

SWALLOW SCHOOL DISTRICT CURRICULUM GUIDE

Curriculum Area: Science

Course Length: Full Year

Grade: 6th Grade

Date Last Approved: March 15, 2018; **Reviewed:** Spring 2021

Stage 1: Desired Results

Unit 1 - Physical Science - *Can I Believe My Eyes?* Light, its role in sight and its interaction with matter. This includes how light moves through space, what happens when it meets objects and materials, how our eyes detect light, how colors of light can be perceived to be different than what they really are, and nonvisible light.

Unit 2 - Chemistry - *How Can I Smell Things from a Distance?* The particle nature of matter. This includes investigating the structure and properties of matter, and developing models of air and using the models to describe and explain characteristics of gases. Students are introduced to elements, atoms, and molecules and that different substances can be distinguished by the differences in their properties. Students will also use the particle model to explain states of matter and phase changes.

Unit 3 - Life Science - *Where Have all the Creatures Gone?* Organisms and ecosystems. This includes organisms' needs for survival and what happens when those needs are not met. Students discover why food is important, how different structures are needed by organisms to eat and reproduce, what the relationships are between organisms, and what abiotic factors affect ecosystems.

Unit 4 - Earth Science - *How Does Water Shape Our World?* Water and rock cycles. This includes investigating how water interacts with rock to make shapes (landforms), movement of water between reservoirs (the water cycle). Also included is weathering, erosion, and deposition caused by water and how different types of rock are formed and eroded over time (the rock cycle).

Enduring Understanding(s):

1. A simple wave has a repeating pattern with a specific wavelength, frequency and amplitude.
2. When waves interact with matter, they can be reflected, transmitted, absorbed or a combination of these. Waves that are transmitted can be refracted.
3. Waves can be absorbed.
4. Matter is anything that has mass and volume.
5. All matter is made of atoms.
6. In order to smell any substance, part of the substance must turn to gas, join with air, and reach the nose.
7. Food provides energy and building materials for the body.
8. Organisms are affected by the biotic and abiotic factors in the environment.
9. Organisms interact with one another both positively and negatively.
10. Energy is transferred from one organism to another.
11. The water cycle.
12. Water interacts with rock to shape our landscape.

Essential Question(s):

- Unit 1: Physical Science: Light
- A} How does light allow me to see?
 - B} What happens when light reaches an object?
 - C} How can light have different colors?
 - D} Is there light I cannot see?
- Unit 2: Chemistry: Smell
- a} How does an odor get from the source to my nose?
 - b} What makes one odor different from another?
 - c} How can a material change so you can smell it?
- Unit 3 Life Science: ecosystems
- a} What can cause populations to change?
 - b} What is food for living things?
 - c} How do living things get food from other organisms?
 - d} How do organisms compete?
 - e} Do abiotic factors affect populations?
- Unit 4 Earth Science: water
- a} How is the land shaped differently?
 - b} How does water move (through our parks)?
 - c} How does moving water affect the land?
 - d} What is the role of rock in creating shapes?

Learning Targets:

1. Students can plan, implement and evaluate investigations utilizing the scientific process. (Skill/Reasoning)
2. Students can apply mathematics and computational thinking. (Skill)
3. Students can assess the relationship between structure and function. (Skill/Reasoning)
4. Students can assess key issues in nonfiction texts. (Skill/Reasoning)
5. Students can develop and analyze models. (Skill/Reasoning)
6. Students can analyze scientific issues and communicate and support their claims with evidence. (Reasoning)

Stage 2: Learning Plan**I. Unit 1 Physical Science: Light**

- A. How does light allow me to see?
How is the eye like a light sensor?
- B. Scattering, transmission, and absorption of light.
- C. How can light have different colors?
- D. Is there light I cannot see? Infrared and ultraviolet light and the electromagnetic spectrum

Standards Referenced: Each activity is tied to relevant:

- NGSS standards
- Disciplinary core ideas
- Science & Engineering practices
- Crosscutting concepts

Learning Targets Addressed: All 6**Key Unit Resources:**

- IQWST Science program from Activate Learning
- IXL Science

Assessment Map:

Type	Level	Assessment Detail
Practice	Knowledge	<ul style="list-style-type: none"> • Lab implementation and write-ups • applying math and computational thinking • assessing the relationship between form and function • analyzing and assessing key issues in nonfiction science text • creating and analyzing 2D, 3D, and digital models • analyzing scientific issues in the Claim, Evidence, Reasoning (CER) format.
Formative	Skills/Reasoning	<ul style="list-style-type: none"> • Lab implementation and write-ups • applying math and computational thinking • assessing the relationship between form and function • analyzing and assessing key issues in nonfiction science text • creating and analyzing 2D, 3D, and digital models • analyzing scientific issues in the Claim, Evidence, Reasoning (CER) format • Exit tickets • responses in the online science book • written & digital assessments.

	Summative	Product	<ul style="list-style-type: none"> • Lab implementation and write-ups • applying math and computational thinking • assessing the relationship between form and function • analyzing and assessing key issues in nonfiction science text • creating and analyzing 2D, 3D, and digital models • analyzing scientific issues in the Claim, Evidence, Reasoning (CER) format • Responses in the online science book • written & digital assessments.
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II. Unit 2 Chemistry: Smell

A. How does an odor get from the source to my nose?

B. What makes one odor different from another?

C. How can a material change so you can smell it?

Standards Referenced: Each activity is tied to relevant:

- NGSS standards
- Disciplinary core ideas
- Science & Engineering practices
- Crosscutting concepts

Learning Targets Addressed: All 6

Key Unit Resources:

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III. Unit 3: Ecosystems

A. What can cause populations to change?
 B. What is food for living things?
 C. How do living things get food from other organisms?
 D. How do organisms compete?
 E. Do abiotic factors affect populations?

Standards Referenced: Each activity is tied to relevant:

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Learning Targets Addressed: All 6

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IV. Unit 4: Earth Science: Water

A. How is the land shaped differently?
 B. How does water move (through our parks)?
 C. How does moving water affect the land?
 D. What is the role of rock in creating shapes?

Standards Referenced: Each activity is tied to relevant:

- NGSS standards
- Disciplinary core ideas
- Science & Engineering practices
- Crosscutting concepts

Learning Targets Addressed: All 6

Key Unit Resources:

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