

6th Grade Science Midterm Study Guide

1. Put the classification of living things in order.

Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species

2. Which two of these levels are used to create an animal's scientific name?

Genus and Species

3. Write the functions of the following organelles and whether they are in plant, animal or both:

- Ribosomes: **Creates proteins – in BOTH plants and animals cells**
- Lysosomes: **Breaks down food materials, wastes, and old cells – in ANIMAL cells**
- Cell Wall: **Protects the cells of plants – in PLANT cells**
- Chloroplasts: **Green organelles that use light energy and make food by photosynthesis – in PLANT cells**

4. List the functions of the following systems:

- Circulatory: **Transports nutrients, gases, water, and other substances through the body**
- Digestive: **Breaks down and absorbs food**
- Skeletal: **Provides support, protects internal organs, helps the body move, and stores minerals like calcium**
- Muscular: **Makes our body move, supports our bones, controls and holds together bones. Types of muscles are: Skeletal, Cardiac, and Smooth**
- Lymphatic: **Removes excess fluid around organs, makes/produces white blood cells, and transports and absorbs fats**

5. How do the circulatory and digestive systems work together?

As nutrients leave the small intestine they are absorbed into the bloodstream to be carried to all parts of the body.

6. How do the skeletal and muscular systems work together?

They work together to get your body to move.

7. How do the lymphatic and circulatory systems work together?

They work together to help the body to fight infections.

8. What are the three parts of the cell theory?

- : **All organisms are composed of 1 or more cells**
- : **All cells come from pre-existing cells**
- : **The cell is the smallest unit of life**

9. What is the difference between a scientific observation and a scientific inference?

Scientific observation – the act of using 1 or more of your senses to gather information and take note of what occurs

Scientific inference – logical explanation of an observation that is drawn from prior knowledge or experience

10. What is the difference between an experiment and an investigation?

Experiment – Involves testing dependent and independent variables, establishing a cause and effect relationship, classic scientific method

Investigation – Has a clear question, not complete scientific method, a hypothesis is not necessary

11. Why would the order of the steps in a scientific method differ?

Steps vary depending on the question being researched

12. Why are viruses dangerous?

Viruses replicate inside the host organism, damaging cells and causing illness.

13. Place the following in order from LEAST COMPLEX to MOST COMPLEX.

A human, the lung cells, the lung tissue, the lungs

lung cells, lung tissue, lungs, human

14. Explain the following parts of a controlled experiment:

- Control: **Variable that has nothing done to it**
- Independent Variable: **A factor you want to test. It is changed to observe how it affects the dependent variable**
- Dependent Variable: **A factor you observe or measure during an experiment**
- Constant: **A variable that is kept the same**
- Which of these is not always part of an experiment? **Control**
- Which of these should you limit to 1? **Change 1 variable at a time/per trial**

15. If you go to a doctor with cold symptoms and are NOT prescribed an antibiotic, why would that be?

You have a virus. Antibiotics kill some bacteria and fungi, but not viruses.

16. What could be a reason that the results of an experiment are not credible?

The results of the experiment may not have been replicated more than one (1) time during the study.

17. What is the difference between a scientific theory and a scientific law?

Scientific Theory – explanation of observations or events that is based on knowledge gained from many observations and investigations.

Scientific Law – rule that describes a rule in nature (example: Newton's Law of gravity – if you drop a book it will fall toward the Earth)

18. What three processes maintain homeostasis in cells?

1. Diffusion – the movement of substance from an area of higher concentration to an area of lower concentration

2. Osmosis – the diffusion of water molecules only through a membrane

3. Active Transport – the transport of a substance through a cell membrane in a way that uses the cell's energy

19. Name three scientific models. One of them must be something we made in class.

1. Cell model (plant and animal cell)

2. Globe

3. Map

20. What is a NON LIVING infection agent?

Viruses