


Dear AcadeMir Families,

Welcome to AcadeMir Charter School Middle! Summer is a great time to relax, but it is also time to read and practice your skills in order to be prepared for the upcoming school year. We have prepared a standards-based summer packet with Language Arts, Math, and Science activities to support summer learning and increase critical thinking. Summer packets are **MANDATORY**, due on **September 5, 2017**, and will be graded. A test will be administered on the reading assignment.

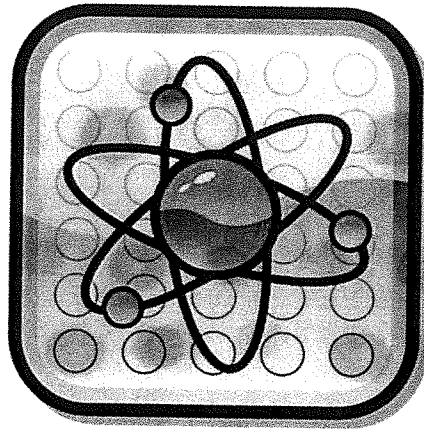
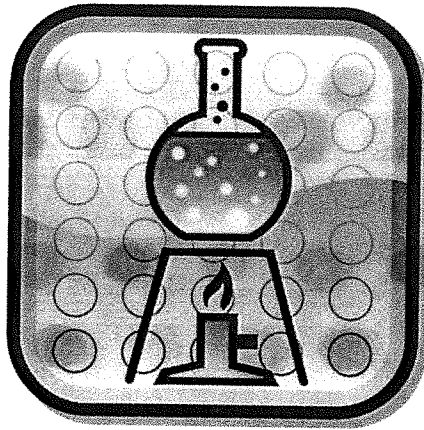
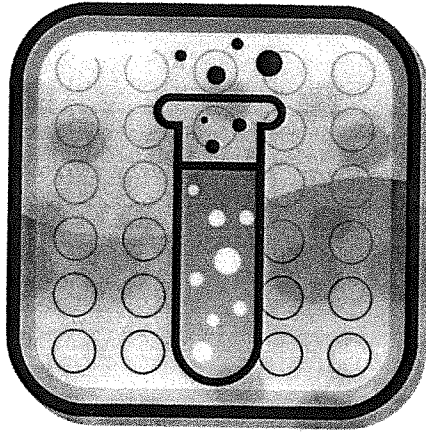
If you have any questions, please contact Mrs. Escobar (305) 967-8492 or via email ddescobar@dadeschools.net.

May you have a restful, relaxing, enjoyable and fun-filled summer!

Sincerely,



Mrs. K. Rodriguez, Ed., S.
Principal



**PHYSICAL SCIENCE
HONORS SUMMER PACKET
SUMMER PACKET**

Student Name: _____

Teacher: _____

PHYSICAL SCIENCE HONORS - SUMMER PACKET

1. You spill a little water on a tile floor but don't have time to wipe it up. A few hours later, most of the water is gone. What happened to the water?
 - A. The water molecules were destroyed.
 - B. The water molecules got smaller and now take up less space.
 - C. The water molecules became a gas and are now part of the air.
 - D. The water molecules broke down into hydrogen and oxygen atoms, which are now in the air.

2. You wash a pair of jeans. You hang the wet jeans on a clothesline. A few hours later, the jeans are dry. What happened to the water molecules?
 - A. The water molecules became part of the jeans.
 - B. The water molecules disappeared and no longer exist.
 - C. The water molecules moved faster and became part of the air.
 - D. The water molecules broke down into hydrogen and oxygen atoms.

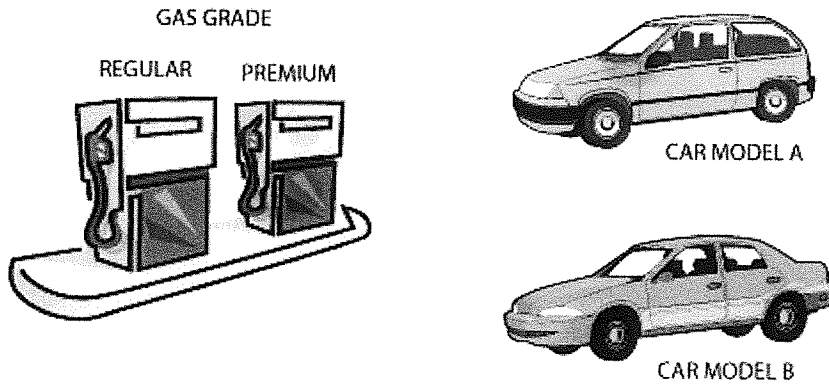
3. In a cup of liquid water, when would the water molecules stop moving?
 - A. The molecules would stop moving if the liquid water in the cup became a solid.
 - B. The molecules would stop moving if the liquid water in the cup became a gas.
 - C. The molecules would stop moving if the liquid water in the cup became still.
 - D. The molecules would not stop moving in the cup of liquid water.

4. A balloon full of air is placed on a chair. Which of the following statements about the atoms and molecules of the chair and the atoms and molecules of the air in the balloon is TRUE?
- A. The atoms and molecules of both the chair and the air in the balloon are moving.
 - B. The atoms and molecules of both the chair and the air in the balloon are not moving.
 - C. The atoms and molecules of the chair are not moving, and the atoms and molecules of the air in the balloon are moving.
 - D. The atoms and molecules of the chair are moving, and the atoms and molecules of the air in the balloon are not moving.
5. The windows of your school are made of glass. Which of the following statements describes the motion of the molecules that make up the glass?
- A. The molecules of the glass are never moving.
 - B. The molecules of the glass are always moving.
 - C. The molecules of the glass move only when the sun warms the window.
 - D. The molecules of the glass move only when the window is being opened or closed.
6. In which state of matter is the connection between the molecules the strongest?
- A. A gas
 - B. A liquid
 - C. A solid
 - D. All are equal.

7. There is a solid wooden table with a cup of water sitting on it. Which of the following statements about the atoms and molecules of the table and the atoms and molecules of the water is TRUE?
- A. The atoms and molecules of both the liquid water and the table are moving.
 - B. The atoms and molecules of both the liquid water and the table are not moving.
 - C. The atoms and molecules of the liquid water are not moving, and the atoms and molecules of the table are moving.
 - D. The atoms and molecules of the liquid water are moving, and the atoms and molecules of the table are not moving.
8. A piece of solid wax is placed in a pan and heated on a stove. After a while, the solid wax becomes a liquid. Which one of the following explains why the wax becomes a liquid?
- A. Some of the wax molecules get smaller.
 - B. Some of the wax molecules are destroyed.
 - C. The wax molecules change into water molecules.
 - D. The wax molecules are more loosely connected to each other.
9. Why can gases be compressed more easily than solids?
- A. Because the molecules of gases are softer than the molecules of solids
 - B. Because the molecules of gases weigh less than the molecules of solids
 - C. Because the molecules of gases move faster than the molecules of solids
 - D. Because the molecules of gases are farther apart than the molecules of solids

10. A consumer group wants to find out which of two new car models gets the best gas mileage. A car's gas mileage is the number of miles a car can go for each gallon of gas it uses.

They decide to fill the gas tanks of each car with the same amount of gas and compare how far each car goes. They use "regular" grade gas in both cars. Neither car gets the "premium" grade gas.

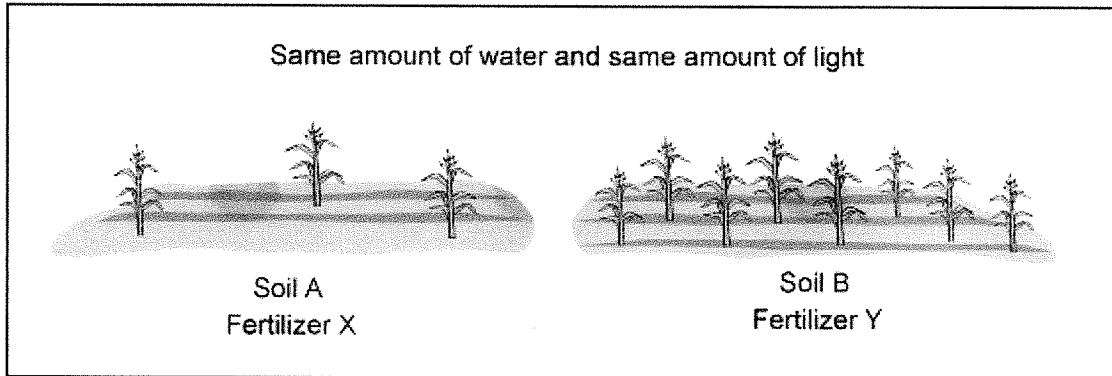


Why is it important that the two cars get the same grade of gas?

- A. By using the same grade of gas, the consumer group can learn both which car model gets the best mileage and which grade of gas gives the best mileage.
- B. By using the same grade of gas, the consumer group can learn which grade of gas gives the best mileage.
- C. If the cars do not get the same grade of gas, the consumer group cannot find out which car model has the best mileage.
- D. It is NOT important for both cars to have the same grade of gas because they are not testing which grade of gas gives the best mileage.

11. A farmer wants to find out which type of soil is best for growing his corn. He also wants to find out which type of fertilizer is best for growing his corn.

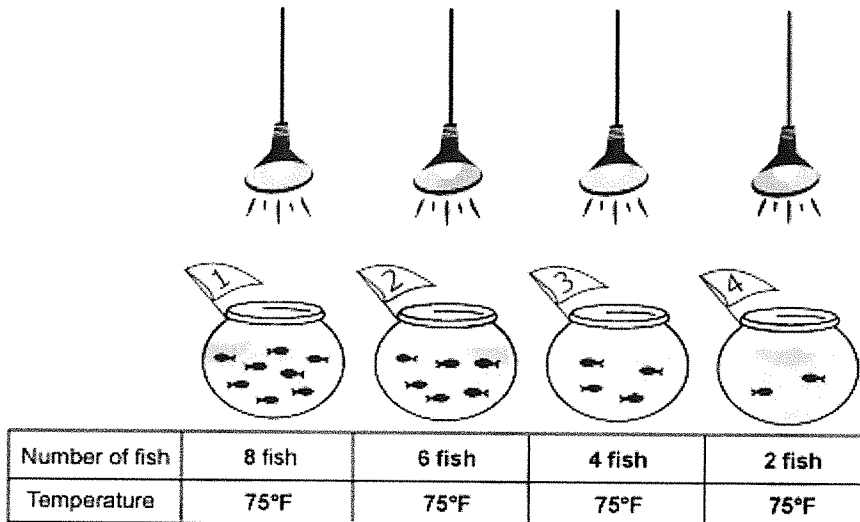
He does the following experiment using two different types of soil and two different types of fertilizer:



What can the farmer conclude from this experiment?

- A. He can conclude that Soil B is the best soil for growing his corn.
- B. He can conclude that Fertilizer Y is the best fertilizer for growing his corn.
- C. He can conclude that Soil B is the best soil for growing his corn and that Fertilizer Y is the best fertilizer for growing his corn.
- D. It is NOT possible to conclude from this experiment which soil is best for growing his corn or which fertilizer is best for growing his corn.

12. A student is interested in the behavior of fish. He has 4 fish bowls and 20 goldfish. He puts 8 fish in the first bowl, 6 fish in the second bowl, 4 fish in the third bowl and 2 fish in the fourth bowl. He places each fish bowl under light, he keeps the temperature at 75°F for all four bowls, and he observes the behavior of the fish.

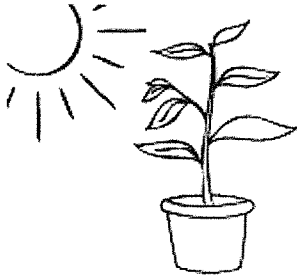


What can the student find out from doing just this experiment?

- A. If the number of fish in the fish bowl affects the behavior of the fish.
- B. If the temperature of the fish bowl affects the behavior of the fish.
- C. If the temperature of the fish bowl and the amount of light affect the behavior of the fish.
- D. If the number of fish, the temperature, and the amount of light affect the behavior of the fish.

13. A student wants to find out if a particular kind of plant grows better in the sun or in the shade. She has two identical plants. She places one plant in sand and sets the plant in the sunlight. She adds minerals and water to the sand.

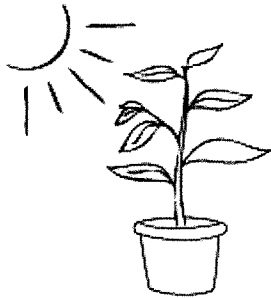
Sunlight



Water and minerals

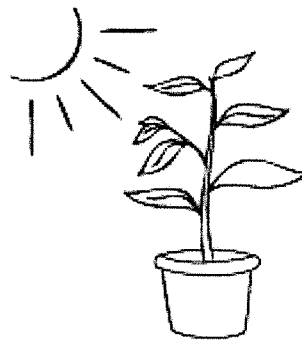
Which of the following conditions should she use for the second plant to determine the effect of light?

A. Sunlight



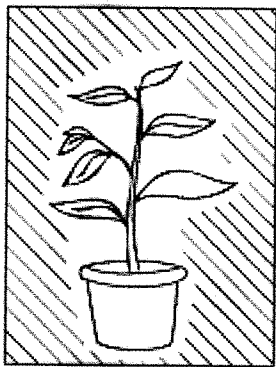
Water and minerals

B. Sunlight



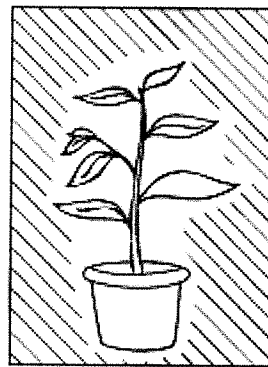
Water

C. Shade



Water and minerals

D. Shade



Water

14. To conserve energy, a college student wants to find out the lowest water temperature and the shortest length of time that is needed to wash his clothes and get them clean.

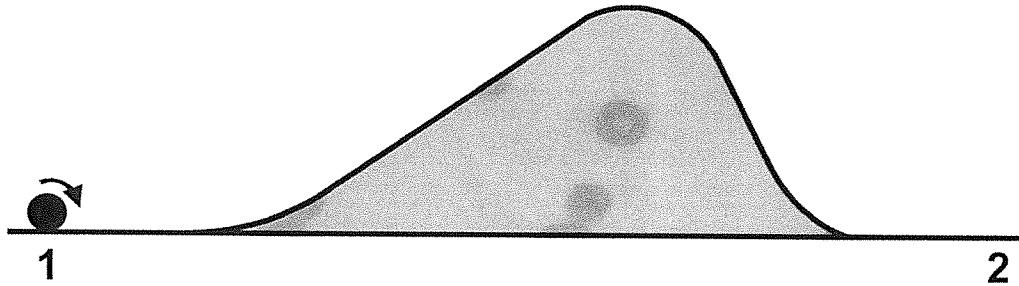
First he tests the effect of water temperature. He washes one shirt in hot water, one shirt in warm water, and one shirt in cold water. The shirts are identical and have identical stains. He uses the same detergent and washes the shirts for the same length of time.

Why is it important to wash the shirts for the same length of time?

- A. By washing the shirts for the same length of time the student can find out both the lowest temperature and the shortest length of time that is needed.
 - B. By washing the shirts for the same length of time the student can find out the shortest length of time that is needed.
 - C. If he does not wash the shirts for the same length of time the student cannot find the lowest water temperature that is needed.
 - D. It is NOT important to wash each shirt for the same length of time because the student is not testing the length of time that is needed.
15. Balloon 1 and Balloon 2 are filled with the same amount of air. The air in Balloon 1 is cooled so that it is at a lower temperature than the air in Balloon 2. The air in which of these balloons has less thermal energy?
- A. The air in Balloon 1 has less thermal energy.
 - B. The air in Balloon 2 has less thermal energy.
 - C. The air in Balloon 1 and the air in Balloon 2 have the same amount of thermal energy.
 - D. Neither the air in Balloon 1 nor the air in Balloon 2 has any thermal energy.
16. The temperature of a clay ball is 50°F and the temperature of the water in a bucket is 80°F . A student places the clay ball into the bucket of water. Which of the following describes how thermal energy is transferred between the ball and the water?
- A. Thermal energy is transferred from the ball to the water until they are both at 75°F .
 - B. Thermal energy is transferred from the water to the ball until they are both at 75°F .
 - C. Thermal energy is transferred from the water to the ball until the ball is at 80°F and the water is at 50°F .
 - D. No thermal energy would be transferred between the ball and the water, so the ball will stay at 50°F and the water will stay at 80°F .

17. Two cars are traveling down a road at the same speed. Car 1 has more motion energy (kinetic energy) than Car 2. Does Car 1 weigh more than, less than, or the same as Car 2?
- A. Car 1 weighs more than Car 2.
 - B. Car 1 weighs less than Car 2.
 - C. Car 1 weighs the same as Car 2.
 - D. More information is needed to compare the weights of the cars.
18. A cold object is in contact with a warm object. Which of the following describes the transfer of energy between the two objects?
- A. Thermal energy is transferred from the warm object to the cold object.
 - B. Cold energy is transferred from the cold object to the warm object.
 - C. Thermal energy is transferred from the warm object to the cold object, and cold energy is transferred from the cold object to the warm object.
 - D. No energy is transferred between the cold object and the warm object.

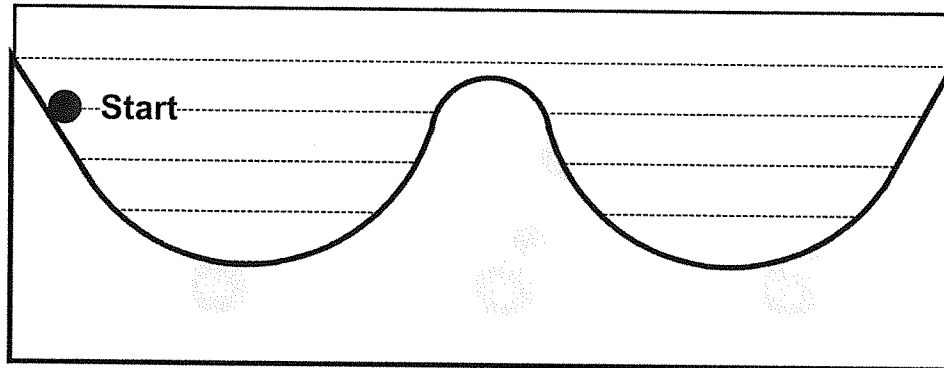
19. Imagine a ball on a track where no energy is transferred between the ball and the track or between the ball and the air around it. It is going fast enough at Position 1 so that it will go over a hill on the track and past Position 2. Position 1 and Position 2 are at the same height.



Will it be going faster, slower, or at the same speed at Position 2 compared to Position 1 and why? (Remember that no energy is transferred between the ball and the track or between the ball and the air around it.)

- A. Faster, because new energy in the form of motion energy (kinetic energy) was made when the ball went down the steep side of the hill
- B. Slower, because motion energy (kinetic energy) was used up when the ball went up the long side of the hill
- C. The same speed, because the amount of motion energy (kinetic energy) that the ball has remained the same the entire time it was moving along the track
- D. The same speed, because the total amount of energy in the system (ball and track) did not change as the ball moved along the track

20. Imagine a ball on a track where no energy is transferred between the ball and the track or between the ball and the air around it. The ball starts from rest at the position labeled Start.



Will the ball have enough energy to go over the hill on the track and why? (Remember that no energy is transferred between the ball and the track or between the ball and the air around it.)

- A. Yes, because the energy that the ball gains as it goes down the first part of the track will be greater than the amount of energy it will lose as it goes up the hill
- B. Yes, because the ball gains energy the entire time it is moving, so it will have enough energy to go over the hill
- C. No, because the total amount of energy in the system remains the same, which means that the ball cannot go any higher than the point which it started from
- D. No, because the total amount of energy of the ball will decrease as it moves along the track, and it will not have enough energy to go over the hill