

Sample Items

Measuring Temperature A

STC POM Lesson 5

Your teacher brings two solid objects into the room and places them in front of you. You do not know what the objects are made of nor do you know where they came from.



What is the best way to compare temperatures of two solid objects shown above?

- a) Feel them with your hand, and see which feels colder.
- b) Place a thermometer on them, and see what they measure after 10 minutes.
- c) Place a thermometer on them, and see what they measure after 15 seconds.
- d) Put the objects in buckets of ice and see how much ice melts in 5 minutes.
- e) The temperatures cannot be measured because the thermometer cannot be put inside the solids.

Measuring Temperature B

STC POM Lesson 5

Your teacher brings two beakers filled with two different liquids into the room and places them in front of you. You do not know what the liquids are nor do you know where they came from.



What is the best way to compare temperatures of two liquids objects shown above?

- a) Feel them with your hand, and see which feels colder.
- b) Place a thermometer in them, and see what they measure after 10 minutes.
- c) Place a thermometer in them, and see what they measure after 15 seconds.
- d) Pour the liquids over beakers of ice and see how much ice melts in 5 minutes.

Distinguishing between Heat and Temp A

STC POM Lesson 6

As an exercise for a science class, a metal block is left outside on a hot day. The temperature outside is 30°C (86°F). Near the end of the school day, the block is brought inside and is immediately placed in a large thermos containing ice and water that are at 0°C . Thirty minutes later there is still both water and ice in the thermos bottle and the temperature is still 0°C .

The teacher asks, "Was there energy transfer from the metal block to the ice-water mixture?"

Choose the answer with which you agree most.

- A. There was no energy transfer from the metal block because the ice-water just made the block colder.
- B. There was no energy transfer from the metal block because the ice-water stayed at 0°C .
- C. There was some energy transfer from the

Distinguishing between Heat and Temp B

STC POM Lesson 6

As an exercise for a science class, a metal block is put into a refrigerator that is at a temperature of 10°C . A day later the metal block is removed from the refrigerator and immediately placed in a large thermos containing ice water that is at 0°C . Thirty minutes later there is still both water and ice in the thermos bottle and the temperature is still 0°C .

The teacher asks, "Was there energy transfer from the metal block to the ice-water mixture?"

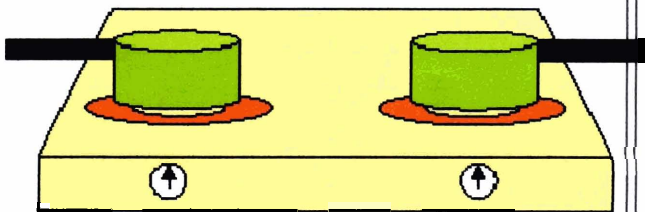
Choose the answer with which you agree the most.

- A. There was no energy transfer from the metal block because the block was already cold.
- B. There was no energy transfer from the metal block because the ice water stayed at 0°C .

Boiling Points of Substances A

STC POM Lesson 7

Two pots of water that are half full have been **boiling** on the stove for 2 minutes on the medium setting of the burners.



Which of the following will change the temperature of the water?

Select all that apply.

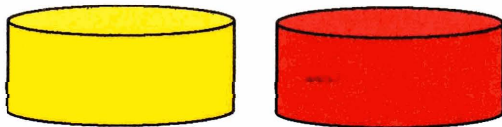
- A. Combining the two half-full pots into one full pot
- B. Letting the pots boil for 2 more minutes on medium
- C. Turning the burners up to high and waiting 2 more minutes
- D. None of the above

[Could be made into a multiple choice question where the options are combined]

Melting Points of Substances B

STC POM Lesson 7

Two buckets containing ice and water have been sitting in the back of the room for 20 minutes. About $\frac{1}{4}$ of the ice originally in the buckets have melted.



Which of the following will change the temperature of the ice water in the yellow bucket?

Select all that apply.

- A. Pour all the water from the red bucket A into the yellow bucket,
- B. Put the yellow bucket into the sun for 1 minute.
- C. Wait 5 more minutes until more that half the ice has melted.
- D. None of the above

[Could be made into a multiple choice question where the options are combined]