

Proud Principal

Reporting Category Patterns, Functions, and Algebra

Topic Exploring patterns

Primary SOL 1.17 The student will recognize, describe, extend, and create a wide variety of growing and repeating patterns.

Materials

- Strips of adding machine tape
- Colored pencils, crayons, or markers
- Large picture of the school principal or other well-known adult in the school
- Glue

Vocabulary

pattern, core, repeating pattern, growing pattern, extend, continue

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Engage students in the rhythmic pattern: clap, clap, pat, clap, clap, pat, clap, clap, pat.... Have students say the pattern as they clap and pat. Then, ask students to create a similar pattern using color words such as *red, red, blue, red, red, blue*.... Have them keep repeating the clap, clap, pat pattern while substituting the words *red, red, blue*.
2. Repeat this activity several times with different rhythmic patterns, such as snap, clap, snap, clap..., until students have orally repeated many patterns using color words, shape words (e.g., *square, square, triangle, square, square, triangle*...), number words (e.g., *one, one, two, one, one, two*...), and letters (e.g., *A, A, B, A, A, B*...).
3. Tell students today is a special day because they are going to design and make a patterned necktie (or scarf) for the principal! Distribute strips of adding machine tape, colored pencils, crayons, or markers, glue, and copies of a large picture of the principal. Explain to students that they can create any design they want as long as it is a repeating pattern because the principal just *loves* patterns. You want to surprise him (her) with many student-made ties (scarves) that have many different patterns.
4. Have students draw and color a simple pattern on their strips. Caution them to keep the pattern simple because they have to repeat it over and over until they have filled the entire necktie (scarf) from top to bottom.
5. Instruct students to glue their neckties/scarves on their picture of the principal.
6. When students have completed their work, invite the principal to visit for a special surprise, and have students present their pictures of him (her) wearing an assortment of patterned ties (scarves).
7. Discuss the different patterns and the numerous ways to organize the patterns on the ties (scarves), such as ABB, AABB, AB, or even ABCD.
8. Introduce students to growing patterns, using the same process.

Pattern Types

Repeating patterns (repeating the core)

1. AB AB
2. ABC ABC
3. AABB AABB
4. AAB AAB
5. AABC AABC
6. ABAC ABAC

Growing patterns

1. AB AAB AAAB AAAAB
2. AB ABB ABBB AB BBBB
3. ABC AABC AAABC

Assessment

- **Questions**
 - “What type of pattern did you make for your tie (scarf)? Look at the display of ties (scarves). What different types of patterns do you see?”
 - “What is the difference between a repeating pattern and a growing pattern? What is an example of each?”
- **Journal/Writing Prompts**
 - “Look at the tie (scarf) display, and pick three different types of patterns. Draw the ties (scarves), and name the pattern on each of them.”
 - “Design and draw a new tie (scarf) with a different repeating pattern. Draw another one showing a growing pattern.”
- **Other**
 - Create a “Pattern Museum” in your classroom where students can bring in items that display different types of patterns. Invite another classroom in to visit your Pattern Museum.
 - Place in your math center containers of different types of materials (buttons, bread tabs, keys, etc.) for students to use to make a variety of patterns.

Extensions and Connections (for all students)

- Discuss patterns seen in nature (e.g., in butterflies, flowers, pine cones). Take students on a nature hike to look for different types of patterns. Have students bring their math journals to record and illustrate their findings.
- Read books and sing songs that contain repeating patterns and growing patterns.

Strategies for Differentiation

- Provide students with manipulatives to create a pattern before drawing their tie (scarf).
- Provide students with examples of patterned and nonpatterned material to sort. Have students explain the reasoning for their decisions.