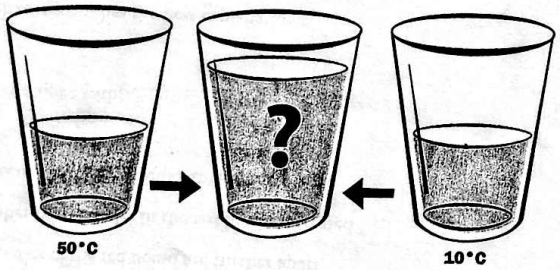
11

Mixing Water

Melinda filled two glasses of equal size half-full with water. The water in one glass was 50 degrees Celsius. The water in the other glass was 10 degrees Celsius. She poured one glass into the other, stirred the liquid, and measured the temperature of the full glass of water.

What do you think the temperature of the full glass of water will be after the water is mixed? Circle your prediction.

A 20 degrees Celsius
B 30 degrees Celsius
C 40 degrees Celsius
D 50 degrees Celsius
E 60 degrees Celsius

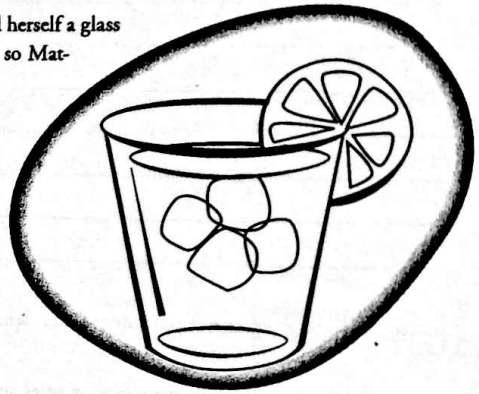


Explain your thinking. Describe the "rule" or reasoning you used for your answer.

10

Ice-Cold Lemonade

It was a hot summer day. Mattie poured herself a glass of lemonade. The lemonade was warm, so Mattie put some ice in the glass. After 10 minutes, Mattie noticed that the ice was melting and the lemonade was cold. Mattie wondered what made the lemonade get cold. She had three different ideas. Which idea do you think best explains why the lemonade got cold? Circle your answer.



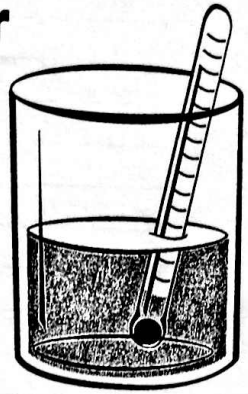
A The coldness from the ice moved into the lemonade.

B The heat from the lemonade moved into the ice.

C The coldness and the heat moved back and forth until the lemonade cooled off.

Explain your thinking. Describe the "rule" or reasoning you used for your answer.

Thermometer



Mr. Martinez placed a thermometer in a jar of very hot water. His students watched what happened to the thermometer. Immediately the level of the red liquid in the thermometer went up. His students disagreed about why the red liquid in the thermometer rose when the thermometer was placed in hot water. This is what they said:

Jean-Paul:	"The hot water pushed it up."
Pita:	"The mass of the red liquid increased."
Jonathan:	"The heat inside the thermometer rises."
Jimena:	"The air inside the thermometer pulls it up."
Molly:	"The molecules of the red liquid are further apart."
Greta:	"The number of molecules in the red liquid increased."
Keanu:	"The molecules of the red liquid are getting bigger."

Which student do you most agree with? _____

Explain why you think that student has the best explanation.

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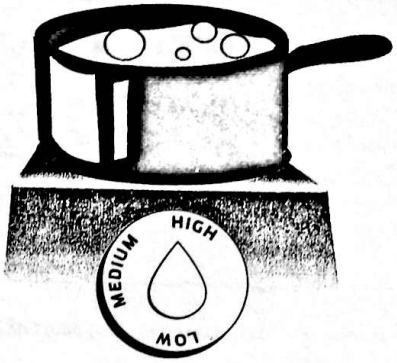
Turning the Dial



Flora is boiling water on a stove. She turns the temperature dial up to high to boil the water. The water is boiling vigorously with large bubbles quickly forming and bursting at the surface. Flora then turns the dial of the stove down to low. The water is boiling gently, with smaller bubbles slowly forming and bursting at the surface. Flora wonders if the boiling temperature changes when she turns the dial. What would you tell Flora? Circle the best answer.

A The boiling temperature is greater when the dial is set at high.

B The boiling temperature is greater when the dial is set at low.

C The boiling temperature is the same at both settings.

Explain your thinking. What "rule" or reasoning did you use to select your answer?

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