**Exam 4 Study Guide**

Chapter 27

**What makes an animal an animal?**

Type of life cycle

Reproduction

Organ systems

**Animal Kingdom Clades**

Porifera, Placazoa, Ctenophores, Cnidarian, Bilateria

**Zygote cleavage and development**

Germ layers (ectoderm, endoderm, mesoderm)

*Hox* genes – how are they master controllers?

**Animal body plans**

Different types, which clades possess which body type

Presence or absence of Coelom

**Protostomes and Deuterostomes**

What is the difference between them?

Which animal clades are protostomes? Which are deuterostomes?

Chapter 28

**What are invertebrates?**

What separates them from vertebrates?

8 Phyla

For each Phylum you should know:

Tissues, body plan, Digestive system, protostome/deuterostome, diploblast/triploblast, coelomate/pseudo/acoelomate, reproduction, cephalization

Chapter 29

**What is a vertebrate?**

What separates them from invertebrates?

 Triploblastic, deuterostomes

Five defining characteristics

Two primitive chordates

Subphylum Craniata

Jaws/no jaws

Tetrapods

Amphibians/Amniotes

**Fishes**

Agnathastomes

No hinged jaw

ancient

Lampreys, hagfishes

Gnathastomes

 Hinged jaw

 Paired fins

 Active feeders

Chondrichthyes

 Sharks, skates, rays

 General characteristics

 Reproduction

Osteichthyes

 Bony fish

 General characteristics

 Reproduction

**Amphibians**

 Aquatic and Terrestrial life stages

 Metamorphosis

 General characteristics

 Reproduction

**Reptiles**

 Novel adaption of amniotic egg (know about amniotic eggs)

 Ectotherms

 General characteristics

**Birds**

 Feathers

 Endotherms (Homeotherms with high body temp)

 General characteristics

 Reproduction

 Adaptations for flight

**Mammals**

 Novel adaptations: Hair and mammary glands

 Endotherms

 General characteristics

 Reproduction

 Three groups (monotremes, marsupials, placentals)

Chapter 33

Animal body plan (again)

Exoskeleton/Endoskeleton

Body cavities

Body size and bioenenergetics

 BMR/SMR

Torpor

Primary tissues

 Epithelial (squamous, cuboidal, columnar, transitional)

 Connective (collagen, elastic, reticular)

 Muscle (smooth, skeletal, cardiac)

 Nervous (neuron structure)

Homeostasis

 Set point, how maintained

Negative/Positive Feedback mechanisms

Homeothermic vs. Poikilothermic

Chapter 34

Food 🡪ATP

Neural response to food

Phases of digestion (cephalic, gastric, intestinal)

Hormonal response to food

Appetite regulation

Chapter 35/36

Neuron structure (again)

Stimulus mechanism

 Resting potential

 Action potential

 Depolarizing

 Signal transmission through neuron

Synapses

Central Nervous System

 Brain and spinal cord

Brain

 Cerebral cortex

 Frontal lobe (smell, decision making, attention, planning, etc.)

 Parietal lobe (speech, reading, touch)

 Temporal lobe (memory, interpreting sound)

 Occipital lobe (vision)

 Basal Ganglia (movement)

 Thalamus (input from body)

 Hypothalamus (endocrine system, homeostasis)

 Limbic (fear and motivation)

 Cerebellum (movement and balance)

 Brainstem (controls physiology)

Peripheral Nervous System

 Autonomic System

 Not under voluntary control

 Parasympathetic (rest and digest)

 Sympathetic (fight or flight)

 Motor System

 Under voluntary control

 Movement