

## G-2 GUESS MY PATTERN



### Related Lessons

Consider as a follow-up lesson L-5 *Hide and Snake*.

### Overview

This game explores and studies the concept of pattern by having students become the pattern. In beginning experiences, the teacher creates the pattern and asks students to come up to the front of the class one by one. Students think about and figure out the pattern, then verbalize it. As students' understanding of pattern grows, the patterns that students are able to recognize, describe, and extend become more sophisticated. Ultimately students create the pattern. This game can be played throughout a unit of study involving pattern.

Aligned to the mathematical practices in the **Common Core State Standards**

### Common Core State Standards

Although pattern is not explicitly referenced in the Common Core State Standards, such experiences are pivotal in creating a foundation for number, repeated addition, and multiplication.

### Goals for Student Understanding

These goals are aligned to the mathematical practices in the Common Core State Standards. Students will

- Construct viable arguments and critique the reasoning of others.
- Make sense of problems and persevere in solving them.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Attend to precision.
- Look for and make use of structure.

#### Setting

Whole group.

#### Time

Approximately fifteen minutes.

#### Materials

*Guess My Pattern* Teacher Checklist  
*Guess My Pattern* Student Checklist,  
 1 copy per student

#### Key Vocabulary

repeating pattern  
 unit

## TEACHING DIRECTIONS

1. Gather students in the whole-group area in your classroom. Explain to students that you will be creating a pattern with them.
2. Choose one student at a time to come toward the front of the whole-group area. As students come forward, create a pattern with them. The pattern can be created based on their clothing (specific color, stripes, shorts, and so on) or from a particular body position. For example, you may ask the first student to come up and stand. Then ask the next student to come up and sit, ask the third student to come up and stand, and so forth. Students will form a line, creating an AB pattern of stand, sit, stand, sit.
3. Have students who are seated look closely at the students in front. Ask them, “Can you guess the pattern created?”
4. When the pattern is verbalized, ask students, “What would come next in the pattern?”
5. When a student replies, “Stand!” ask this student to come up and *stand* to join the pattern.
6. Ask, “Now what would come next in this pattern?” When a student answers, “Sit,” ask this student to come up and *sit* to join the pattern.
7. Continue adding to the pattern. Include as many students as you’d like and ask the following key questions:

### **Key Questions**

- Is this a pattern? Why? Why not?
- What would come next in the pattern?
- Now what would come next in the pattern?.

8. Afterward, “read” the entire pattern to the class by tapping each corresponding student, “Stand, sit, stand, sit . . .”
9. Play several rounds of this game in each session.

## **Extensions**

### ***Students Create the Pattern***

Give students the opportunity to create the pattern. Have one student think of a pattern and whisper the pattern in your ear so you can provide support as necessary. Then have the student ask other students to come to the front of the class. The student will build his or her pattern. After the pattern is created, the student will ask the rest of the class to figure out the pattern. The student who created the pattern may also ask for his or her pattern to be extended. Students can be asked to describe the pattern or come up to show the unit or part of the pattern that repeats.



### Students Create a Pattern Dance

For this extension, give each student a set of *Pattern Dance* pieces (see Reproducible G: *Pattern Dance*, at the end of the book), a glue stick, and paper. Explain to students that they need to create their own pattern using the pieces. The pieces represent movements that can be modeled by the teacher and students. Ask that students choose a minimum of two movements (for example, the girl jumping and the boy kicking) to create a pattern. After students have completed their patterns, gather the class and ask the students to form a circle in the whole-group area. Post their papers one at a time. Together, act out (dance!) the pattern movements in each of the posted papers. After each dance, ask students, “Is this a pattern? Why? Why not?”

#### TEACHING TIP: ORGANIZING MATERIALS

I cut apart the characters on the *Pattern Dance* reproducible and keep each set of choices in an envelope. I glue one of the pieces to the outside of each envelope to serve as a label for the envelope's contents. Although most of my kindergarten students need practice cutting, I want the focus of this lesson to remain on creating a pattern.

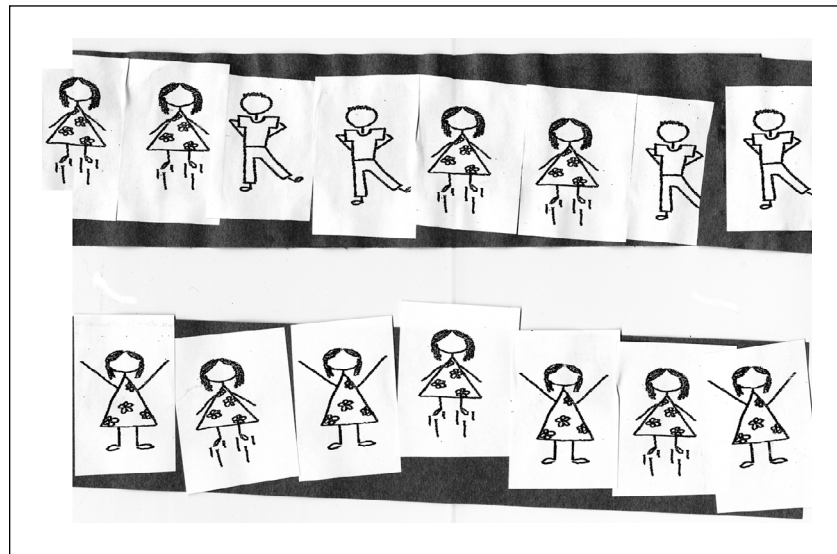


FIGURE 12 In the *Guess My Pattern* game, Isabella's pattern used pieces from Reproducible G: *Pattern Dance*.

## FORMATIVE ASSESSMENT IN ACTION: QUESTIONS

Use the following questions to help guide your observations of students as they are engaged in the lesson. These focused observations in turn support the instructional decisions you'll make for individual students and your class.

- Can the student determine whether this is a pattern?
- Can the student describe what makes this a pattern?
- Does the student know what comes next in this pattern?
- Can the student create a pattern for others to guess?
- Does the student recognize the unit or part that keeps repeating?

## WHAT HAPPENS IN MY CLASSROOM

I use this game to introduce repeating patterns to students. Some students quickly grasp the idea that a pattern repeats; others need more experiences with this concept. The range of possibilities for student participation, as well as types of patterns that can be made, lend themselves nicely to differentiation within this game.

After I model the procedure of reading the pattern (gently tapping each student as I say what makes the pattern), I have found it helpful to have a student be the person to read the pattern. I ask the others to read along or choral the pattern.

The *Pattern Dance* extension is one way of recording and expressing a pattern. This lesson is one of my students' favorites because they create and record a pattern for the whole class to get up and do together. One afternoon in my class, students made more *Pattern Dances* during their choice time. As they finished, they placed their dance on the rocker. We then "danced" together after cleaning up. The principal came in during cleanup and stayed for our dances. He was noticeably impressed with my students' explanations of why a dance was a pattern, why another dance was not a pattern, and how it could be changed. The students were having fun, bubbling over to express their explanations. What a great time for a visitor!

## STUDENTS WHO STRUGGLE

### Helping Students Recognize a Pattern

Consider the following two activities for students who struggle with recognizing a pattern.

#### ***Cubes in a Tube***

To do this activity, adapted from *Supporting English Language Learners in Math Class, Grades K-2* (Bresser, Melanese, and Sphar 2008), you'll need interlocking cubes, an empty paper towel tube, and a bag. Using different-color cubes, create several patterns (for example, AB, AABB, ABBA, ABC). Also, create two sticks of randomly arranged cubes that are not a pattern. Place all the cube sticks you created in a bag so students cannot see them. Gather students together. Out of sight, take one pattern stick from the bag and place it in the paper towel tube. Reveal the stick, one cube at a time, pointing to the cube and stating the color until a color repeats. For example, "Maroon, yellow, maroon. What do you think will come next?" Elicit ideas from students, then confirm their predictions by revealing the next cube. Continue until all the cubes in the pattern stick are predicted, revealed, and confirmed. Ask students, "Is this a pattern?" When students agree that it is a pattern ask, "Why?"

Repeat this using one of the sticks that you put together randomly. Ask students if they are able to predict what will come next. Emphasize that there is no way to predict, because it is not a repeating pattern.

#### ***Small-Group Version of Guess My Pattern***

Children struggling to recognize a pattern may benefit from small-group work. Consider playing a small-group version of *Guess My Pattern* with math manipulatives such as cubes, two-color counters, or pattern blocks. Begin the game by creating a pattern. Sit with the small group and ask them to look closely at the pattern and read it with you. "Blue, yellow, blue, yellow, blue,

yellow. What color do you think will come next?” Ask the student who replies correctly (in this case, “blue”) to add a blue cube/counter/block to the pattern. Continue this process until each student in the group has had a turn adding to the pattern. Then point to each cube and have students read the pattern with you. When you feel it’s appropriate, turn the pattern creating over to the students; have each child take a turn building a pattern for the others to extend.

## FORMATIVE ASSESSMENT IN ACTION: TEACHER AND STUDENT CHECKLISTS

### ***Guess My Pattern Teacher Checklist***

Checklists are invaluable in helping to focus your observations as well as to document student behaviors, responses, and reactions to lessons. Each column in the checklist specifies what to observe while students are engaged in the mathematical activity. Having the checklist ready on a clipboard, and easily accessible, helps to ensure necessary documentation and recording takes place. For more on using teacher checklists as a successful formative assessment practice, see page 15.

### ***Guess My Pattern Student Checklist***

This checklist helps students monitor their own learning, set math goals, and ultimately share academic progress with their parents. Each child should have his or her own student checklist and should keep it in his or her student notebook. For more on using student checklists (including video clips) as a successful formative assessment practice, see page 20.



STUDENT CHECKLIST

NAME \_\_\_\_\_ GUESS MY PATTERN



I recognize a pattern.	I know why it is a pattern.	I can extend a pattern.	I know where the unit repeats.	I can create my own pattern.



DATE \_\_\_\_\_

DATE \_\_\_\_\_

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