label the parts of the expression.**

Key Ideas

Any letter can be used as a variable to represent a number or amount.

Expressions give us a simple quick way to describe a pattern. Label the expressions below.

$$3f \qquad n + 1$$

To write an pattern as an expression.

   -choose a variable and tell what it represents.

   -describe the pattern using the variable, numbers, and operations.