Biology 11 Final Exam REVIEW SHEET

Date of exam:_____ Time: _____ Place:_____

- There are 200 multiple choice questions on the exam.
- Use your notes, diagrams, and labs from class as your primary study source. As well, look at all of your **review sheets**. Refer to the textbook chapters for clarification and extra review.

DIAGRAMS - *one* from *each pair* will be on the final exam:

- *Paramecium* or *Euglena*
- Life Cycle of Moss **or** Life Cycle of Ferns
- Diagram of a complete flower **or** *Spirogyra / Volvox*
- Life Cycle of a Gymnosperm **or** Life Cycle of an Angiosperm
- Sponge **or** Hydra
- Internal / External Clam **or** Internal / External Squid

✪If not done, **create a taxonomy chart** – give examples of organisms where appropriate.

- Kingdom Monera
  - Sub-kingdom Archaebacteria
  - Sub-kingdom Eubacteria
- Kingdom Protista
  - Phylum Euglenophyta etc……..

General Information to Know (10 Questions)

1. Lab safety
2. Scientific Method
3. Microscopes
   a. Proper use
   b. Parts and Function
4. Drawing Magnification and Actual Size Calculations
5. Taxonomy

Adaptation and Evolution (17 Questions)

1. Define evolution.
2. List the main sources of evidence for evolution.
3. Describe the function of DNA and where it is found in the cell.
4. Define the following terms: DNA, nucleotide, deoxyribose sugar, phosphate, nitrogen base, gene, and chromosome.
5. Describe the general shape of DNA.
6. Define mutation, allele, sexual reproduction, and asexual reproduction.
7. Explain the role of DNA in evolution, in terms of alleles and adaptations.
8. Explain the role of mutations and sexual reproduction in the formation of new species.
9. Define migration, genetic drift, gene flow, and non-random mating.
10. Describe the process of natural selection by listing and describing Darwin's 5 main points.
11. Use the examples of Darwin's Finches, the Peppered Moth, and Bacterial Resistance to explain natural selection.
12. Compare and contrast gradualism with the punctuated equilibrium model of evolution.
13. Define and give examples of convergent and divergent evolution. Define vestigial structures.
14. Define: endangered, threatened, extinct, species, adaptive radiation / speciation, and recombination.

Viruses / Bacteria/ Protists (39 Questions)

Viruses

1. Describe the basic structure of a virus in terms of composition.
2. Label the parts of a bacteriophage.
3. List the evidence used to classify viruses as living or non-living.
4. Compare and contrast the lytic and lysogenic life cycles of the virus.
5. Know that the immune system is the body's basic line of defense (non-specific) and be able to explain the specific responses of the white blood cells. Define antigens and antibodies.
6. Give examples of ways to reduce the chance of contracting a viral disease.
7. Know that influenza, polio, HIV and the common cold are caused by viruses.
8. Define and give examples of viral specificity, retrovirus, pathogen, and prophage.

Bacteria

1. List the general characteristics.
2. Name the kingdom that bacteria belong to.
3. List the two subkingdoms and give examples of each.
4. Define prokaryote and plasmids and know that bacteria are single-celled (unicellular).
5. List the common names and scientific names of the 3 shapes of bacteria.
6. Define the following respiration terms: obligate aerobe, obligate anaerobe, facultative anaerobe, and fermentation.
7. Define the following nutrition terms: heterotroph, parasite, saprophyte, autotroph, photosynthesis, and chemosynthesis.
8. Define the following reproduction terms: binary fission and conjugation. Define endospores.
9. Explain processes by which bacteria adapt to become resistant to antibiotics.

Protists

1. List the general characteristics.
2. Name the kingdom that Protists belong to.
3. Define eukaryote and know that protists are single-celled (unicellular) organisms with no true tissues.
4. Know the definitions of zooplankton and phytoplankton. Define autotroph and heterotroph.
5. Name the phylum that *Euglena* belong to and label and describe the functions of all its parts.
6. Name the phylum that *Diatoms* belong to and describe their cell walls.
7. Name the phylum that *Dinoflagellates* belong to and define luminescence and red tide.
8. Name the phylum that *Amoeba* belong to and label and know the functions of the pseudopods, food vacuole and contractile vacuole.
9. Name the phylum that *Paramecium* belong to and label and describe the function of all its parts.
10. Name the phylum that *Plasmodium* (Malaria) belongs to and know that this phylum produces spores.

Kingdom Fungi (14 Questions)

1. List the general characteristics of Fungi and describe their classification system.
2. Define mycology, diploid, haploid, zygote, dikaryotic, mitosis, meiosis, mycorrhizae, mycelium, stolon, spore, sporangiophore, and sporangium.
3. Define and give examples of pioneer species.
4. Define symbiosis.
5. Know why fungi are **not** part of Kingdom Plantae.
6. Know the classification system of Fungi. Give examples and list characteristics of each.
7. Explain why a fungus would produce antibiotics.
8. Explain what lichens are and why they are important.

Kingdom Plantae (39 Questions)

Kingdom Plantae Introduction

1. List the general characteristics of plants.
2. Describe alternation of generations.

Algae
1. Know the classification of Algae – three phyla: Chlorophyta, Phaeophyta, and Rhodophyta.
2. Name which phylum most likely gave rise to land plants.
3. In algae, what is the function of: accessory pigments, the holdfast, and air bladders?
4. Know the types of sexual and asexual reproduction.

Moss (Phylum Bryophyta)
1. List the general characteristics.
2. Describe adaptations of plants to land.
3. List advantages and disadvantages of an aquatic vs. a land environment.
4. Know the function of rhizoids.
5. Know the life cycle of moss.
6. Define: antheridium and archegonium.
7. Explain why mosses are so small.

Tracheophyta (ferns, gymnosperms, and angiosperms)
1. Define: cuticle, epidermis, endodermis, roots, stems, leaves, stomata, guard cells, and vascular tissue (two types: xylem and phloem).
2. Know the life cycle of ferns.
3. List the general characteristics of gymnosperms and angiosperms.
4. Compare and contrast monocots and dicots.
5. Define: meristem (two types: lateral and apical), parenchyma, gymnosperms, angiosperms, and cotyledon.
6. Know the adaptations of gymnosperms.
7. Know the life cycle of gymnosperms.
8. Know the life cycle of angiosperms.
9. Know the parts and function of a diagram of a typical flower.
10. Describe the difference between pollination and fertilization.
11. Know the function of the pollen tube.
12. Describe the methods of seed dispersal.

Kingdom Animalia (74 Questions)

Kingdom Animalia Introduction
1. List the general characteristics of animals.
2. Define invertebrate and vertebrate.
3. Define ectoderm, endoderm, and mesoderm
4. Define body cavity or coelom, and define acoelomate and pseudocoelomate. Give examples of organisms with each body cavity type.
5. Describe the 3 symmetry types and give examples of organisms with each type.
6. Define cephalization and explain its importance.

Phylum Porifera (sponges)
1. List the general characteristics.
2. Be able to label and give the functions of parts of the sponge. Be able to trace the flow of water.
3. Describe what their skeletons are made of.
4. Explain how sponges reproduce. Be sure to define budding and hermaphrodite.
5. Refer to your Phylum summary table.

Phylum Cnidaria (sea jellies, sea anemones, hydra)
1. List the general characteristics.
2. Be able to label the parts of a *Hydra*.
3. List and describe the two body forms and their functions and be able to label the diagrams.
4. List and describe the cell and tissue types.
5. Refer to your Phylum summary table.

Phylum Platyhelminthes (Flatworms – Planaria, Tapeworm, Flukes)
1. List the general characteristics.
2. Define bilateral symmetry.
3. Describe the: excretory, nervous, reproductive, digestive, and muscle systems (Refer to your Phylum summary table).

Phylum Nematoda (Roundworms – Ascaris, Hookworms)
1. List the general characteristics.
2. Define pseudocoelom.
3. Refer to your Phylum summary table.
4. Describe the characteristics of a successful parasite.

Phylum Annelida (Earthworms, leeches, and marine worms)
1. List the general characteristics.
2. List the 3 classes of annelids and give examples of each.
3. Be able to label the earthworm diagram.
4. Define coelom.
5. Refer to your Phylum summary table.

Phylum Mollusca
1. List the general characteristics.
2. Refer to your Phylum summary table.
3. Be able to match the 4 main classes with example organisms and characteristics.
4. Describe filter feeding in a clam.
5. Be able to label the diagrams of clam and squid.

Phylum Arthropoda
1. List the general characteristics.
2. Explain the advantages and disadvantages of having an exoskeleton.
3. Refer to your Phylum summary table.
4. Be able to match the 4 main subphyla with example organisms and characteristics.

Phylum Echinodermata
1. List the general characteristics.
2. Name the phylum that the egg development is similar to.
3. Describe their skeleton.
4. Explain what a water vascular system is and how it works.
5. Refer to your Phylum summary table.

Phylum Chordata
1. List the general characteristics.
2. List the 4 main unifying characteristics and describe each one.
3. Be able to match the 7 main classes of Subphylum Vertebrata with example organisms and characteristics. (Refer to the class table.)

Ecology (7 Questions)

1. Define: biosphere, population, community, ecosystem, primary and secondary succession, food chains, food webs, photosynthesis, cellular respiration, chlorophyll, chloroplast, and mitochondria.
2. Describe factors that limit population growth.
3. Describe a pyramid of energy. Is energy transfer 100% between trophic levels?
4. Compare photosynthesis and cellular respiration in terms of: reactants, products, chemical equations, and the organelle responsible for the process.