Unit 6, Lesson 4

More Numerical Patterns

Let's create and explore more numerical patterns that follow a rule.

Warm-up

Number Talk: Patterns in Multiplication

Find the value of each expression mentally.

- 20×3
- 21×3
- 40×3
- 42×3

Activity 1

A Rule with Two Digits

Mai creates a pattern that follows the rule "start with 15, keep adding 15."

keep adding 15										

1. Complete the table with the first 10 numbers in Mai's pattern.
2. What do you notice about the numbers in Mai's pattern? Describe as many observations as you can.

3. Choose one of your observations and explain why you think it happens.

4. Could 250 be a number in Mai's pattern? Explain or show your reasoning.

Activity 2

Double It

1. Andre has an idea for a pattern. His rule is "start with 1, double it."

double it	1							

   a. Complete the table with the first 8 numbers in Andre's pattern.

   b. What do you notice about the numbers in Andre's pattern?

2. What happens to the pattern if Andre starts with 10 instead of 1? His new rule is "start with 10, double it."

double it	10							

   a. Complete the table with the first 8 numbers in Andre's new pattern.

   b. What do you notice about the numbers in Andre's pattern? Describe as many observations as you can.

   c. Choose one of your observations and explain why you think it happens.

Section A Summary

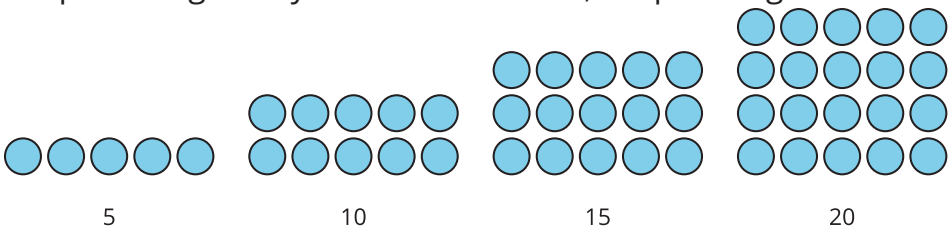
We created and described shape patterns and number patterns.

We saw shapes that grew or repeated by certain rules. Then we used numbers to help us notice and explain different ways the patterns changed.

We also saw numbers that increased by certain rules and used what we know about even and odd numbers, place value, factors, multiples, and properties of operations to describe and explain the patterns.

Here are some examples of the patterns:

- Shapes that grow by a rule: start with 5, keep adding 5



- Shapes that repeat by a rule: triangle, circle, triangle, square, repeat

▲ : 1, 3, 5, 7, . .

◯ : 2, 6, 10, . . .

▨ : 4, 8, 12, . . .

- Numbers that change by a rule

start with 9, keep adding 9	start with 10, keep adding 10	start with 15, keep adding 15	start with 10, double it
9	10	15	10
18	20	30	20
27	30	45	40
36	40	60	80
45	50	75	160

We learned we can use what we notice about a pattern to predict other shapes or numbers in the sequence.

Sometimes, we can use addition and multiplication to predict other shapes or numbers. Other times we can see how the digits in the numbers change to make predictions or determine if a shape or number is in the pattern.