Marietta City Schools

2023–2024 District Unit Planner

Grade 5 Science

Theme	*Unit 2 Dynamics of Classification*	**Unit duration**	*7 weeks*

Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GSE Standards

Georgia Standards:
S5L1. Obtain, evaluate, and communicate information to group organisms using scientific classification procedures.
a. Develop a model that illustrates how animals are sorted into groups (vertebrate and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird, and mammal) using data from multiple sources.
b. Develop a model that illustrates how plants are sorted into groups (seed producers, non-seed producers) using data from multiple sources.

S5L2. Obtain, evaluate, and communicate information showing that some characteristics of organisms are inherited and other characteristics are acquired.
a. Ask questions to compare and contrast instincts and learned behaviors.
b. Ask questions to compare and contrast inherited and acquired physical traits. (Clarification statement: Punnett squares and genetics are taught in future grades.)

Unit Objectives:
Model classification of plants and animals.
Determine, by asking questions, the similarities and difference between inherited vs. acquired characteristics.

Unit Phenomena: **Unit Phenomena:**
Phenomena Classification: Living things may look alike but can be classified into different groups.
• Show students the pictures (teachers may add additional pictures to increase rigor) and ask them to classify the organisms into “x” number of groups (2 or 3) in a way that makes sense to them.
• Have a student share how/why they classified their organisms as they did.
• Ask the rest of the students if anyone classified their organisms into different groups and have them share.
• Introduce and ask students to define what they think the term “traits” means. This can be done through a think-pair-share. Have a few students share their definitions. • Follow-up by asking students what traits they used to classify their organisms (the teacher can list these on the board or SMART board).

• Introduce the terms “inherited” and “acquired.” Ask students whether the traits they described would be considered inherited or acquired and note this on the board.
• This discussion can be used to launch into how traits are used to classify animals into groups such as vertebrate and invertebrate, and vertebrates into fish, amphibian, bird, reptile, and mammal; and plants into seed-producers/non-seed producers, etc.

Page Keeley Probes: Click here for an introduction to Page Keeley Probes
Page Keeley probes can be used as phenomena. They are intended to elicit student understanding about science concepts. Starting a unit or lesson with a probe will help you uncover misconceptions and see what students already know about a topic. Using a probe at the beginning of a lesson and then at the end of the lesson serves the purposes of pretesting and then formatively evaluating student thinking. Below is a list of probes from Page Keeley’s book Uncovering Student Ideas in Primary Science, that are appropriate for this unit. This book has been purchased for your grade level by the Office of Academic Achievement and can be found in your media center.
• Is It an Animal? (Volume 1)
• IsIt Living? (Volume 1)
• IsIt Made of Cells? (Volume 1)
• Is It a Plant? (Volume 2)

Science & Engineering Practices:	**Disciplinary Core Ideas:**	**Crosscutting Concepts:**
• Asking questions • Developing and using models	• Grouping animals and plants by their internal and/or external structure ‘ • Inherited traits • Acquired traits	• Patterns • Stability and change • Structure and function

Misconceptions:
Insects are not animals.
All animals in the aquatic (water) environment are classified as fish.
Amphibians and reptiles are part of the same group.
Toads and frogs are the same.
Snakes are not vertebrates.
Human beings are not animals.
Mushrooms are plants.
Grass is not a plant.
Students may confuse examples of inherited traits vs. acquired traits.
Students may confuse examples of instinctive vs. learned behaviors.

Math/ELA Connections/STEM Connections
ELAGSE5RI2 Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
ELAGSE5W2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
a. Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aid comprehension.
b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.

MATH:
3. Construct viable arguments and critique the reasoning of others. In fifth grade, students may construct arguments using concrete referents, such as objects, pictures, and drawings. They explain calculations based upon models and properties of operations and rules that generate patterns. They demonstrate and explain the relationship between volume and multiplication. They refine their mathematical communication skills as they participate in mathematical discussions involving questions like “How did you get that?” and “Why is that true?” They explain their thinking to others and respond to others’ thinking.

4. Model with mathematics. Students experiment with representing problem situations in multiple ways including numbers, words (mathematical language),drawing pictures, using objects, making a chart, list, or graph, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed. Fifth graders should evaluate their results in the context of the situation and whether the results make sense. They also evaluate the utility of models to determine which models are most useful and efficient to solve problems.

STEM
Classification Systems Engineering Design Challenge – From Teach Engineering - Students are introduced to the classification of animals and animal interactions. Students also learn why engineers need to know about animals and how they use that knowledge to design technologies that help other animals and/or humans. This lesson is part of a series of six lessons in which students use their growing understanding of various environments and the engineering design process, to design and create their own model biodome ecosystems. Included is a biomimicry Engineering Design Challenge.

Discovery Education Science Techbook (Log into your DE account using your Google credentials before accessing the DE resources) You will find station rotation activities such as leveled reading passages, interactives, hands-on labs, virtual labs, video clips, and more on the Explore page of each Techbook unit.
Physical Features
Growth and Development
Learning

Discovery Education Hands-on Activities
Hands-On Activity: Comparing Traits
Hands-On Activity: Hiding in Plain Sight
Hands-On Activity: Plant Adaptations
Hands-On Lab: Habitat Hide-and-Seek
Hands-On Activity: Comparing the Physical Features of Animals

Essential Questions

Factual—

Explain the difference between vertebrates and invertebrates with examples to support reasoning.

Explain the difference between seed producers and non-seed producers examples to support reasoning.

Explain the difference between nonvascular and vascular plants with examples to support reasoning.

Inferential—

How do scientists compare and contrast instincts and learned behaviors provide evidence to support reasoning?

How do scientists compare and contrast inherited and acquired physical traits and provide evidence to support reasoning?

Critical Thinking-

Construct an argument supported by scientific evidence to identify a specific trait as being inherited vs. acquired.

Explain why insects are classified as animals and provide evidence to support reasoning.

Explain how amphibians and reptiles are classified and provide evidence to support reasoning.

Tier II Words- High Frequency Multiple Meaning	**Tier III Words-** Subject/ Content Related Words
Group, Sort, Classify, Conclude, Characteristics, Similarities, Differences, Compare, Contrast	Classification, Traits, Animal, Vertebrate, Backbone, Spine, Fish, Mammal, Bird, Reptile, Amphibian, Invertebrate, Plant, Deciduous, Coniferous, Seed Producers, Non-Seed Producers, Flowering, Non-Flowering, Inherited, Acquired, Instinct, Instinctive, Learned Behavior

Assessments

You will find all Unit Summative Assessments in the AMP 5th Grade Science Assessment Team group.

Objective or Content	Learning Experiences	Differentiation Considerations
CLE 1-3: S5L1. Obtain, evaluate, and communicate information to group organisms using scientific classification procedures. S5L2. Obtain, evaluate, and communicate information showing that some characteristics of organisms are inherited, and other characteristics are acquired.	GaDOE Fifth Grade Instructional Segment for Traits, Behaviors, and Classification This instructional segment provides the foundation for scientific classification and sets the stage for deeper analysis of the inherited traits that allow scientists to classify organisms. Students will gain information about instincts, learned behaviors, inherited traits, and acquired physical traits.	Student Choice Performance Tasks Reflection and Goal Setting Learning Stations Choice Boards Formative Probes Science Journaling Multi-sensory activities Assistive Technology Flexible Grouping Multiple Means of Representation
Recommended High Quality Complex Text By Lexile Band		
Animals and Insects Invertebrates and Vertebrates by Z. Enriquez Tree of Life, The Incredible Biodiversity of Life on Earth by Rochelle Strauss Who is King? The Five Kingdom Biological Classification by Baby Professor The Animal Book: A Visual Encyclopedia of Life on Earth by David Burnie The Five Kingdom System | Biological Classification by Baby Professor Tooth by Tooth Comparing Fangs, Tusks, and Chompers by Sara Levine		