Final Exam Study Guide-7th Grade  **KEY**

You may need to make notes on another sheet of paper to study for the test. In addition, you need to review all tests, notes, and quizzes.

**Nature of Science (NOS)**

1. What is the difference between a theory and a law? Can they both change? Explain

What is the difference between a theory and a hypothesis? Theory explains a natural phenomenon (why its happening and how its happening), A Law tells you what is happening naturally. A law does not change, more may be added but it does not change. A Theory can change based on new evidence that is supported by science or repeat findings.

A theory explains a natural phenomenon and a Hypothesis is an educated guess about what may happen. Both can be tested

1. Why do we often use models in science? What are some limitations of models? We use models to give us a visual of what is happening or to represent what we see in nature. Limitations of models include the following: 1. They may not be to scale, parts may be missing,
2. Define the following:
	1. Independent Variable: The variable that is changed by the scientist
	2. Dependent Variable: What is being measured
3. Identify/ circle the independent variable in this experiment:
	1. Mrs. Gamble planned a science fair experiment that tested the effect of different light sources on the growth of Lilly Plants. To conduct the experiment, she placed one group of ten Lilly plants in the front window, then placed another group of ten Lilly plants under a light fixture with special light bulb for plants

**Earth Science**

1. List the layers of the Earth from inside the Earth to the surface. Inner Core, Outer core, mantle, and crust
2. What is a convection current? Rising and falling of a liquid due to changes in temperature causing changes in density. Example: cool water being warmed and rising to the top , cooling at the top and sinking .
3. Where are convection currents located in the Earth’s interior? In the mantle
4. What is the Law/ Principal of Superposition and how does it help geologists determine the age of rock layers?

Law of super position states that older layers of rock are located at the bottom of the rock strata and younger layers are located at the top of the rock strata if there are no disturbances. By comparing the location of the rock layers scientist are able to determine the relative age of the layer

1. What method is used for finding the absolute age of rock layers? For a fossils? Radiometric dating – think about the skittles lab we did.
2. What is the theory of plate tectonics? Plate tectonics is the theory that Earth's outer shell is divided into several plates that glide over the mantle, the rocky inner layer above the core. The plates act like a hard and rigid shell compared to Earth's mantle.
3. What evidence supports plate tectonics? Fossil evidence, seafloor spreading, glacial evidence
4. What causes the Earth’s plates to move? Convection currents in the earths mantle
5. What occurs at the mid ocean ridge? The discovery of activity at the mid ocean ridge confirms what theory? At a mid ocean ridge you have a convergent plate boundary where an oceanic plate converges with a continental plate. The theory of plate tectonics and the theory of continental drift
6. List the 4 different types of plate boundaries. What land formations occur at each of those plate boundaries
	1. Convergent Plate Boundary- two plates coming together (Oceanic to continental- mid ocean ridge, volcanos; Oceanic to Oceanic- mountains, volcanos; Continental to continental- mountains)
	2. Divergent Plate Boundaries- rift valleys
	3. Transform- fault lines
7. What are faults? Transform boundaries that slip- two continental plates slipping past one another
8. A paleontologist studies the fossilized remains of two different organisms and notes similar body structure. What do these similarities tell us about those organisms? They are closely related but have changed over time. They have a common ancestor
9. What is a homologous structure? Similar structures found in different animals, which suggest the animals have a common relative or ancestor.
10. What do homologous structures in organisms suggest to scientists? They have a common ancestor or they are related
11. Which features of the following animal limbs are similar ( in the diagram below). The bones connecting the arms to the hands



**Life Science**

1. Define the following Relationships. Give an example
	1. **Mutualism:** A relationship where both organisms benefit. An example would be a Clownfish living among the stinging tentacles of the sea anemone. The clownfish attracts food for the sea anemone and the sea anemone provides a home and protection for the clownfish.
	2. **Parasitism: A relationship where one organism benefits and the other organism is harmed. For example a tick feeding on a dog or a mosquito feeding on a person.**
	3. **Commensalism: Relationship where one organism benefits and the other organism neither benefits or is harmed.**
	4. **Competition:** Relationship where two organisms live together in the same area and interact in a way that is harmful to both species. Example a fox and a wolf both hunt for the same food.
2. Review your Venn Diagram comparing mitosis and meiosis. Why are both needed in organisms that use sexual reproduction? Both allow the body to make new cells.
3. How are the cells produced from mitosis and meiosis different? Mitosis produces body cells (Skin, eye, bone etc..) and Meiosis produces sex cells/gametes which are needed for reproduction.
4. What are the differences between sexual and asexual reproduction? Sexual reproduction requires two organisms and asexual reproduction requires only one
5. How many chromosomes are found in human body cells? 46 Sex cells? 23
6. Define Trait: physical characteristic inherited from parents
7. A bird is heterozygous for white body feathers. Is white a dominant or recessive trait? How do you know? Dominate trait, because when you have a heterozygous genotype the dominate trait will show up as the phenotype.
8. In order for a recessive trait to be expressed or shown in an organism **both** parent(s) must have 1 recessive allele.
9. If you cross a short strain of grass (gg) with a medium strain of grass (Gg), what is the probability of getting short strain grass as offspring of these two plants?

 g g

50% or 2/4

Gg

Gg

G

gg

gg

g

1. Determine the possible genotypes and phenotypes of a cross between a heterozygous brown rabbit and a homozygous brown rabbit. Use the letter B to represent the alleles.

Genotypes: BB , Bb

Phenotypes: Brown fur only

B b

B

B

Bb

BB

BB Bb