SENSATIONAL SENSES

YEAR-ROUND • K TO 2ND GRADE • 2 HOURS

Essential Question

How do organisms detect, process, and use information about the environment?

NGSS Disciplinary Core Idea

1-LS1.D: Information Processing. Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.

Learning Objective

By the end of the field trip, K through 2nd grade students will understand that animals have body parts that capture and convey different kinds of information needed for growth and survival.

Overall Assessment:

When students are given an opportunity to explore how an animal's structures enable it to capture and convey different types of information, they will be able to sort different structures into groups that reflect the type of information being processed by that structure.

Curriculum Overview

Thank you for choosing Tryon Creek State Natural Area for your field trip! This program outline can be used to give you an idea of what sorts of things your students will be doing during their field trip. **Please note that times are flexible and not all student groups will do every hike activity listed here –** our volunteer Nature Guides will be incorporating activities into their routine throughout their hike, but we encourage our educators to let the interests of the group guide their instruction, taking advantage of teachable moments and letting students ask questions that they would like to investigate.

This outline has been written to align with the Next Generation Science Standards (NGSS), which were developed based on the National Research Council's Framework for K-12 Science Education, published in 2012. The Oregon Department of Education adopted the NGSS in 2014 and each district has developed a 5-year implementation plan. To the left you can review the specific Disciplinary Core Idea (based on the Kindergarten to 2nd grade band) that is addressed in this program, as well as specific Performance Expectations for each grade level below. In addition, each activity on the following pages highlights specific Science and Engineering Practices that students may use during their field trip.

NGSS Performance Expectations supported by this curriculum:

Learn more about how our programs support your curriculum goals.

Kindergarten

K-LS1-1

First Grade (LS1-A, LS1-D)

1-LS1-1

Second Grade

2LS4-1

Some vocabulary/concepts that may be used during this field trip includes:

- Data
- Eyesight
- Hearing
- Observation
- Senses
- Smell
- Taste
- Touch

Revised by Friends of Tryon Creek on 8/17/2018

FRIENDS OF TRYON CREEK

SENSATIONAL SENSES

YEAR-ROUND • K TO 2ND GRADE • 2 HOURS

Introduction - Jackson Shelter - 10 minutes

Welcome to Tryon Creek State Natural area! Chaperones will be invited to meet with a Nature Guide to discuss their role on the field trip, while students have some important questions to answer about their day:

Why are we all here in the forest together today?

- Hiking
- Learning
- Finding animals (or evidence of animals!)

Let them know that we will indeed be doing all of those things, with the goal of answering this question:

How do animals use smell, sight, touch, and hearing to gather information about the world around them?

Give logistical information (groups will be starting or ending with an activity in the classroom and will be hiking for about an hour and 15 to 20 minutes). Make sure to bring your layers and go before you go!

Observational Techniques Activity - Nature Classroom - 20 minutes

Practicing Senses

Guiding Question: What kinds of information can we get by smelling, touching, or hearing?

Content Goal: As animals, we use our senses to get a lot of information about the world around us. As scientists, we use that information to describe phenomena in the world around us.

Activity Procedure

1. Students divide into groups with Nature Guides on classroom carpets.
2. Students remind each other which senses they might use to learn about things. As they come up with each, segway to the following activities:
    - Touch: Students feel a rabbit pelt – *what words would you use to describe what you feel?*
    - Smell: Students smell a container with cedar oil in it – *what words would you use to describe what you smell?*
    - Hearing: Students listen to different bird calls – *what words would you use to describe what you hear? What do you think these birds are saying?*
3. Scientists use their senses to make observations that describe the world around them – that's how we learn about the Earth and its processes!
4. Encourage students to think of describing words when they are on the hike.
    - *What kinds of information can they learn while out on the trails?*
    - *Do you think animals also use their senses to learn about the world around them?*

Science and Engineering Practices Applied

4. Analyzing and Interpreting Data
    - *Use observations to describe patterns in the natural world in order to answer scientific questions.*

Hike Activities - Tryon Creek Trails - 1 hour & 20 minutes

Ants on Guard

Guiding Question: what is an example of how animals use smell to get information about their environment?

Content Goal: Different species have different solutions for solving problems like identifying members of their group.

Activity Procedure

1. Students gather as a group at an open spot on the trail.
    a. *How do we tell each-other apart? Which sense(s) do we use?*
    b. *Do you think all animals use those same cues to recognize each other?*
2. Guides show students a picture of an ant colony
    a. *Does each individual ant look as different as we do?*
    b. *What senses might an ant use to tell if another ant is friendly or not?*
3. Give each student a container with a cotton ball in it. Each container should have one of two scents (peppermint or lemon) dropped onto the cotton ball.
4. Choose two students to be "Guards", one for the lemon colony and one for peppermint. They will each be in charge of a colony, checking the workers as they return home.
5. All students work to sort themselves into the two colonies based on the smell of their container. Guards will only let in ants that have the same smell as they do!
    a. *What other animals might use scent like this?*
    b. *How else could ants identify each other?*

Science and Engineering Practices Applied

6. Constructing explanations
    - *Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.*

Sit Spots

Guiding Question: What senses do *we* use to make observations about the things around us?

Content Goal: scientists often start with making observations to generate questions about the world around them.

Activity Procedure

1. Each student to find a place to sit or stand along the trail where they can face the forest with a good amount of space between them and the other students.
2. Students are given 2 minutes to silently observe their surroundings, taking note of things they observed.
    a. *What do you see? Hear? Smell?*
    b. *What questions do you have about your observations? What makes you curious?*
    c. *How would you answer this question?*
3. Encourage students to try out different senses: closing their eyes, using "deer ears", taking deep breaths, etc.
4. Experiment by doing this activity in a few different places during the hike.
    a. *What differences did students observe in each location?*

Science and Engineering Practices Applied

3. Planning and Carrying Out Investigations
    - Evaluate different ways of observing and/or measuring a phenomenon to determine which way can answer a question.

Leaf Buddies

Guiding Question: How do we use touch, sight, and smell when observing a leaf?

Content Goal: Plants that play similar roles in the forest ecosystem will have similar leaf characteristics in terms of color, texture, and smell.

Activity Procedure

1. Each student gets a different laminated leaf to carry throughout the hike.
2. As each student identifies their leaf, they are asked to explore a few things:
    a. What does your leaf feel like?
    b. Where is it growing on the plant?
    c. How big is it compared to other leaves?
    d. Does it hang like a shelf or a poster? (Straight out or drooping?)
3. Students are asked to compare their leaves, making observations about similarities and differences between them.
    a. How important is being in the bright sun for your plant?
    b. Does your plant need a lot of space to grow?

Science and Engineering Practices Applied

6. Constructing explanations
    - *Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.*

Flower Power (spring)

Guiding Question: what is an example of how animals use sight to get information about their environment?

Content Goal: Bright flowers of all colors help plants catch the eye of pollinators **Note this activity works best in the spring when there are flowers blooming*

Activity Procedure

1. Students are given a small laminated piece of colored paper.
    a. *How many times can you find your color on this stretch of trail?*
2. Give students a few minutes to identify different places they see their color.
    a. *What types of structures were brightly colored?* (usually flowers)
    b. *How might a plant benefit from having bright colored flowers?*
        i. Did anyone see another living thing visiting those flowers?
3. Discuss the function of pollinators in plant reproduction: plants that use brightly colored leaves and strong smells can attract more pollinators!

Science and Engineering Practices Applied

6. Constructing explanations
    - *Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.*

General Observations and Teachable Moments

Guiding Question: Can we make predictions about how different living things gather information about the world around them?

Content Goal: All plants and animals have external parts that tell us about how they gather information about their environments.

Activity Procedure

1. As different plants, animals, or evidence of different animals are found along the trail, students make observations about their physical characteristics or behavior. Students use visual aids such as pelts, skulls, preserved leaves, or pictures to investigate these characteristics.
    a. *What does this What does an animal's eyes/ears/nose/mouth tell us about how it gathers information from it's environment? Which sense is most important to this animal?*
    b. *How do plants gather information about their environments? How do they use that information?*
    c. *Would this plant be able to survive in the desert? On top of a mountain? Why or why not?*

Science and Engineering Practices Applied

6. Constructing explanations
   - *Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.*

Goodbye - Jackson Shelter - 10 minutes

Thank students for coming and make sure they are aware that they just spent the day in a state park, which means it belongs to everyone, and everyone is invited back anytime! Friends of Tryon Creek is a community supported non-profit whose mission, in partnership with the Oregon Parks and Recreation Department, is to nurture and inspire relationships with nature in our unique urban forest. Providing field trips is just one way that we work towards this mission, so checkout our website for information about our fun Nature Day Camps offered throughout the year, weekend family and adult programs, special events, and more!

Remind students that even if they never make it back to Tryon Creek, they can still be exploring nature, asking questions, and learning about how animals gather information about their habitats.

Invite adults to checkout promotional materials before leaving and turn things over to classroom teachers for bus/lunch instructions.

Back at School (Optional)

Kindergarten (K-LS1-1)

Use observations to describe patterns of what plants and animals need to survive.

- Provide pictures or models of different animals from habitats across the world to sort into different categories based on the structures they use to sense information (big ears, big eyes, complex noses, etc.)

First Grade (1-LS1-1)

Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

- Provide paired pictures of items that humans use to sense (telescope, microphone, etc.) and pictures of different animal parts (large eyes, big ears) and ask students to match functions.

Second Grade (2-LS4-1)

Make observations of plants and animals to compare the diversity of life in different habitats.

- Tour the schoolyard or a nearby park to make observations of urban habitats and compare to findings at Tryon Creek

FRIENDS OF TRYON CREEK

EARLY CHILDHOOD PROGRAMS:

SENSATIONAL SENSES

YEAR-ROUND • 3 TO 5 YEARS OLD • 1.5 HOURS

Essential Question

How do organisms detect, process, and use information about the environment?

NGSS Disciplinary Core Idea

LS1.D: Information Processing. Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.

Learning Objective

By the end of the field trip, 3 to 5 year old students will understand that animals have body parts that capture and convey different kinds of information needed for growth and survival.

Overall Assessment:

When students are given an opportunity to explore how an animal's structures enable it to capture and convey different types of information, they will be able to sort different structures into groups that reflect the type of information being processed by that structure.

Curriculum Overview

Thank you for choosing Tryon Creek State Natural Area for your field trip! This program outline can be used to give you an idea of what sorts of things your students will be doing during their field trip. **Please note that times are flexible and not all student groups will do every hike activity listed here –** our volunteer Nature Guides will be incorporating activities into their routine throughout their hike, but we encourage our educators to let the interests of the group guide their instruction, taking advantage of teachable moments and letting students ask questions that they would like to investigate.

Our suite of Early Childhood programs are designed to build comfort in nature while setting students up to be ready to engage in science learning as they prepare to enter Kindergarten. This includes incorporation with the Next Generation Science Standards (NGSS), developed based on the National Research Council's Framework for K-12 Science Education that was published in 2012. The Oregon Department of Education adopted the NGSS in 2014 and each district has developed a 5-year implementation plan. To the left you can review the specific Disciplinary Core Idea for Kindergarten that is addressed in this program, as well as the specific Performance Expectation below.

NGSS Performance Expectations supported by this curriculum:

Learn more about how our programs support your curriculum goals.

Kindergarten

K-LS1-1: *Use observations to describe patterns of what plants and animals need to survive.*

Some vocabulary/concepts that may be used during this field trip includes:

- Data/Information
- Eyesight
- Hearing
- Observation
- Science
- Senses
- Smell
- Taste
- Touch

Revised by Friends of Tryon Creek on 8/17/2018

Introduction - Jackson Shelter - 5 minutes

Welcome to Tryon Creek State Natural area! Students will be welcomed to the park and invited to sit with their peers on the carpet to answer a very important question:

Why are we all here in the forest together today?

- Hiking
- Learning
- Finding animals (or evidence of animals!)

Let them know that we will indeed be doing all of those things, with the goal of answering this question:

How do animals use smell, sight, touch, and hearing to gather information about the world around them?

Give logistical information (groups will be starting or ending with an activity in the classroom and will be hiking for about an hour). Make sure to bring your layers and go before you go!

Observational Techniques Activity - Nature Classroom - 20 minutes

Practicing Senses

Guiding Question: What kinds of information can we get by smelling, touching, or hearing?

Content Goal: As animals, we use our senses to get a lot of information about the world around us. As scientists, we use that information to describe phenomena in the world around us.

Activity Procedure

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3. Scientists use their senses to make observations that describe the world around them – that's how we learn about the Earth and its processes!
4. Encourage students to think of describing words when they are on the hike.
    - *What kinds of information can they learn while out on the trails?*
    - *Do you think animals also use their senses to learn about the world around them?*

Hike Activities - Tryon Creek Trails - 1 hour

Leaf Buddies

Guiding Question: How do we use touch, sight, and smell when observing a leaf?

Content Goal: Plants that play similar roles in the forest ecosystem will have similar leaf characteristics in terms of color, texture, and smell.

Activity Procedure

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Back at School (Optional)

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