

Water Data Detectives

Use observations and graphs to trace how water moves Earth materials.

S6E3.d "Analyze and interpret data to create graphic representations of the causes and effects of waves, currents, and tides in Earth's systems."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each **bold cause** and circle the **bold effect** paired with it. Write the same number beside both parts of each pair, using 1, 2, and 3 in passage order.

Reading Water at Cedar Bay

- ① At Cedar Bay, sixth graders collected data during four calm-weather visits. They recorded wind speed, wave height, current speed, and tide stage. Their table gave them evidence to connect a cause with an effect instead of relying only on what the water looked like. The class used the same marked spot at the bay entrance each time.

CEDAR BAY WATER OBSERVATIONS

Visit	Wind speed (km/h)	Wave height (cm)	Tide stage	Current speed (m/s)
A	8	20	Low	0.1
B	16	45	Rising	0.6
C	24	70	High	0.1
D	12	30	Falling	0.5

- ② The data show that higher wind readings went with taller waves. Wind transfers energy to surface water, so **stronger wind** causes **taller waves**. At the bay entrance, **a rising tide** brings water into the bay and causes **an inward current**. A falling tide reverses the current as water leaves. Tide stage comes from the Moon's gravity, not wind.
- ③ To make patterns clear, the class made separate bar graphs. One graph used wind speed and wave height for each visit. Another showed current speed at rising, high, and falling tide stages. A graphic representation helps readers see that **moving water** affects **shore conditions**: waves can push sand along a beach, while currents carry sand into or out of a bay.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Which visit had the fastest current, and what was the tide stage during that visit?

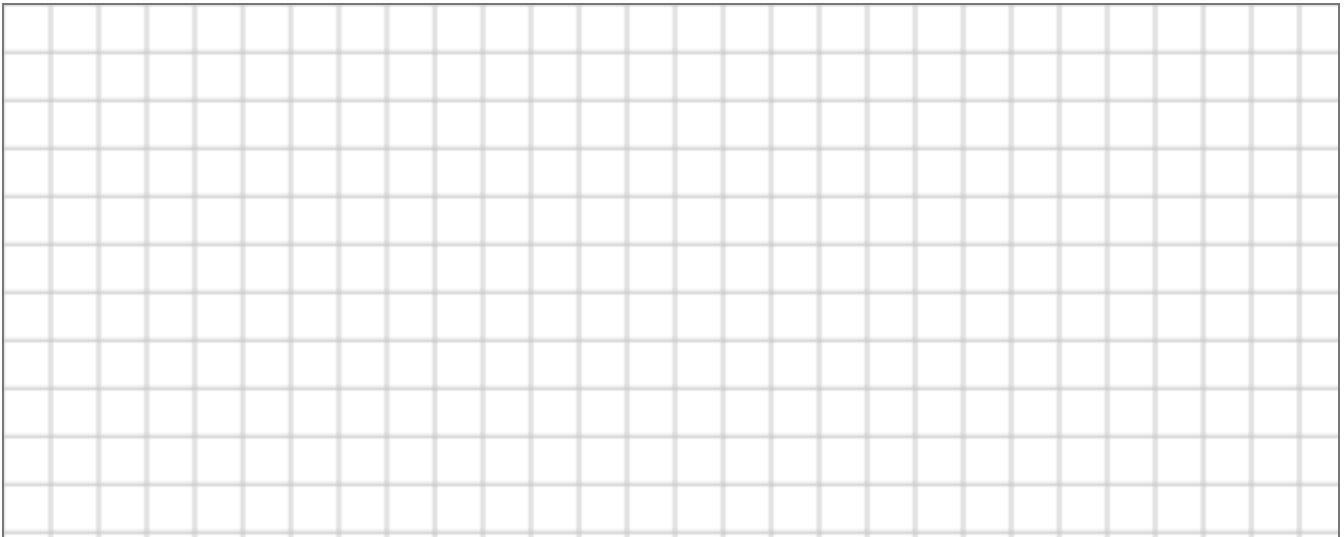
2 How much did wave height increase from Visit A to Visit C? Show the difference in centimeters.

3 Which two variables did the class place together on its first bar graph, and what cause-and-effect pattern did that graph show?

4 What causes an inward current at the bay entrance, according to the passage?

3 YOUR TURN _____ Your own words

On the grid, make a bar graph using these new observations: wind speeds of 5, 10, 15, and 20 km/h had matching wave heights of 10, 25, 45, and 65 cm. Label the title and both axes with units, then write one sentence explaining the cause-and-effect pattern shown by your graph.



PART 1 • READ AND MARK

Underline each **bold cause** and circle the **bold effect** paired with it. Write the same number beside both parts of each pair, using 1, 2, and 3 in passage order. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Which visit had the fastest current, and what was the tide stage during that visit?	Visit B had the fastest current, and the tide was rising.
2	How much did wave height increase from Visit A to Visit C? Show the difference in centimeters.	Wave height increased by 50 cm.
3	Which two variables did the class place together on its first bar graph, and what cause-and-effect pattern did that graph show?	The graph used wind speed and wave height. It showed that stronger wind was connected to taller waves.
4	What causes an inward current at the bay entrance, according to the passage?	A rising tide causes an inward current because water moves into the bay.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Bar graph title: Wind Speed and Wave Height. Horizontal axis: Wind speed (km/h), labeled 5, 10, 15, and 20. Vertical axis: Wave height (cm), scaled from 0 to 70. Bar heights: 10, 25, 45, and 65 cm. As wind speed increased, wave height increased.

Accept equivalent wording that correctly identifies the table values and the stated cause-and-effect relationships. For the open task, accept reasonable graph scales if all four values are plotted accurately, axes include units, and the sentence states that stronger wind is associated with taller waves.