

7th Grade Semester 1 Study Guide

General Overview

We will be reviewing material in class. In order for the review to be most helpful for you it is necessary for you to work through the review questions and come to class prepared to ask questions for clarification and review. Working on a few questions every day will be much more beneficial than trying to sit down and finish all the questions at one time. In addition you should look over old tests, quizzes, and labs to help study!

Semester 1 Learning Objectives:

- ✓ *Understand that scientific knowledge is subject to change based on new findings and results of scientific observations and experimentation.*
- ✓ *Construct and use classification systems based on the structure of organisms.*
- ✓ *Identify the characteristics, needs, and chemistry of all living things.*
- ✓ *Compare and contrast the similarities and differences between the 6 kingdoms of life.*
- ✓ *Understand how scientists classify organisms and be able to use a dichotomous key to identify organisms.*
- ✓ *Classify organisms according to kingdom, phylum, class, order, family, genus, and species.*
- ✓ *Apply rules of binomial nomenclature to name an organism by its scientific name.*
- ✓ *Describe the 6 characteristics of living things.*
- ✓ *Explain why organisms need food, water, air and a place to live.*
- ✓ *Distinguish between asexual and sexual reproduction.*
- ✓ *Identify the parts of a microscope and describe the function of those parts.*
- ✓ *Use a microscope to look at cells.*
- ✓ *State the 3 parts of the cell theory.*
- ✓ *Compare and contrast prokaryotic and eukaryotic cells.*
- ✓ *Identify cell structures and define the function of those structures in the cell*
- ✓ *Compare and contrast plant and animal cells, including major organelles.*
- ✓ *Illustrate the structure and functions of an organism in terms of cells, tissues, and organ, organ systems, and organisms.*
- ✓ *Explain how our understanding of cells and microbes has changed over time.*
- ✓ *Recognize and describe the cell cycle.*
- ✓ *Use models to represent scientific concepts.*

Vocabulary:

<ul style="list-style-type: none">▪ Taxonomy▪ Dichotomous key▪ Binomial Nomenclature▪ Kingdom▪ Phylum▪ Class▪ Order▪ Family▪ Genus▪ Species▪ Prokaryote▪ Eukaryote▪ Heterotroph• Autotroph• Archaeobacteria• Eubacteria• Protista• Fungi	<ul style="list-style-type: none">• Plantae• Animalia• Cell• Stimulus• Response• Sexual reproduction• Asexual reproduction▪ Structure▪ Function▪ Cell theory▪ Cell membrane▪ Phospholipid▪ Organelle▪ Nucleus▪ Cell wall▪ Ribosomes▪ Endoplasmic reticulum▪ Mitochondria	<ul style="list-style-type: none">▪ Chloroplasts▪ Golgi complex▪ Vesicle▪ ATP▪ Lysosomes▪ DNA▪ Vacuoles▪ Tissues▪ Cell cycle▪ Mitosis▪ Interphase▪ Prophase▪ Metaphase▪ Anaphase▪ Telophase▪ Cytokinesis▪ Chromosomes▪ Homologous chromosomes
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DAY OF FINAL EXAM:

The science final exam is scheduled for Monday, December 10th from 10:30 –12:30. To be prepared for the exam you should have the following materials:

- Black or Blue Ballpoint Pens (bring an extra just in case)
- Your Holt: Life Science Textbook
- Whiteout (if you think you may need it)
- A well rested, well nourished brain!!!!**

Name _____

Study Guide Questions

Nature of Science

- 1.) Explain the difference between an observation and an inference.
- 2.) Give an example of an observation and an inference.
- 3.) How are observations and inferences used in science?
- 4.) Define the following words: hypothesis, controlled variable, independent variable, dependent variable.
- 5.) Krusty thinks that Skin-So-Soft by Avon will repel mosquitoes. He takes 100 mosquitoes and puts them in a container, half the container contains a cloth soaked in skin-so-soft. After one hour he made observations, he found that 90 mosquitoes were on the half of the container without the rag and 10 were found near the rag. Krusty also put 100 mosquitoes into another container, half of this container contained a rag soaked in water. He observed this container an hour later and found the mosquitoes were evenly distributed across the container.
 - ✓ Write a hypothesis for Krusty.
 - ✓ What was the control group?
 - ✓ What was the independent variable?
 - ✓ What was the dependent variable?
 - ✓ What should Krusty conclude?

→ **REVIEW:**

- Observation & Inference Worksheets, Understanding Variables Worksheet, Notes

Classification (pp. 222-233)

- 6.) Name the 7 levels of classification in order from most general to most specific.
- 7.) Explain the two parts of a scientific name. Include an example of how you write a scientific name.
- 8.) What is a dichotomous key and why do scientists use them?
- 9.) Describe the 6 kingdoms of living things. List the characteristics that help identify organisms from each kingdom and give an example of an organism in each kingdom.
- 10.) Compare and contrast the kingdom fungi with the kingdom plantae. How are these kingdoms alike and how are they different?
- 11.) Be able to use a dichotomous key to identify organisms. (practice attached)
- 12.) Be able to read a branching diagram to determine evolutionary relationships between organisms (examples on pages 223, 227, and 237.)

→ **REVIEW:**

- Dichotomous Key Worksheets, Classification Mnemonic, Quiz: Dichotomous Keys, Classification, & Nature of Science, Kingdom Foldable, Notes

Characteristics, Needs, and Chemistry of Living Things (p. 38 – 47)

- 13.) Explain the 6 characteristics that all living things have in common.
- 14.) Give an example of a stimulus and a response.
- 15.) What is homeostasis and why is it important to an organism?
- 16.) Compare sexual and asexual reproduction.
- 17.) What are the 4 needs that all living things have in common?
- 18.) Explain the three different ways organisms obtain food and give examples of each type of organism.

Name _____

→ **REVIEW:**

- Characteristics & Needs Mind Maps, Test: Kingdoms, Characteristics, & Needs of Life, Notes

Microscopes:

19.) Identify the function of the following parts of a microscope:

- a. Eyepiece:
- b. Objective lenses:
- c. Stage:
- d. Mirror:
- e. Diaphragm:
- f. Course adjustment knob:
- g. Fine adjustment knob:

20.) What safety precautions should you take when using a microscope?

21.) Identify the total magnification power of the following pairs of lenses:

<i>Eyepiece Lens</i>	<i>Objective Lens</i>	<i>Total Magnification</i>
a. 5x	4x	
b. 5x	10x	
c. 10x	45x	
d. 15x	10x	
e. 15x	25x	

→ **REVIEW:**

- Microscope Quiz, Microscope Worksheet, Using The Microscope Lab

Cells (p. 60 - 79)

22.) What is the cell theory and what does it state?

23.) Compare and contrast prokaryotic cells and eukaryotic cells.

24.) Identify the function of the organelles listed below:

- a. Cell membrane:
- b. Cell wall:
- c. Cytoplasm:
- d. Nucleus:
- e. Ribosomes:
- f. Nucleolus:
- g. Chromosomes:
- h. Endoplasmic reticulum:
- i. Golgi complex:
- j. Mitochondria:
- k. Lysosomes:
- l. Vesicles:
- m. Vacuoles:
- n. Chloroplasts:

25.) Compare and contrast plant and animal cells.

26.) Explain the advantages to being a multicellular organism.

27.) Draw a picture to illustrate the levels of organization from cells to organisms. Explain each level.

→ **REVIEW:**

- Cell Structure/Function Packet, Quizzes & Test on Cells, Notes

Cell Cycle (p. 98 - 101)

28.) Describe the cell cycle including the major events that occur at each stage.

→ **REVIEW:**

- Mitosis Model Activity, Mitosis Internet Activity