Chemistry Vocabulary: Changes

1. **matter**: the stuff that makes up everything in the universe. Anything that takes up space and has mass.

2. **properties**: ways to describe or categorize matter. Hardness, texture, shape, temperature, flammability, size, and color are all examples of properties of matter.

3. **characteristic properties**: a quality of a substance that never changes and can be used to identify unknown substances (ex. Boiling point and melting point).

4. **physical change**: change in a substance where there is a change in form (shape, size, state) but the identity remains the same (ex. Break a piece of wood, ice melting into liquid water).

5. **chemical change**: one or more substances combine or break apart (decompose) to form new substances.

6. **chemical reactivity**: the ability of a substance to undergo a specific chemical change. This is a characteristic property.

7. **boiling point**: the temperature at which a substance boils (the boiling point of water is 212 degrees Fahrenheit or 100 degrees Celsius). This is a characteristic property.

8. **melting point**: the temperature at which a substance melts. This is a characteristic property.

9. **mixture**: consists of two or more substances that are mixed together but not chemically combined.

10. **homogeneous mixture**: These mixtures have a constant composition throughout the solution. For example: salt or sugar and water, the air we breathe is a solution of gases. A solution is a homogeneous mixture of two or more substances.
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11. **heterogeneous mixture**: heterogeneous mixtures are mixtures without a definite composition, for example, salad is a typical example of this kind of mixture. Other examples include: sand and iron filings or poppy seeds, salt and sugar mixed together, and trail mix.

12. **solution**: a very well mixed mixture where one can't tell the difference between the substances in the mixture (ex. salt water).

13. **pure substance**: a substance that has only one kind of matter and has definite properties (ex. a glass of water).

14. **molecule**: a combination of 2 or more atoms. The smallest unit of a substance (a molecule of water or H$_2$O is the smallest unit of water you can have).

15. **element**: a substance that can't be broken down any further by chemical or physical means (ex. hydrogen, oxygen).

16. **atom**: the smallest unit of an element.

17. **compound**: a substance made of 2 or more elements chemically combined (ex. H$_2$O or table sugar, which is C$_{12}$H$_{22}$O$_{11}$).

18. **chemical symbol**: a one- or two-letter representation of an element (O = oxygen and He = helium).

19. **chemical formula**: a short hand scientist use to write the names of compounds. It tells you the elements and the number of atoms in one molecule of that substance (ie. A molecule of water has 2 hydrogen atoms and 1 oxygen atom H$_2$O).

20. **chemical bond**: the force that holds 2 atoms together.

21. **chemical reaction**: a process in which substances undergo chemical changes, forming new substances with different properties.

22. **chemical equation**: a symbolic representation of a chemical reaction.
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23. **precipitate**: a solid (sometimes forms during a chemical reaction).

24. **solute**: the substance **dissolved** in a given solution.

25. **solvent**: A substance, usually a liquid, **capable of dissolving another substance**.

26. **energy**: the ability to do work or cause change.

27. **thermal energy**: Every substance contains energy from the movement of its particles. The higher the temperature of a substance, the greater its thermal energy (*heat*). "Temperature" is the measurement of the average thermal energy.

28. **chemical energy**: energy from chemical bonds within matter.

29. **exothermic reaction**: a chemical change that is accompanied

30. **endothermic reaction**: a chemical reaction that absorbs heat.

31. **law of conservation of energy**: in every physical or chemical change, the total amount of energy stays the same. **Energy can change from one form to another, but energy can never be lost.** Example:

   1) Remember, the elements in a compound are held together by chemical bonds. These bonds store energy. When they are broken that chemical energy is converted into some other form of energy such as light energy or thermal (heat) energy.

   2) An unlit lighter contains chemical energy. When a spark hits the butane a chemical reaction occurs which releases that chemical energy (in chemical bonds) into light energy and heat energy.