**Subject area/course**: Science

**Grade level/band**: 4th

**Task source**: New Hampshire Task Bank; Author: Samantha Gesel

**Feature Creatures: Exploring Structures and Functions**

**TEACHER'S GUIDE**

1. **Task overview**:

*Students will design a Feature Creature that highlights the importance of Structures/ Behaviors and Function for animal survival:*

Every organism has a unique set of traits that allow it to survive in its unique habitat. These traits are known as adaptations. Sometimes, a habitat can be threatened and damaged by human activities, such as developing cities and using natural resources. When habitats are destroyed, where can organisms go to find an ideal home where they are well-adapted to live? What adaptations are necessary to live in different habitats? Students will use understanding of animal structures and behaviors to create a Feature Creature that would have a high chance of survival in a chosen habitat. Tasks will include researching the common structures and behaviors of real animals in the habitat, synthesizing this information through planning a Feature Creature, drawing and labeling a diagram of their Feature Creature, and presenting their final products. Students will construct an argument that plants and animals have structures and behaviors that function to support survival.

1. **Aligned standards:**
2. **Primary Common Core State Standards**

**[CCSS.ELA-LITERACY.W.4.7](http://www.corestandards.org/ELA-Literacy/W/4/7/)**. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

**[CCSS.ELA-LITERACY.W.4.8](http://www.corestandards.org/ELA-Literacy/W/4/8/)**. Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.

**[CCSS.ELA-LITERACY.W.4.9](http://www.corestandards.org/ELA-Literacy/W/4/9/).** Draw evidence from literary or informational texts to support analysis, reflection, and research.

1. **Next Generation Science Standards (NGSS)**

**NGSS: 4-LS1-1**. To construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

1. **Critical abilities**

*Research*: Conduct sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow or broaden the inquiry when appropriate, and demonstrate understanding of the subject under investigation. Gather relevant information from multiple authoritative print and digital sources, use advanced searches effectively, and assess the strengths and limitations of each source in terms of the specific task, purpose, and audience.

*Analysis of Information*: Integrate and synthesize multiple sources of information (e.g., texts, experiments, simulations) presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to address a question, make informed decisions, understand a process, phenomenon, or concept, and solve problems while evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

*Communication in Many Forms:* Use oral and written communication skills to learn, evaluate, and express ideas for a range of tasks, purposes, and audiences. Develop and strengthen writing as needed by planning, revising, editing, and rewriting while considering the audience.

1. **Other standards**

*New Hampshire Competencies* *(adapted from the NGSS Cross-Cutting Concepts for the NH K-12 Model Science Competencies)*

**Structure and Function**. Students will demonstrate the ability to use evidence to support claims about the relationship among structure and function of natural and human designed objects.

**Nature of Science**. Students will demonstrate the ability to work collaboratively and individually to generate testable questions or define problems, plan and conduct investigations, using a variety of research methods in various settings, analyze and interpret data, reason with evidence to construct explanations in light of existing theory and previous research, and effectively communicate the research processes and conclusions.

1. **Time/schedule requirements:**

This task can be completed in about six 45-minute long sessions, depending on scheduling.

1. **Materials/resources:**
* Word Wall Words
* Science Anchor Charts
* Websites/Books about habitats and animals that live in them
* Student Task Sheet: Feature Creature Project
* Student Research and Planning Packet
* Student Report Pages (3 pages)
* Feature Creature Rubric
* Computers or Devices (for research)
* Habitat books (for research)
* Pencil
* Coloring Items
1. **Prior knowledge:**

Before the introduction to this performance task, students should learn about adaptations (what are they, what are specific structures and behaviors animals have) and function of those adaptations (why they are important and how they support survival). Students should also have completed investigations that examine structures and function, including investigations that explore the texture of pollinators’ bodies and the shape of birds’ beaks. Additionally, students will have had lessons related to researching effectively and efficiently. They also will have had opportunities to refine their skills as communicators, verbally and in written form.

*Possible formative assessments:*

Before the task is given, students should be secure in the skills of identifying animal structures and functions. Students could take an Adaptation quiz to provide evidence of this understanding.

1. **Connection to curriculum:**

This Performance Assessment was designed to take place at the end of a Structure and Function science unit (one quarter long).

1. **Teacher instructions:**

**Introductory Procedure**

* Ensure that previous instruction on structures and functions has been covered and students are familiar with the science concepts of structure and function.
* Distribute materials to students and provide accommodations as outlined in student IEPs.

**Day 1-2: Research.** Introduce the performance task. Review the packets and steps to completing the performance task. Answer any questions. Students will select their habitats of choice at this time. They will begin their research of this habitats and animals who live in it, using the research page to supporting their understanding of common structures and the function of those structures, including how they support the animal’s survival in their habitat.

**Day 3: Planning.** Students will use their information from their research to make choices about structures and behaviors that their Feature Creature will have that will help it survive in its habitat. Encourage students to find new ways to provide the needs of organisms. The work should be creatively based on real organisms (extinct or current). Students will use the Planning Page and the questions from the Task directions to help support them as they plan their Feature Creature. Students will revise the design of their creature based on teacher or peer feedback.

**Day 4-5: Drafting And Final Draft Work.** Students use the information from their research and planning days to create their Feature Creature. Students will select a name for their Feature Creature and complete the final draft project page write ups. These final draft pages include: a labeled, colored diagram of their animal, synthesized information about its habitat (with illustration), descriptors of important structures and behaviors of their Feature Creature, and a constructed response about how those structures and behaviors support survival in a given habitat. Students will revise the final product of their creature based on teacher or peer feedback.

1. **Student support:**
* Text to Speech Software for research
* Speech to Text Software for writing
* Extended Time
* Sentence starters and paragraph frames
* Word banks

The task is broken down into steps, to support 4th graders’ developing executive functioning skills. Through observations and formative assessments of student work through each step, teachers will be able to adjust instruction to match student need.

1. **Extensions or variations:**

None provided.

1. **Scoring:**

Student work can be scored using the Feature Creature rubric.