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| Author(s): Michael Lucky Voiselle | | | Lesson Title: DESIGN A HABITAT | | | |
| Grade Span | | | ICLE Application Model | | | |
| K-4 | 5-8 XX | 9-12 XX | A | B | C | D XX |

Instructional Focus:

Reading

Students read a variety of grade level materials, applying strategies appropriate to various situations

Writing

Students write for a variety of purposes and audiences with sophistication and complexity appropriate to the grade level.

Science as Inquiry

Students demonstrate knowledge and skills necessary to perform scientific inquiry.

Communication

Students communicate and apply scientific concepts.

Performance Task

Your task is to design an artificial habitat for a zoo to house a particular aquatic animal. Your purpose is to recognize and appreciate the complex life requirements for aquatic wildlife. Your habitat must occupy enough space to satisfy the basic life-giving conditions of food, shelter, air, and water. Keep in mind that in aquatic habitats water is a uniquely sensitive part of the habitat and must serve to do far more than quench a thirst. Even the slightest changes in salinity, pH, dissolved oxygen and pollutants can spell disaster for certain aquatic organisms.

Form groups of 4 and determine by a unanimous decision which of the following animals your group will design a habitat. (Trout, Shark, Goldfish, Sea Otter, Sturgeon, Large-mouth Bass, Water Strider, Beaver, Diving Beetle, Sea Turtle, Alligator, Siamese Fighting Fish, Frog, Oyster, or any other Aquatic animal if you seek instructor approval.)

Each group will be expected to research using any resources available to you to determine the life requirements of that creature, and the characteristics of the natural habitat of that animal including their mating procedures, protection requirements and position in the food chain. Each student must summarize all research in a well-written paper, free from spelling and grammatical errors, and in their best handwriting.

Each team of students is to design and build a model or small replica of a zoo exhibit or aquarium habitat suitable for their animal's survival and comfort in captivity. Establish a scale for the exhibits, i.e. 1 inch=5 feet for large animals, or actual size for insects. You may use gallon jugs, aquariums, plastic trays, dirt, water, small plants, clay, and your imagination to construct the models.

Once the models are complete, each team must present their research and their habitat to the rest of the class a well-organized oral presentation. Divide your information in such a manner that each group member has a 3-5 minute portion of the presentation. You may use posters, pictures, videos, as well as your habitat in the presentation. A key component to the presentation is to address how your habitat meets the total needs of your selected animal.

Each student is to prepare a second paper summarizing the information delivered in the oral presentations. This summary must also be well written, in their best handwriting, and free from spelling and grammatical errors. This summary must include the food, water, shelter, space requirements, breeding habits, animal protection measures, natural predators, and their position in the food chain.

ICLE Essential Skills

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| Apply in writing the rules and conventions of grammar, usage, punctuation, paragraphing and spelling. (ela1) |
| Present information in well-organized fashion that will be clear to the target audience. (ela11) |
| Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report. (ela3) |
| Use brainstorming, role playing, and standard problem solving strategies to define a problem and suggest solutions. (ela19) |
| Know and apply the principles of scientific inquiry. (<i>Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures.</i>) (Not Ranked s 114) |
| Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems. (Not Ranked s115) |
| Make observations using senses and instruments. Inferences and interpretations are arrived at based on observations. Classify observable properties and organize observations in a meaningful and logical way. (s5) |
| Understand the human impact on the environment through pollution (air, water, and soil), and ways to improve it through education, research, laws, and conservation. (s10) |
| Understand ecology as the study of the interactions and relationships of organisms with their living and nonliving environments (i.e., the ecosystem, communities, and populations). (s13) |
| Know the survival requirements of animals and plants and the history and implications of population growth. (s40) |

Scoring Guide:

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| RATE CRITERIA: 3=Excellent, 2=Satisfactory, 1=Unsatisfactory, 0=Does not attempt or does not understand | |
| CRITERIA | SCORE |
| Group work and experimental procedure | _____ |
| First summary addressed all needs of the chosen aquatic animal | _____ |
| First summary well written, in their best handwriting and free from spelling and grammatical errors | _____ |
| Model was well constructed, exhibited a neat appearance, and provided for their chosen animal's needs | _____ |
| Student was able to establish a scale and acquired materials for the habitat independently | _____ |
| Student oral presentation was well organized and contributed to overall group performance | _____ |
| Second summary demonstrated an understanding for aquatic ecosystems and requirements for longevity | _____ |
| Second summary was well written, in their best handwriting and free from spelling and grammatical errors | _____ |

Keywords

| English Language Arts | Mathematics | Science |
|--|-------------|---|
| Reading Research Comprehension | Algebra | Earth Science Community Environment Models/Construction Nature Team Work |
| Writing Grammar Spelling Organization Expository | Geometry | Life Science Ecology Ecosystem, Environment Food Chain Scientific Inquiry |
| Communications Oral Presentation | Statistics | Chemistry |