

TELS: PHYSICAL SCIENCE A

Name: _____ Grade Level: _____ Date: _____

School: _____ Science Teacher's Name: _____

What is your gender? ___ Male ___ Female

Was English the first language you learned to speak when you were a child? ___ Yes ___ No

Do you USUALLY speak English to talk with people in your home? ___ Yes ___ No

Do you often use computers for homework? ___ Yes ___ No

Which of the following WISE projects did you study in the 6th grade? The list below shows science topics in parentheses and names of related WISE projects. Check all that apply.

- ___ I did **NOT** study any WISE projects in the 6th grade.
- ___ **(Global Warming)** Global climate change: Who's to blame?
- ___ **(Plate tectonics)** Plate tectonics: What's on your plate?
- ___ **(Rock Cycle)** Rock cycle: Igneous rocks
- ___ **(Heat and temperature)** Probing your surroundings
- ___ **(Velocity)** Hanging with friends, velocity style!
- ___ **(Hydrogen combustion)** Will gasoline powered cars become a thing of the past?
- ___ **(Cancer and mitosis)** Mitosis and cell processes
- ___ **(Simple inheritance)** Simple inheritance
- ___ **(Ecology)** Wolf ecology and population management
- ___ **(Evolution)** Ocean bottom trawling, what a drag!

(If you are in the 6th grade this year, skip this question) Which of the following WISE projects did you study in the 7th grade? Check all that apply.

- ___ I did **NOT** study any WISE projects in the 7th grade.
- ___ **(Global Warming)** Global climate change: Who's to blame?
- ___ **(Plate tectonics)** Plate tectonics: What's on your plate?
- ___ **(Rock Cycle)** Rock cycle: Igneous rocks
- ___ **(Heat and temperature)** Probing your surroundings
- ___ **(Velocity)** Hanging with friends, velocity style!
- ___ **(Hydrogen combustion)** Will gasoline powered cars become a thing of the past?
- ___ **(Cancer and mitosis)** Mitosis and cell processes
- ___ **(Simple inheritance)** Simple inheritance
- ___ **(Ecology)** Wolf ecology and population management
- ___ **(Evolution)** Ocean bottom trawling, what a drag!

(If you are in the 6th or 7th grade this year, skip this question) Which of the following WISE projects did you study in the 8th grade? Check all that apply.

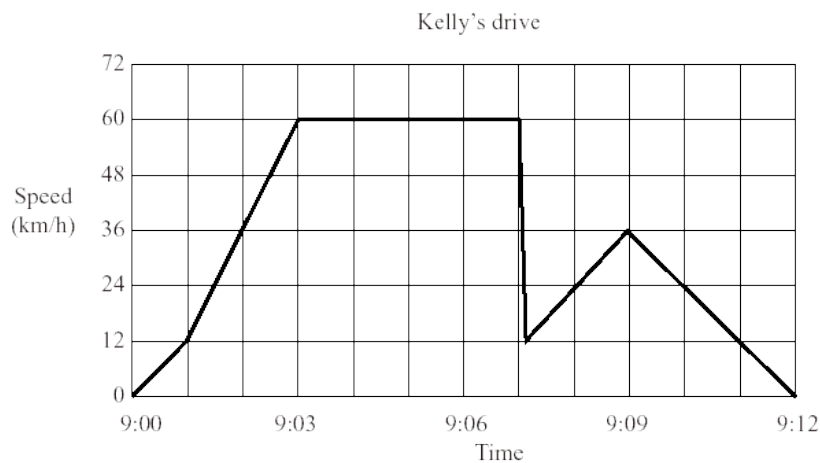
- ___ I did **NOT** study any WISE projects in the 8th grade.
- ___ **(Global Warming)** Global climate change: Who's to blame?
- ___ **(Plate tectonics)** Plate tectonics: What's on your plate?
- ___ **(Rock Cycle)** Rock cycle: Igneous rocks
- ___ **(Heat and temperature)** Probing your surroundings
- ___ **(Velocity)** Hanging with friends, velocity style!
- ___ **(Hydrogen combustion)** Will gasoline powered cars become a thing of the past?
- ___ **(Cancer and mitosis)** Mitosis and cell processes
- ___ **(Simple inheritance)** Simple inheritance
- ___ **(Ecology)** Wolf ecology and population management
- ___ **(Evolution)** Ocean bottom trawling, what a drag!

Please respond as completely as possible to the following questions.

1. An insulated bottle keeps a cold liquid in the bottle cold by
 - (a) destroying any heat that enters the bottle.
 - (b) keeping cold energy within the bottle.
 - (c) trapping dissolved air in the liquid.
 - (d) slowing the transfer of heat into the bottle.

2. To keep a heavy box sliding across a carpeted floor at constant speed, a person must continually exert a force on the box. This force is used primarily to overcome which of the following forces?
 - (a) Air resistance
 - (b) The weight of the box
 - (c) The frictional force exerted by the floor on the box
 - (d) The gravitational force exerted by the Earth on the box

3. Kelly went for a drive in her car. During the drive, a cat ran in front of the car. Kelly slammed on the brakes and missed the cat. Slightly shaken, Kelly decided to return home by a shorter route. The graph below is a record of the car's speed during the drive.



- (a) What was the maximum speed of the car during the drive? _____

- (b) What time was it when Kelly slammed on the brakes to avoid the cat? _____

4. A metal spoon, a wooden spoon, and a plastic spoon are placed in hot water. After 15 seconds which spoon will feel hottest? Choose one.
 - (a) The metal spoon
 - (b) The wooden spoon
 - (c) The plastic spoon
 - (d) The three spoons will feel the same.

Explain your choice.

5. In general, are heat energy and temperature the same or different?

(Choose one) Same Different

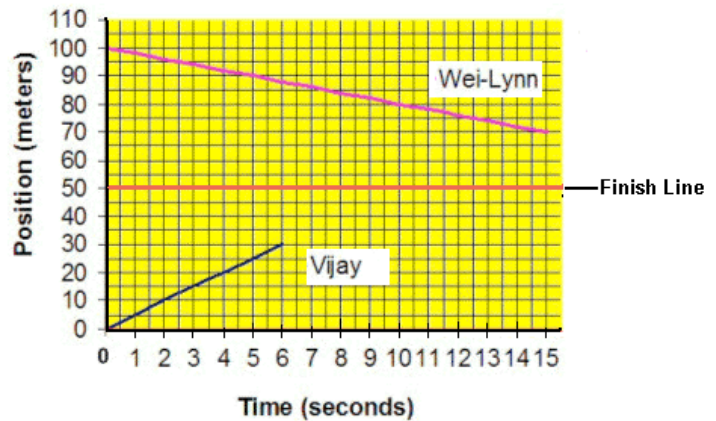
What is the main reason for their similarity or difference? Include an example that helps to explain your answer.

6. Are speed and velocity the same or different?

(Choose one) Same Different

Explain your answer. Give one example. Use complete sentences.

7. Vijay and Wei-Lynn have a 50 meter race. The finish line is at 50 meters as shown in the graph below. They do not start at the same position. Vijay starts 50 meters North of the finish line and Wei-Lynn starts 50 meters South of the finish line. The graph below shows the first 30 meters of both Vijay's and Wei-Lynn's runs.



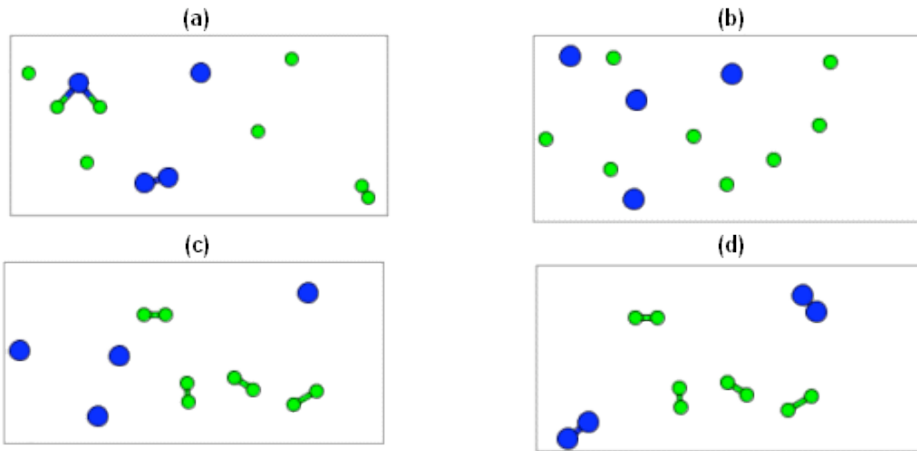
Who do you predict to win the race?

(Choose one)

Wei-Lynn Vijay

Explain your choice.

8. The following pictures are snapshots of particles at different time during the burning of hydrogen. A green circle represents hydrogen atom, and a blue circle represents oxygen atom. Which snapshot shows the particles **before** the burning of hydrogen gas starts? Check all that apply.



Explain your choice.

9. Electrical energy is used to power a lamp. Is the amount of light energy produced more than, less than, or the same as the amount of electrical energy used?

The amount of light energy produced is
 more than
 less than
 the same as

(Choose one)

the amount of electrical energy used.

13. Pat and Sasha buy several long strips of metal and wood at a hardware store. These strips are all the same size. They put the strips in the trunk of the car for the long drive home. It is a hot day. When they get home Pat thinks the wooden strips will be a higher temperature than the metal strips. Sasha says that the metal strips will be a higher temperature than the wooden strips.

(1) Which of the following statements is correct?

- (a) The wooden strips will be a higher temperature than the metal strips.
- (b) The metal strips will be a higher temperature than the wooden strips.
- (c) The metal and wooden strips will be the same temperature.

(2) Which of the following best explains the main reason for your answer?

- (a) Objects always become the same temperature as their surroundings.
- (b) Metal absorbs more heat than wood.
- (c) Heat transfers more quickly through metal than through wood.
- (d) Not all objects become the same temperature when they are placed in the same surroundings.
- (e) Wood needs more time to heat up to the same temperature as metal.