

Wilson Area School District Planned Course Guide

Title of planned course: Zoology

Subject Area: Science

Grade Level: 12

Course Description: Zoology is a rigorous, senior level course in which students will examine the general characteristics, structures, functions, and evolutionary connections of and between a variety of animals including invertebrate and vertebrate species. Animals such as sponges, cnidarians, arthropods, worms, mollusks, echinoderms, fish, amphibians, reptiles, birds, and mammals will be studied. Course work will include note taking, quizzes, tests, and projects. Dissections of the frog and fetal pig will likely occur.

Time/Credit for this Course: 1/2 year/0.5

Curriculum Writing Committee: Jen Burd

Wilson Area School District Planned Course Materials

Course Title: Zoology

Textbook:

Biology
Pearson (Kenneth Miller/Joseph Levine)
2004, 2010 editions will be used
(*curriculum objectives taken from these texts)

Supplemental Books:

The Encyclopedia of Animals (Christiansen)
Biology of Animals (6th edition, Hickman/Roberts)
Mammalogy (6th edition, Vaughn)

Teacher Resources:

Provided power point presentations
Other ancillary materials

Curriculum Map

August:

Begin An Introduction to Zoology

September:

Finish An Introduction to Zoology
Sponges
Cnidarians

October:

Worms
Mollusks
Arthropods

November:

Echinoderms
Fish
Amphibians
Frog Dissection

December:

Reptiles
Birds
Mammals
Fetal Pig Dissection

January:

Review for Final Exam

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: An Introduction to Zoology

Time frame: 5 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.1.1, BIO.A.1.2.1
BIO.A.1.2.2

Essential content/objectives: At end of the unit, students will be able to:

- List characteristics that all living organisms share
- Identify groups of living things
- Describe what makes an animal an animal
- Explain embryonic development, types of body symmetry, and body cavity formation in animals
- Discuss essential functions of all animals
- Explain Linnaeus' system of classification

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Introduction to Zoology power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Body Symmetry lab activity
- Key Vocabulary – archaea, bacteria, eukarya, multicellular, heterotrophic, endoderm, mesoderm, ectoderm, blastula, gastrulation, protostome, deuterostome, radial, bilateral, cephalization, aceolomate, pseudocoelomate, coelomate

Extensions:

- Peer tutoring
- Practice using dichotomous keys
- "What is Life?" Lab
- Shape of Life DVD

Remediation:

- Peer tutoring
- Classification of common objects activity

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Introduction to Zoology power point
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Introduction to Zoology test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Sponges

Time frame: 6 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2, BIO.A.4.2.1, BIO.B.3.2.1, BIO.B.4.2.2; 3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Explain why sponges are classified as animals
- Describe how sponges carry out essential life functions
- Describe filter feeding

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Sponges power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key vocabulary – choanocyte, osculum, spicule, archaeocyte, gemmule

Extensions:

- Peer tutoring
- Sponge slide lab
- Shape of Life dvd

Remediation:

- Peer tutoring

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Sponges power point
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Sponges test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Cnidarians

Time frame: 6 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2, BIO.A.4.2.1, BIO.B.3.2.1, BIO.B.4.2.2; 3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Identify 3 groups of cnidarians
- Describe two types of cnidarian body plans
- Describe how cnidarians carry out essential life functions

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Cnidarians power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key Vocabulary – cnidocyte, nematocyst, polyp, medusa, gastrovascular cavity, nerve net, hydrostatic skeleton

Extensions:

- Peer tutoring
- Cnidarian slide lab
- Shape of Life dvd

Remediation:

- Peer tutoring

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Cnidarians power point
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Cnidarians test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Worms

Time frame: 6 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2, BIO.A.4.2.1, BIO.B.3.2.1, BIO.B.4.2.2; 3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Identify defining features of flatworms, roundworms, and annelids
- Explain characteristics of flatworms, roundworms, and annelids
- Describe the parasitic relationship between common roundworms and humans

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Worms power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key Vocabulary – acoelomate, coelom, pharynx, flame cell, ganglion, eyespot, scolex, proglottid, pseudocoelom, septum, seta, crop, gizzard, closed circulatory system, nephridium, clitellum

Extensions:

- Peer tutoring
- Tapeworm slide lab
- Shape of Life dvd

Remediation:

- Peer tutoring

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Worms power point
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Worms test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Mollusks

Time frame: 6 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2, BIO.A.4.2.1, BIO.B.3.2.1, BIO.B.4.2.2; 3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Explain defining features of mollusks
- Describe the basic body plan of mollusks
- Describe characteristics of three main classes of mollusks

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Mollusks power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key vocabulary – trochophore, foot, mantle, shell, visceral mass, radula, siphon, open circulatory system

Extensions:

- Peer tutoring
- Mollusk shell ID lab
- Shape of Life dvd

Remediation:

- Peer tutoring

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Mollusks power point
- Mollusk shells for ID lab
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Mollusks test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Arthropods

Time frame: 6 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2 – BIO.A.4.2.1 –
BIO.B.3.2.1 –BIO.B.4.2.2 –3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Describe the main characteristics of arthropods
- Identify important trends in arthropod evolution
- Explain what happens when an arthropod outgrows its exoskeleton

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Arthropods power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key vocabulary – exoskeleton, chitin, appendage, tracheal tube, spiracle, book lung, Malpighian tubule, molting

Extensions:

- Peer tutoring
- Shape of Life dvd

Remediation:

- Peer tutoring

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Arthropods power point
- Shape of Life dvd

Assessments:

- Warm-ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Arthropods test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Echinoderms

Time frame: 6 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2, BIO.A.4.2.1, BIO.B.3.2.1, BIO.B.4.2.2; 3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Describe distinguishing features of echinoderms
- Explain life functions carried out by the water vascular system of echinoderms
- Identify the different classes of echinoderms

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Echinoderms power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key vocabulary – endoskeleton, water vascular system, madreporite, tube foot

Extensions:

- Peer tutoring
- Shape of Life dvd

Remediation:

- Peer tutoring

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Echinoderms power point
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Echinoderms test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Fish

Time frame: 6 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2, BIO.A.4.2.1
BIO.B.3.2.1, BIO.B.4.2.2; 3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Describe the basic characteristics of fish
- Identify the most important developments during the evolution of fish
- Explain how fish are adapted for life in the water
- Identify the three main groups of fish

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Sponges power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key vocabulary – cartilage, atrium, ventricle, cerebrum, cerebellum, medulla oblongata, lateral line system, swim bladder, oviparous, ovoviviparous, viviparous

Extensions:

- Peer tutoring
- Shape of Life dvd

Remediation:

- Peer tutoring

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Fish power point
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Fish test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Amphibians

Time frame: 10 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2, BIO.A.4.2.1, BIO.B.3.2.1, BIO.B.4.2.2; 3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Describe characteristics of amphibians
- Explain how amphibians are adapted for life on land
- Identify the main groups of living amphibians
- Conduct a frog dissection

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Amphibians power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key vocabulary – cloaca, nictitating membrane, tympanic membrane

Extensions:

- Peer tutoring
- Frog dissection
- Goliath frog skull study
- Shape of Life dvd

Remediation:

- Peer tutoring
- Alternate activity to frog dissection

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Amphibians power point
- Frog dissection paperwork
- Goliath frog skull
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Amphibians test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Reptiles

Time frame: 6 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2, BIO.A.4.2.1, BIO.B.3.2.1, BIO.B.4.2.2; 3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Describe the characteristics of reptiles
- Explain how reptiles are adapted for life on land
- Identify four living orders of reptiles

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Reptiles power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key vocabulary – ectotherm, amniotic egg, carapace, plastron

Extensions:

- Peer tutoring
- Shape of Life dvd
- American alligator Skull Study

Remediation:

- Peer tutoring

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Reptiles power point
- American alligator skull
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Reptiles test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Birds

Time frame: 6 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2, BIO.A.4.2.1, BIO.B.3.2.1, BIO.B.4.2.2; 3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Describe characteristics that birds have in common
- Explain how birds are adapted for flight

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Birds power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key vocabulary – feather, endoderm, crop, gizzard, air sac

Extensions:

- Peer tutoring
- Shape of Life dvd
- Hawk skull study

Remediation:

- Peer tutoring

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Birds power point
- Hawk skull
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Birds test

Curriculum Scope & Sequence

Planned Course: Zoology

Unit: Mammals

Time frame: 10 days

State Standards / Anchor(s) or adopted anchor: BIO.A.1.2.2, BIO.A.4.2.1, BIO.B.3.2.1, BIO.B.4.2.2; 3.1.12.A2, A5, A6

Essential content/objectives: At end of the unit, students will be able to:

- Describe characteristics of mammals
- Explain when and how mammals evolved
- Describe how mammals maintain homeostasis
- Contrast three main groups of extant mammals
- Compare characteristics of all primates

Core Activities: Students will complete/participate in the following:

- Read and take notes on assigned textbook chapter
- Nightly homework assignments
- Mammals power point review and class discussion
- Daily Early Burd warm-up activities
- Labeling diagrams
- Key Vocabulary – mammary gland, subcutaneous fat, rumen, diaphragm, cerebral cortex, monotreme, marsupial, placenta, binocular vision, prehensile, bipedal, opposable thumb

Extensions:

- Peer tutoring
- Pig Dissection
- Shape of Life dvd
- Chimp vs. Man skull study

Remediation:

- Peer tutoring
- Alternate activity to fetal pig dissection

Instructional Methods:

- Individual reading and note taking
- Direct instruction with questioning
- Teacher modeling and visual aids
- Whole class and small group discussion

Materials & Resources:

- Textbook
- Mammals power point
- Chimp skull
- Man skull
- Shape of Life dvd

Assessments:

- Warm ups, homework assignments, and class activities
- Class discussion
- Quizzes
- Mammals test