Pattern Power

Find, grow, and show patterns.

2.PFA.1 · The student will describe, extend, create, and transfer repeating and increasing patterns (limited to addition of whole numbers) using various representations. Identify and describe repeating and increasing patterns. Analyze a repeating or increasing pattern and generalize the change to extend the pattern using objects, pictures, and numbers. Create a repeating or increasing pattern using various representations (e.g., objects, pictures, numbers). Transfer a given repeating or increasing pattern from one form to another (e.g., objects, pictures, numbers) and explain the connection between the two patterns.

Name _____ Date _____

Pattern Rules

A repeating pattern repeats a core. An increasing pattern gets larger. The numerical examples here add a fixed whole number each time.

Worked example

A block tower has these numbers of blocks. What number comes next?

1. 14 is 3 more than 11.
2. 17 is 3 more than 14.
3. Add 3 to 17.

20 blocks

Blocks in Towers

Tower	Blocks
First	11
Next	14
Next	17

1. Practice

A toy train has cars in this order: red, blue, red, blue, ___. What color comes next?

2. Practice

Each day, a puppy gets 1 treat, then 5 treats, then 9 treats. What number of treats comes next?

3. Practice

Mia's toy towers have 2 blocks, then 4 blocks, then 6 blocks. Write the next number. Tell how many blocks are added each time.

4. Practice

Choose two shapes and create a repeating core. Draw the core three times and circle one complete core. Explain the core aloud or in words.

5. Apply

At a game, Jay earns 2 tickets on Monday, 4 on Tuesday, and 6 on Wednesday. He earns 2 more tickets each new day. How many tickets does he earn Thursday?

6. Apply

At a music game, sounds repeat drum, bell, drum, bell. Let drum = 1 and bell = 2. Write the four-number pattern.

7. Challenge

A robot collects 1 bolt, then 7 bolts, then 13 bolts. What number comes next? Explain the rule.

What to accept

Accept any four-pet cat and dog pattern that repeats the same 2-pet part. Accept equivalent wording for pattern rules, such as "goes up by 6."

1. Practice

red; the repeating part is red, blue

2. Practice

13

3. Practice

8; add 2 blocks

4. Practice

Answers vary. Require a consistent chosen core, three repetitions, and a matching explanation.

5. Apply

8 tickets

The ticket pattern adds 2 each day. Add 2 to 6.

6. Apply

1, 2, 1, 2

Replace each drum with 1 and each bell with 2.

7. Challenge

19; add 6 each time