Beneath the Ice

Use word parts and context to unlock scientific vocabulary.

8.RV.1.C "Apply knowledge of Greek and Latin roots and affixes to determine the meaning of unfamiliar words."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline four words that contain a Greek or Latin root or affix, and number them 1 to 4. In the margin, write what each word part helps you infer about the word's meaning.

Ice Cores Tell a Story

1 On a windless morning, a research team lowered a drill onto Antarctica's ice sheet. Their goal was to reach a subglacial lake sealed beneath nearly four kilometers of ice. The drill removed long cylinders called ice cores, each holding layers formed by ancient snowfall. Because the layers build up year after year, scientists created a chronology that placed layers in order from oldest to newest. This record helps them compare past temperatures with changes occurring across the planet today.

2 To collect a core without contamination, the team cleaned every tool and sealed each sample quickly. They worked inside a sterile tent. Back at camp, researchers used microscopic instruments to inspect particles too small to see clearly without magnification. Ash from distant volcanic eruptions can identify a particular period. They also measured gases in small bubbles. A sudden increase in methane may indicate that wetlands expanded or that another natural process released more of the gas.

3 The project required international cooperation. Scientists from several countries followed a shared protocol, a set of agreed steps, so their results could be compared. After analyzing the cores, the team sent data to laboratories around the world. No single core gives a complete climate history, but many cores provide stronger evidence. By studying materials preserved in ice, researchers can reconstruct parts of Earth's environmental past and make climate records more reliable for future studies and public decisions.

2 ANSWER WITH EVIDENCE

Use the passage

1. What does the prefix sub- mean in subglacial? Use it to explain the likely meaning of subglacial.

2. Which root in chronology points to time? What does chronology mean in this passage?

3. Use the parts micro- and -scopic to infer the meaning of microscopic.

4. The prefix re- means again. What does reconstruct mean as it is used in the final paragraph?

3 YOUR TURN

Your own words

Write two sentences about an ice-core investigation. Use one new word with a Greek or Latin root or affix that is not discussed in Questions 1 to 4, underline the word, and add its word parts and your inferred meaning in parentheses.

ANSWER KEY # Beneath the Ice

GRADE 8 · 8.RV.1.C

PART 1 · READ AND MARK

Underline four words that contain a Greek or Latin root or affix, and number them 1 to 4. In the margin, write what each word part helps you infer about the word's meaning. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What does the prefix sub- mean in subglacial? Use it to explain the likely meaning of subglacial.	**Sub- means beneath or below. Subglacial means beneath the ice.**
2	Which root in chronology points to time? What does chronology mean in this passage?	**Chron means time. Chronology means an ordered record of time, with layers placed from oldest to newest.**
3	Use the parts micro- and -scopic to infer the meaning of microscopic.	**Micro- means small, and -scopic relates to looking or viewing. Microscopic means too small to see clearly without magnification.**
4	The prefix re- means again. What does reconstruct mean as it is used in the final paragraph?	**Reconstruct means to build or create again. Here, it means to build a picture of parts of Earth's environmental past from the ice-core evidence.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The team found a geothermal spring beneath the ice (geo = earth; therm = heat; meaning warmed by heat from Earth). Its warmer water could affect nearby ice layers.

Accept reasonable inferences when the student correctly identifies a relevant Greek or Latin root or affix and connects it to the word's meaning in context. For Part 3, accept any accurate two-sentence response with an underlined new word, correct word-part meanings, and a sensible inferred definition.