Marine Science Institute: Kindergarten Inland Voyage, Marine Mammals

(***Themes:*** *Human Impact, Food Web, Adaptations*)

K-LS1 From Molecules to Organisms: Structures and Processes

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

SEP Use observations to describe patterns in the natural world in order to answer scientific questions.

- Students discuss marine mammal characteristics (patterns) (e.g. hair, production of milk, live birth, warm-blooded, breathes air through lungs).
- Students discuss where marine mammals live in the ocean.
- Students observe marine mammal adaptations and discuss how they help them to survive in their habitat. (Theme: **Adaptations**)

LS1.C All animals need food in order to live and grow. They obtain food from plants or from other animals. Plants need water and light to live and grow.

- Students discuss marine mammal characteristics (patterns) (e.g. hair, production of milk, liver birth, warm-blooded, breathe air through lungs).
- Students play a "whale feeding strategy" game that helps them observe the process of different feeding strategies (e.g. Baleen whales feed on plankton and small benthic organisms demonstrated by combs (baleen) and floating parsley (plankton)). (Theme: **Food Web**)

CCC Patterns in the natural and human designed world can be observed as used as evidence.

- Students observe patterns in the needs of living things.
- Students observe patterns in animal behavior.
- Students observe physical patterns in marine mammals using pictures and artifacts (eyes, ears, mouth, etc.)
- Students observe marine mammal adaptations and discuss how they help them to survive in their habitat. (Theme: **Adaptations**)

K-ESS3 Earth and Human Activity

K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

SEP Ask questions based on observations to find more information about the designed world.

- Students observe the ocean and bay habitats using a poster.
- Students observe animal shape, color, size, texture etc. using pictures, artifacts, and dress-up.
- Students discuss what larger animals live in the bay and ocean.
- Students play a "whale feeding strategy" game that helps them observe the process of different feeding strategies (e.g. Baleen whales feed on plankton and small benthic organisms demonstrated by combs (baleen) and floating parsley (plankton)). (Theme: **Food Web**)
- Students observe marine mammal adaptations and discuss how they help them to survive in their habitat. (Theme: **Adaptations**)

SEP Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions. Use a model to represent relationships in the natural world.

- Students observe/discuss a poster representing the bay and ocean habitats.
- Students dress up as a marine mammal and discuss how mammals are able to survive in an aquatic habitat. (Theme: **Adaptations**)
- Students play a "whale feeding strategy" game that helps them observe the process of different feeding strategies (e.g. Baleen whales feed on plankton and small benthic organisms demonstrated by combs (baleen) and floating parsley (plankton)). (Theme: **Food Web**)

ESS3.A Natural Resources**:** Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.

- Students dress up as a marine mammal and discuss how mammals are able to survive in an aquatic habitat. (Theme: **Adaptations**)
- Students observe physical patterns in marine mammals using pictures and artifacts (eyes, ears, mouth, etc.)
- Students discuss and experience the vibrations of echolocation.
- Students discuss marine mammal characteristics (patterns). (e.g. hair, production of milk, liver birth, warm-blooded, breathe air through lungs.)
- Students play a "whale feeding strategy" game that helps them observe the process of different feeding strategies (e.g. Baleen whales feed on plankton and small benthic organisms demonstrated by combs (baleen) and floating parsley (plankton)). (Theme: **Food Web**)

ETS1.A Defining and Delimiting an Engineering Problem: Asking questions, making observations, and gathering information are helpful in thinking about problems.

- Students ask questions about marine mammals and their habitats.
- Students are asked questions about marine mammals and their habitats.
- Students learn to inquire about what they see by making observations and asking questions.

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CCC Systems in the natural and designed world have parts that work together.

- Students observe feeding strategies of whales.
- Students observe and discuss the ocean and bay habitats using a poster.
- Students feel what the cold water of the ocean feels like using a blubber glove activity.
- Students dress up as a marine mammal and discuss how mammals are able to survive in an aquatic habitat. (Theme: **Adaptations**)
- Students play a "whale feeding strategy" game that helps them observe the process of different feeding strategies (e.g. Baleen whales feed on plankton and small benthic organisms demonstrated by combs (baleen) and floating parsley (plankton)). (Theme: **Food Web**)

CCC People encounter questions about the natural world every day.

- Students ask questions about marine mammals and their habitats.
- Students are asked questions about marine mammals and their habitats.
- Students learn to inquire about what they see by making observations and asking questions

K-2 Engineering Design

K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

SEP Ask questions based on observations to find more information about the natural and/or designed world(s).

- Students ask questions about marine mammals and their habitats.
- Students are asked questions about marine mammals and their habitats.
- Students learn to inquire about what they see by making observations and asking questions

ETS1.A Defining and Delimiting Engineering Problems: Asking questions, making observations, and gathering information are helpful in thinking about problems.

- Students observe a poster depicting the San Francisco Bay (system) and discuss how mammals are able to survive in this habitat.
- Students dress up as a marine mammal and discuss how mammals are able to survive in an aquatic habitat. (Theme: **Adaptations**)
- Students ask questions about marine mammals and their habitats.
- Students are asked questions marine mammals.
- Students learn to inquire about what they see by making observations and asking questions.

CCC Structure and Function: The shape and stability of structures of natural and designed objects are related to their function(s).

- Students dress up as a marine mammal and discuss how mammals are able to survive in an aquatic habitat. (Theme: **Adaptations**)
- Students play a "whale feeding strategy" game that helps them observe the process of different feeding strategies (e.g. Baleen whales feed on plankton and small benthic organisms demonstrated by combs (baleen) and floating parsley (plankton)). (Theme: **Food Web**)