

How Much Do You ***KNOW*** *about* ***Physical Science***?

**Structure of Matter**

1. **Atoms** are the basic building blocks of almost all the matter around you.
2. Electronshave a **negative** charge.
3. A **neutron** is a particle in the nucleus that is electrically neutral.
4. Protons have a **positive** charge.
5. A **covalent** bond is a chemical bond that forms when 2 atoms share electrons. (ionic or covalent)
6. The **atomic number** of protons and neutrons in an atom’s nucleus.
7. **Valence** electrons are the electrons in the outermost energy level of an atom.
8. An **element** is a substance that cannot be broken down into simpler substances.
9. **Compounds** are pure substances made up of two or more different elements.
10. The atomic number of a substance is the number of **protons**.
11. The vertical column in the periodic table is a **group**.
12. What is the symbol for carbon? **C**
13. An **alloy** is a mixture of two or more elements.
14. A **triple** bond forms when 2 atoms share 3 pairs of electrons. (triple or double)
15. Which is 2,000 times bigger than the other, a proton or electron? **Proton**
16. The **mass number** of an atom is the sum of the protons and neutrons in its nucleus.
17. An **energy level** is the specific amount of energy an electron has.
18. A **polar** bond is a covalent bond in which electrons are shared. (polar or nonpolar)
19. Each horizontal row in the periodic table is called a **period**.
20. Atom with the same # of protons and different # of neutrons of the same element is an **isotope**.
21. What is the atomic number of a carbon atom that has 6 protons? **6**
22. **Metalloids** are substances that are both metals and nonmetals.
23. A covalent bond in which the electrons are shared equally is said to be a **nonpolar** bond.
24. What is the chemical symbol for water? **H20**
25. What is a negatively charged particle that flows through a circuit? **Electron**
26. The smaller part of a solution is known as a **solute.**
27. An **acid** is a compound that tastes sour, reacts with metals and turns blue litmus red.
28. A **base** is a compound that tastes bitter, feels slippery and turns litmus blue.
29. A metal that is easily hammered is said to be **malleable**.
30. Phase change from solid directly to gas is called **sublimation**. (*hint: dry ice does this*)
31. The process in which a liquid changed to a gas is called **vaporization**. (*hint: think of vapor*)
32. Color, hardness, magnetism, and state are **physical** properties.
33. The forth state of matter is known as **plasma**. (*hint: stars are made of this*)
34. A **chemical** change is when one substance is changed into another.
35. What states that matter cannot be created nor destroyed? **The Law of Conservation of Matter**.

**Force and Motion**

1. **Motion** is change in an objects position over time.
2. How many calories are in 1 kilocalorie? **1,000**
3. What type of simple machine is used to pull a flag up a flag pole? **Pulley**
4. The max speed an object reaches as it falls is known as **terminal velocity**.
5. **Speed** is a measure of the distance traveled per unit of time.
6. Speed in a particular direction is called what? **Velocity**
7. Rate of change in velocity is known as what? **Acceleration.**
8. A push or a pull is an example of what? **Force**
9. The formula for Density is Mass/**Volume**.
10. An **open** circuit has only one path for the current to take.
11. The tendency of an object to resist a change in motion is called what? **Inertia**
12. **Mass** is the amount of matter in an object.
13. **Weight** measures the force of gravity?
14. The largest part of the solution is known as the **solvent**.
15. **Gravity** is a force that attracts objects toward each other.
16. Placing the north end of two magnets together **repels** each other. (hint: to move away)
17. The unit of force is the **newton (N)**.
18. A **lever** is a simple machine made up of a bar that pivots at a fixed point called a fulcrum.
19. **Compound** machines are made up of two or more simple machines.

**Energy**

1. **Energy** is the ability to do work.
2. In which state of matter are molecules able to move around freely? **Gas**
3. A **conductor** is a material through which electric charges can easily flow.
4. A log burning converts chemical energy into **thermal** energy.
5. Potential energy = **mass** x height.
6. **Lipids** are made of carbon, hydrogen , and oxygen.
7. An **inhibitor** is a material used to slow down a reaction. (*Hint: starts with an I*)
8. A **catalyst** is a material that increases the speed of a reaction by lowering activation energy.
9. **Endothermic** reactions require energy to keep going. (endothermic or exothermic)
10. **Exothermic** reactions give off energy. (exothermic or endothermic)
11. A spoon on a stove is an example of what type of heat transfer? **Conduction**.
12. A pot of boiling water is an example of what type of heat transfer? **Convection**.
13. **Temperature** is the measure of the average kinetic energy of the particles in a substance.
14. **Friction** is a force that opposes the motion of an object.
15. What is the process by which heat energy gets to Earth by the Sun? **Radiation**
16. A ride at the top of a roller coaster is an example of **potential** energy. (potential or kinetic)
17. The ride in motion is an example of **kinetic** energy. (potential or kinetic)
18. Something falling is an example of **kinetic** energy. (potential or kinetic)
19. Solar panels change radiant energy to **electrical** energy.
20. A **hydroxide** ion (OH-) is a negative ion made of oxygen and hydrogen.
21. A **reactant** are the substances you begin with. (*hint: starts with an R*)
22. A **product** are the new substances you begin with. (*hint: starts with a P*)
23. The general form for a chemical equation is reactant + reactant --> **Product** + Product
24. Frying an egg is an example of an **endothermic** reaction. (endothermic or exothermic)
25. A log on fire is an example of an **exothermic** reaction. (endotherm or exothermic)
26. On the pH scale, what is a 1? **Acid**
27. What is the unit used to measure work called? **Joule**
28. On the pH scale , what is 7 said to be? **Neutral**
29. Carrying a bowling ball up a ladder is an example of **potential** energy. (potential or kinetic)
30. The greater the rise the greater the **potential** energy. (potential or kinetic).
31. Electricity is an example of **kinetic** energy. (potential or kinetic)
32. Plants convert light energy into **chemical** energy.
33. Which has the most gravitational energy? A skier at 100 feet or 1000 feet. **1000 feet**
34. On the pH scale, what is a 14? **Base**
35. The formula for mechanical energy is **potential** energy + kinetic energy.
36. A car burning fuels changes chemical energy into **mechanical** energy.
37. The transfer of heat without matter is called **radiation**.

**Waves**

1. The top of a wave is called the **crest**.
2. What do waves transfer? **Energy**
3. The lowest part of a wave is called **trough.**
4. A pencil in a clear cup of water is an example of reflection or refraction? **Refraction**
5. We have a blue sky because the wavelength is **refracted** the most. (refracted or reflected)
6. What has the highest wavelength, gamma or radio waves? **Gamma**
7. **Reflection** is the bouncing of waves off a surface.
8. **Refraction** is the bending of light rays as they pass through a lens.

