

## ? GUIDING QUESTION

How do the trees near your school (or home) look different throughout the year?

## GRADES K-2

## ADOPT A TREE

### PRACTICES

#### PLANNING AND CARRYING OUT INVESTIGATIONS

Students investigate changes in a tree over time. They may also develop their own questions to investigate further.

#### ANALYZING AND INTERPRETING DATA

Students record information about their tree and use it to describe patterns and/or relationships with other organisms. They also use the information they recorded to compare events at different times throughout the observation period.

### CONCEPTS

#### PATTERNS

Students record seasonal patterns of their tree's growth and other changes in their journals.

#### CAUSE AND EFFECT

As students record observations of seasonal changes or the interactions of other organisms with the tree, they can use this information to predict changes in the tree and their causes.

#### NATURAL RESOURCES

Students learn that trees are living things and provide resources that humans need.

#### INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS

Students learn that trees need water and light to grow.

### SCIENCE AND ENGINEERING PRACTICES

#### Planning and Carrying Out Investigations

Make observations (firsthand) to collect data that can be used to make comparisons.

#### Analyzing and Interpreting Data

Use observations to describe patterns and/or relationships in the natural and designed worlds in order to answer scientific questions and solve problems.

### DISCIPLINARY CORE IDEAS

#### 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.

#### PERFORMANCE EXPECTATION

**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.

#### LS2.A: Interdependent Relationships in Ecosystems

Plants depend on water and light to grow.

#### PERFORMANCE EXPECTATION

**2-LS2-1.** Plan and conduct an investigation to determine if plants need sunlight and water to grow.

*Note: Keep in mind that no single activity can fully meet a Performance Expectation.*

### CROSSCUTTING CONCEPTS

#### Patterns

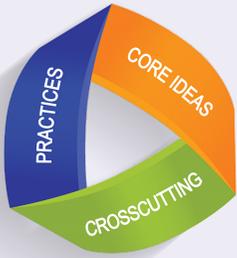
Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.

#### Cause and Effect

Events have causes that generate observable patterns.



# NGSS CORRELATION



## ? GUIDING QUESTION: GROUNDED IN PHENOMENA

Phenomenon-based instruction is directly connected to students' homes, communities, and cultures, thus making teaching and learning more diverse, inclusive, and relevant. PLT identifies Guiding Questions that drive phenomenon-based, three-dimensional learning for each of the 50 Explore Your Environment K-8 Activity Guide activities.

## CONNECTING PLT'S EXPLORE YOUR ENVIRONMENT K-8 ACTIVITY GUIDE TO NGSS

### IN THE ACTIVITY

The left hand column details where science connections can be found in the PLT activity.

### PRACTICES

**ENGAGING IN THE PRACTICES OF SCIENCE** helps students understand how scientific knowledge develops. Students gain skill in the wide range of approaches that are used to investigate, model, and explain the world.

### CONCEPTS

**THESE CORE IDEAS HAVE BROAD IMPORTANCE** across science disciplines, providing tools for understanding or investigating complex ideas and solving problems, and can be taught at progressive levels of depth and complexity.

Project Learning Tree is committed to supporting educators in providing instruction that helps students meet science education standards.

The Next Generation Science Standards (NGSS) define what students should know or be able to do at the end of instruction. To demonstrate learning, NGSS identifies Performance Expectations (PEs) that may be used to assess a student's knowledge and proficiency. To meet benchmarks, students engage in the three dimensions of science— Science & Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts—to explain a phenomenon or design a solution.

Activities in the *Explore Your Environment K-8 Activity Guide* provide students opportunities to explore the three dimensions of science to build knowledge and understanding. In addition, activities offer phenomenon-based learning, which involves exploring the real world through learner-centered, multidisciplinary investigations that promote inquiry and problem solving.

The NGSS Correlation pages for each activity include a guiding question, science connections found in the activity, and explicit NGSS correlations. Activities are organized around the three dimensions of science, making it useful for educators even if their state has not adopted NGSS.

### FROM NGSS

The right hand column identifies correlations to specific NGSS standards, including references to the relevant PE for focus on the grade level band.

#### SCIENCE AND ENGINEERING PRACTICES

The practices are what students do to make sense of phenomena and reflect how scientists and engineers investigate the world and design solutions.

#### DISCIPLINARY CORE IDEAS

These foundational ideas of science are grouped into four domains: physical sciences; life sciences; Earth and space sciences; and engineering, technology and applications of science.

#### CROSSCUTTING CONCEPTS

These concepts hold true across the natural and engineered world. Students use them to make connections across disciplines, connect to prior experiences, and engage with material in other dimensions.

