

Nature of Science Vocabulary Words from Chapters 1 & 2

(Please note: These are not in any particular order)

1. **independent variable**- the one factor (thing) you change or test in an experiment; the cause; also caused test variable; manipulated variable (usually the X-axis on a bar graph)
2. **inference** - An assumption or conclusion you can make about an observation. Can be proven correct or incorrect with further investigation.
- *3. **conclusion**- The end of an experiment. Tells whether the hypothesis is “supported or “not supported”
4. **observational research** - Type of investigation where scientists try to gather data about an event w/o interfering
5. **opinion-based research** -A scientific investigation where surveys or interviews are used
- 6, **dependent variable** - What you measure in an experiment to see if the change had an effect; the Outcome variable; the responding variable; (usually the Y-axis on a bar graph)
7. **observation** - Data (information) that can be gathered through your senses; facts only:
- *8. **purpose/problem/question** -The reason for doing an experiment, the question to be investigated
9. **science** - The process of trying to understand the world around us through exploration, invention, and problem solving
10. **controlled experiment** - An experiment in which only 1 variable is manipulated/changed at the time
11. **density** - Measure (comparison) of how much mass is contained in a given volume; unit is g/cm³
12. **weight** - Measurement of the pull of gravity; can change depending on location
- *13. **measure** - To determine the dimensions, quantity or capacity of an object
- *14. **data analysis or interpreting the data** - Studying the data of an investigation or experiment and looking for trends or patterns in the data or graph to see if the change (the IV) had an effect.
- *15. **control or controlled group** - The standard use for comparison in a controlled experiment
16. **predict** - To make a statement ahead of time of what you think will happen based on information or experience
17. **procedure or part of experimental design** - The steps you plan to take in an experiment or Investigation
18. **classifying** - Grouping items together that are alike in some way

19. **scientific inquiry** - All the ways scientific problems can be solved; Diverse ways scientists study the natural world and propose explanations based on the evidence they gather
20. **hypothesis** - A possible answer to a scientific question that is stated in measurable terms
21. **mass** - Amount of matter in an object; does not change with your location
22. **data/data collection** - The result of your experimentation (facts, figures, and other evidence) that you usually record on a chart and then make a graph
23. **qualitative observations or qualitative data** - Descriptions that cannot be expressed using numbers, but instead describe with words
24. **quantitative observations or quantitative data** – describes using numbers or amounts.
- *25. **evaluation** - Looking back over an investigation or experiment to see if there were mistakes, biases, or flaws in the design; To reflect on how well the experiment worked (Does it need to be revised, repeated?); Asking yourself if anyone could replicate this experiment and get the same results
26. **volume** – amount of space an object occupies
27. **variable**- all of the factors that can affect an experiment
- *28. **controlled variables/constants**- all of the factors in an experiment that must stay the same so that you can find out if the change (the IV or test variable) had an effect
29. **ethics** - rules that enable people to know right from wrong
30. **bias** – personal opinion; slanted toward one's own opinion
31. **personal bias**- when a person's likes or dislikes influence he or she thinks about something
32. **cultural bias** – When the culture in which a person grows up affects the way that person thinks
33. **experimental bias** - a mistake in the design of an investigation that makes a certain result more likely
34. **scientific theory** - set of statements developed to explain a group of facts or events, especially one that has been repeatedly tested or is widely accepted; used to make predictions about natural events or facts and can change as new technology or new investigations give new information.
35. **scientific law** - A statement that describes unchangeable relationships among facts and events and tells how something in nature always behaves (or acts) under certain conditions

***not listed in the book or possibly listed with a different phrase. For example – control is not given, but controlled group is. Constants is not given, but controlled variables are**