NGSS Unit Planning with UbD

Teacher Name: 4th Grade Team **Date: 2-22-16**

School Site: E. Hale Curran **Unit: Plant and Animal Structures and Survival- Module 3- Model Building**

NGSS Covered:

4-LS1-1- Construct an argument that plays and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

4-LS1-2- Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

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

Crosscutting Concept: Systems and System Models- A system can be described in terms of its components and their interactions.

Disciplinary Core Ideas: Structure and Function- Plants and animals have both external and internal structures that help that serve various functions in growth, survival, behavior, and reproduction.

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CCSS ELA Covered:

RI.4.1- Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

RI.4.4-Determine the meaning of general academic and domain specific words or phrases in a text relevant to a grade 4 topic or subject area.

RI.4.10- By the end of the year, read and comprehend informational texts, including historical/social studies, science, and technical texts in the grades 4-5 text complexity band proficiently with scaffolding as needed at the high end of the range.

RF.4.3- Know and apply grade-level phonics and word analysis skills in decoding words.

W.4.2-Write informative /explanatory text to examine a topic and convey ideas and information clearly

CCSS Mathematics Covered:

4.MD.1- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

4.MD.3- Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

4.MD.6- Measure angles in whole number degrees using a protractor. Sketch angles of specified measure.

4.G.A.3- Recognize a line of symmetry for a two dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts.

Note: This module will take approximately 2 weeks

Understanding by Design NGSS Unit Plan

Stage 1: Desired Results

Understand	**Essential Question(s)**
The survival of living things is dependent upon their adaptations and ability to respond to natural changes and human influences in their environment.	How do animals detect, process, and use information about the environment?

Stage 2: Evidence/Assess

Know	**Do**
Animals use different methods to sense danger and different ways of responding to that danger. Students will see how animals use their senses and internal and external structures to help them defend and protect themselves in their habitat.	Students will create an imaginary animal using the materials provided. The animal will need to have a way of sensing and responding to danger. Students must provide a drawing of their imaginary animal. The drawing must include labels that identify how their imaginary animal senses danger and how it will respond to that danger. Students create a 3D model of their imaginary animal and the habitat it lives in.

Stage 3: Learning Plan

How

Engage: Students will write down the essential question and have a discussion in their teams about that question. They will then do the Linking Literacy activity in STEMscopes (Expand) with their team. Teams can fill out the vocabulary table as they read the STEMscopedia. After reading they can do the Draw and Explain activity.

Explore: Students will review the research they had conducted about their zoo habitat. Students will then work on creating animals that could live in their habitat. These animals must have the internal and external structures that will help it survive in that habitat as well as help it protect itself and perceive danger. Students must create a drawing of the animal including the name of the animal, label it's parts (internal and external), and how it senses and responds to danger. A recommendation is that each student create their own animal while working within the team. Each animal will be different in how it looks but will have those characteristics that will help it survive. As teams, students will then figure out how they want to create their habitat. A recommendation is to have teams create a drawing on large paper as their backdrop for the habitat including the plants, climate and terrain. Teams could also build habitats if time permits.

Explain: Students will then write an informative/explanatory paper that explains their animal. It must include their rationale for the internal and external parts as well as how it senses and responds to danger. These papers should be typed and will be included in the final presentation. During the elaborate section, teams will be getting feedback so there may be revisions to this paper and/or habitats and animals during the evaluation process.

Elaborate: When students are done with their animals and habitat, they will do a "stay or stray" activity. On member from each team will be the expert for the team and "stay". The rest of the members will "stray" to the other teams. This activity is done in a rotation. Allow 10 to 12 minutes for each rotation. The member that stays will explain their teams habitat and animals and explain the structures that helps it survive as well as perceive and respond to danger. Teams that are straying can question other team's expert and give feedback and comments. Suggestion: Teams should travel with stickies and/or notebooks. As the expert is talking about the animals and habitat the other teams' members can be writing down questions, feedback, and comments they have for that team's project. These can then be given to that team expert. There can also be discussion as well but the stickies will help in the revision process. When the rotation is done the teams that strayed will explain what they saw to the one who stayed. This is why it is important for teams to travel with something to record their ideas and questions.

Evaluate: Teams can then revise their habitats and animals if they choose too. Allow time for this process. Teams should also be given the rubric for their project and should be checking the rubric frequently to make sure they have all parts. Some form of presentation is recommended. Suggestions: Have a New Species Habitat Day and invite other classes to come and view. One team can videotape another team and vice versa give their habitat presentation and then it can be made into an iMovie.

Stage 4: Transfer

Knowledge Transfer

Crosscutting Concept- Systems and System Models- Students will recognize that plants and animals have systems in place to help them survive. Students will start to recognize other systems in their everyday lives. What systems are in place at school, at home? They will recognize these systems are there to help keep human beings safe.