

What is the Pattern Rule?

Purpose

Students will be able to recognize, create, and extend number patterns by discovering the pattern rules.

Materials

For the teacher: overhead projector, patterns of numbers prepared in advance by teacher

For every 2-3 students: 2 six-sided number cubes

Activity

A. Pre-Activity Preparation

1. Prepare several patterns of numbers.
 - a. Leave one number missing from each pattern.
 - b. Pattern rules may include addition or subtraction.
 - c. Number patterns should consist of four or five numbers (including the missing numbers).
2. Cover several six-sided number cubes with stickers or paper. Write “+” on three of the faces of each number cube and “-” on the other three faces of each number cube.
3. Choose one low number for addition patterns and one high number for subtraction patterns.

B. Introduction

1. Write a number sequence on the overhead transparency.
2. Ask students to determine the missing number.
 - a. Write in the missing number.
 - b. Ask students to determine the pattern rule.
 - c. Write the various answers on the board.
 - d. Ask a student to tell the next number in the pattern based on the pattern rule.
3. Repeat the exercise several times.
 - a. Vary the position of the missing number.
 - b. Include both addition and subtraction in the pattern rules.

(continued)



EXTENDING
THE

ACTIVITY

Have students develop their own pattern rules and write a pattern with a missing number to exchange with a partner.



INCORPORATING

TECHNOLOGY

Have students visit a Web site or use a software program that will assist them in finding number patterns.

Standards Links
2.2.6, 2.6.3

Activity (continued)


C. Group Activity


1. Divide the class into small groups of two or three students per group.
2. Have one student in each group roll the “+/-” number cube to determine whether their pattern will be an addition or subtraction pattern.
3. Give a low number to groups using addition patterns and a high number to groups using subtraction patterns.
4. Have another student roll the numbered number cube. This number will be the number added or subtracted from the beginning number.
5. Instruct students in each group to continue the pattern with at least five numbers in their pattern.
6. Have group members compare their patterns to see if they have the same numbers listed.


Questions for Review


Basic Concepts and Processes


During the activity, discuss the following questions with your students to gauge their understanding of the Standard Indicators:


 Did you correctly identify the missing numbers in the patterns?

 How did you find the missing numbers?

 Can you explain what is meant by “the pattern rule?”

 Were you able to correctly add or subtract the chosen number to the beginning number in your pattern?

 Was your pattern the same as the patterns of the rest of your group?

 How did you decide whose was correct?
