

Puddle Tool Detectives

Match scientific tools to the observations and measurements they support.

6.1.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, circle the words that tell what it measures or observes, and number Maya's steps in order so you can see how each tool fits the investigation.

Testing a Rainy Puddle

- ① On a field trip, Maya investigated whether rainwater changed a schoolyard puddle. She first wrote the puddle's location, weather, and observations in her lab notebook. Then she used a metric ruler to measure the water depth at three spots. A graduated cylinder held a small water sample so she could read its volume at eye level. Before measuring a new sample, Maya dried the cylinder completely so leftover water would not dilute or contaminate the sample.
- ② Next, Maya tested properties that her eyes could not measure alone. She placed a temperature probe in the water without touching the bottom and waited for a steady reading. She used pH paper to compare the water's acidity or basicity with the color key. A hand lens helped her inspect tiny bits of soil and plant material. She recorded each measurement, its unit, and the tool used, making her results easier for another student to check.
- ③ To make a fair comparison, Maya collected a second sample from a puddle under a roof edge. She used the same sample volume, waited the same amount of time for each temperature reading, and used clean, dry laboratory ware. Maya labeled both samples and entered their results in a table. When the temperature readings differed, she did not claim that rain alone caused the difference. Other conditions, such as shade or surface material, could also affect the water.

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ANSWER WITH EVIDENCE

Use the passage

1 Which two tools did Maya use to measure water depth and water volume?

2 What tool did Maya use to test whether the water was acidic or basic? How did she read the result?

3 What tool measured the water temperature? Describe one step Maya took to get a dependable reading.

4 Name two actions Maya performed to make her comparison fair.

3

YOUR TURN

Your own words

For a teacher-provided comparison of two water samples, plan three measurements or observations. In each row, choose an appropriate tool, state what you will measure or observe, and explain how you will use the tool accurately.

TOOL	WHAT IT MEASURES OR OBSERVES	ACCURATE USE AND RECORD

PART 1 • READ AND MARK

Underline each tool, circle the words that tell what it measures or observes, and number Maya's steps in order so you can see how 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 two tools did Maya use to measure water depth and water volume?	She used a metric ruler for water depth and a graduated cylinder for water volume.
2	What tool did Maya use to test whether the water was acidic or basic? How did she read the result?	She used pH paper and compared its color with the color key.
3	What tool measured the water temperature? Describe one step Maya took to get a dependable reading.	A temperature probe measured the temperature. Maya kept it from touching the bottom and waited for a steady reading.
4	Name two actions Maya performed to make her comparison fair.	She used the same sample volume, waited the same amount of time for each temperature reading, and used clean, dry laboratory ware. Any two actions are correct.

PART 3 • YOUR TURN (SAMPLE ANSWER)

TOOL	WHAT IT MEASURES OR OBSERVES	ACCURATE USE AND RECORD
Graduated cylinder	Sample volume	Measure the same volume for both samples at eye level and record mL.
Temperature probe	Water temperature	Keep the probe off the bottom, wait for a steady reading, and record °C.
pH paper	Acidity or basicity	Use a fresh strip, compare its color to the key, and record the pH result.

Accept the stated passage tools and purposes. For Your Turn, accept other appropriate tools if the student names a sensible measurement or observation and an accurate use procedure.