

Rain Catcher Challenge

Read how a team plans, builds, tests, and improves a water-moving device.

5.1.b.v "planning and carrying out investigations use tools and/or materials to design and/or build a device that solves a specific problem"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the specific problem, circle the tools and materials, and number 1, 2, and 3 beside the first test, the design change, and the second test; these marks show how an investigation can improve a device.

A Device for a Muddy Path

- ① At recess, the garden club noticed that rainwater poured off the tool-shed roof and made a muddy path. They chose one specific problem: guide water into a bucket for watering plants. Before building, the club listed limits. Their device had to use safe, reused materials, fit under the roof edge, and be easy to move. They also decided what success would look like: the bucket should collect more water than it spilled.
- ② First, students sketched a sloped channel made from a cut plastic bottle. They planned to tape the channel to a wooden support and place its lower end above the bucket. A ruler, scissors, tape, bottle, support, and bucket were the needed tools and materials. To investigate fairly, they would pour the same amount of water from the same height during each test. They would measure the water collected in the bucket.
- ③ During the first test, water leaked from a gap where two bottle pieces met. The bucket collected only a little water, so the club examined the device and changed one part. They added an overlapping flap and extra tape at the gap. In the next test, they kept the pouring amount and height the same. The bucket collected more water, and less water reached the path. The students recorded results and chose the improved design.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What device did the club plan to build, and what problem would it solve?

2 Name two tools or materials the club used to build or test its device.

3 Which two conditions did the club keep the same to make its tests fair?

4 What change did the club make after the first test, and what evidence showed that the device improved?

3 YOUR TURN _____ Your own words

Choose a different school problem that a simple device could solve. Write 5 sentences that describe the problem, your device, at least two tools or materials, a fair test, and one change you would make if the first test failed.

PART 1 • READ AND MARK

Underline the specific problem, circle the tools and materials, and number 1, 2, and 3 beside the first test, the design change, and the second test; these marks show how an investigation can improve a device. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What device did the club plan to build, and what problem would it solve?	They planned a sloped bottle channel to guide roof rainwater into a bucket instead of letting it make the path muddy.
2	Name two tools or materials the club used to build or test its device.	Answers may include a ruler, scissors, tape, plastic bottle, wooden support, or bucket.
3	Which two conditions did the club keep the same to make its tests fair?	They used the same amount of water and poured it from the same height.
4	What change did the club make after the first test, and what evidence showed that the device improved?	They added an overlapping flap and extra tape at the gap. The bucket collected more water, and less water reached the path.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Pencils roll off our group table and interrupt work. I would build a shallow pencil tray from a cereal box. I would use scissors, a ruler, tape, and the box. To test it fairly, I would place five pencils on the same table edge three times and count how many stay in the tray. If pencils roll out, I would tape a taller strip of cardboard along the front edge.

Accept equivalent descriptions of the channel, materials, fair-test conditions, and improvement evidence from the passage. For Your Turn, accept varied workable devices if the response includes all five requested parts and a test that controls at least one condition.