Name _____ **Science SOL Review Unit2 Study Guide**

Please review your notebooks and the **Science Website**: http://www.quia.com/pages/sdeane21/grade5 for practice activities, tests, study resources.

login: _____ **student password**:_____ Complete Unit 2 activities for extra credit.

SOLs 5.4, 4.2, 4.3 (Matter, Motion + Forces, Electricity plus Unit1 material. **Test Date: Friday, 4/24/15**

Key Terms::

1. **Matter** – anything that has weight (mass) and takes up space. Matter has 3 states: solid, liquid, gas.
2. **Elements**- the most basic substances that make up all matter.
3. **Compounds**- Substances made of 2 or more elements.
4. **Atoms** – the building blocks of matter. Atoms have a nucleus made of protons, neutrons and are surrounded by orbiting electrons.
5. **Molecules**- are made of two or more atoms that are held together. Two atoms joined of the same element form a molecule of that element.
6. **Mass** – the amount of matter an object contains.
7. **Mixture** – a combination of 2 or more different substances that do not lose there identifying characteristics when combined. Mixtures can be easily separated (example: milk and cereal)
8. **Solution** – a combination of 2 or more substances that can not be easily separated because one substance dissolves in the other. (example: salt and water)
9. **Energy** – the ability to do work.
10. **Work** – to make something happen.
11. **Potential Energy** – Stored Energy. Example – If you pull back a rubber band the rubber band has potential energy.
12. **Kinetic Energy** – Energy of Action or Motion. When you let the rubber band go, it flies through the air. The rubber band now has Kinetic Energy.
13. **Transfer of Energy** – When energy moves from one object to another. Example: You go to kick a soccer ball and the kinetic energy in your foot and leg and transferred to the soccer ball. The ball now has kinetic energy.
14. **Motion –** movement.
15. **Force –** a push or pull that acts on an object.
16. **Speed –** Measures an object's motion.
17. **Friction –** a force that opposes motion. It causes an object to slow down.
18. **Gravity** – the force that pulls an object down towards the Earth. The more mass (weight) an object has the more gravity affects it.
19. **Insulators**- do not allow electricity to flow easily through them.
20. **Conductors** – allow electricity to flow through them easily.
21. **Circuit** – the path in which electricity is allowed to travel.

*Be able to recognize and draw an **open, closed, parallel and series circuit**

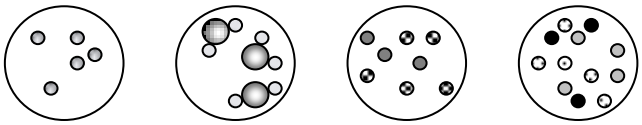
22. **Static Electricity** – an electric charge that builds up on the surface of an object.

People to Know:

1. **Benjamin Franklin –** conducted a famous experiment with a kite and a key during a thunderstorm. Proved that lightning was electrical current in nature. Also invented the lightning rod.
2. **Michael Faraday –** his experiments with creating electrical charge using a magnet and wire are used in electric motors today.
3. **Thomas Edison –** invented the "incandescent lamp" also known as the light bulb. Also helped to plan the construction of electrical power plants so

Sample Questions:

1.



5.4a

1. Which diagram represents a *pure element*?

A W
B X
C Y
D Z

2.

Which of the following changes is possible with the addition of heat?

A Liquid water changes to ice.
B Water vapor changes to ice.
C Water vapor changes to liquid water.
D Ice changes to liquid water.

3.

The *smallest* part of matter that is identifiable as an element is the —

F atom
G molecule
H cell
J compound

4.

An example of a compound is —

A sodium.
B oxygen.
C carbon dioxide.
D hydrogen.

5.

Which of the following is a solution?

A salt water
B mud
C oxygen
D iron

6.

Which of these always fills its container completely?

A air
B sand
C oil
D water

7.

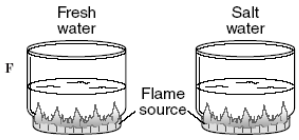
When a coin is dropped, it falls to the ground. As the coin falls, it loses potential energy and gains what kind of energy?

F Kinetic
G Chemical
H Electrical
J Solar

8.

Which is the *fairest* way to find out if salt water boils faster than fresh water?

F



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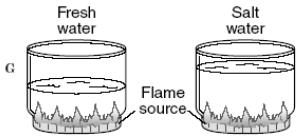

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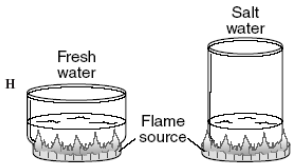

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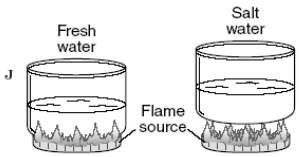
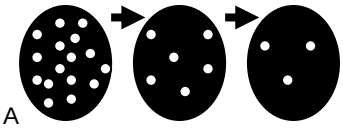


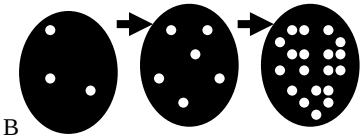
9.

Which diagram shows the correct sequence of the molecules changing as the popsicle melts?

A



B



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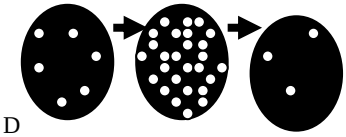

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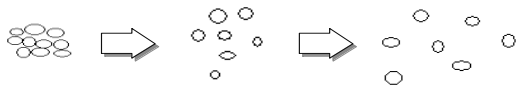
9.



X Y Z

The letter *Z* could represent —

A liquid water.

B an ice cube.

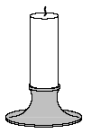
C steam.

D a brick.

10.

Which of these best shows kinetic energy?

F



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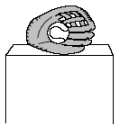

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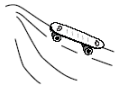

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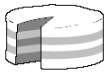
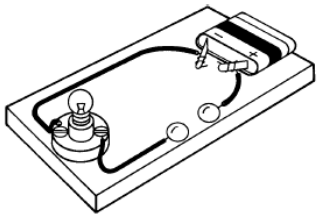


11.

Students must conduct an experiment in which they find out how long a rubber ball bounces before it comes to a stop. Which unit would be best for recording this information?

A Gram
B Degrees Celsius
C Meter
D Second

12.



This instrument can be used to see if materials conduct electricity. Which of these groups contains items that could *all* conduct electricity to complete the circuit?

A Rubber ball, plastic comb, nail
B Paper clip, penny, screw
C Cork, dollar bill, tweezers
D Pencil, eraser, spoon

13.

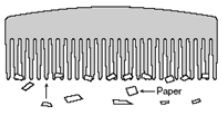
What material would be safest to use as an insulator to cover electrical wires?

A Aluminum
B Tin
C Rubber
D Water

14.

The picture shows a comb that was used on a cold, dry day. Which of these cause the bits of paper to be attracted to the comb?

F Magnetic forces
G Chemical reactions
H Static electricity
J Heat differences



Name _____ Science SOL Review Unit 2 (pt. 2) Study Guide
Parents: Test: **Friday, April 24th**
Please review your notebooks and the **Science Website**: http://www.quia.com/pages/sdeane21/grade5 for practice activities, tests, and study resources.
login: _____, **student password**: their lunch number)

Materials Covered: SOLs 4.3, 5.2, 5.3, (Magnets, Light, Sound) plus Unit1: (4.1, 5.1), and Unit 2: SOLs 4.2, 4.3, 5.4

Key Terms::
Magnets- are materials that will attract objects made of certain metals such as iron, steel, cobalt, and nickel.
Magnetic Field- an area around a magnet where its magnetic force acts on another object (a magnet attracts a paper clip or another magnet).
Repel- a force that pushes objects away (two of the same poles on a magnet repel each other).
Electromagnet - a device consisting of an iron or steel core that is magnetized by electric current in a coil that surrounds it
Reflect- the bouncing of a sound or light wave off a surface.
Refract- the bending of a light wave as they pass from one substance into another
Transparent- lets all light through so you can see through the other side.
Translucent- Lets some light through so objects appear blurry.
Opaque- completely blocks light from going through it.
Wavelength- distance from the top of one wave to another.
Electromagnetic Spectrum- all the light we can see (visible spectrum) and light we cannot see (radio waves, microwaves, infrared light, ultraviolet waves, x-rays, gamma rays)
Pitch- how high or low a sound is.
Frequency- the number of times an object vibrates per second.
Echolocation- animals that find an object by bouncing sound waves off it (bats, whales, dolphins)
Medium- a substance that sound waves travel through (it could be a solid object, a liquid, or a gas).

Sample Questions:

1.

Blowing through a straw will produce a sound. Which straw will make the highest pitch?

A 

B 

C 

D 

2.

Which material will sound travel through the fastest?

A Water
B Air
C Steel
D Cloth

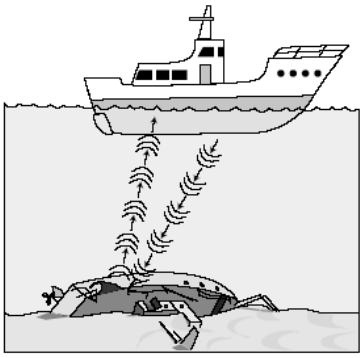
3.

Which of the following materials is transparent?

F Clear window glass
G Your eyelids
H Solid wood door
J White paper

4.

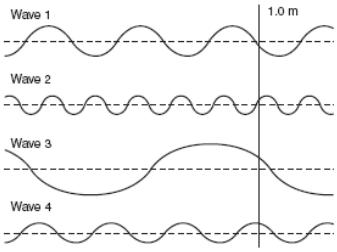
5.



Which technique is the boat using to find the distance from the surface of the ocean to the bottom?

F Morse code
G Radio
H Sonar
J Sound tracking

6.

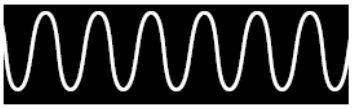


Which of the above waves has the *longest* wavelength?

A Wave #1
B Wave #2
C Wave #3
D Wave #4

7

Which diagram shows a wave with the *highest* frequency?

A 

B 

C 

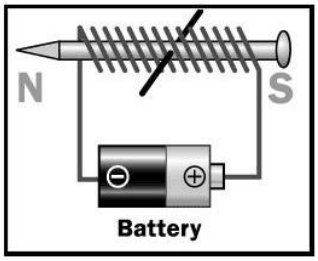
D 

8.

When light hits an object, the rays can pass through it, bounce off it, or be absorbed by it. Light rays that bounce back are —

F radiant
G reflected
H refracted
J radar

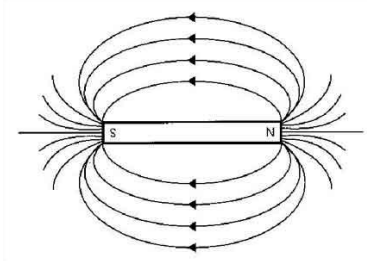
9.



Electrical current is passed through a wire wrapped around a nail. This is an example of a _____.

A. bar magnet
B. horseshoe magnet
C. electromagnet
D. lightning rod

10.



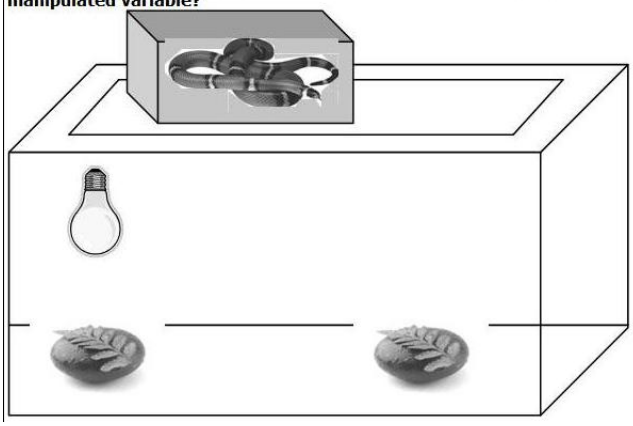
The space around a magnet where the force of the magnet can act on other objects is called:

A. Static electricity
B. Force
C. Magnetic Field
D. Lightning

Unit 1 +2 Review Questions:

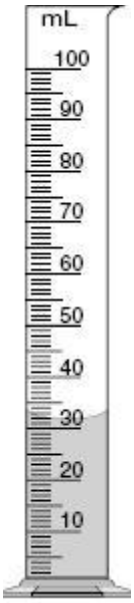
11.

When the snake in the experiment shown below is released from its box into the aquarium, it will have to choose whether it wants to be warmed by the heat lamp or to cool down on the other rock. What would be the manipulated variable?



A The temperature of the rocks
B The snake's body temperature
C The light bulb
D The distance of the snake from its food.

12.



Look at the graduated cylinder to the left. If 10mL were removed, how much liquid would remain?

A. 32mL
B. 42mL
C. 22mL
D. 20mL

13.

If you are pedaling your bicycle, what type of energy are you using?

A. Electrical
B. Heat
C. Mechanical
D. Sound

14.

Michael Faraday showed how electrical current in a wire produces:

A. A vibration
B. Molecules
C. A magnetic field
D. Chemicals