SWALLOW SCHOOL DISTRICT CURRICULUM GUIDE	
Curriculum Area: Science	**Course Length**: Full Year
Grade: 1st Grade	**Date Last Approved:** **Reviewed:**

Stage 1: Desired Results

Course Description and Purpose:

In first-grade science, there are four units. Students study Full Option Science Systems (FOSS) and Project Lead the Way Units (PLTW). In the first Foss unit, *Sound and Light*, students will study how sound and light can be used to communicate over long distances. In the Animated Storytelling unit, students will learn how to write instructions for a computer to follow and create their own animated story. In the *Animal Adaptations* unit, students will identify the unique adaptations animals have for survival in various environments. In the *Air and Weather* unit, students will experience air as a material that takes up space and can be compressed into a smaller space. Observe the force of air pressure pushing on objects and materials and describe changes that occur in weather over time. Become familiar with instruments used by meteorologists to monitor air and weather conditions. Compare and contrast monthly and seasonal weather conditions using bar graphs. Observe the location of the Sun and the Moon in the sky over a day and the change in the appearance of the Moon over a month.

Enduring Understanding(s):

1. Vibrating materials make sound, and sound can make materials vibrate.
2. Objects can be seen only if they reflect light or give off their own light.
3. People control computers by giving the computer instructions.
4. Computers follow directions exactly as directed, so instructions must be given step by step.
5. Living organisms have special structures and behave in certain ways to help them survive in their environment.
6. The design process is a step by step method used to guide people in developing solutions to problems.

Essential Question(s):

1. What are the causes and effects of vibration?
2. What is the value of a light source?
3. How do I write a set of statements that will provide the computer step by step directions for displaying a story?
4. How do plants and animals adapt to their environments?
5. How do plants' and animals' needs impact their growth and survival?

Learning Targets:

1. Students can apply the scientific process to evaluate investigations or the design process to create design solutions to solve a problem. (Skill/Product)
2. Students can organize and communicate information. (Skill)
3. Students can develop and interpret models. (Skill/Product)
4. Students can support a claim with evidence. (Skill/Product/Reasoning)

Stage 2: Learning Plan

I. Sound and Light

A. Sound Waves and Vibration
B. Light Waves
C. Light and Sound Waves for Communication

Standards Referenced:
Next Generation Science Standards:
1-PS4-1,1-PS4-2, 1-PS4-3, 1-PS4-4, K-2-ETS1-1, K-2-ETS1-2, K-2-ETS1-3

Learning Targets Addressed: 1, 2, 3, 4, 6

Key Resources Used:

- FOSS
- Launch

Assessment Map:

Type	Level	Assessment Detail
Practice	Knowledge	• Conduct investigations to determine how vibrating matter can make sound. • Conduct investigations to determine how light can be used to create shadows.
Formative	Skills/ Reasoning	• Demonstrate how changes in pitch and volume are caused. • Demonstrate the effect of placing objects made with different materials in the path of a beam of light.
Summative	Product	• Create a model using sound or light to communicate over a distance.

II. Animated Storytelling

A. Parts of a Computer Program
B. Computer Program Writing
C. Animated Stories

Standards Referenced:
Computer Science Standards:
1A-AP-10, 1A-AP-11, 1A-AP-12, 1A-AP-14, 1A-AP-15

Learning Targets Addressed: 2, 5

Key Resources Used:

- Launch

Assessment Map:

Type	Level	Assessment Detail
Practice	Knowledge	• Organize a program that successfully navigates a person through a game board maze.
Formative	Skills/ Reasoning	• Program characters to move on the screen to visually represent the programmer's instructions. • Build a successful animation to represent one scene from a story.
Summative	Product	• Create a working animation that has at least two main characters and two different pages.

III. Animal Adaptations

A. Adaptations for Protection
B Adaptations for Movement
C. Adaptations for Food
C. Adaptations Needed in Different Environments

Standards Referenced:
Next Generation Science Standards:
1-LS1-1, LS1.A, LS1.B D, K-2-ETS1-1, K-2-ETS1-2, ETS1.A, ETS1.B, ETS1.C

Learning Targets Addressed: 2, 3, 4, 5

Key Resources Used:

- Launch

Assessment Map:

Type	Level	Assessment Detail
Practice	Knowledge	• Classify adaptations for camouflage, protection, food, or locomotion.
Formative	Skills/ Reasoning	• Demonstrate which animal adaptations are best suited for various environments.
Summative	Product	• Create a poster for a traveler to a new environment, including necessary adaptations for the traveler. • Create a shoe for a traveler to wear in a new environment, including necessary adaptations.

IV. Air and Weather

A. Plants
B. Animal Habitats

Standards Referenced:
Next Generation Science Standards:
2.E.1 Understand patterns of weather and factors that affect weather. 2.E.1.1 Summarize how energy from the sun serves as a source of light that warms the land, air, and water. 2.E.1.2 Summarize weather, 2.E.1.3 Compare weather patterns that occur over time and relate observable patterns to time of day and time of year. 2.E.1.4 Recognize the tools scientists use for observing, recording, and predicting weather changes from day to day and during the seasons conditions using qualitative and quantitative measures to describe, 3.P.2 Understand the structure and properties of matter before and after they undergo a change.* 3.P.2.1 Recognize that air is a substance that surrounds us, takes up space, and has mass. 3.P.2.2 Compare solids, liquids, and gases based on their basic properties. 1.E.1 Recognize the features and patterns of the earth/moon/sun system as observed from Earth.** 1.E.1.1 Recognize differences in the features of the day and night sky and the apparent movement of objects across the sky as observed from Earth. 1.E.1.2 Recognize patterns of observable changes in the Moon's appearance from day to day.

Learning Targets Addressed: 1, 2, 3, 4

Key Resources Used:

- Launch
- FOSS

Assessment Map:

Type	Level	Assessment Detail
Practice	Knowledge	• What is air? Is there air in the vial? How do you know? Where do the bubbles come from? How are these clouds alike? Different? What makes clouds move?How can we tell if it is going to rain? How do we measure how much rain has fallen? • Where in the sky do you see the sun in the morning? At noon? In the afternoon?
Formative	Skills/ Reasoning	• How can you tell when air is in a bag or another container? What did you find out about air?
Summative	Product	• Use anecdotal observations and journal entries to assess student knowledge. Have students make generalizations at the end of seasons that will help them recognize patterns in the weather and the need to monitor weather as a profession.