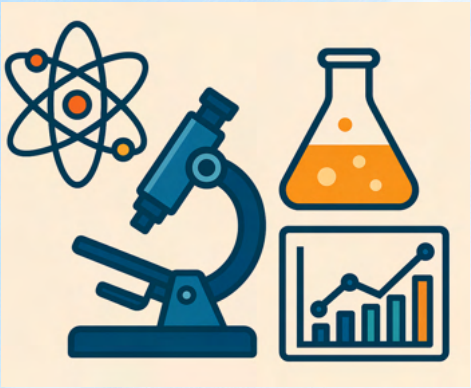
Course Title	IAA Biology

INNOVATIVE ARTS ACADEMY

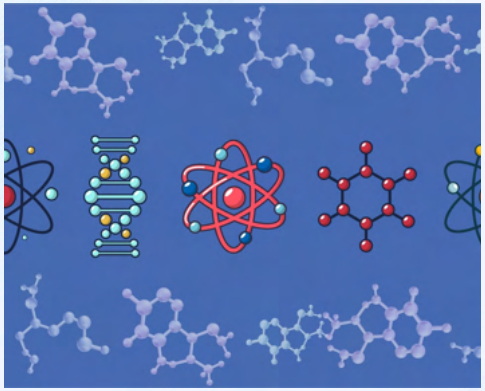
Course Overview	This class aims to provide a fundamental understanding of life, covering topics from the molecular level to ecosystems and evolution.

Unit Title	Introduction to Science	
Time Frame	4 weeks	



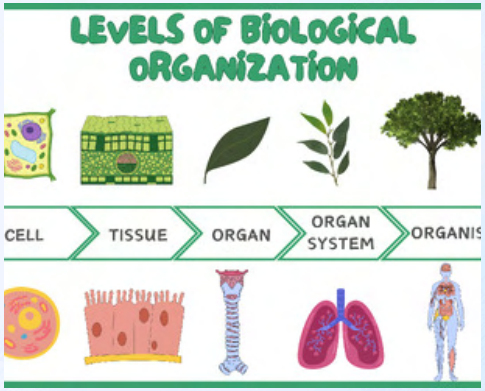
Focus of the Unit
Introduces students to the basic skills of science including the scientific method, evidence-based reasoning, scientific literacy, and building/analyzing tables and graphs.

Unit Title	Biochemistry	
Time Frame	4 weeks	



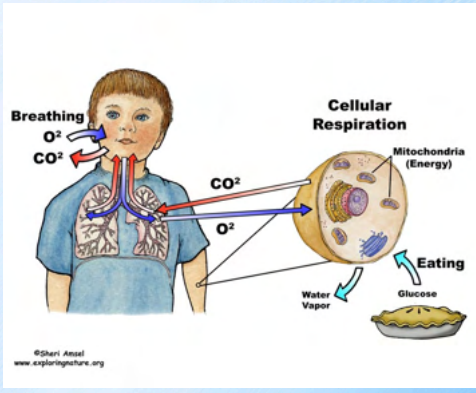
Focus of the Unit
Students will focus on the essential elements that make up all life, the four types of macromolecules, and the structure/function of enzymes.

Unit Title	Basic Biological Principles	
Time Frame	3 weeks	



Focus of the Unit
Students will learn about the characteristics of life, cell structures, multicellularity, and cell types.

Unit Title	Bioenergetics	
Time Frame	4 weeks	



Focus of the Unit
Students will learn about energy in living things, ADP and ATP cycles, cellular respiration, and photosynthesis.

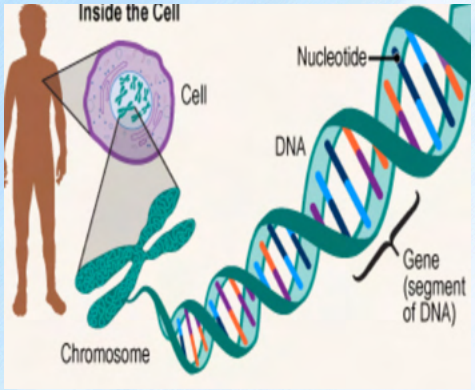
Board Approved 8/2025

Course Title	IAA Biology

INNOVATIVE ARTS ACADEMY

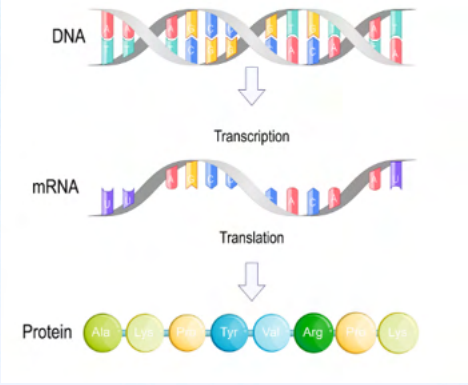
Course Overview	This class aims to provide a fundamental understanding of life, covering topics from the molecular level to ecosystems and evolution.

Unit Title	Genetics	
Time Frame	3 weeks	



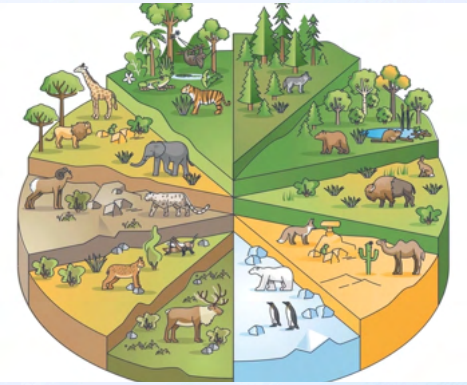
Focus of the Unit
Students will learn about DNA and inheritance patterns, the purpose of meiosis, how DNA replicates, and mutations.

Unit Title	Protein Synthesis	
Time Frame	2 weeks	



Focus of the Unit
Students will learn about the central dogma of biology (transcription and translation) and the connection between the structure and function of proteins.

Unit Title	Ecology	
Time Frame	4 weeks	



Focus of the Unit
Students will learn about basic ecology, ecosystems, biotic and abiotic factors, and disturbances to ecosystem.

Unit Title	Population Ecology	
Time Frame	4 weeks	

Focus of the Unit
Students will focus on population ecology including carrying capacity, limiting factors, and interactions.

Course Title	IAA Biology

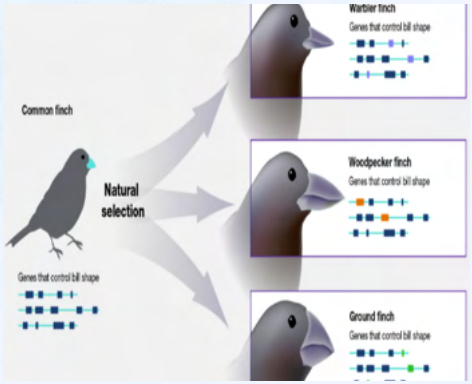
INNOVATIVE ARTS ACADEMY

Course Overview	This class aims to provide a fundamental understanding of life, covering topics from the molecular level to ecosystems and evolution.

Unit Title	
Biodiversity	
Time Frame	4 weeks

Focus of the Unit
Students will focus on factors affecting biodiversity and reducing human impacts to biodiversity.

Unit Title	
Evolution and Natural Selection	
Time Frame	4 weeks



Focus of the Unit
Students will learn about theory development, evidence of evolution, factors affecting evolution, natural selection and adaptations.

Unit Title	Introduction to Science
Time Frame	4 weeks (20 classes)

INNOVATIVE ARTS ACADEMY

Essential Question(s)

- Why is scientific literacy important?
- How are objective observations different from opinions?
- What is science?

Focus of the Unit

Introduces students to the basic skills of science including the scientific method, evidence-based reasoning, scientific literacy, and building/analyzing tables and graphs.

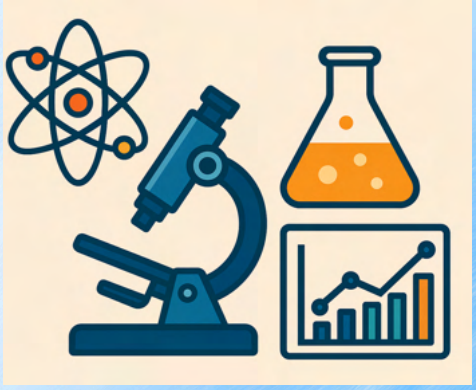
Standards	**3.4.9-12.D** Apply research and analytical skills to systematically investigate environmental issues ranging from local issues to those that are regional or global in scope.

Learning Targets

I can construct a graph or table from data collected from an experiment.

Learning Targets

I can identify evidence, interpret data, and evaluate claims.



Learning Targets

I can form a hypothesis using an “If... Then...” statement.

Learning Targets

I can make objective observations about natural events.

Resources	McGraw Hill Inspire Biology Textbook

Unit Title	Biochemistry
Time Frame	4 weeks (10 classes)

INNOVATIVE ARTS ACADEMY

Essential Question(s)

- How are sugars used to form large carbon-based molecules?
- What are the monomers of all types of macromolecules?
- How do proteins speed up chemical reactions?

Focus of the Unit

The focus of this unit is on macromolecule structure/function and the importance of enzymes.

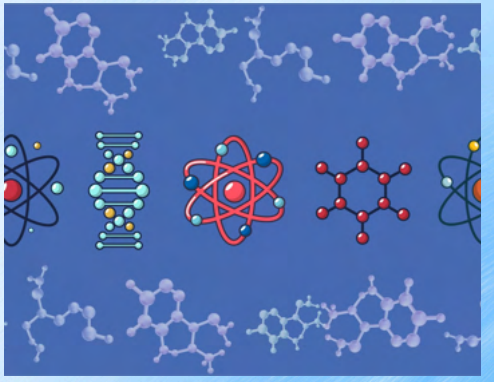
Standards	**3.1.9-12.F** Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.

Learning Targets

I can identify and match the monomer of each macromolecule to the appropriate polymer.

Learning Targets

I can recognize the basic structure of the 4 macromolecules.



Learning Targets

I can analyze the effect of enzymes on activation energy and reaction rates.

Learning Targets

I can explain examples of enzyme controlled reactions in living things.

Resources	McGraw Hill Inspire Biology Textbook

Unit Title	**Basic Biological Principles**
Time Frame	3 weeks (15 classes)

INNOVATIVE ARTS ACADEMY

Essential Question(s)

- How do we know if something is alive?
- What are the common characteristics of all living things?
- How do cell structures relate to their function sin eukaryotes and prokaryotes?

Focus of the Unit

Students will learn about the characteristics of life, cell structures, multicellularity, and cell types.

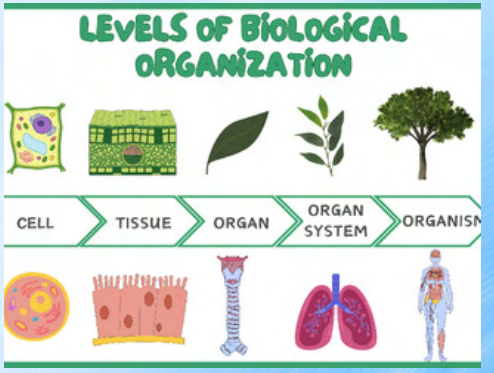
Standards	**3.1.9-12.B** Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Learning Targets

I can list the characteristics of life.

Learning Targets

I can compare and contrast prokaryotic and eukaryotic cells.



Learning Targets

I can differentiate the levels of biological organization.

Learning Targets

I can apply concepts to how organisms achieve and maintain homeostasis.

Resources	McGraw Hill Inspire Biology Textbook

Unit Title	**Bioenergetics**
Time Frame	4 weeks (15 classes)

INNOVATIVE ARTS ACADEMY

Essential Question(s)

- How do organisms obtain and use energy to carry out life's processes?
- What is the structure and function of mitochondria and chloroplast?
- How does energy transform through photosynthesis and cellular respiration?

Focus of the Unit

Students will learn about energy in living things, ADP and ATP cycles, cellular respiration, and photosynthesis.

Standards	**3.1.9-12.E** Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.

Learning Targets

I can compare and contrast cell processes in terms of chemical reactions and energy changes.

Learning Targets

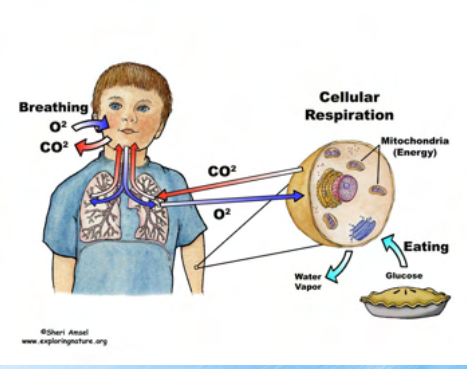
I can explain the role of ATP in cell metabolism.

Learning Targets

I can describe the relationship between photosynthesis and cellular respiration.

Learning Targets

I can explain how organisms obtain and use energy to carry out life processes.



Resources	McGraw Hill Inspire Biology Textbook

Unit Title	Genetics
Time Frame	3 weeks (15 classes)

INNOVATIVE ARTS ACADEMY

Essential Question(s)

- How do organisms pass their traits onto their offspring?
- How do cells duplicate their genetic material?
- What processes can alter genetic material?

Focus of the Unit

Students will learn about DNA and inheritance patterns, the purpose of meiosis, how DNA replicates, and mutations.

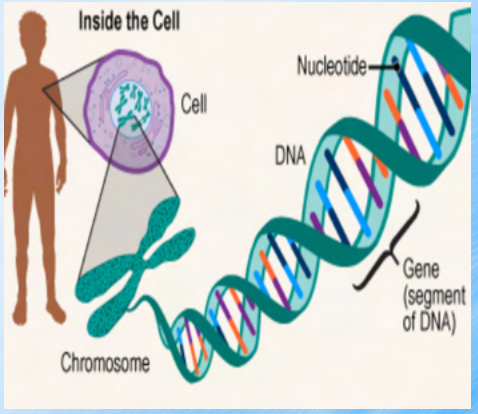
Standards	**3.1.9-12.P** Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

Learning Targets

I can summarize how genetic information is inherited and expressed.

Learning Targets

I can identify the role of DNA in inheritance of traits from parent to offspring.



Learning Targets

I can compare and contrast different types of mutations and how they affect the genetic code.

Learning Targets

I can record the basic process of DNA replication and explain the conservation of genetic material.

Resources	McGraw Hill Inspire Biology Textbook

Unit Title	Protein Synthesis
Time Frame	2 weeks (10 classes)

INNOVATIVE ARTS ACADEMY

Essential Question(s)

- How is protein synthesis a unified process?
- What is the role of the nucleus and ribosome in the production of proteins?
- How do organisms use DNA and RNA to make proteins?

Focus of the Unit

Students will learn about the central dogma of biology (transcription and translation) and the connection between the structure and function of proteins.

Standards	**3.1.9-12.A** Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

Learning Targets

I can differentiate the products of replication, transcription, and translation.

Learning Targets

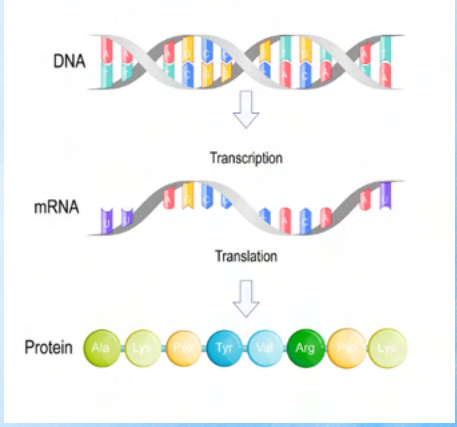
I can compare and contrast the basic processes of transcription and translation.

Learning Targets

I can identify the connection between the structure and function of proteins.

Learning Targets

I can explain the role of the nucleus and ribosome during transcription and translation.



Resources	McGraw Hill Inspire Biology Textbook

Unit Title	Ecology
Time Frame	4 weeks (15 classes)

INNOVATIVE ARTS ACADEMY

Essential Question(s)
• How are organisms impacted by nonliving components? • How are the levels of ecological organization different? • How does matter recycle through an ecosystem?

Focus of the Unit
Students will learn about basic ecology, ecosystems, biotic and abiotic factors, and disturbances to ecosystem.

Standards	**3.1.9-12.H** Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

Learning Targets
I can explain the levels of ecological organization.

Learning Targets
I can construct a model of how matter cycles through ecosystems.

Learning Targets
I can describe how organisms are affected by non-living components of an ecosystem.

Learning Targets
I can provide examples of human and natural disturbances affecting the ecosystem and the resulting changes that take place.

Resources	McGraw Hill Inspire Biology Textbook

Unit Title	**Population Ecology**
Time Frame	4 weeks (15 classes)

INNOVATIVE ARTS ACADEMY

Essential Question(s)

- What factors affect the growth of populations?
- How does carrying capacity affect population sizes?
- How do organisms interact with and depend on each other?

Focus of the Unit

Students will focus on population ecology including carrying capacity, limiting factors, and interactions.

Standards	**3.1.9-12.I** Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

Learning Targets

I can analyze relationships between habitat changes and population changes.

Learning Targets

I can measure how limiting facotrs cause organisms to become extinct.

Learning Targets

I can outline the different types of interactions between organisms in an ecosystem.

Learning Targets

I can use mathematical representations to explain factors affecting population growth.

Resources	McGraw Hill Inspire Biology Textbook

Unit Title	**Biodiversity**
Time Frame	4 weeks (10 classes)

INNOVATIVE ARTS ACADEMY

Essential Question(s)

- What is the niche of an organism?
- What factors affect biodiversity?
- How have humans impacted biodiversity?

Focus of the Unit

Students will focus on factors affecting biodiversity and reducing human impacts to biodiversity.

Standards	**3.1.9-12.N** Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity

Learning Targets

I can analyze how humans impact biodiversity of ecosystems.

Learning Targets

I can create a presentation about factors affecting biodiversity.

Learning Targets

I can design a solution to reducing the impacts of human activities to biodiversity.

Learning Targets

I can use a mathematical representation to support evidence-based explanations about factors affecting biodiversity.

Resources	McGraw Hill Inspire Biology Textbook

Unit Title	Evolution and Natural Selection
Time Frame	4 weeks (20 classes)

INNOVATIVE ARTS ACADEMY

Essential Question(s)

- How does natural selection impact populations?
- What are the factors that can contribute to speciation?
- What are the pieces of evidence supporting the theory of evolution?

Focus of the Unit

Students will learn about theory development, evidence of evolution, factors affecting evolution, natural selection and adaptations.

Standards	**3.1.9-12.S** Communicate scientific information that common ancestry and biological evolution are supported by multilpe lines of empirical evidence.

Learning Targets

I can list and compare mechanisms of biological evolution and categorize effects.

Learning Targets

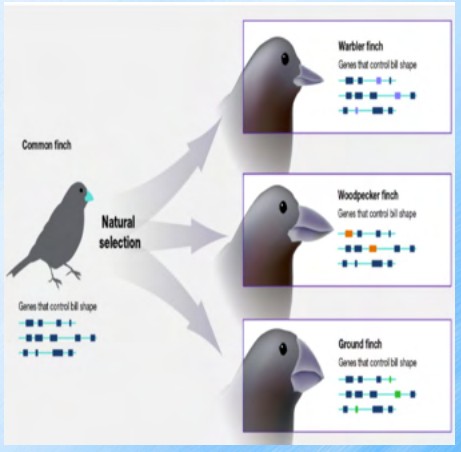
I can compare and contrast the pieces of evidence supporting the theory of evolution.

Learning Targets

I can analyze how evolution through natural selection changes biodiversity.

Learning Targets

I can infer changes in populations through environmental changes and adaptations.



Resources	McGraw Hill Inspire Biology Textbook