

Choose the Model

Match a scientific model to the purpose of an investigation.

SC.8.N.3.1 "Select models useful in relating the results of their own investigations."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each model named in the passage, then write 1, 2, or 3 beside it to show whether it helps check trials, compare totals, or explain the setup.

Pill Bugs and Moisture

- ① A class investigated whether pill bugs gathered in a damp or dry place. Each team put ten pill bugs into a chamber with one damp side and one dry side. After five minutes, the teams counted the animals on each side. The class combined its counts from four trials in the table.

COMBINED PILL BUG COUNTS

Trial	Damp Side	Dry Side
1	7	3
2	8	2
3	6	4
4	7	3

- ② The table is a model of the class results because it keeps every trial visible. A bar graph is also useful when the class wants to compare the total number found on the damp side with the total on the dry side. The graph makes the difference easy to see, but it does not show how much each trial varied.
- ③ To explain why moisture may affect the animals, a labeled chamber sketch could show the two conditions and the pill bugs' starting position. It cannot prove the cause. The class should select a model that matches its purpose: use the table to check consistency, use a bar graph to communicate totals, and use a sketch to explain the investigation setup. No model replaces repeated observations.

2 ANSWER WITH EVIDENCE Use the passage

- 1 The class wants to compare the combined counts on the two sides. Which model should it select, and what two totals would that model communicate?

- 2 Which model should the class select to check whether the results varied across the four trials? Explain why.

- 3 A student says that a labeled chamber sketch proves moisture caused the pill bugs to gather. Explain why this claim is incorrect.

- 4 A scientist needs to show where the pill bugs started and which side of a chamber was damp. Which model is useful, and what does it not establish?

3 YOUR TURN Your own words

Use actual recorded results from an investigation you personally completed, and attach the record. If you do not have one, investigate with teacher support: secure a cardboard ramp over a clear floor lane, raise its top 5 cm, and release a soft ball from a marked start without pushing. Measure how far it rolls on the floor beyond the ramp in centimeters in three trials. Repeat with the top 10 cm high using the same ramp, ball, floor and release mark. Record Height / Trial / Distance on extra paper. In exactly three sentences name your actual investigation and at least one recorded result, select a useful model and explain its purpose, and state one limitation. Then make the chosen table, graph or labeled sketch using your results; do not invent measurements or use the supplied pillbug counts as your own.

PART 1 • READ AND MARK

Underline each model named in the passage, then write 1, 2, or 3 beside it to show whether it helps check trials, compare totals, or explain the setup. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	The class wants to compare the combined counts on the two sides. Which model should it select, and what two totals would that model communicate?	Select a bar graph. It would communicate 28 pill bugs on the damp side and 12 on the dry side.
2	Which model should the class select to check whether the results varied across the four trials? Explain why.	Select the table because it shows the count from every individual trial.
3	A student says that a labeled chamber sketch proves moisture caused the pill bugs to gather. Explain why this claim is incorrect.	A labeled sketch can show the conditions and starting position, but it cannot prove the cause of the pill bugs' behavior.
4	A scientist needs to show where the pill bugs started and which side of a chamber was damp. Which model is useful, and what does it not establish?	A labeled chamber sketch is useful. It does not establish or prove the cause of the results.

PART 3 • YOUR TURN (SAMPLE ANSWER)

After our actual trial record is attached: I investigated __ and recorded __. I selected a __ to show __ from those results. It does not show __. For example, a bar graph of two mean distances compares height conditions but hides individual trial variation; a trial table preserves each distance but makes the mean comparison less immediate.

Keep all supplied pillbug keys: damp total 28 and dry total 12; table retains individual variation; setup sketch does not prove cause. For Your Turn, require actual personally obtained records and a chosen model accurately relating those results, plus the three-sentence purpose/limitation explanation. A previously completed accessible investigation is sufficient; no new animal handling is required. For the fallback teacher supplies a stable ramp, secure 5/10 cm supports, soft ball, meter tape and clear floor lane; pretests stopping distance, keeps people out of the lane and supports release/measurement. Measure from the ramp's floor exit to the resting ball with the same reference point each time; retrieve only after it stops. Six actual measurements, including unexpected results, must be retained. Means use three distances per height if chosen. A model communicates data but does not establish universal causation or replace trials. The blank response frame is not fictitious data.