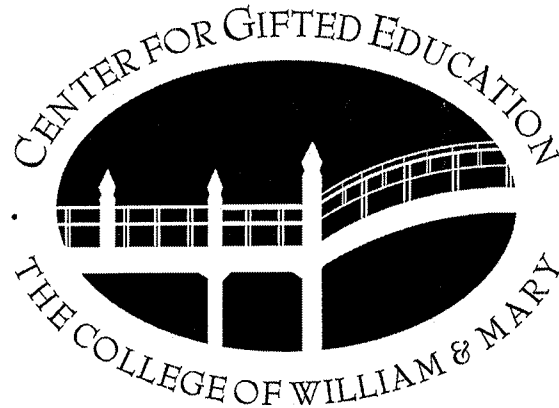


The NEW William and Mary Math Units



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Base Two Problems (Handout 6B)

Name: _____

Directions: Complete the following problems and show your work.

1. $11001_{\text{Base Two}} = \underline{\hspace{2cm}}_{\text{Base Ten}}$

2. $100001_{\text{Base Two}} = \underline{\hspace{2cm}}_{\text{Base Ten}}$

3. $43_{\text{Base Ten}} = \underline{\hspace{2cm}}_{\text{Base Two}}$

4. $78_{\text{Base Ten}} = \underline{\hspace{2cm}}_{\text{Base Two}}$

Base Two Place Value Table (Handout 6A)

Name: _____

					Units

Base Two Problems Answer Key (Teacher Resource 1)

Directions: Complete the following problems and show your work.

1. $11001_{\text{Base Two}} = \underline{\hspace{2cm}}_{\text{Base Ten}}$

$$(1 \times 16) + (1 \times 8) + (0 \times 4) + (0 \times 2) + (1 \times 1) = 16 + 8 + 1 = 25$$

2. $100001_{\text{Base Two}} = \underline{\hspace{2cm}}_{\text{Base Ten}}$

$$(1 \times 32) + (1 \times 1) = 33$$

3. $43_{\text{Base Ten}} = \underline{\hspace{2cm}}_{\text{Base Two}}$

$$101011$$

4. $78_{\text{Base Ten}} = \underline{\hspace{2cm}}_{\text{Base Two}}$

$$1001110$$

Binary Operations (Handout 9D)

Name: _____

Directions: All of these are Base Two numerals. Complete each of the problems.

1. Multiplication

$$\begin{array}{r} 101 \\ \times 11 \\ \hline \end{array}$$

2. Addition

$$\begin{array}{r} 1011 \\ + 101 \\ \hline \end{array}$$

3. Subtraction

$$\begin{array}{r} 1001 \\ - 111 \\ \hline \end{array}$$

4. Division

$$111 \div 11 =$$

Binary Operations Answer Key (Teacher Resource 4)

Directions: All of these are Base Two numerals. Complete each of the problems.

1. Multiplication

$$\begin{array}{r} 101 \\ \times 11 \\ \hline 101 \\ 101 \\ \hline 1111 \end{array}$$

2. Addition

$$\begin{array}{r} 1011 \\ + 101 \\ \hline 10000 \end{array}$$

3. Subtraction

$$\begin{array}{r} 1001 \\ - 111 \\ \hline 10 \end{array}$$

4. Division

$$111 \div 11 = 101$$

Letter Symmetry (Handout 4A)

Name: _____

Directions: Draw the line of symmetry for each letter if it exists.

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P
Q	R	S	T
U	V	W	X
Y	Z		

Reflective Writing (Handout 4G)

Name: _____

1. Draw the reflection of each group of letters or numbers over the line.

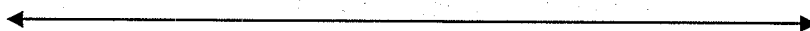
B
C
F
G



2
3
4
5



J K L N P S Z



dog
bread
fright
pack



2. Write this sentence as it would look if the paper was held up to a mirror.

I read about pigs.

3. Write this sentence as it would look if you held the paper up to a mirror.

The red house was cozy and quiet.

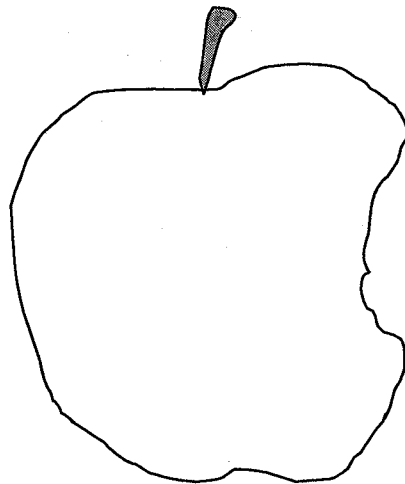
4. Print your first and last names. Then write them as they would look if you held the paper up to a mirror.

Slice the Apple (Handout 6B)

Name: _____

Imagine that a real apple with a bite out of it sits on a table (similar to the picture below). Imagine what the resulting cross sections would look like if five equally spaced slices are made.

- a) Draw the five slices if they are made parallel to the table top.
- b) Draw the five slices if they are made from top to bottom of the apple, parallel to the right side of this page.
- c) Draw the five slices if they are made from top to bottom of the apple, parallel to this sheet of paper.



Sierpinski Triangle (Handout 8A)

Name: _____

1. To make this fractal pattern on the dot paper, begin by drawing an equilateral triangle that is 16 units on each side (17 dots). This step is done for you below in the diagram.
 - a) Mark the midpoints of the sides of the triangle and connect them with line segments.
 - b) Shade in the middle "upside-down" triangle.
 - c) For each of the three remaining equilateral triangles, mark the midpoints of the sides of the triangle and connect them with line segments.
 - d) Shade the middle triangle created in each case.
 - e) Mark the midpoints of the sides of the remaining triangles and connect them with line segments.
 - f) If you continue this process forever, the result is called a Sierpinski Triangle.

