

Channel Challenge

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

4.1.b.iii “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 tools and materials, circle each action the team uses to test or check its device, and number the change it makes after finding a problem. Your marks will show how engineers plan, build, test, and improve a device.

A Device for Drips

- ① During recess, rainwater dripped from a classroom plant tray onto the floor. Maya’s team had to build a device that would move the water into a cup. They listed limits first. The device could use only a paper towel tube, aluminum foil, tape, and one plastic cup. It had to work without anyone holding it.
- ② First, the team used scissors to cut the tube lengthwise. They bent the foil into a shallow channel and taped it inside the tube. The channel rested on a stack of books, with one end below the tray and the other end over the cup. Before testing, the team predicted that a steeper channel would help water flow faster.
- ③ They poured the same small cup of water onto the tray three times. After each test, they checked whether water reached the cup and looked for spills. The first channel leaked at a loose tape spot. The team pressed down the tape and tested again. On the third test, the water reached the cup with no spill. The team recorded the change and result.

2 ANSWER WITH EVIDENCE Use the passage

1 What specific problem was the team's device designed to solve?

2 What tool did the team use, and what did they do with it?

3 What two things did the team check after each test?

4 What change did the team make after the first test, and what happened on the third test?

3 YOUR TURN Your own words

Choose a problem at your desk that a small device could solve. In the box, draw and label a device made from classroom materials, including at least two materials or tools. Then write exactly two sentences that name the problem and explain how you will test and improve the device.

PART 1 • READ AND MARK

Underline the tools and materials, circle each action the team uses to test or check its device, and number the change it makes after finding a problem. Your marks will show how engineers plan, build, test, and improve a device. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What specific problem was the team's device designed to solve?	It was designed to move rainwater dripping from the plant tray into a cup so it would not drip onto the floor.
2	What tool did the team use, and what did they do with it?	They used scissors to cut the paper towel tube lengthwise.
3	What two things did the team check after each test?	They checked whether water reached the cup and whether there were spills.
4	What change did the team make after the first test, and what happened on the third test?	They pressed down the loose tape. On the third test, water reached the cup with no spill.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Sketch labels: cardboard tray, tape, scissors, crayons. My device is a taped cardboard tray that keeps crayons from rolling off the table. I will place the same three crayons on it twice, check whether they stay on the table, and add taller sides if they roll out.

Accept any realistic desk problem and a labeled device that uses materials or tools. The two written sentences should name a specific problem and describe a repeatable test plus a possible improvement.