

IC3 Vocab Words and Review Topics

1. **Energy:** "can make things happen", ability to do work.

Two Types:

Kinetic = 'energy an object has when it is in motion' Examples: light, sound, thermal (heat), electrical, mechanical

Potential = 'energy that is stored or of position' Examples: elastic, chemical, nuclear, gravitational

2. **calorie:** unit for energy in food the amount of energy provided when food molecules and oxygen react = the amount of energy needed to heat 1 g of water 1°C

Calorie: is a food calorie and is the amount of energy needed to heat 1 **kilogram** of water by 1 °C

3. **Law of Conservation of Energy:** energy can never be created or destroyed only converted from one form to another.

4. **Energy Conversions:** the transfer of energy in one form to another form. Examples: chemical energy stored in the bonds in molecules to thermal (heat) & light energy when matter undergoes the chemical reaction of burning. Light energy from sunlight converting to electrical energy in a solar panel.

5. **Chemical Reaction:** when two or more **reactants** react to form **products** (new substances with new and different properties)

Examples: Burning's reactants = paper & oxygen --> products = CO₂ & ash.

Photosynthesis: reactants are CO₂ & H₂O --sunlight--> O₂ & C₆H₁₂O₆ are products.

6. **Reactants:** the ingredients/starting substances = compounds &/or elements in a chemical reaction that get rearranged to form the product(s).

Examples: CO₂ & H₂O in photosynthesis.

7. **Products:** the compound &/or element that is the result of a chemical reaction when the reactants rearrange as they react to one another.

Examples: C₆H₁₂O₆ & O₂ in photosynthesis.

8. **Chemical Energy:** energy (potential) stored in the chemical bands of molecules.

9. **Potential Energy:** energy an object has due to its position = **Gravitational PE.**

ALSO stored energy = Chemical Energy, Elastic Energy, Nuclear Energy.

10. **Thermal (Heat) Energy:** the total kinetic energy contained in all the particles of a substance. Also known as heat energy.

11. **Light Energy:** the type of energy that is produced by the vibration of electrically charged particles. Energy that humans can see, part of the electromagnetic spectrum also called the visible spectrum.

12. **Kinetic Energy:** energy of motion.

Examples - Thermal(Heat) Energy, Light Energy, Mechanical Energy

13. **Carbohydrate:** molecule made up of carbon, hydrogen and oxygen which is the product of photosynthesis. Carbohydrates can link their subunits together to form new carbohydrate compounds.

Examples: sugars (**glucose**) and **starches**.

14. **Protein:** molecule that make up living things, made up of carbon, hydrogen, oxygen and nitrogen sometimes even sulfur. Protein subunits are called **amino acids**. There are 20 different amino acids.

15. **Fats:** molecules that stores excess food energy in an organism. Fat molecules do not link together like carbohydrates and proteins, but are attracted to each other to form fat droplets.

16. **Subunit:** a simple molecule that can be linked together with other similar subunits to make a more complex molecule. Both carbohydrates and protein molecules are made by linking subunits together for more complex molecules.

Examples: One carbohydrate subunit = glucose,

Two carbohydrate subunits = lactose.

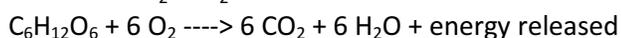
17. **Glucose:** simple sugar, one carbohydrate **subunit**, made by plants through the process of photosynthesis.

18. **Starch:** made up of many (100s+) of carbohydrate **subunits** linked together to form a complex molecule.

A solid carbohydrate that is granular in form and naturally present in many plants, (C₆H₁₀O₅)_n

19. **Amino Acid:** subunits of proteins.

20. **Cellular Respiration:** process in cell in which food molecules are chemically combined w/ oxygen and energy is released w/ the products of CO₂ & H₂O.



21. Variable: when factors in an experiment are manipulated, it is a measurable factor/characteristic/attribute of an individual or system used in an experiment. There are three types of variables: independent, dependent and controlled or constant.

22. Dependent Variable: is the variable in an experiment that is being observed that changes in response to the independent variable.

23. Independent Variable: is the variable that you purposely manipulate(change). It is intentionally varied by the experimenter.

24. Controlled Variable: the constants in an experiment are all the factors that do NOT change. In a controlled experiment, all variables are identical to the experimental set-up, **except** for the independent variable.

Example: in Activity 3.1- *Do Different Food Molecules Provide Different Amounts of Energy?*

ALL the **controlled variables** that remained constant were: ring stand height, volume of water heated, mass of food being burned, & capacity of beaker.

The independent variable was the different food being burned: marshmallows, potato chips, corn oil & Crisco.

25. Control: in a scientific experiment, the control is the group that serves as a standard of comparison. The control is exposed to the same conditions as the experimental group, EXCEPT for the variable being tested.

26. Enzyme: a protein in the body that helps control/speed up a chemical reaction, such as amylase for digestion. The enzyme is NOT changed in anyway, like the reactants are, during a chemical reaction.

27. Be able to **make a graph** using the skills taught in class

28. Be able to solve **conversion problems**.

29. **Calculate how much energy** is in a piece of food when given data about how water was heated after burning the food.

30. Tell about **fire** and what is required – 3 things

31. Describe what happens to your body when you exercise – skin, breathing, heart rate, CO₂

32. Describe what is meant by **sources of error** and give examples.

33. Be able to calculate how long you would have to run or walk to burn off a certain number of Calories.

34. Describe aspects of our plant experiment and how plant growth was affected by the various experimental factors that they were exposed to.

35. Describe **evaporation** and how it can cool surfaces.

36. Describe a **Phase Change Diagram** for water and what each part means.

37. **LASER** and what it stands for.

38. **UV light** and what is meant by **fluorescent** and to **fluoresce** and how that works in the **atom**.

39. Describe how to **identify skin cancer** and the five identifiers (ABCDE)

40. Describe **Luminous** and **Illuminated**

41. Describe **Normal Reflection** and the **Normal Angle**, **angle of incidence** and the **angle of reflection**.

42. Describe **Normal Reflection** and **Diffuse Reflection**