



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Animal Kingdom: Reptiles, birds, and mammals

Time Line: Six Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|--|---|------------------|
| Reptiles. Birds. Introduction to mammals. Mammalian adaptations. | <p>Students will identify three adaptations that make reptiles well suited to terrestrial life (3.3.10.a).</p> <p>Students will contrast ectothermy with endothermy (3.3.10.a).</p> <p>Students will describe one hypothesis that explains the disappearance of the dinosaurs (3.3.10.a).</p> <p>Students will list the four orders of living reptiles (3.3.10.a).</p> <p>Students will list two similarities between birds and reptiles (3.3.10.b).</p> <p>Students will identify two differences between birds and reptiles (3.3.10.b).</p> <p>Students will identify two functions of feathers (3.3.10.b).</p> <p>Students will describe two bird adaptations, other than feathers, for flight (3.3.10.b).</p> <p>Students will list the unique characteristics of mammals</p> | <p>Tests.</p> <p>Oral questioning.</p> <p>Assignments.</p> | <p>Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004</p> <p>Worksheets</p> <p>Laserdisc program</p> <p>CD-ROMS</p> <p>Videos</p> <p>Lab program</p> | 3.3.10.A |



**Susquenita School District
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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|--|-------------------|--------------------------|------------------|
| | <p>(3.3.10.b).</p> <p>Students will identify two features of monotremes (3.3.10.b).</p> <p>Students will contrast the pattern of development of marsupials with that of placental mammals (3.3.10.b).</p> <p>Students will identify three functions of hair (3.3.10.b).</p> <p>Students will list two mammalian structures that contain keratin (3.3.10.b).</p> <p>Students will contrast the teeth of herbivores with those of carnivores (3.3.10.b).</p> <p>Students will describe how bats navigate in the dark (3.3.10.b).</p> | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Animal Kingdom: Animal diversity

Time Line: Six Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|--|---|--|------------------|
| Sponges, cnidarians, and simple worms. Mollusks, annelids, and arthropods. Echinoderms and chordates. | Students will contrast the way of life of a sponge with that of a cnidarian (3.3.10.a). Students will compare the polyp stage of the cnidarian life cycle with the medusa stage (3.3.10.a). Students will describe the life cycle of the beef tapeworm (3.3.10.a). Students will list two parasitic nematodes that can live in humans (3.3.10.a). Students will identify the three main classes of mollusks (3.3.10.b). Students will summarize the evolutionary advantages of segmentation (3.3.10.b). Students will describe two ways annelids affect humans (3.3.10.b). Students will list five kinds of arthropods (3.3.10.b). Students will identify three kinds of echinoderms (3.3.10.b). | Tests. Oral questioning. Assignments. | Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004 Worksheets Laserdisc program CD-ROMS Videos Lab program | 3.3.10.A |



**Susquenita School District
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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|-------------------|--------------------------|------------------|
| | Students will list two characteristics of animals in the phylum Echinodermata (3.3.10.b). Students will contrast the three subphyla of chordates (3.3.10.b). | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Animal Kingdom: Arthropods

Time Line: Six Weeks

Big Ideas

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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|--|---|--|---|------------------|
| Spiders and their relatives. Insects, millipedes, and centipedes. Crustaceans. | <p>Students will describe the functions of chelicerae and pedipalps in spiders (3.3.10.a).</p> <p>Students will explain three ways spiders use silk (3.3.10.a).</p> <p>Students will list two arachnids that directly affect people (3.3.10.a).</p> <p>Students will contrast the anatomy of spiders with that of insects (3.3.10.b).</p> <p>Students will distinguish between incomplete and complete metamorphosis (3.3.10.b).</p> <p>Students will describe five ways that insects affect life (3.3.10.b).</p> <p>Students will identify two differences between millipedes and centipedes (3.3.10.b)</p> <p>Students will identify three kinds of crustaceans (3.3.10.b).</p> <p>Students will list three differences between crustaceans and insects</p> | <p>Tests.</p> <p>Oral questioning.</p> <p>Assignments.</p> | <p>Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004</p> <p>Worksheets</p> <p>Laserdisc program</p> <p>CD-ROMS</p> <p>Videos</p> <p>Lab program</p> | 3.3.10.A |



**Susquenita School District
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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|-------------------|--------------------------|------------------|
| | (3.3.10.b). Students will describe the importance of crustaceans to the ecology of the sea (3.3.10.b). | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Animal Kingdom: Fishes and amphibians

Time Line: Six Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|---|--|------------------|
| Jawless fishes and cartilaginous fishes. Bony fishes. Amphibians. | Students will list three characteristics of agnathans (3.3.10.a). Students will describe how a lamprey feeds (3.3.10.a) Students will describe how jaws are thought to have evolved (3.3.10.a). Students will contrast sharks and rays with agnathans (3.3.10.a). Students will identify three differences between bony fishes and sharks (3.3.10.b). Students will describe the importance of the swim bladder for bony fishes (3.3.10.b). Students will summarize the importance of lobe-finned fishes in the evolution of land vertebrates (3.3.10.b). Students will identify two characteristics that enable amphibians to invade land (3.3.10.b). | Tests. Oral questioning. Assignments. | Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004 Worksheets Laserdisc program CD-ROMS Videos Lab program | 3.3.10.A |



**Susquenita School District
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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|--|-------------------|--------------------------|------------------|
| | Students will describe the life cycle of a frog (3.3.10.b). Students will describe the characteristics of the three orders of living amphibians (3.3.10.b). | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Cont. of Life: Cell Reprod/Genetics/Inheritance

Time Line: Five Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|--|---|---|------------------|
| <p>The work of Gregor Mendel.</p> <p>Patterns of Inheritance.</p> <p>Human Genetic Disorders.</p> | <p>Students will outline the garden-pea experiments performed by Mendel (3.3.10.c).</p> <p>Students will explain how Mendel's approach enabled him to reach his conclusions (3.3.10.c).</p> <p>Students will define the following terms: gene, allele, dominant, recessive, homozygous, heterozygous, genotype, and phenotype (3.3.10.c).</p> <p>Students will relate Mendel's two laws of inheritance to the behavior of chromosomes during mitosis (3.3.10.c).</p> <p>Students will recognize the relationship between the laws of probability and inheritance (3.3.10.c).</p> <p>Students will use a Punnett square to predict the outcome of a cross (3.3.10.c).</p> <p>Students will describe three other factors that influence inheritance (3.3.10.c.).</p> | <p>Assignments.</p> <p>Tests.</p> <p>Oral question and answer.</p> <p>Activities.</p> | <p>Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004</p> <p>Worksheets</p> <p>Laserdisc lessons</p> <p>Lab program</p> <p>CD-ROMS</p> <p>Videos</p> | 3.3.10.C |



Susquenita School District
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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|--|-------------------|--------------------------|------------------|
| | <p>Students will explain what mutations are and how they can affect an organism (3.3.10.c).</p> <p>Students will describe the patterns of inheritance for three genetic disorders (3.3.10.c).</p> <p>Students will explain a technique used to identify people at risk of passing genetic disorders to their children (3.3.10.c).</p> <p>Students will discuss the possibilities that exist for curing genetic disorders (3.3.10.c).</p> | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Continuity of Life: Cell Reproduction

Time Line: Nine Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|--|---|---|---|------------------|
| Chromosomes. Mitosis and cell division. Meiosis. | <p>Students will define chromatin (3.3.10.c).</p> <p>Students will describe the structure of a chromosome (3.3.10.c).</p> <p>Students will distinguish between diploid and haploid cells (3.3.10.c).</p> <p>Students will explain the significance of sex chromosomes (3.3.10.c).</p> <p>Students will describe cell reproduction in bacteria and eukaryotes (3.3.10.c).</p> <p>Students will summarize the events of mitosis and cytokinesis (3.3.10.c).</p> <p>Students will define cell cycle (3.3.10.c).</p> <p>Students will describe a cell's activities during interphase (3.3.10.c).</p> <p>Students will explain how cancer arises (3.3.10.c).</p> | <p>Assignments.</p> <p>Tests.</p> <p>Oral question and answer.</p> <p>Activities.</p> | <p>Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004</p> <p>Worksheets</p> <p>Laserdisc lessons</p> <p>Lab program</p> <p>CD-ROMS</p> <p>Videos</p> | 3.3.10.C |



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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|-------------------|--------------------------|------------------|
| | <p>Students will define gamete and state its function in sexual reproduction (3.3.10.c).</p> <p>Students will explain how meiosis maintains chromosome number throughout generations (3.3.10.c).</p> <p>Students will summarize the events of meiosis (3.3.10.C).</p> <p>Students will define crossing-over, and explain it's impact on evolution (3.3.10.C).</p> | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Diversity of Life: Bacteria and Viruses

Time Line: Twelve Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|--|--|--|--|------------------|
| Bacteria. How bacteria affect humans. Viruses. | Students will draw the structure of a bacterial cell (3.3.10.a). Students will differentiate between a bacterial cell and a eukaryotic cell (3.3.10.a). Students will explain how bacteria reproduce (3.3.10.a). Students will distinguish between the diverse ways bacteria obtain nutrition (3.3.10.a). Students will describe three beneficial effects of bacteria (3.3.10.a). Students will list five human diseases caused by bacteria (3.3.10.a). Students will summarize three ways to prevent bacterial diseases (3.3.10.a). Students will evaluate the importance of antibiotics in fighting bacterial diseases (3.3.10.a). Students will draw the structure of | Assignments. Tests. Oral question and answer. Activities. | Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004 Worksheets Laserdisc lessons Lab program CD-ROMS Videos | 3.3.10.A |



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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|-------------------|--------------------------|------------------|
| | <p>a virus (3.3.10.a).</p> <p>Students will justify this statement: Viruses are not living organisms (3.3.10.a).</p> <p>Students will describe viral reproduction (3.3.10.a).</p> <p>Students will list four diseases caused by viruses (3.3.10.a).</p> | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Diversity of Life: Classifying Living Things

Time Line: Twelve Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|--|---|---|---|------------------|
| <p>The need for naming.</p> <p>Classification: Organizing Life.</p> <p>Six Kingdoms.</p> | <p>Students will explain why scientists use scientific names of common names (3.3.10.a).</p> <p>Students will describe the scientific system of naming organisms (3.3.10.a).</p> <p>Students will explain why scientific names are in Latin (3.3.10.a).</p> <p>Students will evaluate the role of Linnaeus in creating the modern system of naming organisms (3.3.10.a).</p> <p>Students will describe the system scientists use to classify organisms (3.3.10.a).</p> <p>Students will identify how the classification of a living thing reflects its evolutionary history (3.3.10.a).</p> <p>Students will distinguish between the methods of classification used by taxonomists (3.3.10.a).</p> <p>Students will define the term species (3.3.10.a).</p> | <p>Assignments.</p> <p>Tests.</p> <p>Oral question and answer.</p> <p>Activities.</p> | <p>Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004</p> <p>Worksheets</p> <p>Laserdisc lessons</p> <p>Lab program</p> <p>CD-ROMS</p> <p>Videos</p> | 3.3.10.A |



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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|-------------------|--------------------------|------------------|
| | <p>Students will discuss the weaknesses of Linnaeus's two-kingdom classification system (3.3.10.a).</p> <p>Students will differentiate between the six kingdoms of organisms (3.3.10.a).</p> <p>Students will identify two characteristics of members in each of the six kingdoms (3.3.10.a).</p> | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Diversity of Life: Fungi and Plants

Time Line: Twelve Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|--|--|--|--|------------------|
| Fungi. Early land plants. Seed plants. | Students will identify the characteristics shared by most fungi (3.3.10.a). Students will describe how fungi obtain nutrients (3.3.10.a). Students will differentiate among the four groups of fungi (3.3.10.a). Students will relate characteristics of fungi to their ecologic and economic importance (3.3.10.a). Students will describe the adaptations that enable plants to survive on land (3.3.10.a). Students will define alternation of generations (3.3.10.a). Students will distinguish nonvascular and vascular plants to their habitats (3.3.10.a). Students will relate characteristics of nonvascular and vascular plants to their habitats (3.3.10.a). Students will explain how the development of seeds enabled | Assignments. Tests. Oral question and answer. Activities. | Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004 Worksheets Laserdisc lessons Lab program CD-ROMS Videos | 3.3.10.A |



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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|--|-------------------|--------------------------|------------------|
| | <p>plants to be successful in more habitats (3.3.10.a).</p> <p>Students will summarize the process of reproduction in gymnosperms (3.3.10.a).</p> <p>Students will describe the role of flowers in the life cycle of angiosperms (3.3.10.a).</p> <p>Students will identify several important families of angiosperms (3.3.10.a).</p> | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Diversity of Life: Plant form and function

Time Line: Twelve Weeks

Big Ideas

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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|--|---|------------------|
| <p>The plant body.</p> <p>How plants function.</p> <p>Reproduction in flowering plants.</p> | <p>Students will describe the structures and functions of roots and shoots (3.3.10.a).</p> <p>Students will compare and contrast vascular tissue, ground tissue, and dermal tissue (3.3.10.a)</p> <p>Students will describe the role of meristems in plant growth (3.3.10.a).</p> <p>Students will distinguish between monocots and dicots (3.3.10.a).</p> <p>Students will describe how water and other nutrients move within xylem and phloem (3.3.10.b).</p> <p>Students will relate plant growth patterns to the action of plant hormones (3.3.10.b).</p> <p>Students will describe the ways in which a plant can respond to seasonal changes (3.3.10.b).</p> <p>Students will relate the structure of a flower to the process of sexual reproduction in flowering plants</p> | <p>Tests.</p> <p>Oral questioning.</p> <p>Assignments.</p> | <p>Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004</p> <p>Worksheets</p> <p>Laserdisc program</p> <p>CD-ROMS</p> <p>Videos</p> <p>Lab program</p> | <p>3.3.10.A</p> |



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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|-------------------|--------------------------|------------------|
| | <p>(3.3.10.b).</p> <p>Students will differentiate between the processes of pollination and fertilization in flowering plants (3.3.10.b).</p> <p>Students will relate the structure of seeds and fruits to plant dispersal (3.3.10.b).</p> <p>Students will evaluate tissue culture as a means of plant reproduction (3.3.10.b).</p> | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Diversity of Life: Plants in our lives

Time Line: Twelve Weeks

Big Ideas

Plants in our lives.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|--|---|------------------|
| <p>Uses of plants.</p> <p>Growing plants.</p> | <p>Students will describe the importance of legumes and cereal grains in the diet (3.3.10.a).</p> <p>Students will identify the foods that come from plants such as fruits, seeds, roots, stems, leaves, or flowers (3.3.10.a).</p> <p>Students will describe several uses of wood (3.3.10.a).</p> <p>Students will identify the plant sources of common medicines (3.3.10.a).</p> <p>Students will name several plants that are natural sources of fibers and rubber (3.3.10.a).</p> <p>Students will summarize the importance of soil to the growth of a plant (3.3.10.b).</p> <p>Students will justify the use of well-adapted plants for landscapes and gardens (3.3.10.b).</p> <p>Students will relate changes in the appearance of a plant to its health (3.3.10.b).</p> <p>Students will describe five</p> | <p>Tests.</p> <p>Oral questioning.</p> <p>Assignments.</p> | <p>Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004</p> <p>Worksheets</p> <p>Laserdisc program</p> <p>CD-ROMS</p> <p>Videos</p> <p>Lab program</p> | 3.3.10.A |



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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|-------------------|--------------------------|------------------|
| | methods of vegetative propagation (3.3.10.b). Students will compare and contrast traditional plant breeding with genetic engineering (3.3.10.b). | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Diversity of Life: Protists

Time Line: Twelve Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|--|---|---|--|------------------|
| What is a Protist? Protist diversity. Diseases caused by protists. | Students will identify the characteristics shared by all members of the kingdom protista (3.3.10.a) Students will describe the evolutionary relationship between bacteria and protists (3.3.10.a). Students will summarize the relationships between bacteria and protists to the other three eukaryotic kingdoms (3.3.10.a). Students will compare the variations in size, shape, and method of obtaining energy among protists (3.3.10.a). Students will evaluate the role that autotrophic protists play in ecosystems (3.3.10.a). Students will recognize the evolutionary connection between green algae and plants (3.3.10.a). Students will identify three kinds of heterotrophic protists (3.3.10.a). | Assignments. Test. Oral question and answer. Activities. | Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004 Worksheets Laserdisc lessons Lab program CD-ROMS Videos | 3.3.10.A |



**Susquenita School District
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Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Study of Life

Time Line: Nine Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|--|---|---|---|---|
| <p>Define biology and science.</p> <p>Recognize the relationships between biology and medicine, agricultural, and the environment.</p> <p>The scientific method and the development of theories.</p> <p>The six major themes of biology: cell structure and function, stability and homeostasis, heredity, evolution, interdependence, matter, energy, and organization.</p> | <p>Students will list three diseases for which scientists are seeking cures (3.3.12.b, 3.3.12.c, 3.3.12.d).</p> <p>Students will describe two environmental problems and the ways scientists are trying to solve them (3.3.12.b, 3.3.12.c, 3.3.12.d).</p> <p>Students will explain three ways you can use biological knowledge to improve your health (3.3.12.b, 3.3.12.c, 3.3.12.d).</p> <p>Students will describe the role of testing in verifying hypotheses (3.3.7.b, 3.3.7.c, 3.3.7.d).</p> <p>Students will describe the importance of controls in testing hypotheses (3.3.7.b, 3.3.7.c, 3.3.7.d).</p> <p>Students will compare the scientific definition of theory with the use of the word in everyday language (3.3.7.b, 3.3.7.c, 3.3.7.d).</p> <p>Students will list and describe the six major themes of biology</p> | <p>Assignments.</p> <p>Tests.</p> <p>Oral question and answer.</p> <p>Activities.</p> | <p>Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004</p> <p>Laserdisc lessons</p> <p>CD-ROMS</p> <p>Videos</p> <p>Worksheets</p> <p>Lab program</p> | <p>3.3.12.B</p> <p>3.3.12.C</p> <p>3.3.12.D</p> <p>3.3.7.A</p> <p>3.3.7.B</p> <p>3.3.7.C</p> <p>3.3.7.D</p> |



Susquenita School District
Course Plan
Science - Grade 10

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|--|-------------------|--------------------------|------------------|
| | (3.3.7.a, 3.3.7.b, 3.3.7.c, 3.3.7.d). Students will identify one way in which each theme relates to humans (3.3.7.a, 3.3.7.b, 3.3.7.c, 3.3.7.d). Students will relate evolution to natural selection (3.3.7.a, 3.3.7.b, 3.3.7.c, 3.3.7.d). | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Study of Life: Cells

Time Line: Nine Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|--|--|---|---|---------------------------------|
| <p>At the boundary of the cell. The cell membrane.</p> <p>Membrane architecture.</p> <p>Inside the side.</p> | <p>Students will define the function of a cell membrane (3.3.10.b).</p> <p>Students will explain why smaller cells function more efficiently than larger cells (3.3.10.b).</p> <p>Students will distinguish between polar and nonpolar molecules (3.3.10.b).</p> <p>Students will compare the interaction of water molecules with each other and with lipid molecules (3.3.10.b).</p> <p>Students will illustrate the arrangement of phospholipids in a lipid bilayer (3.3.10.b).</p> <p>Students will describe two characteristics of a lipid bilayer (3.3.10.b).</p> <p>Students will describe the functions of proteins in the cell membrane (3.3.10.b).</p> <p>Students will explain how proteins stay anchored in the cell membrane (3.3.10.b).</p> | <p>Test.</p> <p>Assignments.</p> <p>Oral questioning.</p> | <p>Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004</p> <p>Worksheets</p> <p>Laserdisc lessons</p> <p>Lab program</p> <p>CD-ROMS</p> <p>Videos</p> | <p>3.3.10.A</p> <p>3.3.10.B</p> |



Susquenita School District
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| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|--|-------------------|--------------------------|------------------|
| | <p>Students will distinguish between eukaryotic cells and prokaryotic cells (3.3.10.b).</p> <p>Students will relate the success of eukaryotes to the presence of organelles (3.3.10.b).</p> <p>Students will describe a theory that explains the evolution of eukaryotic cells (3.3.10.b).</p> <p>Students will compare three types of microscopes commonly used by biologists (3.3.10.b).</p> | | | |



**Susquenita School District
Course Plan
Science - Grade 10**

Course Name: 4420 - General Biology

Unit: Study of Life: Discovery Life

Time Line: Nine Weeks

Big Ideas

General Biology is a course designed for tenth grade business, vo-tech, FACS, and industrial arts students. The course covers characteristics and traits common to all life such as cell structure, mitosis, meiosis, genetics, and taxonomy. The course proceeds through the various life forms using a five kingdom classification system emphasizing the comparison of structures and functions in each kingdom.

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|---|--|--|----------------------------------|
| What is Life? Basic chemistry. Molecules of life. | <p>Students will explain the difficulty in defining life using only visually observable properties (3.3.10.a).</p> <p>Students will describe five properties shared by all living things (3.3.10.a).</p> <p>Students will relate the properties of all living things to the six major themes of Biology (3.3.10.a).</p> <p>Students will describe the structure of an atom (3.3.10.b).</p> <p>Students will identify the differences between atoms, elements, and molecules (3.3.10.b.)</p> <p>Students will distinguish between covalent and ionic bonds, and explain how both form (3.3.10.b).</p> <p>Students will define sugars and describe the process that occurs in the formation of polysaccharides (3.3.12.a).</p> <p>Students will describe the properties of lipids (3.3.12.a).</p> | Assignments. Tests. Oral question and answer. Activities. | Text - Biology: Exploring Life (Chameleon edition), Prentice Hall, 2004 Worksheets Laserdisc lessons Lab program CD-ROMS Videos | 3.3.10.A 3.3.10.B 3.3.12.A |



**Susquenita School District
Course Plan
Science - Grade 10**

| <u>Essential Content/ Essential Questions</u> | <u>Performance Objectives</u> | <u>Assessment</u> | <u>Teacher Resources</u> | <u>Standards</u> |
|---|--|-------------------|--------------------------|------------------|
| | <p>Students will explain the factors that affect the three-dimensional structure of proteins (3.3.12.a).</p> <p>Students will define nucleic acids, and describe their functions (3.3.12.a).</p> | | | |