Marine Science Institute: Kindergarten Inland Voyage, Fish

(***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 observe bay fishes moving.
- Students observe fish shape, color, size, texture etc.

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 what each fish consumes to survive. (Theme: **Food Web**)
- Students observe the different mouths and bodies of fishes.

CC 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 both animals and humans (eyes, ears, mouth, etc).

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.

K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

SEP Ask questions based on observations to find more information about the designed world.
- Students observe fishes moving. Questions include: How do animals move? What are the adaptations of the organisms? How do those adaptations help the animals survive?
- Students observe fish shape, color, size, texture etc.
- Students observe fish and shark adaptations, and discuss how these adaptations help them survive in the San Francisco Bay. (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.
- Students observe a poster depicting the San Francisco Bay Estuary and its components.

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 observe animals living in the water and discuss how they survive in their habitat.
- Students observe fish and shark adaptations, and discuss how these adaptations help them survive in the San Francisco Bay (ex: how they find prey, camouflage, etc). (Theme: **Adaptations**)

ESS3.C Human Impacts on Earth Systems: Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things.

- Students discuss pollution in the Estuary (trash in the water). (Theme: **Human Impact**)
- Students discuss stresses on fish populations (example: humans overfishing). (Theme: **Human Impact**)
- Students discuss what they can do to help animals and their habitats.

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 fishes.
- Students are asked questions about fishes in the Estuary.
- Students learn to inquire about what they see by making observations and asking questions.

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

- Students observe a food web system by studying fishes. (Theme: **Food Web**)
- Students observe/discuss the Estuary ecosystem (sun, depth, water, animals, etc).
- Students observe fish and shark adaptations, and discuss how these adaptations help them survive in the San Francisco Bay. (Theme: **Adaptations**)

CCC People encounter questions about the natural world every day.

- Students ask questions about the Estuary and the fishes that live in it.
- Students are asked questions about Estuary and the fishes that live in it.
- 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 fishes.
- Students are asked questions about fishes.
- 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 posters depicting the Estuary (system) and fishes and discuss how fishes survive in their habitat.
- Students observe fish and shark adaptations, and discuss how these adaptations help them survive in the San Francisco Bay. (Theme: **Adaptations**)
- Students ask questions about fishes.
- Students are asked questions about fishes.
- 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 observe a poster depicting the San Francisco Bay Estuary (system) and discuss what affects the habitat.
- Students observe fish and shark adaptations, and discuss how these adaptations help them survive in the San Francisco Bay. (Theme: **Adaptations**)

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