Boone County 5th Grade Science Curriculum Map

Unit 1: Properties of Matter	**Duration**:
Key Essential Questions: ● In what ways can we classify objects? ● How can we prove the existence of some matter when the particles are too small to be seen?	
Transfer Goals: *Students will be able to use their learning to:* ● Understand that a standard set of units exists, which are used to measure and describe physical qualities [such as weight, length, volume, temperature, and time]. ● Use cause and effect relationships and models, which are routinely identified, tested, and used to explain changes in matter [including matter made of particles too small to be seen, like air or water vapor].	
Performance Expectation	
5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.	
5-PS1-3. Make observations and measurements to identify materials based on their properties.	
3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	
3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	
3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	
Notes:	

Unit 2: Changes in matter	**Duration**:

Key Essential Questions:

- Do certain changes in matter result in less matter, or weight?
- Does the mixing of substances create new substances?

Transfer Goals:
Students will be able to use their learning to

- Plan and carry out fair tests in which variables are controlled and the number of trials is considered to generate data to be used as evidence [to argue that regardless of the type of change in matter, the total weight is conserved].
- Identify, test, and use cause and effect relationships to explain [that mixing two or more substances results in new substances].

Performance Expectation

5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Notes:

Unit 3: Matter and Energy Transfer in Ecosystems	**Duration**:
Key Essential Questions:	

- Where does the energy for animal's food come from?
- Where do plants get what they need for growth?
- How does matter cycle through the environment?

Transfer Goals:
Students will be able to use their learning to

- Use models to describe phenomena (such as how energy is transferred) [to explain that energy in animals' food was once energy from the sun].
- Support an argument with evidence, data, or models [that plants get the materials they need for growth primarily from air and water].
- Use models to describe phenomena [such as how matter is transferred into, out of, and through systems].

Performance Expectation

5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Notes:

Unit 4: Where is the Water?	**Duration**:

Key Essential Questions:

- With so much water on Earth, why is it a scarce resource?
- How can we protect our water resources?

Transfer Goals:
Students will be able to use their learning to

- Obtain and combine information from books and/or other reliable media to explain phenomena [about where water is located throughout Earth's systems].
- Describe and graph quantities such as area and volume to address scientific questions [such as where and how much water can be found in Earth's reservoirs].
- Develop a model to represent events and design solutions [related to protecting Earth's resources and environment].

Performance Expectation

5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Notes: ESS3-1 is also included in unit five (Earth systems).

Unit 5: Earth Systems Interactions	**Duration**:

Key Essential Questions:

- How do the different Earth systems interact and affect one another?
- How can communities use Science to protect Earth's resources and environment?

Transfer Goals:
Students will be able to use their learning to

- Describe a system in terms of its components and interactions [to illustrate the relationships between Earth's geosphere, biosphere,

hydrosphere, and atmosphere]. ● Develop a model to represent events and design solutions [related to interactions in Earth's systems].
Performance Expectation
5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
Notes: ESS3-1 is also included in unit four (where is water).

Unit 6: Observable Patterns in the Earth, Sun, and Moon System	**Duration**:
Key Essential Questions: ● Do objects fall down regardless of location on Earth? ● Why are some stars brighter than others? ● Why do objects visible in the sky appear different throughout the year?	
Transfer Goals: *Students will be able to use their learning to* ● Use cause and effect patterns and relationships to support an argument [Earth's gravitational force on an object is directed downward]. ● Support an argument with evidence, data, or models [that Earth's gravity pulls an object toward the center of the Earth].	

● Support an argument with evidence, data, or models [that the apparent brightness of the Sun compared to other stars is due to their relative distances from Earth]. ● Represent data in graphical displays to reveal patterns and relationships [between the Earth's seasons and the visibility or appearance of certain stars or shadows depending upon the time of year].
Performance Expectation
5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down.
5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.
5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
Notes: