

Tools With Purpose

Match each science question to tools that collect useful evidence.

8.1.D "use appropriate tools such as graduated cylinders, metric rulers, periodic tables, balances, scales, thermometers, temperature probes, laboratory ware, timing devices, pH indicators, hot plates, models, microscopes, slides..."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each tool named in the passage. Circle the words that tell what the tool measures or helps students observe, so you can see why each tool fits the investigation.

A Fair Puddle Test

- ① After a rainy weekend, Maya's science team investigated whether puddles in sunlight warmed faster than puddles in shade. They chose two similar metal trays and added the same amount of water to each one. A graduated cylinder measured 200 milliliters accurately. The team placed one tray by a sunny window and one in a shaded corner. Before collecting data, they wrote the question, tool choices, and safety steps in lab notebooks. Their plan called for measuring temperature at regular intervals without touching the hot plate, which was not needed for this investigation.
- ② To measure temperature, Maya used a temperature probe because its sensor could stay in the water while the display showed a reading. She recorded the temperature of each tray every five minutes for twenty minutes with a timing device. A metric ruler was not useful for temperature, but it could have measured water depth if depth had been part of the question. At the end, the team compared readings in their notebooks. Repeating the same timing and using the same probe method helped make the comparison fair.
- ③ During cleanup, the team considered how other tools fit other questions. A balance would measure the mass of a dry soil sample, while a spring scale would measure a pulling force. To examine tiny organisms in pond water, students could use a microscope, a slide, and a dropper to place a sample on the slide. A hand lens would enlarge larger objects but would not show cells as clearly as a microscope. Scientists select a tool by matching what it measures or helps them observe to the investigation question.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Which tool measured the water added to each tray, and how much water did it measure?

2 Which two tools did Maya use to measure how temperature changed over time?

3 Why was a metric ruler not an appropriate tool for the puddle investigation?

4 Which three tools could students use to examine tiny organisms in pond water?

3 YOUR TURN _____ Your own words

You will compare the pH of equal amounts of freshwater and saltwater. Write three sentences that name at least two appropriate tools, tell what each tool will do, and explain how you will record a fair comparison.

PART 1 • READ AND MARK

Underline each tool named in the passage. Circle the words that tell what the tool measures or helps students observe, so you can see why each tool fits the investigation. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Which tool measured the water added to each tray, and how much water did it measure?	A graduated cylinder measured 200 milliliters of water.
2	Which two tools did Maya use to measure how temperature changed over time?	She used a temperature probe and a timing device.
3	Why was a metric ruler not an appropriate tool for the puddle investigation?	The investigation measured temperature, not water depth. A metric ruler would be useful only if water depth were part of the question.
4	Which three tools could students use to examine tiny organisms in pond water?	A microscope, a slide, and a dropper.

PART 3 • YOUR TURN (SAMPLE ANSWER)

I will use a graduated cylinder to put 50 milliliters of each water sample into separate cups. I will use pH indicator paper to observe each sample's pH and compare the color to its chart. I will record both pH values in a lab notebook and use equal volumes for a fair comparison.

Accept equivalent tool choices when they match the measurement or observation needed. For the open response, students should name at least two suitable tools, explain their uses, and include a fair-recording method.