Algebra/Geometry Institute Summer 2005

Exploring Number Patterns

Faculty Name: Martha J. Smith
School: Moorhead Middle School
Grade Level: 7th

1   Teaching objective(s)

Mississippi Framework Grade 7
2e. Describe and extend patterns in sequences.

Students will be able to recognize and continue a number pattern. Students will be able to explain a number pattern.

2   Instructional Activities

- The teacher will start the class by discussing patterns with the students. The teacher will ask the students to look around in the classroom to find as many patterns as possible. Then the students will talk about things or situations in their lives that involve patterns.

- The teacher will ask them how they used the pattern.

- The teacher will give the students an example of a number pattern.
  4, 8, 12, 16, ___, ___, ___, ___.

- The students will continue the pattern through exploring and planning.

- The students will answer questions when exploring the pattern such as:

  What do I know about the pattern?
  What am I trying to find?

- During the planning process, the students will state the rule and find the pattern.

- The students will explore the pattern.

- The student will state the rule.
  Start with 4 and add 4 so the answer will be 20, 24, 28, 32.

- The teacher will ask the students to complete another pattern exercise.

   70, 64, 58, 52, ____, ____, ____, _____.

- The students will state the rule and write the next four terms. After they finish the sequence, the teacher will remind them that some patterns can involve more than subtraction and addition.

- The teacher will give a different pattern. This pattern involves multiplying. The rule would be to start with one and multiply by three to get the next term.

   1, 3, 9, 27, ____, ____, ____, ____.

- The teacher will give the students 10 minutes to complete each pattern exercise.

- The teacher will give the students the study guide handout to complete during class. (See attachment #1.) Students may ask questions.

3   Materials and Resources

Textbook: Glencoe Division of Macmillan / McGraw-Hill Publishing Company; Mathematics Application and Connection; Copyright 1995.

Dry Erase Board
Markers
Handouts (Worksheet)
Pencils

4   Assessment

- ❖ Teacher will observe students during class.

- ❖ Students will complete homework worksheet. (See attachment #2)

- ❖ Students will show their understanding through reading, writing, and modeling the patterns.

- ❖ Teacher will grade the homework worksheet and record the grade.

Attachment #2

Solve for pattern and state the rule.

12, 24, 36, 48, _____, _____, _____, _____. Rule _____

5, 15, 25, 35, ____, _____, _____, _____.   Rule _____

500, 300, 100, _____, _____, _____, _____. Rule _____

–10, -6, -2, _____, _____, _____, _____.   Rule _____

9, _____, _____, _____, 81, 99.   Rule _____

Create an example for each. State the rule. Use at least five numbers in each pattern. Solve.

Multiplication Pattern

Example:

Rule:

Addition Pattern

Example:

Rule:

Subtraction Pattern

Example:

Rule:

Attachment #1

Find the next pattern.

Find the next four numbers in the pattern.

Set 1: 72, 66, 60, 54, _____, _____, _____, _____.

Set 2: 3, 5, 8, 12, _____, _____, _____, _____.

- ✓ Explore the pattern.

- ✓ Tell what you know about the pattern.

- ✓ You know the first four numbers of the pattern and _____.

- ✓ Tell what you are trying to find.

- ✓ You are exploring to find the next four numbers in the sequence.

- ✓ Tell your plan.

- ✓ Complete the equation.