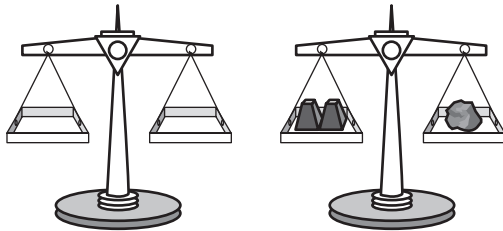


Practice MSA 2

SESSION 1

1 Which tool below would be best to use to determine the force of gravity acting on an object?

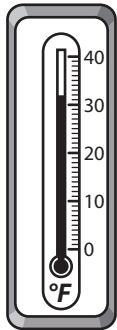
A



B



C



D



2 Which natural disaster only adds to, rather than takes away from, Earth's surface?

- A earthquake
- B flood
- C hurricane
- D volcano

- 3** Dieffenbachia are tropical plants that live in warm, damp locations. They have broad leaves that are good at catching sunlight. They are very poisonous when eaten. Ferocactus are a type of cactus. They live in warm, dry locations and have large stems to store water, wide, shallow roots to capture rain, and waxy coatings to prevent water loss. They defend themselves with sharp spines.

Dieffenbachia would most likely die if transplanted to a desert area because they

- A** are not adapted to conditions of little water
- B** require warm temperatures
- C** would not get enough sunlight
- D** do not have a way to protect themselves from desert animals

- 4** A teacher lists four materials on her blackboard.

- Salt water
- Iron
- Copper
- Wood

Which material is a good conductor of heat and electricity but does not have magnetic properties?

- A** salt water
- B** iron
- C** copper
- D** wood

Directions

Use the passage below to answer Numbers 5 through 7.

As Biofuels Show Promise, Farmers Show Human Nature

11 February 2008

This is the VOA Special English Agriculture Report.

Farmers in the United States sometimes plant switchgrass as a border crop. But could this tall grass lower the nation's dependence on foreign oil?

The Department of Energy plans to invest hundreds of millions of dollars to help produce fuels from materials that are not part of the food supply. Growing corn, or maize, for fuel has raised concerns about the supply and cost of corn available for food and animal feed.

Fuel made from switchgrass or forestry waste like sawdust is known as cellulosic ethanol. Department officials say it contains more energy and produces fewer greenhouse gases than ethanol made from corn. Switchgrass is also easier to grow.

Last month, the Proceedings of the National Academy of Sciences published a study of switchgrass grown on low-quality land. Government scientist Ken Vogel was the lead author. The study says the switchgrass produced five times more energy than was needed to grow it. Also, it says switchgrass, over its lifetime from crop to fuel, produces much less carbon compared to gasoline.

Fossil fuels like oil take carbon from the ground and release it as waste gas when the fuel is burned. Biofuels like corn and cellulosic ethanol also produce greenhouse gases, through growing crops and making the fuel. The difference is that biofuels remove carbon from the atmosphere through the growth of the feedstock, the material for the fuel.

Science magazine just published two studies of biofuels and the heat-trapping gases that scientists link to climate change. One of the reports notes that most studies have found that substituting biofuels for gasoline will reduce greenhouse gases.

But it says the earlier studies failed to count the carbon released into the atmosphere as farmers worldwide react to higher prices. They are clearing forests and grasslands to make way for new cropland to replace the grain used for biofuels. Doing so can release much of the carbon stored in the plants and soil, and sacrifice future storage.

The study found that corn-based ethanol could increase greenhouse gases for years from land use change. And it found that biofuels from switchgrass, if grown on American corn land, could also increase emissions, though by less.

The study team, led by Timothy Searchinger at Princeton University, says the result shows the value of using waste products for fuel. The other report says carbon savings depend on how biofuels are produced.

And that's the VOA Special English Agriculture Report, written by Jerilyn Watson. I'm Jim Tedder.

5 Which is a negative effect of the demand for biofuels?

- A** Farmers may switch the crops they grow.
- B** Biofuels may add less carbon to the air than burning an equal amount of fossil fuels.
- C** Forests and grasslands are cleared to plant crops.
- D** Low-quality land can be used for biofuel.

6 What makes biofuels a renewable resource?

- A** After crops are harvested for biofuels, more crops can be planted.
- B** The crops used to produce biofuels take some carbon out of the air.
- C** Producing biofuels makes the United States less dependent on foreign oil.
- D** Biofuel crops help protect the land against erosion.

7 When plants are destroyed, they stop trapping carbon. The carbon in them will also be released. Early studies of biofuels ignored the release of carbon from people clearing existing forests and grasslands. That is why early studies showed a much greater benefit from biofuels than is now believed to occur. However, despite this new information, the demand for biofuel remains very high, which has contributed to an increase in corn prices.

Explain how biofuels can have both positive and negative impacts, as well as how they can affect different groups of people in different ways. In your explanation, be sure to

- explain a benefit of biofuels and why this has increased demand for them
- describe negative effects resulting from the demand for biofuels
- identify a group of people who benefit from biofuels despite any negative effects, and describe why they are benefiting

- 8** An Internet myth says that a powerful magnetic field can be used to cancel out gravity in a small area. A science teacher has his students test this myth. He divides his class into 6 groups, each of which gets a 1 kilogram rubber block and a spring scale. He has two groups weigh the block without using any magnetism; two groups weigh it when it is above a magnetic field created by permanent magnets; and two groups weigh it when it is above a magnetic field created by electromagnets. Their results are shown in the data table below.

Group	Condition	Measurement
1	No magnetic field	9.80 Newtons
2	No magnetic field	10.05 Newtons
3	Permanent magnet	10.00 Newtons
4	Permanent magnet	9.55 Newtons
5	Electromagnet	9.65 Newtons
6	Electromagnet	8.60 Newtons

Which explanation best accounts for the results the class obtained?

- A** Magnets do affect gravity.
- B** There were differences in accuracy among the six scales used.
- C** The measurements were taken at different times.
- D** The students used different procedures to find the weight.

- 9** An ice cube is heated in a sealed, airtight container. Its temperature is raised to 30 degrees Celsius.

The result can be best described as

- A** an increase in temperature without a phase change
- B** a phase change to a liquid with a loss of mass
- C** a phase change to a liquid with no loss of mass
- D** a phase change to a gas with no loss of mass.

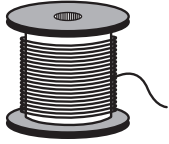
- 10** Which of the following similarities between a father and his son is learned?

- A** hair texture
- B** height
- C** language
- D** skin color

Directions

Use the information and pictures below to answer Numbers 11 through 13.

Below are the components, or pieces, of an electric light.



Conductive wire



Power source



Switch



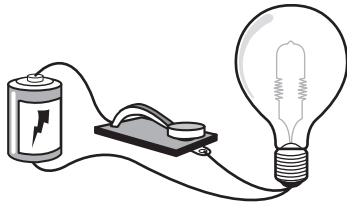
Bulb

11 Of the four components, which one is not necessary to create a simple electric light?

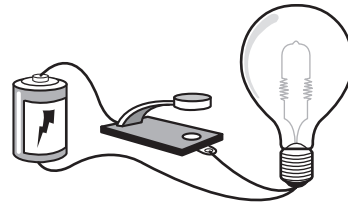
- A conductive wire
- B power source
- C bulb
- D switch

12 Which diagram below shows a circuit in which the light bulb would be lit?

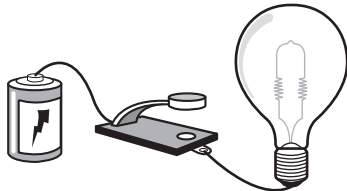
A



B



C



D

