



***Mathematics**

Patterns in Our Thinking

Aladdin found a genie that granted him three wishes. However, there were three rules that governed those three wishes. Students get their chance to make three wishes, and like Aladdin and his genie, there are rules that govern their wishes as well.

Kentucky Mathematics Arts

Algebraic Ideas (2.8, 2.11, 2.12) Grades 4-6

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 Grade 4

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

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

Grades 5-6

A. Describe, extend and determine the rule for patterns and relationships occurring in numeric patterns, computation, geometry, graphs and other applications.

Objective

Students will:

- Select and purchase with a limited budget three items as seen in advertisements.
- Calculate the cost of the three items and any remaining monies.
- Gather data from the selected purchases and examine for patterns in selection, cost, and student thinking.

Assessment

Student will be able to:

- Compare items and costs of purchased items to identify patterns in students' purchasing habits.
- Post results and pattern configurations in the form of a visual (chart or graph) to facilitate class discussion and analysis of data.

Sample selected response items to gauge student understanding:

1. If I had were going to buy an item for \$23.67, a second item for \$11.31 and a third item for \$55.55, which of the following is the closest amount to the total that would allow you to buy all three items?
 - a. \$89.43

- b. \$90.50
- c. \$92.00

Answer: c, (actual amount is \$90.53. \$92.00 is the closest rounded number to allow the purchases.

- 2. Define the term pattern.

Answer: Repetition of a sequence of elements—numbers, letters, objects, etc.

- 3. People have behavioral patterns? Agree or Disagree?

Answer: Individual student response. Emphasis--people often exhibit the same behaviors over and over in their actions and in their thinking.

Vocabulary

- Pattern
- Data
- Calculate
- Analyze

Materials

- Advertisements (Magazine or newspaper supplements)
- Scissors
- Glue
- Pencils

Activity

Three Wishes

Teacher will:

1. Collect advertisements or have students collect and bring in advertisements to complete this activity.
2. Explain to the students that each will receive a supply of money to purchase three wishes (advertised items). As Aladdin, in The Children's Theatre of Cincinnati's production, *Disney's Aladdin, Jr.*, was restricted through conditions for use of his wishes, the students will too be restricted with theirs. The rules are as follows:
 - a. You cannot spend more money than what you are given to purchase items.
 - b. You cannot share money with anyone else.
 - c. Any money left over after you buy your three wishes will be returned to the teacher.
3. Decide upon an amount of money that the students will have to start the activity. (All students will start with the same amount, or students may draw pieces of paper with different amounts of money listed on them.)
4. Have students begin and complete the activity by a) identifying how much money they have to spend, b) cutting out pictures of objects they wish to buy from ads and add to their "wish list" (See Handout, "Wish List"), c) observe advertisements and analyze costs of specific items to see if the items fit within their budgeted amount of money, d) list the cost of each item, and e) calculate the running total after purchasing

each item and the amount of any money left over after purchasing three items.

5. Prepare an area for students to post class selections.
6. Have students examine and analyze the results and look for patterns in the data—student selection and pricing of chosen items.

Question prompts for examination of the data:

- a. Was each student's first purchased item expensive or inexpensive?
 - b. Was each student's last purchased item expensive or inexpensive?
 - c. Did the three chosen items get increasingly more expensive or less expensive?
 - d. Did students purchase three items that were fairly similar in price or very different in price?
 - e. What was the range of money left over after students purchased their three items?
7. Instruct students to generate conclusive statements regarding their purchasing behaviors or habits, and observe the evidence of patterns in item choice, price, and or range of monies spent or remaining.
 8. Create a chart or graph that illustrates evidence of patterns found in the analysis of the activity's results.
 9. Have students reflect on the challenge and responsibility of decision making without the help of genies and magic. Have them also reflect on the actions of Aladdin, considering whether or not he made use of good decision making, based on his patterns of behavior.

***Mathematics
Handout, Wish List**



Name:

Wish List

Total amount of money to start: \$ _____

Paste Ad Here

(a) Cost of item #1: \$ _____

(b) Remaining money: \$ _____

Paste Ad Here

(c) Cost of item #2: \$ _____

(d) Remaining money: \$ _____

Paste Ad Here

(e) Cost of item #3: \$ _____

(f) Remaining money: \$ _____