

# Pattern Detectives

*Find the rule and keep each pattern going.*

**GRADE 2 • 2.PAR.4**

**2.PAR.4** "Identify, describe, extend, and create repeating patterns, growing patterns, and shrinking patterns."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## SPOT THE RULE

Look for what stays the same or how the number changes. A repeating pattern uses the same part again and again. A growing pattern adds each time, and a shrinking pattern takes away each time.

## WORKED EXAMPLE

A robot places 4 blocks, then 8 blocks, then 12 blocks. How many blocks will it place next?

1. Start with 4 blocks.
2. Add 4 blocks to get 8.
3. Add 4 blocks again to get 12.
4. Add 4 more blocks to get 16.

**Answer: 16 blocks**

## PRACTICE 5 problems

- 1** A bracelet shows star, moon, star, moon, star, moon. What two-bead part repeats?

**ANSWER** \_\_\_\_\_

- 2** A toy shelf has cube, cube, ball, cube, cube, ball, \_\_\_\_\_. What toy comes next?

**ANSWER** \_\_\_\_\_

- 3** A puppy gets 1 treat on Monday, 3 treats on Tuesday, 5 treats on Wednesday, \_\_\_\_\_ treats on Thursday, and 9 treats on Friday. How many treats does it get on Thursday?

**ANSWER** \_\_\_\_\_

- 4** A frog jumps 13 spaces, then 11 spaces, then 9 spaces, then \_\_\_\_\_. How many spaces does it jump next?

**ANSWER** \_\_\_\_\_

- 5** Create a repeating snack pattern. Write the next 3 snacks: apple, pear, apple, pear, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

**ANSWER** \_\_\_\_\_

## APPLY IT Show your work

- 1** At game club, Eli earns 1 point on Monday, 3 points on Tuesday, 5 points on Wednesday, and 7 points on Thursday. If the pattern continues, how many points will Eli earn on Friday?

WORK SPACE

ANSWER \_\_\_\_\_

- 2** At a block contest, Noor makes towers with 15 blocks, 13 blocks, 11 blocks, and 9 blocks. Each new tower has 2 fewer blocks. How many blocks will be in the next tower?

WORK SPACE

ANSWER \_\_\_\_\_

## CHALLENGE One step up

### CHALLENGE

A pattern has these groups: circle, square; circle, circle, square; circle, circle, circle, square. Write the next group. Then explain the rule.

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**PART 1 • PRACTICE**

| # | PROBLEM                                                                                                                                                                | ANSWER                    |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| 1 | A bracelet shows star, moon, star, moon, star, moon. What two-bead part repeats?                                                                                       | <b>star, moon</b>         |
| 2 | A toy shelf has cube, cube, ball, cube, cube, ball, _____. What toy comes next?                                                                                        | <b>cube</b>               |
| 3 | A puppy gets 1 treat on Monday, 3 treats on Tuesday, 5 treats on Wednesday, _____ treats on Thursday, and 9 treats on Friday. How many treats does it get on Thursday? | <b>7 treats</b>           |
| 4 | A frog jumps 13 spaces, then 11 spaces, then 9 spaces, then _____. How many spaces does it jump next?                                                                  | <b>7 spaces</b>           |
| 5 | Create a repeating snack pattern. Write the next 3 snacks: apple, pear, apple, pear, _____, _____, _____.                                                              | <b>apple, pear, apple</b> |

**PART 2 • APPLY IT**

1. **9 points** The points grow by 2 each day. Add 2 to 7 to get 9.
2. **7 blocks** The number of blocks shrinks by 2 each time. Take 2 away from 9 to get 7.

**CHALLENGE**

**circle, circle, circle, circle, square. Each new group has one more circle before a square.**

Accept shape and snack answers in the correct order, with or without commas. For the challenge, accept any clear explanation that states one circle is added before each square.