Unit 6 Lesson 2: Patterns that Repeat

WU How Many Do You See: Colorful Tiles (Warm up)

Student Task Statement

How many tiles do you see? How do you see them?

| * | ? | ! | # | * | ? | ! | # | * | ? | ! | # | * | ? | ! | # | * | ? | ! | # | * | ? |
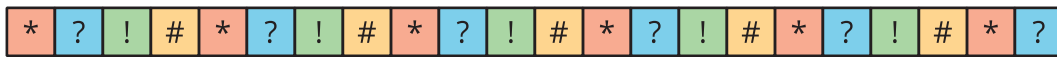
1 Patterns that Repeat

Student Task Statement

1. Here is a pattern made by arranging shapes.

▲ ◯ ▲ ◼ ▲ ◯ ▲ ◼ ▲ ◯ ▲ ◼

  a. Look for as many features of patterns as you can and describe them to your partner.
  b. What rule might this pattern follow?
  c. Use the rule to extend the pattern so that it repeats one more time.

2. Create a new pattern that uses only a circle and one other shape, and that follows a new rule.

  a. Trade your pattern with your partner. Look for as many features of patterns as you can and describe them.
  b. What rule might your partner have followed to create their pattern?
  c. Use the rule to extend their pattern so that it repeats one more time.

2 Numbered Patterns

Student Task Statement

Here is the pattern of shapes you saw earlier.

▲ ○ ▲ ■ ▲ ○ ▲ ■ ▲ ○ ▲ ■

1. Number the shapes 1 to 12.
2. Your teacher will assign you a shape. Write it in every blank space and answer the questions.

    a. What numbers were written for the _____s?
    b. If you extend the pattern, what numbers will be written for the next two

        _____s?
    c. What number will the tenth _____ have? Explain or show your reasoning.
    d. Will the 30th shape be a _____? Explain or show your reasoning.

3 Clare's Pattern

Student Task Statement

Clare created a pattern using 3 shapes—a triangle, a circle, and a square—that repeat in that order.

1. Draw the first 10 shapes in Clare's pattern.
2. Clare numbered her shapes. What numbers are the first 5 squares?
3. What rule is the numerical pattern following?
4. What is the 31st shape in Clare's pattern? Explain or show your reasoning.
5. Clare wants to use 40 shapes in her pattern and the last shape to be a square. Is this possible? Explain or show your reasoning.