

People Patterns

Strand: Patterns, Functions, and Algebra

Topic: Identifying, describing, extending, creating, and transferring patterns

Primary SOL: K.13 The students will identify, describe, extend, create, and transfer repeating patterns.

Related SOL:

Materials

- Bags of color tiles (one bag per pair of students)
- Red and yellow construction paper
- People Pattern Strips #1 and #2, attached

Vocabulary

compare, core, describe, different, pattern, predict, repeat, same

Student/Teacher Actions: What should students be doing? What should teachers be doing?

1. Introduce students to pattern activities by arranging students in a pattern. Have 10 students line up across the front of the room in front of a row of 10 chairs. Point to every other student, and ask him or her sit down. Ask students to describe the “people pattern” that has occurred. Ask what position the next person in the line would be—sitting or standing? Ask, *How do you know what the next person will do?* Add three additional students to the line, and have students decide what their positions should be, each time asking students to justify their thinking. Explain that when something happens again and again – like the standing and sitting – we say it *repeats*. And when something repeats so that we can predict what will come next, we call it a *pattern*. Challenge students to find the part of the pattern that keeps repeating. Help students to see that Stand and Sit keep repeating. Stand in front of the first two students and say “Stand, Sit.” Move to the next two students and say, “Stand, Sit” and so on to help students see and hear the repetition. Then explain that the part of the pattern that keeps repeating is called the core. Ask students to tell you how many people are in the core for this pattern. Send the students in the front of the room back to their seats.
2. After the students have returned to their seats, have six different students come forward and arrange them in a different pattern (e.g., arms up, arms down, arms down, arms up, arms down, arms down). Ask students to describe the pattern. Extend the pattern by adding students and having the class decide what their positions should be. Be sure to have students explain how they know what the next person will do. Then have students try to identify the core and prove that it repeats. Ask: *How many students are in the core in this pattern?* Send the students back to their seats when you have finished discussing this pattern.
3. Once students understand the process, select a student to create a new people pattern, check it with you, and then direct students to demonstrate it. Have the class describe the pattern, extend it, and identify the core, always asking students: *Tell me how you*

know. Why do you think that? Repeat this process with other pattern creators if students are engaged and meeting with success.

4. Tell students that you are going to create the next people pattern. Call on eight students to come up to make the pattern: boy, girl, girl, girl, boy, girl, girl, girl. Have students describe the pattern, extend it, identify the core, and prove that repeats. Once you have finished discussing the pattern, hand each boy in the pattern a piece of red construction paper and each girl a piece of yellow construction paper. Ask students to describe the color pattern that they see with the construction paper, then ask students: *What is the same about the color pattern and the people pattern, and what is different?* When students have shared their ideas, explain that even though the materials are different, mathematicians say that the patterns are the same. There are two things in the pattern (boys/girls and red/yellow) and the core is made up of one of the first thing and then three of the second thing. Show how letters can be used to represent the core. A is used for the first thing and B is used for the second thing in the pattern. So, we would say that the core of this pattern is ABBB.
5. Send the students who are forming the pattern back to their seats, but leave the construction paper displayed. Pass out a bag of color tiles to each pair of students.
6. Ask the student pairs to copy the pattern from the construction paper with the color tiles. Practice reading the pattern as Red, Yellow, Yellow, Yellow, etc., and then read it as ABBB ...
7. Display People Pattern Strip 1. Challenge student pairs to try to show the same pattern with color tiles. (*Note: This ABA pattern does not include a complete repetition of the core at the end of the strip. This may provide a new level of challenge for some students.*) As students try to solve this problem, observe for the following: *Are students discussing the different people in the pattern? Are students identifying the core of the pattern? Are students able to substitute a color for each of the people in the pattern? Do students notice that there are two repetitions of the core and part of a third repetition?*
8. Once all have attempted to solve the problem, bring students back together and discuss the pattern. Use the following questions: *How did you and your partner describe the people pattern? How did you decide how to represent it with the color tiles? How can you find the core in this pattern?* (Be sure students start at the beginning and use the first person to begin the core.) *How would you represent this pattern with letters? How many times does the core repeat on the strip? What would be the next person/letter in this pattern?*
9. Repeat the process with People Pattern Strip 2. This AABC pattern uses three distinct faces. Students will need to use three colors. Watch for how students reason through this. (People Pattern Strip 3 can be used for individual student assessment.)
10. Close the lesson by having student partners share what they learned about patterns today.

Assessment

- **Questions**
 - What object will come next in this pattern? How do you know?

- What repeating patterns can you see in everyday life?
- How can you find the core of a repeating pattern?
- What does it mean to repeat?
- If you want to create a pattern, what will you need to think about?

- **Journal/writing prompts**
 - Draw an AB pattern. Draw an AB pattern using different pictures.
 - (Give each student a group of pre-cut shapes or stickers.) Draw or write how you would glue your shapes down on the page to make a pattern. Label your pattern with letters.

- **Other Assessments**
 - Show students a pattern task card, and direct them to make the same pattern using different materials and then extend the pattern.
 - Display several different patterns, using pattern blocks, cubes, pattern task cards, and/or other means. Write the letters that could be used to describe one of the patterns. Ask students to determine which pattern the letters describe.
 - Use People Pattern 3. Have students describe the pattern, extend it, and identify the core.

Extensions and Connections (for all students)

- Pair students and provide pattern blocks. One student creates a repeating pattern and the other describes it and extends it.
- Use the collection boxes from the Sorting Collections lesson to have students create patterns.
- Using pattern task cards, show three task cards—two that show the same pattern and one that is different. Students identify the matching patterns and explain why they are alike.
- Create a snap, clap, stomp pattern and have students copy it, extend it, and transfer it to physical materials. Challenge students to create dances using snap, clap, stomp patterns.

Strategies for Differentiation

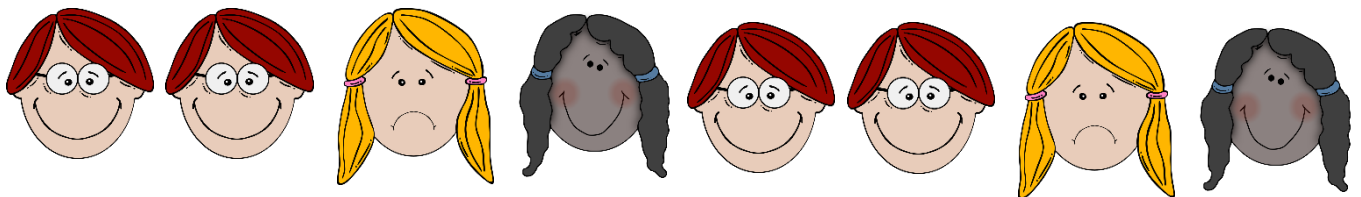
- Provide pattern task cards. Students can re-create the pattern and extend it, identify the core of the pattern, and re-create the pattern using other materials.

The following pages are intended for classroom use for students as a visual aid to learning.

People Pattern 1



People Pattern 2



People Pattern 3

