

## SWALLOW SCHOOL DISTRICT CURRICULUM GUIDE

Curriculum Area: **Science**

Course Length: Full Year

Grade: **1st**

Date Last Approved: June 2015

### Stage 1: Desired Results

#### **Course Description and Purpose:**

In first grade science, we will be studying four units. In the first unit, Earth and the Universe, students will study the impact of Earth's placement in the solar system. In the second unit, Heredity, students will study how patterns of heredity can be explained. In the third unit, Molecules to Organisms, students will study how plants' and animals' needs impact their growth and survival as well as how plants and animals communicate their needs. In the fourth unit, Waves and their Applications, students will study the causes and effects of vibration as well as the value of a light source.

#### **Enduring Understanding(s):**

1. Vibration is moving something out of the state of equilibrium. Sound can make matter vibrate, and vibrating matter can make sound. Sound is a form of energy. Sound moves from one location to another, through a medium.
2. Environmental influences impact an organism's survival.
3. Needs of living things are communicated in a variety of modes.
4. Patterns of heredity can be used to predict traits.
5. Earth's placement within the solar system effects system cycles.

#### **Essential Question(s):**

1. What are the causes and effects of vibration?
2. What is the value of a light source?
3. How do plants' and animals' needs impact their growth and survival?
4. How do plants and animals communicate their needs?
5. How can patterns of heredity be explained?
6. What is the impact of Earth's placement in the solar system?

#### **Learning Targets:**

1. Students can conduct investigations and use the scientific process (skill)
3. Students can organize and communicate information (skill)
4. Students can recognize the relationship between structure and function (Reasoning)
6. Students can explain a model (skill)
7. Students can support a claim with evidence (Reasoning)

## Stage 2: Learning Plan

### I. Waves and their Applications

A. Sound Waves and Vibration

B. Light Waves

C. Light and Sound Waves for Communication

**Standards:** 1-PS4-1, 1-PS4-2, 1-PS4-3, 1-PS4-4

**Learning Targets Addressed:** Target 1

**Assessment Map:**

Type	Level	Assessment Detail
Practice	knowledge	<ul style="list-style-type: none"> <li>Demonstrate how sound can make matter vibrate. Vibrating matter can make sound.</li> </ul>
Formative	skill	<ul style="list-style-type: none"> <li>Students can conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light.</li> </ul>
Summative	skill	<ul style="list-style-type: none"> <li>Students can conduct an investigation to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.</li> </ul>

### II. Molecules to Organisms (Animal Behaviors)

A. Plant and animal Mimicry for survival

B. Animal Behavior for Survival

C. Growth and Development of organisms

D. Animal Information Processing for Survival

**Standards:** 1-LS1-1, 1-LS1-2

**Learning Targets Addressed:** Target 1, Target 3, Target 4

**Assessment Map:**

Type	Level	Assessment Detail
Practice	knowledge	<ul style="list-style-type: none"> <li>Organisms have basic needs. Animals and plants need air, water, and food. Plants also require light. Plants and animals use food as a source of energy and as a source of building material for growth and repair.</li> </ul>
Formative	skill	<ul style="list-style-type: none"> <li>Students can describe the life cycle of animals including the following stages: egg, young, adult; egg, larva, pupa, adult.</li> <li>Students can make observations of plants and animals, using drawing and writing.</li> </ul>
Summative	Reasoning	<ul style="list-style-type: none"> <li>Students can design and build a habitat that provides for the needs of plants and animals.</li> </ul>

### III. Heredity

A. Inheritance of Traits

B. Variation of Traits

**Standards:** 1-LS3-1

**Learning Targets Addressed:** Target 4, Target 7

**Assessment Map:**

Type	Level	Assessment Detail
Practice	knowledge	<ul style="list-style-type: none"><li>• Observe that an organism will have the same major features as its parents.</li><li>• Identify characteristics (for example: body coverings, beak shape, number of legs, body parts) that are passed on from parents to young.</li><li>• Compare young plants and animals to their parents.</li></ul>
Formative	knowledge	<ul style="list-style-type: none"><li>• Have students match up adult animals to their babies,.</li></ul>
Summative	Reasoning	<ul style="list-style-type: none"><li>• Have students match up cards of children to parents,</li></ul>

### IV. Earth and the Universe

A. Earth and the Solar System

B. The Universe and its Stars

**Standards:** 1-ESS-1. 1-ES1-2

**Learning Targets Addressed:** Target 6

**Assessment Map:**

Type	Level	Assessment Detail
Practice	knowledge	<ul style="list-style-type: none"><li>• Patterns can be caused by cause and effect relationships</li><li>• Observe that patterns of the motion of the sun, the moon and the stars in the sky can be observed, described, predicted and explained with models.</li></ul>
Formative	skill	<ul style="list-style-type: none"><li>• Students describe the following patterns: Day/Night, Seasons, Moon Phases, Shadows</li><li>• Students observe and record the apparent path of the sun in the daytime sky</li><li>• Students observe and compare shadows at different times of day</li></ul>
Summative	skill	<ul style="list-style-type: none"><li>• Students use a model of the Earth-sun-moon system to describe the patterns of lunar</li></ul>

		phases, eclipses of the sun and moon, and seasons.
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