

Tunneling Through Patterns

Reporting Category Pattern, Function, and Algebra

Topic Exploring patterns

Primary SOL 3.19 The student will recognize and describe a variety of patterns formed using numbers, tables, and pictures, and extend the patterns, using the same or different forms.

Materials

- Linking cubes
- Cardboard tubes (e.g., paper towel tubes)
- Pattern Cards (attached) or index cards with other patterns

Vocabulary

pattern, table, rule, growing, repeating, extending, numeric pattern, geometric pattern

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

Note: Prior to conducting this activity, cut cardboard tubes in half lengthwise to create “tunnels.”

1. Distribute linking cubes. Explain to students that they will use the cubes to duplicate patterns based on information that you give them. Ask students to use the cubes to duplicate the pattern ABA. Then, have students extend the ABA pattern until they have used at least 12 cubes. Instruct students to repeat this process, duplicating and extending the patterns AABB and ABCA.
2. Explain to students that the 12 linking cubes in a pattern will now be called a “pattern strip.” Now, demonstrate how to place a “tunnel” (half of a cardboard tube) over the middle of a pattern strip of linking cubes. Make sure that part of the beginning and part of the end of the pattern strip are exposed to view. Ask students to determine the pattern based on what they can see and explain what is hiding in the tunnel.
3. Put students into pairs, and give each pair sufficient linking cubes, a set of attached Pattern Cards, and a cardboard tube tunnel. Have partners “tunnel through patterns” by taking turns using their cubes to duplicate a pattern found on the card he/she draws from the stack and then hiding a central section of the pattern strip with the tunnel. The partner must try to recognize and describe the hidden pattern. Once the pattern is identified, the tunnel may be removed to confirm the identification.

Assessment

- **Questions**
 - How did you determine the pattern hidden in the tunnel?
 - How do you determine whether a pattern is repeating?
- **Journal/Writing Prompts**
 - Explain how you used linking cubes to duplicate a pattern made of letters.
 - Draw a picture of linking cubes that duplicate the pattern ABACABAC. What cube represents the A? What cube represents the B? How about the C?

Extensions and Connections (for all students)

- Display a linking cube pattern, and have students write letters that duplicate the pattern.
- Use colored beads on a string to create patterns and hide in the tunnel.

Pattern Cards

Copy on card stock, and cut apart.

ABA

AABB

ABCABC

ABA

AABB

ABCABC