Shadow Measure Mystery

Compare group observations and look for reasons they differ.

SC.3.N.1.2 "Compare the observations made by different groups using the same tools and seek reasons to explain the differences across groups."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each group's measurement. Circle each possible reason the measurements were different.

Two Groups, Two Results

1. At 10:00 a.m., two third-grade groups studied a flagpole shadow. Each group used the same meterstick and recorded the shadow's length from the bottom of the pole to its tip. Group Maple measured 4 meters. Group Pine measured 5 meters. Their numbers did not match, even though both groups used the same tool and followed the same measuring plan.

2. When the class compared notes, they looked for reasons. The sun was partly hidden by a cloud while Group Pine measured. A cloud can make the edge of a shadow hard to see. Group Pine may have chosen a shadow tip farther from the pole. This could explain why Pine's measurement was longer than Maple's measurement on that morning.

3. Group Maple also noticed that one student held the meterstick flat on the ground. In Group Pine, the meterstick was tilted a little. A tilted tool can change a length measurement. The class decided that both the cloudy sky and the tilted meterstick were possible reasons for the different observations. Scientists compare results, then investigate reasons for differences.

2 ANSWER WITH EVIDENCE

Use the passage

1. How were Group Maple's and Group Pine's shadow measurements different?

2. What did both groups do the same way when they measured the shadow?

3. How could the cloud have affected Group Pine's measurement?

4. What possible reason involved the way Group Pine used the meterstick?

3 YOUR TURN

Your own words

Imagine two groups measure the same pencil with the same ruler. Fill in the table with different observations for the groups and a possible reason their measurements differ.

GROUP	TOOL	MEASUREMENT	POSSIBLE REASON

ANSWER KEY

Shadow Measure Mystery

GRADE 3 · SC.3.N.1.2

PART 1 · READ AND MARK

Underline each group's measurement. Circle each possible reason the measurements were different. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How were Group Maple's and Group Pine's shadow measurements different?	**Group Maple measured 4 meters, and Group Pine measured 5 meters. Pine's measurement was 1 meter longer.**
2	What did both groups do the same way when they measured the shadow?	**Both groups used the same meterstick and measured from the bottom of the pole to the shadow's tip.**
3	How could the cloud have affected Group Pine's measurement?	**The cloud could make the edge of the shadow hard to see, so Pine may have chosen a tip farther from the pole.**
4	What possible reason involved the way Group Pine used the meterstick?	**Group Pine held the meterstick tilted a little. A tilted tool can change a length measurement.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

GROUP	TOOL	MEASUREMENT	POSSIBLE REASON
River	ruler	14 cm	River started at the 0 cm mark.
Stone	ruler	15 cm	Stone started at the 1 cm mark instead of 0 cm.

Accept any plausible pair of different measurements made with the same named tool and a reasonable explanation, such as starting at the wrong ruler mark, holding the tool crooked, or choosing different endpoints. Measurements should include units.