



*Mathematics

Examination of Patterns

Disney's Aladdin Jr., is a story of magic, problems and solutions. Working with mathematical patterns may seem magical at times, challenging one to identify and figure out elements, cores and rules. This too provides for problems, the need for solutions, and perhaps, the need for a genius, if not a genie.

Kentucky Mathematics Arts

Algebraic Ideas (2.8, 2.11, 2.12) Grades K-3

Academic Expectations:

2.8 Students understand various mathematical procedures and use them appropriately and accurately.

2.11 Students understand mathematical change concepts and use them appropriately and accurately.

2.12 Students understand mathematical structure concepts including the properties and logic of various mathematical systems.

Ohio Mathematics Standards: Patterns, Functions and Algebra

Benchmarks Grades K-2

A. Sort, classify and order objects by size, number, and other properties, and describe the attributes used.

B. Extend sequence of sounds and shapes of simple number patterns, and create and record similar patterns.

C. Create and extend patterns, and describe the rule in words.

Grades 3

A. Analyze and extend patterns, and describe the rule in words.

B. Use patterns to make predictions, identify relationships, and solve problems.

Objective

Students will:

- Identify, analyze, create and extend mathematical patterns.
- Order presentations of the characters Aladdin, Jasmine, and the Genie to create and explain innovative patterns of their own.

Assessment

Student will be able to:

- Analyze and identify the pattern in a group of objects.
- Identify the next object, shape, or character to extend a pattern.
- Create a pattern and describe the rule in words.

Sample selected response items to gauge student understanding:

1. What character should be next in this sequence? $\Delta \bullet \Delta\Delta \bullet \Delta\Delta\Delta \bullet \Delta \bullet$
 - a. $\Delta\Delta\Delta$
 - b. Δ

c. $\Delta\Delta$

Answer: c. $\Delta\Delta$

2. How many triangles would come next in this pattern? $\Delta\Delta \bullet \Delta\Delta\Delta \bullet \Delta\Delta$

Answer: 3, $\Delta\Delta\Delta$

3. Use ten pennies, three dimes and six nickels to make a pattern.

Explain either verbally or in writing what the pattern is and how it would continue if there were more coins.

Answer: Individual student response. Emphasis on ability to create a pattern core.

Vocabulary

- Pattern
- Element
- Core
- Extend

Materials

- Several small pictures of Aladdin, Jasmine, and the Genie for each student. (*A variety of pictures may be found using "Aladdin," as the search word at www.yahoo.com image search.)
- Several pictures of Aladdin, Jasmine, and the Genie for a teacher display. (Larger pictures that will be taped to the board or laid out on the floor for whole group viewing. Also pictures needed to use as transparencies on an overhead.)
- A short story or picture book of *Aladdin*.
- Strip of construction paper for each student
- Glue

Activity

A Genie Can't Solve All of Your Problems

Teacher will:

1. Introduce the concept of patterns as found in visuals and print form.
2. Explain and demonstrate how patterns have several elements (individual items) and usually one core (repeated elements in the same sequence).
3. Facilitate discussion on how characters within a story or play are initially and repeatedly presented at different times throughout the story telling.
4. Read aloud a version of the tale, *Aladdin*, and/or retell the events from the theatrical production, *Disney's Aladdin, Jr.*
5. Visually list the characters, Aladdin, Jasmine, the Genie, and others as initially introduced in the chosen story version. The characters will serve as "elements" of a pattern sequence. Continue to list the characters in order of presentation each time there is a new scene until the conclusion of the story is read or told. (As an alternative or in addition to, you may place a picture of each character in the order as presented in each story scene.)
6. Have students, once the story is completed, identify any pattern core (repeats) of how the characters were introduced within the story.

7. Facilitate student observations and discussion of any visual patterns. (If a pattern is not apparent, ask students to identify the missing element(s) needed to form a pattern core.)
8. Have students create their own patterns using small pictures of Aladdin, Jasmine, and the Genie.
9. Observe and conference with students while they create and explain their patterns.
10. Have students identify their favorite pattern and paste the pattern core of characters in order on a strip construction paper. Have students place a question mark "?" after the last character in the pattern to intrigue guessing of what character comes next.
11. Create a bulletin board to display students' patterns. (See sample idea for bulletin board at the end of this lesson.)
12. Facilitate discussion on the benefit of patterns (e.g., the benefit gained of knowing what will come next due to repetition and sequencing).
13. Extend the activity by relating the concepts of pattern elements and cores to mathematical uses with numbers or letters.

***Mathematics
Sample Bulletin Board**

(Symbols in the actual bulletin board will be replaced with pictures of Aladdin, Jasmine and the Genie)

