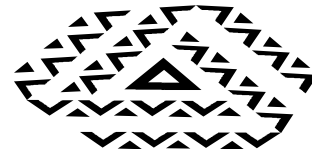


Algebra/Geometry Institute 2010



Virginia Curb

John F. Kennedy High

Grade 3

Mound Bayou, MS

Exploring Patterns

I. Teaching Objective(s):

Institute's Objective

- *The students will recognize and continue a number pattern*
- *The students will state a rule to explain a number pattern*

Mississippi math competencies and objectives:

- *2a. Create, describe, and extend growing and repeating patterns with physical materials and symbols including numbers. (DOK2)*

II. Instructional Activities:

The teacher will separate the students the students into groups.

The teacher will introduce the lesson by accessing the students' knowledge of patterns by asking each group in the class to give their best definition of a pattern (each group will be given a note card to write their definitions on).

Each group will share with the class their definitions of a pattern. This will be done by having one of the group members stand up before the class and state his or her definition out loud.

The teacher will start the lesson by introducing the different patterns used in math (attachment #1).

The teacher will utilize the concept attainment model of teaching by presenting positive and negative examples of logic patterns and number patterns to the students.

A teacher created positive example of a logic pattern will be placed on the overhead (attachment #2). The students will be asked to figure out the pattern of the given example. The students will explain why the shapes shown are an example of a logic pattern.

A teacher created negative example of a logic pattern will then be placed on the overhead (attachment #3). The students will be asked to determine the pattern of the example given. The students will not be able to correctly identify the next figure because there is no collective pattern within the shapes. The students will explain how the shapes shown are a negative example of a logic pattern.

A teacher created positive example of a number pattern will be placed on the overhead (attachment #4). The students will be asked to figure out the pattern of the example given. The students will explain to the students why the numbers shown are a positive example of a number pattern.

A teacher created negative example of a number pattern will be placed on the overhead (attachment #5). The students will be asked to figure out the pattern of the example given. The students will not be able to correctly identify the pattern within the numbers because there is no pattern. The numbers shown are random, without any specific pattern. The students will explain why the numbers shown are a negative example of a number pattern.

After the explanation of the negative example of a number pattern, the students will start, activity one, a card game to

identify logic patterns (attachment #6). The students will be given 10 minutes for this activity.

The students will continue on to activity two. In this activity they will have to determine the pattern given to them (attachment #7).

The final activity will include a nonconventional approach to learning math using visual patterns. This activity is called the Right Brain Math activity (attachment #8).

The students will be given a teacher created assessment at the end of the lesson. The students must carefully read the directions on the assessment and fill it out to the best of their abilities. This assessment will result in a weekly grade.

III. Materials

- *Overhead projector*
- *Note-cards (any size)*
- *Markers*
- *Envelopes (any size, but big enough for chosen note-cards)*
- *Character playing cards*
- *The following attachments:*
- *Attachments 1-8*
 - *Attachments 1 through 5 are all teacher created attachments to be used on the overhead.*
 - *Attachments 6-7 are teacher created activities*
 - *Attachment 8 is an activity from www.rightbrainmath.com*

IV. References

*Biesanz, Tom. Right Brain Math. 11 June 2010
<www.rightbrainmath.com>.*

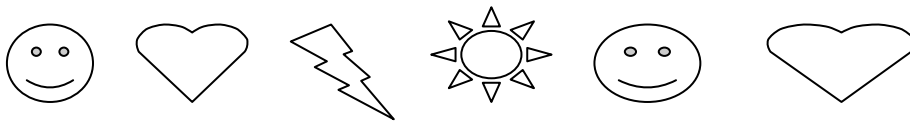
*Resources, Annenberg Media. Annenberg Media. 11 June 2010
<www.learner.org>.*

Assessment

Assessment

The purpose of this assessment is to measure the student's understanding of the previously taught objective. The students will place the correct answer on the line provided.

1. *What is the next shape in the following pattern? _____*



2. *What is the next number in the sequence below? _____*

133 144 155 166 177

3. *What is the pattern in the sequence of numbers below? _____*

9 12 18 30 54 102 198 390.....

4. *Describe the last time you noticed a pattern in your daily activities. Where were you when you noticed it? What was the pattern? (Place answer on the blank paper provided).*

Answers to assessment

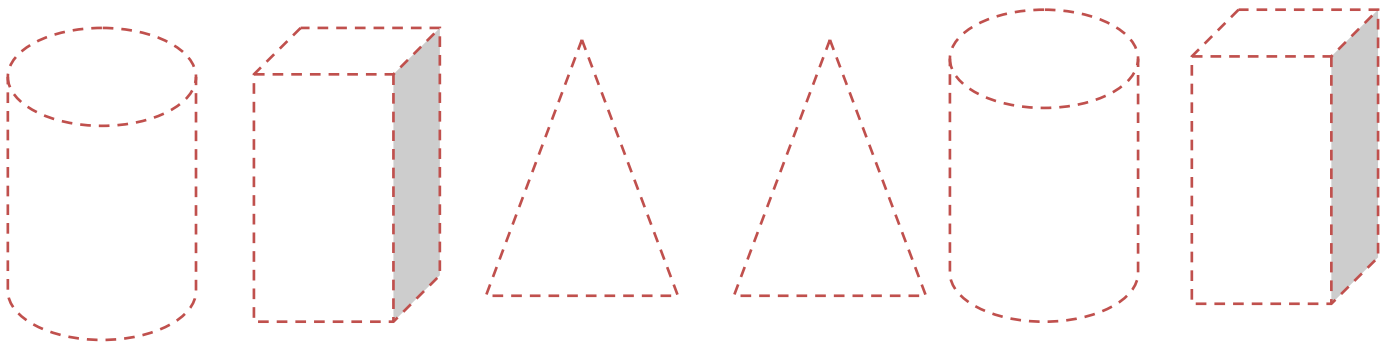
Answers to assessment

1. *Lightning bolt*
2. *188*
3. *-3 x 2*
4. *Answers may vary*

Patterns Accessed in Math

<i>Logic</i>	<i>Number</i>
<i>Characteristics of various objects.</i>	<i>Characteristics of numbers in a sequence</i>

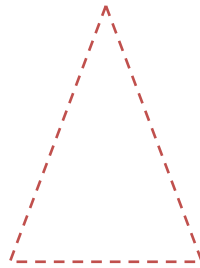
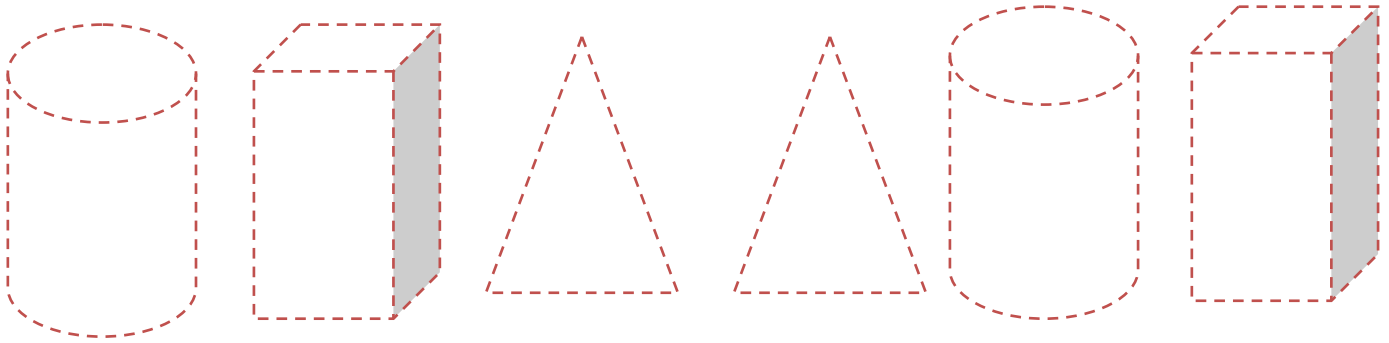
Attachment #2
(Positive example of a logic pattern)



What is the next shape? _____

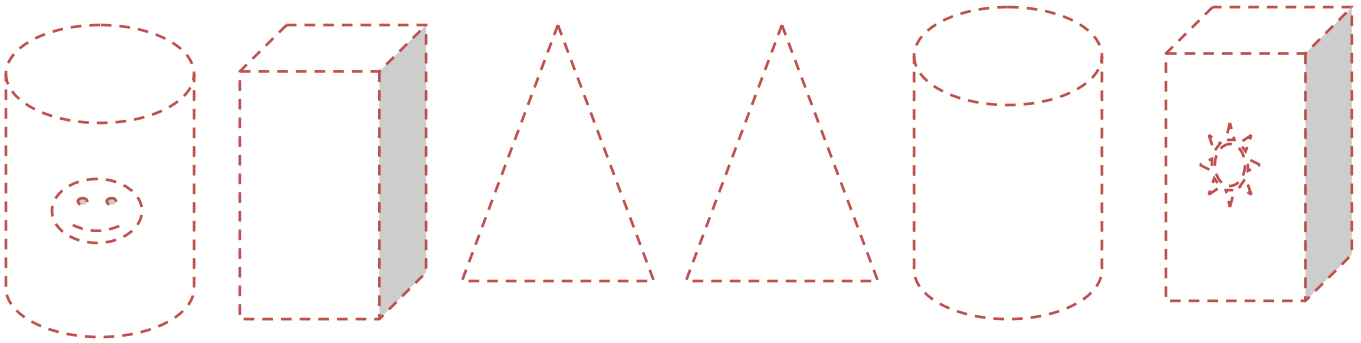
*Attachment #2
(Positive example of a logic pattern)*

Key



What is the next shape? _____

*Attachment #3
(Negative example of a logic pattern)*



What is the next shape? _____

Attachment #5
(Negative example of a number pattern)

2 4 6 8 10 12

What is the next number? -----

Attachment #5
(Negative example of a number pattern)
Key

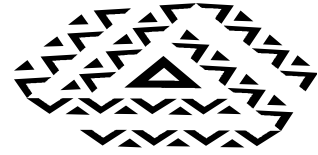
2 4 6 8 10 12

*What is the next number? **14***

Attachment #5
(Negative example of a number pattern)

1 5 11 21 17 2

What is the next number? -----



Guess the Pattern

1. *Give each group a deck of cards*
2. *Chose one person from each group and have them think of a pattern with the playing cards*
3. *Assign that person the task of dealing the cards*
4. *Have the dealer to lay out the first card in their pattern and deal the other members of the group five cards each. The dealer should lay the remaining cards in a deck in the center of the table*
5. *The other players in the team should attempt to find out the dealer's pattern by showing the dealer ONE card from their hand.*

The player should then ask the dealer, "Is this your next card?"

If the card is a card that can be next in the dealer's pattern, the dealer should respond by saying, "Yes."

The player should then place that card beside the dealer's card.

That player can make an attempt to guess the dealer's pattern.

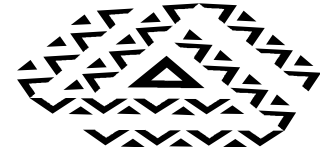
If the card is not a card that can be next in the dealer's pattern, the dealer should respond by saying, "No."

The player will then have to pick up an extra card from the deck.

****** The game ends when the allotted time is up or when one of the players has guessed the dealer's pattern.***

Attachment #7
(Guess the pattern activity)

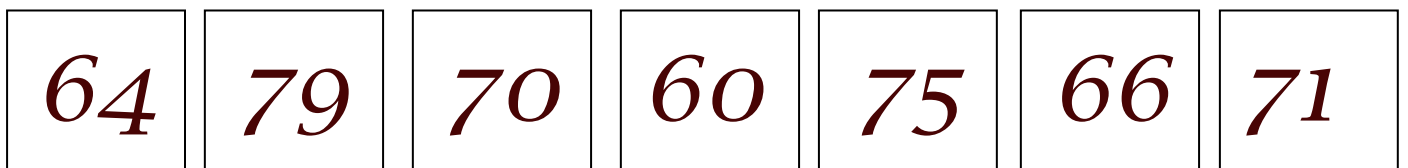
What is the pattern?



1. *The teacher will give the students an envelope with a set of note cards inside.*
2. *Each note card will have a different number written on it. Collectively, the note cards will contain a pattern. There will be two blank note cards left in the envelope.*
3. *The students must evaluate the note cards, determine and state the pattern, put the note cards in order according to the determined pattern, and two additional numbers (one for each note card) on the blank note cards to extend the pattern.*

Example:

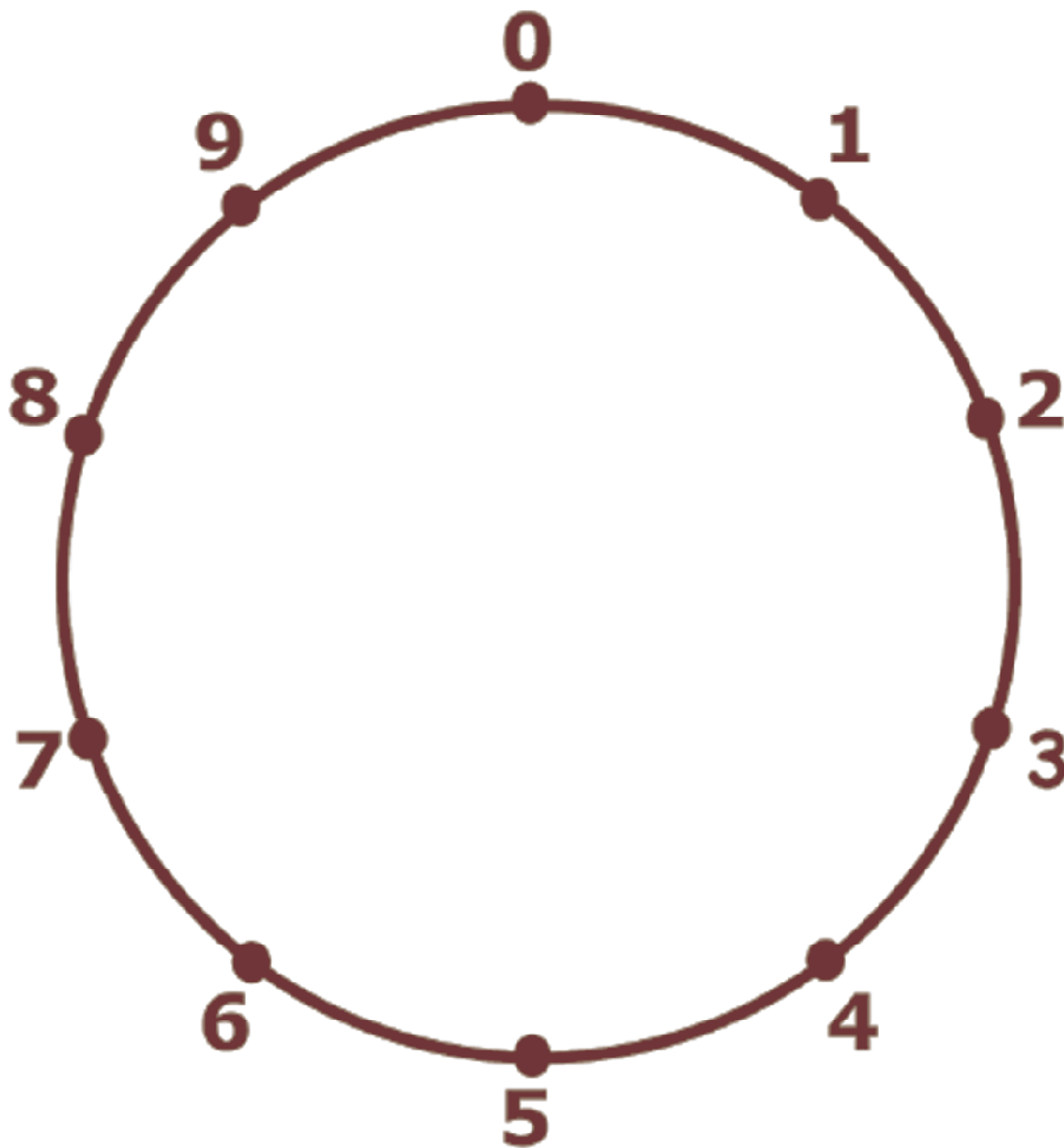
** If the students are given the following group of index cards, they will have to arrange them in order according to their pattern. The teacher may give two hints about the order of the numbers. The students should determine the pattern on their own.*



** The correct order of the numbers is below.*

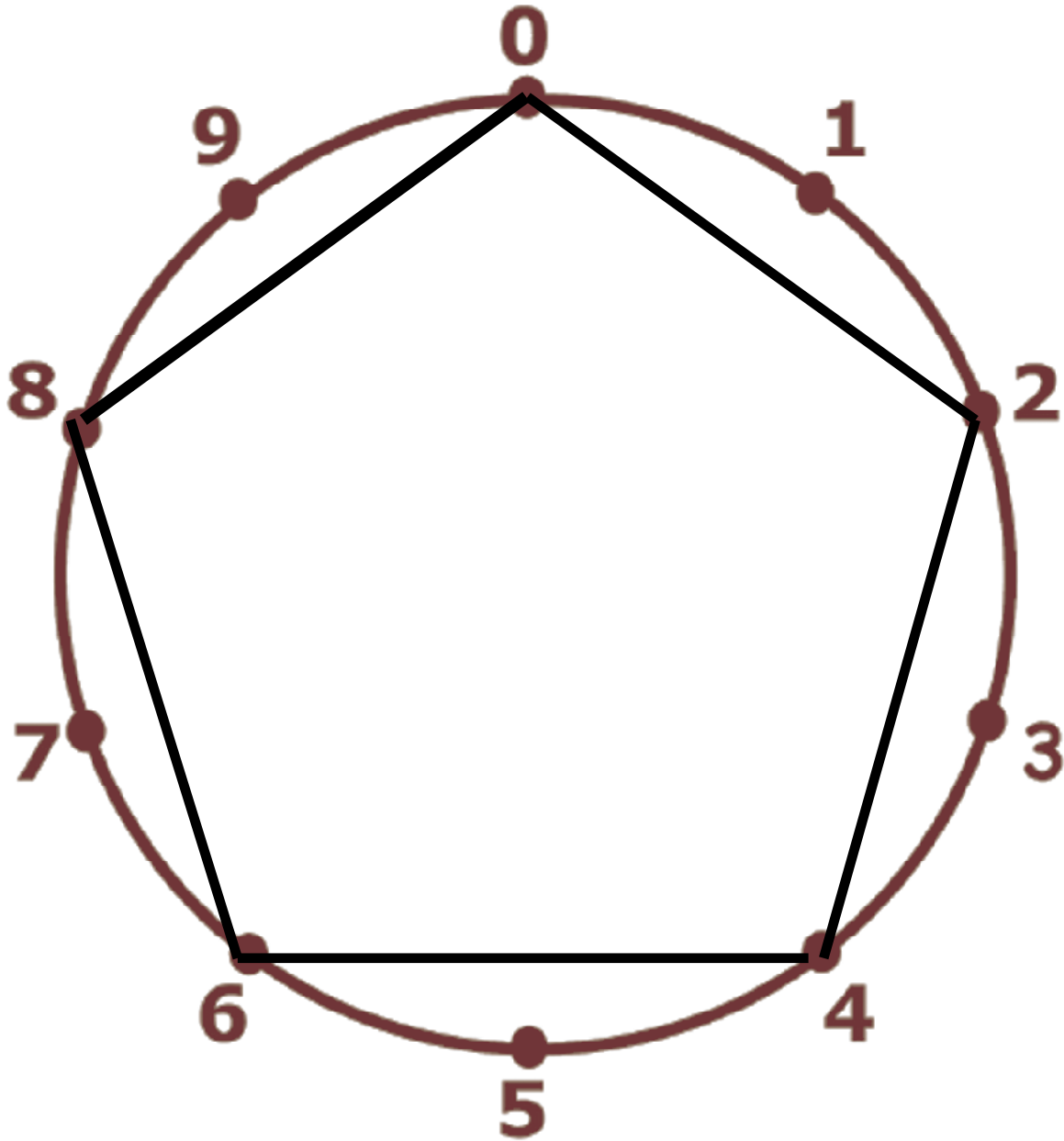


*Attachment #8
Right Brain Math Activity*



The right brain math activity incorporates teaching/reviewing multiplication skills using visual patterns and a number wheel as shown above.

Attachment #8
Right Brain Math Activity



The above figure demonstrates using the visual pattern of a pentagon to learn/review the multiplication skills for multiples of twos. The pattern starts with zero. Then moves on to the multiples of two going clockwise around the number wheel. The students will be asked to find another multiplication set that will work with the activity.

$2 \times 0 = 0$

$2 \times 3 = 3$

$2 \times 1 = 2$

$2 \times 4 = 8$

$2 \times 2 = 4$

$2 \times 5 = 10$

When dealing with two digits, the only move to the digit in the ones place. Hence, $2 \times 5 = 10$ would go back to zero because of the 0 in 10.