

Rockingham County Public Schools

Biology Benchmarks

A Guide for Parent Involvement

1st Nine Weeks

Orientation / Scientific Method; BIO.1

- Design and conduct investigations
- Observations of living organisms in the lab and field
- Use scientific method
- Appropriate technology is used for conducting investigations
- Research using scientific literature
- Differentiation between scientific hypothesis and theory
- Scientific viewpoint is constructed and defended
- Chemicals and equipment are used safely

Biochemistry; BIO.3

- Investigate and understand biochemical principles essential to life
- Relate biochemical principles to all major taxonomic groups
- Relate biochemical principle to the working of ecosystems
- Water chemistry
- Energy flow through respiration and photosynthesis

Cells / Cell Processes; BIO.2, BIO. 4, BIO.5

- Investigate the characteristics of prokaryotic and eukaryotic organisms
- Investigate cell theory
- Investigate cell structure
- Investigate cell function
- Investigate cell division
- Germ theory

2nd Nine Weeks

Classification of Life; BIO.7

- Investigate and understand the basis of modern classification systems
- Similarities and differences of the major kingdoms
- Developmental stages in organisms
- Representative organisms of the major kingdoms
- Diversity

Microbiology; BIO.5

- Investigate and understand life functions of
- Archaeobacteria
- Eubacteria
- Protists
- Fungi
- Plants
- Animals including humans

Macrobiology; BIO.5

- Investigate and understand life functions of plants and animals comparing
- Structure
- Metabolic activities
- Responses to environment
- Maintenance of homeostasis
- Anatomy
- Organism interaction within the ecosystem

3rd Nine Weeks

Macrobiology; BIO.5

- Investigate and understand life functions of plants and animals comparing
- Structure
- Metabolic activities
- Responses to environment
- Maintenance of homeostasis
- Anatomy
- Organism interaction within the ecosystem

Meiosis / Reproductive Development; BIO.5, BIO.6

- Investigate and understand basic concepts involve with
- Formation of gametes
- Mendelian laws of heredity
- Genetic variation
- DNA, RNA, protein construction
- Embryological development of various organisms

Genetics / Evolution; BIO.8

- Examine evidence of evolution
- Fossil record
- Understand Charles Darwin and his theory of Natural Selection
- Environmental pressures
- Adaptation
- Speciation

4th Nine Weeks

Anatomy and Nutrition; BIO.5

- All major body systems
 - Compare and contrast body systems
 - Affect of nutrition on body systems

Ecology; BIO.8, BIO.9

- Investigate and understand dynamic equilibrium
 - Within populations
 - Within communities
 - Within ecosystems
- Nutrient cycling in ecosystems
- Natural and human influences on ecosystems
- Analysis of flora, fauna, and microorganisms of Virginia ecosystems

Biology SOL test