

Name\_\_\_\_\_ Period\_\_\_\_\_ Date\_\_\_\_\_

## **BIOLOGY Semester 1 Final Exam Study Guide**

### **Chapter 1- Introduction to Biology**

#### **1.1 CLASSROOM CLIMATE**

What are the three expectations for all students in this class?

*1. Be Respectful, 2.Be Responsible, 3.Be Engaged*

What are three rules for all students in this class?

*1.One student out at a time, 2.no personal electronics unless specified, 3.take care of personal business at an appropriate time.*

What is our biology class blog address?

*franklinbio.blogspot.com*

How do I access the online version of our biology textbook?

*[www.my.hrw.com](http://www.my.hrw.com), username: biology378, password: biology*

What goes on the left side and right side of my interactive notebook?

*Right hand side is new information, left hand side is processing and must be in color*

Name 5 examples of how I can do processing on the left side of my interactive notebook.

*Drawings, Venn diagram, t-chart, table, graph, song lyrics, poems, cartoons, graphic organizers, flow charts, concept maps*

Where can I find Ms. Ferro during tutorial?

*Room C-13, Mr. Heppner's room*

What is science literacy?

*Knowledge and understanding of scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity; looking at your world through a scientific lens.*

Name 5 important lab safety rules:

*Tie back long hair*

*Cover your skin/wear long sleeves & pants*

*No open toed shoes*

*No eating or drinking in the lab*

*Don't work in the lab alone*

*Use wafting techniques for smelling safe chemicals*

*Don't dispose of chemicals down the drain unless you've been instructed to do so ("dilution is the solution to pollution")*

*Be aware of the chemicals you are working with by using MSDS information*

*Dispose of broken glass in appropriate containers*

## **1.2 SCIENTIFIC METHODS**

What is the goal of any scientific method?

*To solve a problem or better understand an event.*

Define hypothesis - *a proposed answer to a question*

Define scientific method - *an organized plan for gathering, testing, and communicating information*

Define experiment - *a procedure that is carried out under controlled conditions to test a hypothesis*

Name the 5 steps (in correct order) of the scientific method:

1. *Observation*
2. *Form hypothesis*
3. *Test hypothesis with experiment*
4. *Analyze data*
5. *Form conclusion*

## **CATEGORY 1.3: MEASUREMENT SYSTEMS**

What is the difference between a measurement, a unit, and quantity?

*A measurement is exact, like 5cm, a unit is how you're measuring something cm, liters, etc., and quantity is the big category that you're measuring, like time, temperature, volume, etc.*

What are the 6 quantities that we measure in science?

*Length, volume, mass, area, time, temperature*

What is the best metric unit used to measure the distance from Portland to Tillamook?

*kilometers*

Liquid volumes in the lab are often measured in metric units called \_\_\_\_.

*milliliters*

Your height in metric units would be measured in \_\_\_\_ and your weight in \_\_\_\_.

*centimeters, kilograms*

If there are about 2cm to each inch would your body measurements be larger numbers or smaller numbers in the metric system?

*larger*

How many centimeters are in a meter?

*100*

You use kilometers to measure which quantity?

*length*

You use milligrams to measure which quantity?

*mass*

You use liters to measure which quantity?

*volume*

You use Celcius to measure which quantity?

*temperature*

You use square centimeters to measure which quantity?

*area*

You use nanoseconds to measure which quantity?

*time*

Where is water on the pH scale?

*7*

## **PROPERTIES OF LIFE**

List the 7 properties of living things.

*cellular organization*

*homeostasis*

*metabolism*

*responsiveness*

*reproduction*

*heredity*

*growth*

True or False? All organisms show the seven properties of living things at one or more stages of their lives.

True or False? Nonliving things sometimes show properties of living things. *True*

## **4.1 WHAT IS AN ECOSYSTEM?(INTRO TO ECOLOGY)**

Define:

population- *sum of all organisms in an area of the same species (can reproduce)*

community-*group of actual or potential interacting species living in the same place; a group of populations*

ecosystem-

biome-*a large community of plants and animals that occupy a distinct region*

biosphere-*the global sum of all ecosystems; the part of the earth and its atmosphere in which living organisms exist or that is capable of supporting life*

biotic-*living factors in an ecosystem*

abiotic-

biodiversity-*a measure of the variety of organisms present in different ecosystems*

What two factors determine every biome on the planet?

What three key ingredient do plants need for photosynthesis?

What biome? 300cm of rain a year, temperature of 20-30 degrees Celcius, high biodiversity *tropical rainforest*

What biome? Little precipitation, below zero temperatures, low biodiversity *tundra*

What biome? Little precipitation, extremely high temperatures, low biodiversity

What are the three 'moderate' biomes? *temperate grasslands, temperate deciduous forests, taiga/coniferous forests*

#### **4.2 ENERGY FLOW IN ECOSYSTEMS**

Define trophic level. *The level assigned to an organism within an ecosystem based on where it gets its energy.*

An organism's habitat is like a \_\_\_\_\_, while the niche is like a \_\_\_\_\_.

True or false: No energy is lost in each level as energy travels up a food chain. *False*

Global warming is most likely caused by the increase in \_\_\_\_\_. *carbon dioxide*

Define producer and describe where it fits in the food chain.

Describe what makes producers and consumers different. *Producers can make their own energy source while consumers must rely on outside energy sources*

At what trophic level do herbivores reside? What are they? *2nd; consumers that eat plants and can break down cellulose into usable compounds*

At what trophic level do carnivores reside? What are they? *3rd; consumers that eat herbivores and other carnivores*

What is the name for an animal that eats both plants and animals?

True or false: In an ecosystem, there are more organisms at the top of the food chain than the bottom. *False*

#### **4.3 CYCLING OF MATTER**

How does water on earth re-enter the atmosphere? *through evaporation & transpiration*

What happens when water vapor in the atmosphere condenses?

What is the name of the process when water evaporates from plants? *transpiration*

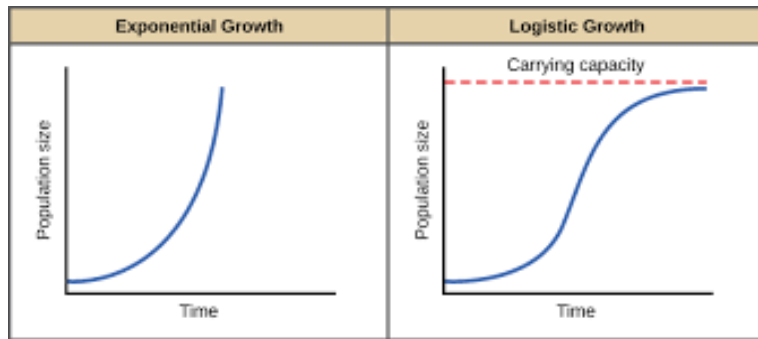
Photosynthesis uses \_\_\_\_\_ and releases \_\_\_\_\_. (both gases)

How might an increase in the burning of fossil fuels affect the carbon cycle?

## Chapter 5 - Populations & Communities

### 5.1 Populations

Populations can grow exponentially over time, but there are limits to what an ecosystem can sustain. This is called its carrying capacity.



How do human populations grow?

### 5.2 Interactions in Communities

Define predation:

What are three types of symbiosis? Give an example of each.

### 5.3 Shaping Communities

Define niche:

What is a species that affects the survival of many other species called?

## Chapter 6 The Environment

### 6.1 An Interconnected Planet

How many people currently live on our planet?

Name 4 things that humans depend on the environment for.

*Food, water, shelter, fuel, etc.*

Thinking big picture, how does human population growth affect the environment?

Trees are considered *renewable*/nonrenewable

Fossil fuels are considered renewable/*nonrenewable*

Two major sources of environmental problems are: *habitat destruction & pollution*

## 6.2 Environmental Issues

What is the cause of acid rain? *sulfur being released into the atmosphere from burning fossil fuels*

What does the earth's ozone layer protect us from?

What is causing its destruction? *air pollution from CFC's, or chlorofluorocarbons*

What is the 'greenhouse effect'?

Why is the destruction of tropical rainforests problematic? *habitat loss for important species, destruction of medicinal plants, loss of oxygen sources*

What is the leading cause of extinction and loss of biodiversity?

True or false? Burning fossil fuels *decreases* the amount of CO<sub>2</sub> in the atmosphere.

True or false? Groundwater is so deep that pollutants cannot reach it. *False*

True or false? Half of the world's tropical rainforests have been cut down in the last 50 yrs.

True or False: Water pollution caused by sewage is the source of infectious disease. *True*

What trends are scientists seeing in atmospheric CO<sub>2</sub> and global temperatures?

*they are both increasing*

## 6.3 Environmental Solutions

What are two major techniques for solving environmental problems? *conservation and restoration*

True or false: It takes 95% less energy to recycle aluminum than to make new products. *True*

What are the three R's and give an example of each.

What are three benefits that recycling provides? *costs less, uses less energy, prevents pollution*

Give three examples of advances in technology that help limit pollution.

The smallest unit of matter that cannot be broken down by chemical means is a(n):\_\_\_\_\_

Atoms are made of: *protons (+), neutrons, electrons (-)*

In a neutral atom, there are the same number of: \_\_\_\_\_ and \_\_\_\_\_

What is listed on the Periodic Table? \_\_\_\_\_

An element's identity is based on its atomic number, which is the number of protons in one atom of that element.

**TRUE OR FALSE (T or F):**

\_\_\_\_\_ A change in the number of electrons does not change an atom's identity.

\_\_F\_\_ Electrons reside in the nucleus of an atom.

\_\_\_\_\_ The innermost shell of an atom can only hold 2 electrons.

\_\_F\_\_ Each shell besides the first shell of an atom can hold up to 10 electrons.

\_\_\_\_\_ New elements were recently discovered and added to the Periodic Table.

**DIAGRAMS**

**Draw an atom of each specified element, making sure to show the correct number of protons and electrons.**

11. Helium, He, atomic number 2

12. Nitrogen, N, atomic number 7

13. Phosphorus, P, atomic number 15; how many protons are in one atom of phosphorus? \_\_\_\_\_