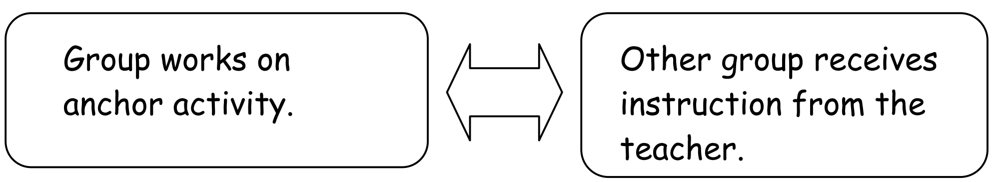
Option: **Using an Anchor Activity**

The purpose of an anchor activity is to reinforce, deepen, and extend students' understanding of the concepts presented in a unit. It provides meaningful tasks for students to work on while the teacher is working with another group or when the student has completed an assignment. Using anchor activities creates a productive work environment and is an efficient use of students' time. An anchor is to be completed over a period of time—anywhere from a week to a grading period. A student does the work independent of the teacher either individually or with a partner. It is important that all work in an anchor activity "count" and that students do not perceive it as busy work. The work may include:

- long-term projects
- selected games
- journal writing
- commercial kits
- learning centers/packets
- selected websites
- creating games, books, etc.
- books related to math

The following is a suggested sequence for implementing an anchor activity:
1. Introduce the anchor at the beginning of a new unit with all the resources needed readily available.
2. Teach the whole class to work independently and quietly on the anchor activity.
3. Provide time for practice of activity and procedures.
4. Begin small group instruction by alternating groups.



In summary, anchors work best when:
- expectations are clear.
- tasks are taught and practiced beforehand.
- students are held accountable for on-task behavior and completing work.

CUBING ANCHOR ACTIVITY

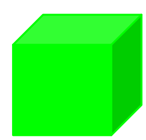
Cubing is a strategy that is designed to help students think about a topic or idea from many different perspectives. The tasks are placed on the six sides of a cube and often use commands that help support thinking (justify, describe, evaluate, connect, etc.). A cube itself may be rolled, or a number cube can be used for a cube with its faces numbered. The students complete the task on the side that matches the number roled or the side that ends face up. One cube can be differentiated or there can be different cubes for different groups of students.

Benefits of Cubing:

- Cubes can be used to differentiate activities on the basis of student readiness, interest, or learning profile.
- Cubing allows students some choice and control of their tasks.
- Cubing promotes thinking skills.

Management Suggestions for Cubing:

1. Teacher meets with a small group of students to introduce, review, reinforce, or assess a concept.
2. The rest of the class engages in the cubing activity.
3. Students are assigned an ability or interest level cube to work on.
4. Students roll the cube a designated number of times and the face that points up becomes the task for the student or group to complete.
5. Students are assessed on their completed work.



Number Computation and Number Patterns and Relationships

There are two cubes for the activity in this unit. Some of the tasks are the same and others are differentiated by readiness. Almost all of the activities are tiered. The blue cube is aligned to Grade 4 indicators and the green cube is aligned to Grade 5 indicators. All of the activities extend the students' understanding of Number Computation and Number Patterns and Relationships.

Making cubes: Run the cube off on the color paper indicated. Glue the cube onto an old file folder or something of similar weight. Cut the cube out, fold along lines, and assemble. Before taping the cube closed, stuff with napkins, newspaper, or something else that will help the cube maintain its shape. If you would like to use a larger cube, the templates can be enlarged and each face glued to the face of a larger cube box.

Blue Cube

"Broken Calculator" 6.4.4.1, 6.4.3.2, 6.4.3.1

These tasks are based on *Hot Math Topics: Multiplication and Division, Grade 4* #86. Students are asked to find products and quotients given that a key on the calculator is broken. Students must use their knowledge of factors, multiples, multiplication, and division to find an alternate way to use the calculator to solve the problem. See "Broken Calculator Cards – Blue" cards. These should be coded blue to distinguish them from the above grade level cards (green).

"True Equations" 6.4.6.1, 6.4.4.1, 1.4.3.1, 1.4.3.2

This task is based on *Hot Math Topics: Multiplication and Division, Grade 4,* #36. Given an equation with shapes substituted for numbers, students must identify all possible numbers that make the equation true. See "True Equations – Blue" card. This should be coded blue to distinguish it from the above grade level card (green).

"What's My Rule?" 1.4.1.1, 1.4.1.2

This task is based on *Hot Math Topics: Estimation and Logical Reasoning, Grade 4,* #15. Using snap cubes, students build models of buildings given certain specifications. Students must generalize a pattern by stating a rule that shows a relationship between the building number and the number of cubes in each building. See "What's My Rule? – Blue" cards. This should be coded blue to distinguish it from the above grade level card (green).

"What is it doing?" 1.4.1.1, 1.4.1.2

These tasks are based on *Hot Math Topics: Estimation and Logical Reasoning, Grade 4,* #22. Students describe a rule to explain what a symbol is doing in a mathematical sentence. See "What is it doing? - Blue" cards.

"Mr. Fuddle Forgets…Again!" 1.4.2.1, 6.4.6.1

Students correct Mr. Fuddle's mistakes regarding the Commutative and Associative Properties. They also help Mr. Fuddle understand how to use parentheses in numeric expressions. See "Mr. Fuddle Forgets…Again! – Blue" card. This should be coded blue to distinguish it from the above grade level card (green).

"Making Equations" 6.4.6.1, 6.4.4.1, 1.4.3.1, 1.4.3.2

These tasks are based on *Nimble with Numbers, Grades 4/5,* p. 71-72. Given a set of 4 numbers, students use three of the numbers and two operations to make equations. Students need to insert parentheses where appropriate to make the equations true. Students explain why a solution is not possible or why there is more than one solution for some equations.

Green Cube

"Broken Calculator" 6.5.3.4

These tasks are based on *Hot Math Topics: Multiplication and Division, Grade 4* #86. Students are asked to find products and quotients given that a key on the calculator is broken. Students must use their knowledge of factors, multiples, multiplication, and division to find an alternate way to use the calculator to solve the problem. See "Broken Calculator Cards – Green" cards. These should be coded green to distinguish them from the on grade level cards (blue).

"True Equations" 1.5.3.1, 6.5.3.4

This task is based on *Nimble with Numbers, Grades 5/6*, p. 27. Given an equation with shapes substituted for numbers, students must identify all possible numbers that make the equation true. See "True Equations – Green" card. This should be coded green to distinguish it from the on grade level card (blue).

"What's My Rule?" 1.5.1.1, 1.5.1.2, 1.5.1.3, 1.5.1.4

This task is based on *Hot Math Topics: Estimation and Logical Reasoning, Grade 4,* #15. Using snap cubes, students build models of buildings given certain specifications. Students must generalize a pattern by stating a rule that shows a relationship between the building number and the number of cubes in each building. Students also graph the relationship. See "What's My Rule? – Green" cards. This should be coded green to distinguish it from the on grade level card (blue).

"Mr. Fuddle Forgets…Again!" 1.5.5.1

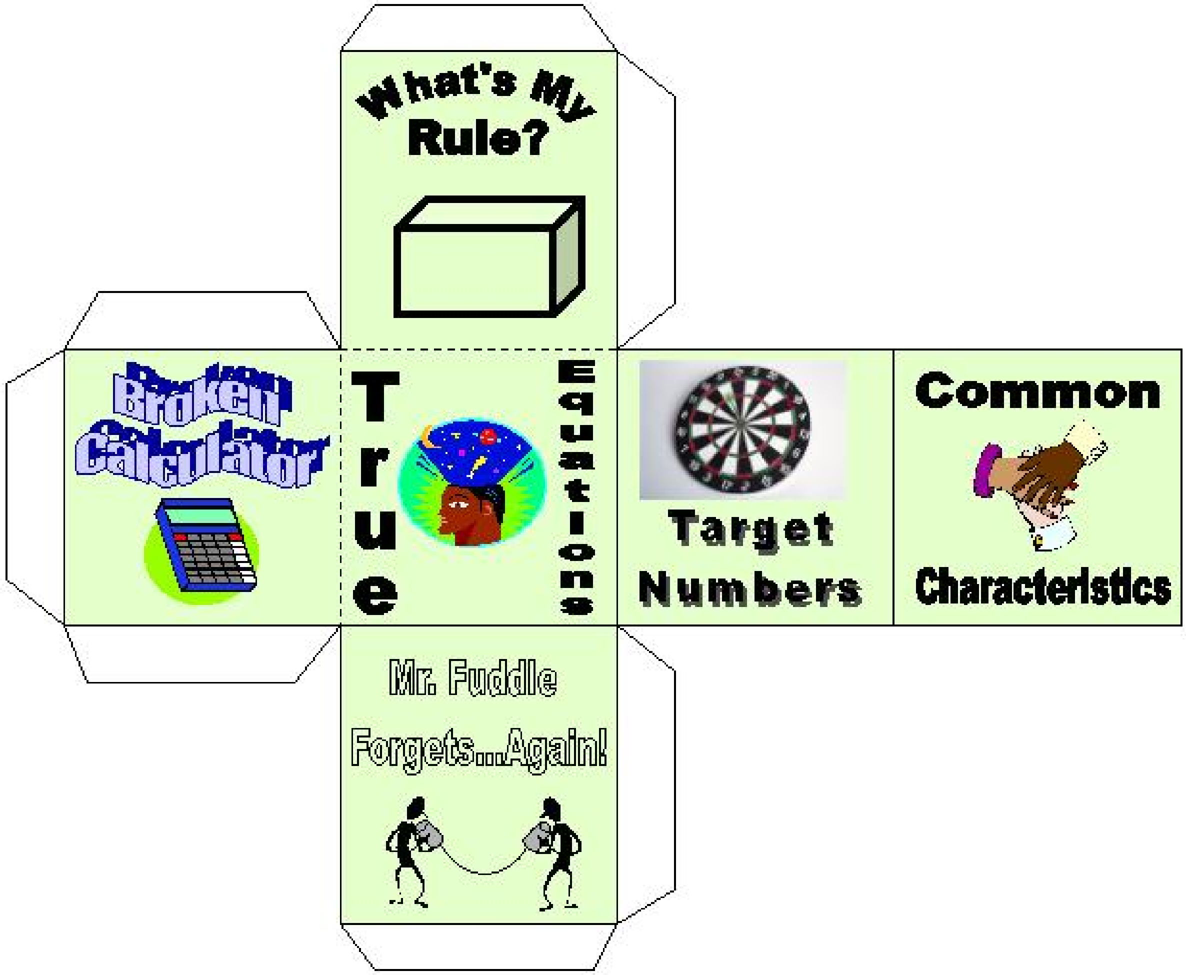
Students correct Mr. Fuddle's mistakes regarding graphing and identifying points in the first quadrant of the coordinate plane. See "Mr. Fuddle Forgets…Again! – Green" card. This should be coded green to distinguish it from the on grade level card (blue).

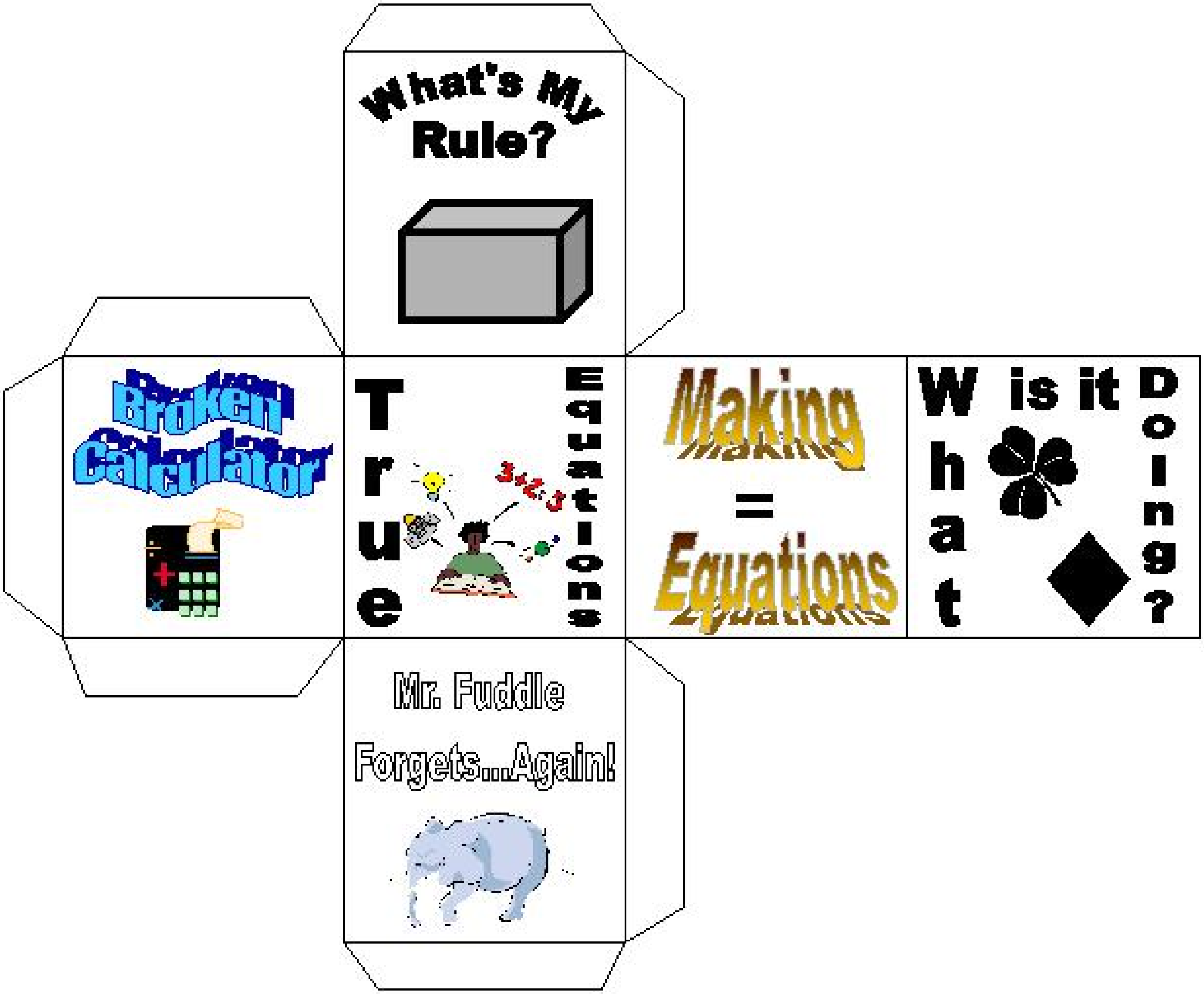
"Target Numbers" 1.5.2.1

This is a task from *Nimble with Numbers, Grades 5/6*, p. 28-29. Students create expressions by using at least three adjoining numbers and more than one operation to equal the indicated target numbers.

"Common Characteristics" 6.5.3.1, 6.5.3.2, 6.5.3.3, 6.5.3.4

These are tasks based on *Nimble with Numbers, Grades 5/6*, p. 134. Given a word bank and a set of 4 numbers, students must determine at least one common characteristic shared by only 3 of the 4 numbers.


What's My Rule?
Broken Calculator
True
Equations
Target Numbers
Common
Characteristics
Mr. Fuddle
Forgets...Again!

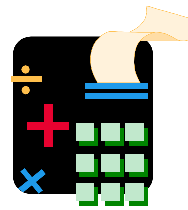

What's My Rule?
Broken Calculator
True
Equations
Making
=
Equations
What is it Doing?
Mr. Fuddle
Forgets...Again!

(blue)

BROKEN CALCULATOR #1

Suppose you want to use your calculator to find this quotient but the 4 key is broken.

$$656 \div 4$$



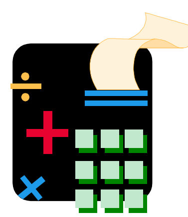
Use your knowledge of factors, multiples, multiplication, and division to explain an alternate way to use the calculator to find the quotient.

(blue)

BROKEN CALCULATOR #2

Suppose you want to use your calculator to find this product but the 5 key is broken.

$$34 \text{ x } 5$$

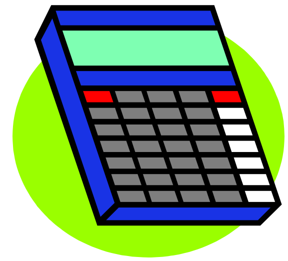


Use your knowledge of factors, multiples, multiplication, and division to explain an alternate way to use the calculator to find the quotient.

(green)

BROKEN CALCULATOR #1

Suppose you want to use your calculator to find this quotient but the 6 key is broken.



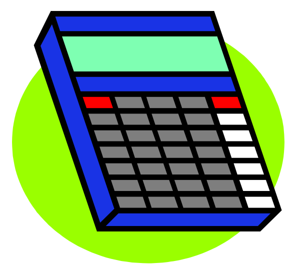
$$432 \div 6$$

Use your knowledge of factors, multiples, multiplication, and division to explain an alternate way to use the calculator to find the quotient.

(green)

BROKEN CALCULATOR #2

Suppose you want to use your calculator to find this product but the 5 key is broken.



$$34 \text{ x } 15$$

Use your knowledge of factors, multiples, multiplication, and division to explain an alternate way to use the calculator to find the quotient.

(blue)

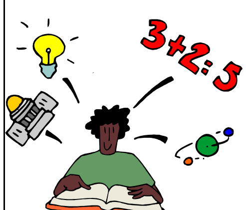
TRUE EQUATIONS

Find all the whole numbers you can for □ and △ that make the equation true.

$$(\square \div 2) + \triangle = 70$$

Make a table to show the numbers. Describe your strategy for finding the numbers. Think about multiples, factors, and divisibility.

□												
△												
Strategy												



(green)

TRUE EQUATIONS

Find all the numbers you can for □ and △ that make the equation true.

$$(\square \div 6) + \triangle = 200$$

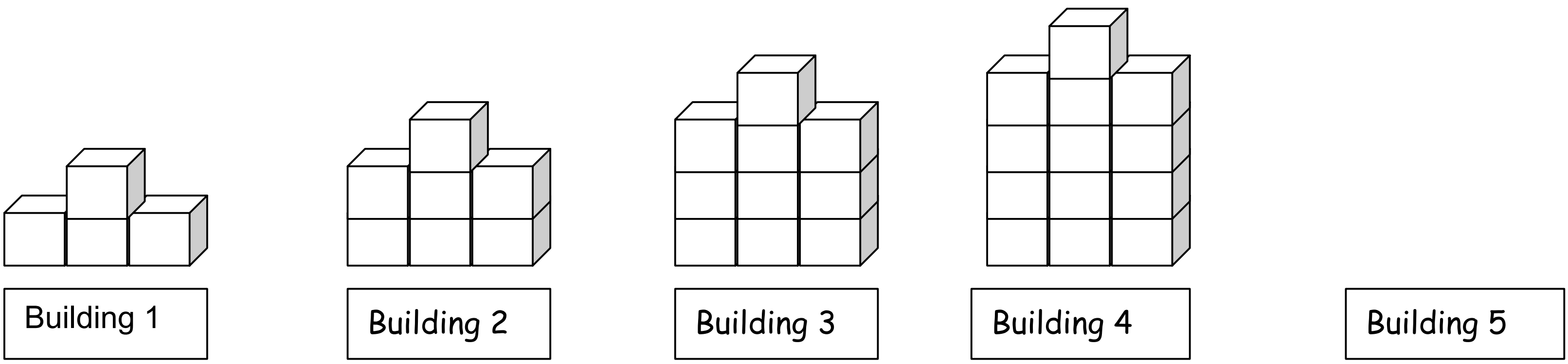
Make a table to show the numbers. Describe your strategy for finding the numbers. Think about multiples, factors, and divisibility .

□												
△												
Strategy 												

(blue)

What's My Rule?

Use Snap Cubes to build these structures. Follow the pattern to build Building 5.

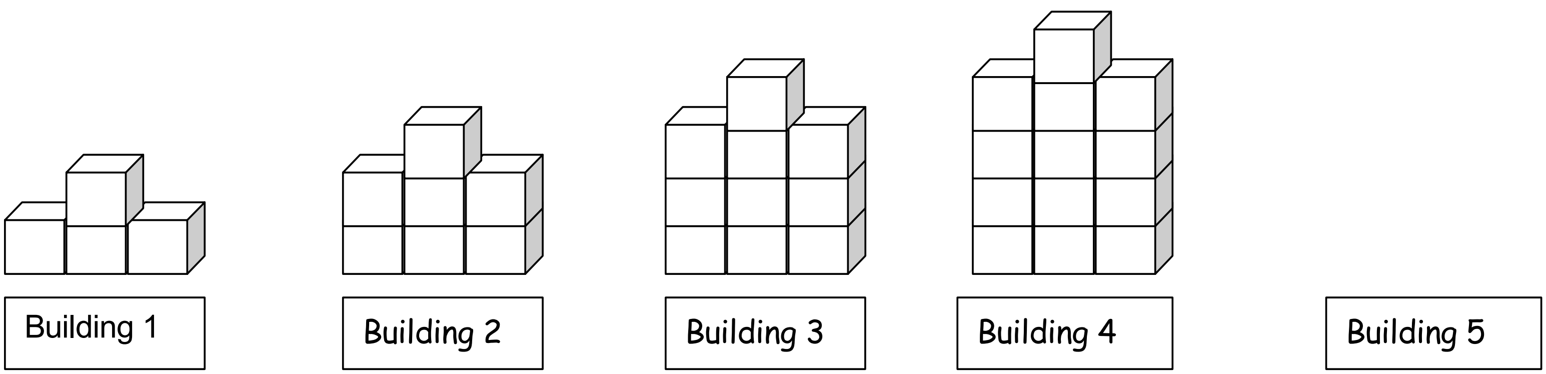


Write a rule in words for finding the number of cubes in each building from the building number.

(green)

What's My Rule?

Use Snap Cubes to build these structures. Follow the pattern to build Building 5.



Write a rule in words for finding the number of cubes in each building from the building number.

If X is the building number and Y is the number of cubes, write an equation for finding the number of cubes in each building from the building number.

Use this rule to find the number of cubes in Building 10. Use Snap Cubes to build Building 10. Use pictures, numbers, and/or words to compare your rule to your structure.

(blue)

WHAT IS IT DOING? #1

Write a rule in words to describe what ♣ is doing. ♣ does the same thing in each example.

4 ♣ 2 = 8	6 ♣ 3 = 15
7 ♣ 5 = 17	10 ♣ 2 = 14

The rule for ♣ is:

For example:

(blue)

WHAT IS IT DOING? #2

Write a rule in words to describe what ♦ is doing. ♦ does the same thing in each example.

4 ♦ 2 = 4	6 ♦ 3 = 6
7 ♦ 5 = 8.5	10 ♦ 2 = 7

The rule for ♦ is:

For example:

(blue)

MAKING EQUATIONS

Add, subtract, multiply, and/or divide any 3 of the following 4 numbers to complete the equations below. You may use parentheses. Is there more than one possible solution for some equations? Is a solution possible for each equation? Explain your answers to these questions on the back of this page.

1	2	4	5

For example: 5 – (4 x 1) = 1

_____ _____ _____ = 1	_____ _____ _____ = 7
_____ _____ _____ = 2	_____ _____ _____ = 8
_____ _____ _____ = 3	_____ _____ _____ = 9
_____ _____ _____ = 4	_____ _____ _____ = 10
_____ _____ _____ = 5	_____ _____ _____ = 11
_____ _____ _____ = 6	_____ _____ _____ = 12

(blue)

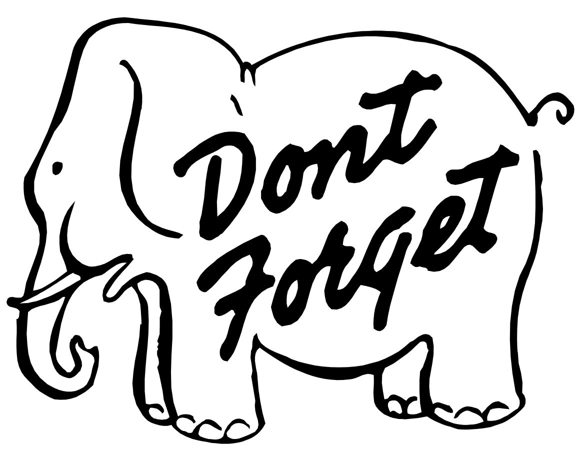
Mr. Fuddle Forgets…Again!

Mr. Fuddle's ideas about math are always a little bit, well, off. Mathematical properties are no exception. While he was taking notes in math class, he wrote down the following terms:

PROPERTY	Commutative	Associative	Multiplication	Addition	
Subtraction	Division	**Order** Grouping	Parentheses	Has	Does not have

However, Mr. Fuddle has no idea how they all fit together. Does the Associative Property have to do with order or grouping? Does subtraction have the Commutative Property?

Use words, pictures, and/or numbers to clear up Mr. Fuddle's misunderstandings. Be as clear and specific as possible, since Mr. Fuddle forgets easily!



(green)

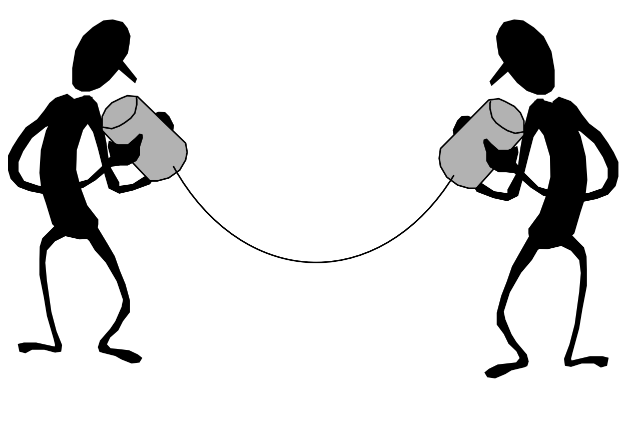
Mr. Fuddle Forgets...Again!

Mr. Fuddle's ideas about math are always a little bit, well, off. The Coordinate Plane is no exception. While he was taking notes in math class, he wrote down the following terms:

Coordinate plane	Ordered pair	Coordinates	X-axis	Origin
		Distance	Y-axis	Point
Horizontal	Vertical	Right	Up	

However, Mr. Fuddle has no idea how they all fit together. Is the X-axis vertical or horizontal? Does the Y coordinate tell you to go up or right?

Use words, pictures, and numbers to clear up Mr. Fuddle's misunderstandings. Be as clear and specific as possible, since Mr. Fuddle forgets easily!



(green)

TARGET NUMBERS

The number in the circle is the TARGET NUMBER. Use at least 3 adjacent numbers in the number square to create an expression whose value is the target number. Loop those numbers. Record the equation. Find at least two other ways to make the target number.

2	4	1	3	5
6	3	8	2	1
5	9	4	3	2
1	2	5	6	3
4	6	3	2	7

4

(9 – 5) × 1 = 4

____

____

____

2	4	1	3	5
6	3	8	2	1
5	9	4	3	2
1	2	5	6	3
4	6	3	2	7

10

____

____

____

(green)

Common Characteristics

Each puzzle below has 4 numbers. Your task is to determine at least two common characteristics shared by only 3 of the 4 numbers. In other words, which number is not like the others, and why? (Hint: Use the Word Bank.)

Multiple	Factor	Prime	Composite	Place value
Divisibility	GCF	Odd	Even	LCM

36	16
66	48

- 48 does not fit because it does not have 6 in the ones place
- ______________________________

151	51
63	99

- ______________________________
- ______________________________

Create Your Own. Have a friend solve it.

- ______________________________
- ______________________________