

Pattern Detectives

Use observations to ask a question you can test and make a reasonable prediction.

5.1.a.i “asking questions and defining problems ask testable questions based on observations and predict reasonable outcomes based on patterns”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each observation, circle the testable question, and number the prediction 1. Your marks should show how observations can lead to a question and an expected outcome.

Bean Plant Investigation

- ① Maya checked six bean plants in the school garden after a dry week. The plants near a dripping hose had taller stems and more leaves than plants farther away. She also noticed that a maple tree shaded part of the garden each afternoon. These observations suggested a pattern, but they did not prove that water alone caused the difference.
- ② To investigate, Maya chose a testable question: “How does the amount of water affect the height of bean plants?” She planted similar seeds in six identical pots with the same soil. All pots stayed in one sunny place. Each day, three plants received 50 milliliters of water, and three received 100 milliliters. She planned to measure every stem after two weeks.
- ③ Maya wrote a prediction before she began: “Plants receiving 100 milliliters of water each day will be taller after two weeks than plants receiving 50 milliliters.” This prediction matched the pattern she observed near the hose. If the taller group also received more sunlight or different soil, Maya would need another test to separate those effects.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What pattern did Maya observe in the bean plants?

2 Why is Maya's question testable? Name what she can change and what she can measure.

3 What conditions does Maya keep the same to make her test fair?

4 What outcome does Maya predict after two weeks?

3 YOUR TURN _____ Your own words

At three lunches, Jordan notices that apple slices with lemon juice stay lighter in color than apple slices without lemon juice. Write two sentences: ask a testable question about this pattern, then predict an outcome based on the observation.

PART 1 • READ AND MARK

Underline each observation, circle the testable question, and number the prediction 1. Your marks should show how observations can lead to a question and an expected outcome. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What pattern did Maya observe in the bean plants?	Plants near the dripping hose had taller stems and more leaves than plants farther away.
2	Why is Maya's question testable? Name what she can change and what she can measure.	She can change the amount of water and measure the height of the bean plants.
3	What conditions does Maya keep the same to make her test fair?	She uses similar seeds, identical pots, the same soil, and one sunny location.
4	What outcome does Maya predict after two weeks?	She predicts that plants receiving 100 milliliters of water each day will be taller than plants receiving 50 milliliters.

PART 3 • YOUR TURN (SAMPLE ANSWER)

How does adding lemon juice affect the color of apple slices after 30 minutes? Apple slices with lemon juice will stay lighter after 30 minutes than slices without lemon juice because they stayed lighter at lunch.

Accept testable questions that change or compare lemon juice and measure or observe apple-slice color over a stated time. Accept predictions that reasonably state that lemon-treated slices will remain lighter or brown less than untreated slices.