After the Salt

Read, mark, and summarize a science text about winter roads.

9-10.RST.2.b "Provide an accurate summary of the text."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the main point of each paragraph, then circle one detail in each paragraph that an accurate summary should include.

The Trade-Off Behind Road Salt

1 A dusting of salt can turn an icy sidewalk into slush, but it does not make ice disappear by magic. Water molecules constantly leave and rejoin the surface of ice. When salt dissolves in the thin film of liquid water on that surface, the salty water must get colder than pure water to freeze. More ice can then melt into the film, provided the air and pavement are not too cold. Road crews spread salt for this reason: it can loosen the bond between ice and pavement, making slippery surfaces easier to clear.

2 The same salt that helps drivers can travel far beyond the road. Meltwater carries dissolved salt into storm drains, streams, and groundwater. In freshwater streams, a rise in salt can stress organisms adapted to low-salt water. Salt can also accumulate in soil beside a road, where it may damage plants, and it can speed corrosion on vehicles and bridges. These effects are not equally severe everywhere: they depend on how much salt is used, where water flows, and how often roads are treated. A safer drive today can create costs that last beyond the storm.

3 Because ice and salt both pose risks, road crews try to use only what conditions require. Plows remove snow before it packs down, reducing the need for chemicals. Crews may apply liquid salt solution, called brine, before a storm to keep snow and ice from bonding to pavement, although rain can wash it away. They can also use pavement-temperature readings to guide when and how much salt to apply. Salt becomes less effective as temperatures fall, so dumping on more is not always a solution. The goal is safer travel with less salt entering nearby land and water.

2 ANSWER WITH EVIDENCE

Use the passage

1. Summarize how road salt helps crews clear ice.

2. Summarize the environmental and material costs described in the second paragraph.

3. In two sentences, summarize how crews can reduce salt use while managing icy roads.

4. Name one detail a brief summary of the whole passage could leave out. Explain why leaving it out would not change the main message.

3 YOUR TURN

Your own words

Write a 65 to 85 word summary of the whole passage in your own words. Include why crews use salt, its costs, and how crews try to limit those costs.

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PART 1 · READ AND MARK

Underline the main point of each paragraph, then circle one detail in each paragraph that an accurate summary should include. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Summarize how road salt helps crews clear ice.	**Dissolved salt lowers the temperature at which water freezes, allowing ice to melt and making it easier to clear from pavement.**
2	Summarize the environmental and material costs described in the second paragraph.	**Runoff can carry salt into water and soil, stressing freshwater organisms, damaging plants, and speeding corrosion.**
3	In two sentences, summarize how crews can reduce salt use while managing icy roads.	**Crews can plow snow and apply brine before a storm when conditions are suitable. They can use pavement-temperature readings to guide salt use, especially because salt becomes less effective in colder conditions.**
4	Name one detail a brief summary of the whole passage could leave out. Explain why leaving it out would not change the main message.	**A brief summary could leave out that rain can wash brine away. That detail does not change the main message that crews must balance safer roads with salt's costs.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Road salt helps crews manage icy pavement because dissolved salt lowers the temperature at which water freezes, allowing ice to melt and making it easier to clear. However, runoff can carry salt into waterways and soil, harming freshwater life and roadside plants and contributing to corrosion. Crews can limit these effects by plowing, applying brine when conditions fit, and using pavement temperatures to guide salt use. Their challenge is to keep roads safer without adding unnecessary salt to the environment.

Accept accurate paraphrases that distinguish the passage's main points from minor details. The full summary should connect road safety, salt's costs, and ways to reduce its use without adding unsupported claims.