Biology Lab Series 1 – Alignment

Cells

Performance Expectations

HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Science and Engineering Practices

Developing and using models
Planning and carrying out investigations
Analyzing and interpreting data

Crosscutting Concepts

Systems and system models
Stability and Change of Systems

Mitosis

Performance Expectations

HS-LS1-1: Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

Science and Engineering Practices

Asking questions and defining problems
Developing and using Models
Analyzing and Interpreting Data
Constructing Explanations

Crosscutting Concepts

Systems and System Models

Meiosis

Performance Expectations

HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Science and Engineering Practices

Developing and using models
Planning and carrying out investigations
Analyzing and interpreting data

Crosscutting Concepts

Systems and system models
Stability and Change of Systems

Diffusion and Osmosis

Performance Expectations

HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Science and Engineering Practices

Analyzing and Interpreting Data
Constructing Explanations
Developing and Using Models
Engaging in Argument from Evidence

Crosscutting Concepts

Systems and System Models

Cellular Respiration

Performance Expectations

HS-LS1-7: Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed, resulting in a net transfer of energy.

Science and Engineering Practices

Developing and using models
Asking questions and defining problems
Planning and carrying out investigations
Analyzing and interpreting data

Crosscutting Concepts

Energy and Matter in Systems

Enzymes

Performance Expectations

HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Science and Engineering Practices

Developing and using models
Planning and carrying out investigations
Analyzing and interpreting data

Crosscutting Concepts

Systems and system models
Stability and Change of Systems

DNA

Performance Expectations

HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Science and Engineering Practices

Developing and using models
Planning and carrying out investigations
Analyzing and interpreting data

Crosscutting Concepts

Systems and system models
Stability and Change of Systems

Genetics

Performance Expectations

HS-LS3-3: Apply concepts of statistics and probability to explain the distribution of expressed traits in a population.

Science and Engineering Practices

Analyzing and interpreting data
Using mathematics and computational thinking
Obtaining, evaluating, and communicating information

Crosscutting Concepts

Scale, Proportion, and Quantity

Vitamins

Performance Expectations

HS-LS1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Science and Engineering Practices

Analyzing and interpreting data
Using mathematics and computational thinking
Engaging in argument from evidence

Crosscutting concepts

Stability and Change of Systems

Nutrition: Energy in Food

Performance Expectations

HS-LS1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Science and Engineering Practices

Analyzing and interpreting data
Using mathematics and computational thinking
Engaging in argument from evidence

Crosscutting concepts

Stability and Change of Systems