

Pill Bug Detectives

Read how a team turns a question into an investigation.

SC.3.N.1.1 "Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the team's question, number the steps they used to test it, and circle the sentence that gives an explanation based on observations.

Damp or Dry?

- ① During recess, Maya noticed pill bugs under a damp flowerpot. She wondered, "Do pill bugs choose damp places or dry places?" Her team decided to investigate. They found a shallow tray, two equal pieces of cardboard, water, a spoon, and six pill bugs. They planned to compare two places while keeping the tray, cardboard size, and number of pill bugs the same.
- ② First, the team placed one dry cardboard piece on one side of the tray. They sprinkled water on the other cardboard piece until it was damp. Then they put all six pill bugs in the middle. Every minute for five minutes, they counted the bugs on each side. They wrote each count in a notebook. They did not move the bugs during counting.
- ③ At the end, most pill bugs were on the damp cardboard at each count. The team explained that pill bugs chose the damp place in this test. Their explanation matched their observations, but they knew one short investigation could not prove what every pill bug always chooses. They could repeat the test with new pill bugs or switch the cardboard sides to check their result.

2 ANSWER WITH EVIDENCE Use the passage

1 What question did Maya's team investigate?

2 Name two things the team kept the same during the investigation.

3 How did the team collect observations in a systematic way?

4 What observation supported the team's explanation?

3 YOUR TURN

Your own words

First freely observe an ice cube on a tray for two minutes; sketch what changes and raise one question about melting. With your team and teacher, plan a safe test in 4 to 6 sentences: ask whether equal ice cubes melt sooner in sunlight or shade, name the location you change and two things kept alike, and say how you will record observations. Teacher supplies equal cubes from the same mold, matching plates and a timer. Start both at once, one in sunlight and one in nearby shade. Actually watch them: at Start and every two minutes for 20 minutes record each cube as solid, partly melted or fully melted on extra paper. Assign observer and recorder roles and switch halfway. Then write a 4-to-6-sentence report with your actual records and an explanation limited to this test. If neither fully melts, compare the recorded changes without inventing a finishing time. Do not taste ice or touch hot surfaces.

PART 1 • READ AND MARK

Underline the team's question, number the steps they used to test it, and circle the sentence that gives an explanation based on observations. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What question did Maya's team investigate?	They investigated whether pill bugs choose damp places or dry places.
2	Name two things the team kept the same during the investigation.	Answers include the tray, the cardboard size, and the number of pill bugs.
3	How did the team collect observations in a systematic way?	They counted the pill bugs on each side every minute for five minutes and wrote each count in a notebook.
4	What observation supported the team's explanation?	Most pill bugs were on the damp cardboard at each count.

PART 3 • YOUR TURN (SAMPLE ANSWER)

I asked, "Do equal ice cubes melt faster in sunlight or shade?" I put one equal-sized ice cube in sunlight and one in shade. I used matching plates and started both tests at the same time. Every two minutes, I recorded whether each cube had melted. The ice cube in sunlight melted completely first. I explained that faster melting in our sunny location supports a heating explanation, but one test does not separate sunlight from every other location difference.

Accept equivalent descriptions of the team's question, controls, data collection, and evidence. For Your Turn, accept safe investigations with a testable question, fair comparison, recorded observations, and an explanation connected to the stated result. Teacher supplies the stated materials and safe accessible sun/shade locations, reads/supports roles and recording and checks every learner contributes. The initial unstructured observation/question precedes the jointly planned systematic test. Same mold/starting state, plate type and starting time are controls; locations may also differ in wind/air temperature, so do not claim sunlight alone conclusively caused a difference. Require actual time/state records and an evidence-based report, not future-plan sentences alone. The existing six-sentence sample is illustrative, not a prescribed result. Accept ties, incomplete melting after 20 minutes or unexpected results with accurate records and a limited explanation; extend/repeat if helpful. Do not collect live pill bugs for the added ice test.