CASSVILLE R-IV SCHOOL DISTRICT
CURRICULUM IMPLEMENTATION GUIDE

EVALUATION PROFILE
UNIT PLAN OVERVIEW

Unit: 1. Ecosystems

Learner Objectives

1.

Characteristics and Interactions of Living Organisms and how they interact within their environment.

Lesson 1: Thinking About Ecosystems
Students set up their science notebooks, which they will use to record ideas and observations throughout the unit.
Students record and discuss their thoughts about how living things depend on each other.
Students discuss what they would like to find out about how living things depend on each other.
Students observe and discuss a riverbank environment.

Lesson 2: Setting Up the Terrarium
Students share what they know about a terrestrial environment.
Students think about the aquaria and terraria as models of environments.
Students set up the terraria.
Students make detailed records about the items they have placed in the terraria.
Students predict what will happen in their terraria in the next week.

Lesson 3: Setting Up the Aquarium
Students discuss the needs of organisms in an aquatic environment.
Students set up their aquaria by adding gravel, water, elodea, duckweed, and algae.
Students observe, quantify, and record information about the organisms they place in the aquaria.
Students read about the role of plants and algae in a pond.

Lesson 4: Adding Animals to the Aquarium
Students discuss information on aquatic plants and algae gained through observation and reading.
Students complete their aquaria by adding mosquito fish and snails.
Students continue to record their observations of the plants, algae, and animals in their aquaria and plants in their terraria.
Students read to learn more about the animals in their aquaria.

Lesson 5: Observing the Completed Aquarium
Students discuss what they have read and observed about the animals in their aquaria.
Students offer evidence of the dependent and interdependent relationships they have observed in their own ecosystems.
Students predict what changes might occur in both their own aquaria and terraria and in the class one.
Students read about germination, which they have been observing over the past week or so.

Lesson 6: Adding Animals to the Terrarium
Students continue to observe and record plant growth in the terraria.
Students make observations and record descriptions of the animals they add to their terraria.
Students identify and record similarities and differences between crickets and isopods.
Students read more about crickets and isopods.

Lesson 7: Joining the Terrarium and Aquarium
Using information form direct observations and reading, students discuss their terrestrial and aquatic ecosystems.
Students explore food chains and consider the impact organisms have on one another.
Students create a class web of their terrestrial ecosystem and compare it with Lesson 5's aquatic web.
Students discuss the webs of both systems and compare them with the world's ecosystems.
Students predict how one ecosystem might influence the other.

Lesson 8: Upsetting the Stability
Students observe, describe, and compare stable and disturbed ecocolumns.
Students become familiar with pH paper.
Students identify and discuss some natural causes the can disturb an ecosystem.
Students read and write about human-made disturbing forces, or pollution.
Students reflect on their own learning through a self-assessment.

Lesson 9: Reporting on Pollutants
Students make predictions about the three pollutants.
Students discuss trade-offs involved when humans release pollutants into the environment.
Student record important points and questions regarding each presentation.
Students read about 3 pollutants.

Lesson 10: Planning Pollution Experiments
Students discuss and analyze the causes and effects of three types of pollution.
Students plan experiments to study the effects of pollution.
Students determine variables and controls and prepare to use simulations in a scientific investigation.
Students predict the possible effects of pollutants on their model ecosystems.
Students establish a recordkeeping system for the experiments.

Lesson 11: Setting Up Our Pollution Experiments

Students test and record the pH of their ecosystems.
Students implement their pollution experiments.
Students mix and measure chemicals.
Students maintain the recordkeeping system theyestablished for their experiments.

Lesson 12: Observing Early Effects of Pollution
Students observe and record the effects pollutants have on their ecosystems.
Students observe and discuss the control ecocolumn.
Students connect the death of the producers to the viability of the consumers within the ecocolumn.
Students state reasons why plants are important in experiments and continue to develop a sense of respect towards plants.

Lesson 13: Where do the Pollutants Go?
Student teams discuss the effects of pollutants on their ecosystem and make final observations.
Student teams review the data collected from the pollution experiments.
Student teams use their data to draw and support conclusions.

Lesson 14: Drawing Conclusions about Our Experiment
Students report on their team experiments.
The class pools and analyzes its data on the effects of each pollutant.
The class draws conclusions about the effects of each pollutant.

Lesson 15: Examining a Real Environmental Problem
Students work in groups to define a problem from different points of view
Students identify possible solutions to pollution problems.
Students define the term "trade-off" and identify the trade-offs involved in specific solutions.

Lesson 16: Holding the Mini-Conference: A Look at Trade-offs
Students present an environmental problem from a particular point of view and propose solutions.
Students evaluate other groups' points of view and solutions.
Studenst examine their own lives and how they can help find solutions to some of the world's environmental problems.

Presented to students on (date) _____ _____ _____ _____ _____