

Pill Bug Detectives

Use tools and methods to collect careful science data.

3.1.b.ii "planning and carrying out investigations use appropriate methods and/or tools for collecting data"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each tool or item used to collect data. Circle the words that tell when or how often the students collected data.

Testing Pill Bug Choices

- ① Ms. Lee's class wondered whether pill bugs choose a damp place or a dry place. They made a test tray with two equal sections. One section held a damp paper towel. The other held a dry paper towel. The class put ten pill bugs at the center. They decided to collect data for ten minutes without touching the animals.
- ② To count carefully, one student used a timer that beeped every two minutes. At each beep, a partner used a pencil and a data sheet to write how many pill bugs were on each side. The students did not pick up the bugs or move the towels. Using the same tray, number of bugs, and time helped them make a fair comparison.
- ③ After ten minutes, the class added the five counts for each side. Their notes showed more pill bugs on the damp side at four of the five checks. The class knew that one short test was not enough to prove what all pill bugs will choose. They planned to repeat the investigation with fresh paper towels and another group of pill bugs.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What question were the students investigating?

2 What tool told the students when to count, and what did they use to record their counts?

3 How often did the students collect data?

4 Name two things the students kept the same to make a fair comparison.

3 YOUR TURN _____ Your own words

Plan four paper-airplane flights: two for Design A and two for Design B. Agree on a measuring tool, a start line and one thrower. With teacher approval, make both designs and carry out all four flights in a clear indoor space, away from people. Use a tape measure from the start line to each landing point. Record actual distances with units, not planned numbers, and compare the designs. Use extra paper for your plan or comparison.

TRIAL AND DESIGN	TOOL AND METHOD	ACTUAL DISTANCE (CM)

PART 1 • READ AND MARK

Underline each tool or item used to collect data. Circle the words that tell when or how often the students collected data. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What question were the students investigating?	They were investigating whether pill bugs choose a damp place or a dry place.
2	What tool told the students when to count, and what did they use to record their counts?	A timer told them when to count. They used a pencil and a data sheet to record the counts.
3	How often did the students collect data?	They collected data every two minutes.
4	Name two things the students kept the same to make a fair comparison.	They kept the same tray, number of pill bugs, and amount of time. Any two are correct.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Illustrative records only; pupils must collect their own measurements.

TRIAL AND DESIGN	TOOL AND METHOD	ACTUAL DISTANCE (CM)
1, A	Tape measure; same line and thrower	140 cm
2, B	Same method	165 cm
3, A	Same method	150 cm
4, B	Same method	170 cm

Accept answers that name appropriate data tools and a clear method for measuring and recording each flight. Students should include repeated trials for both designs and at least one fair-test condition, such as the same thrower or starting line. Teacher setup: supply paper, a tape measure and a marked, clear flight space; approve designs and demonstrate measuring to the landing point. Observe learners using the tool and recording each result. Accept actual values that differ from the illustrative sample; check units, repeated trials and fair conditions. In the sample both B flights exceed both A flights, but four flights do not establish which design always flies farther.