

Trees

In the Trees unit, students will examine the functions of different tree structures and compare these structures to other trees. They will observe and compare the properties and basic needs of trees. The course of study will last throughout the school year as students investigate the seasonal changes related to trees.

Unit Length: 3-4 lessons per quarter (October, February, April, June)

Resources: FOSS Trees Module
FOSS Trees Science Stories
Science Discovery, *The Seasons of Arnold's Apple Tree*

Essential Questions: What are the identifiable structures of trees and what are the functions of these structures?
What are the basic needs of trees?
How do trees serve as resources for humans and other animals?
How do trees change through the seasons?

NJCCCS:

Science Content (Declarative Conceptual Knowledge)	NJCCCS
Students Will Know and Understand:	
Trees have identifiable structures that serve different functions	5.3.2.E.2
Trees are a resource to people and other animals	5.3.2.C.1
Trees are growing, living organisms	5.3.P.A.1
Trees have basic needs, including water, light, and nutrients from soil	5.3.P.C.1
Trees are identifiable by their shapes	5.3.P.A.1-2
Leaves have identifiable structures	5.3.2.E.2
Leaf shapes can be compared to geometric shapes	5.3.P.A.1-2
Leaves can be identified by their shapes	5.3.P.A.1-2
Leaves have properties that can be compared	5.3.2.E.2
Trees change through the seasons	5.3.2.D.2

Thinking Processes (Procedural Knowledge)	NJCCCS
NJCCCS 5.1 A-D	
Students Will Be Able To:	
Observe trees in the schoolyard	5.1.P.A-D
Compare trees for similarities and differences	5.1.P.A-D
Communicate observations of trees	5.1.P.A-D 5.3.2.D.2,
Observe size, shape, texture, and color of tree leaves	5.1.P.A-D
Compare the shapes of leaves to common geometric shapes	5.1.P.A-D, 5.3.P.A.1-2

Compare the size and edges of leaves	5.1.P.A-D,
Communicate observed similarities and differences of leaves	5.1.P.A-D, 5.3.2.D.2
Observe seasonal changes in the life of schoolyard trees	5.1.P.A-D 5.3.2.D.2,
Observe the structures of twigs, flowers, fruits, seeds, and bark of trees	5.1.P.A-D, 5.3.2.E.2
Compare changes in parts of trees through the seasons	5.1.P.A-D
Communicate observations and comparisons of schoolyard trees	5.1.P.A-D

Assessment: Teacher observation, running records of skill attainment

Healthy Bodies

Students examine the importance of good nutrition, exercise, and hygiene in order to help bodies grow strong and remain healthy. They will investigate the growth and development of their basic body parts.

Unit Length: 8-10 lessons

Resources: *Childcraft* Health Book Set
Discovery Works Grade 1 Textbook

Essential Questions: How do healthy bodies grow and change over time?
Which foods are needed for healthy body growth and development?
How does exercise and rest affect healthy body growth and development?
How does good hygiene help healthy body growth and development?

NJCCCS:

Science Content (Declarative Conceptual Knowledge)	NJCCCS	
Students Will Know and Understand:	science	health
There are five food groups and each have different nutritional value		2.1B
A healthy diet is a balance of food from different groups		2.1B
Some foods are unhealthy and should be consumed in moderation		2.1B
Regular exercise helps build muscles	5.3A	2.1A
Sleep is necessary for growth and repair of the body	5.3A	2.1A
Safe exercise keeps bodies healthy		2.1A
Proper dental care protects the teeth and gums		2.1A
The body is made up of basic parts that work together to allow body function	5.3A	2.1A
The body grows and changes over time	5.3D	2.1A
Everyone has a different growth pattern	5.3D	2.1A

Thinking Processes (Procedural Knowledge) NJCCCS 5.1 A-D	NJCCCS	
Students Will Be Able To:	science	health
Categorize food into the five food groups		2.1B
Select foods to create a balanced nutritional meal		2.1B
Explain the importance of each food group		2.1B
Communicate the importance of sleep		2.1A
Communicate safe exercise practices		2.1A
Demonstrate proper dental care		2.1A
Observe growth differences of body parts	5.3D	2.1A
Compare individual growth patterns	5.3D	2.1A

Assessment: Teacher observations, running records of skill attainment

Wood and Paper

Students investigate, compare, and describe the properties of wood and paper, and find out what happens when these materials interact with other materials. Students discover applications for the materials in the real world.

Unit Length: 8-10 weeks

Resources: FOSS Wood and Paper Module
FOSS Wood and Paper Science Stories

Essential Questions: What are the observable properties of wood and paper?
How do the properties of different types of wood compare?
How do a material's properties determine its use?
How can wood and paper be altered to change its use?

NJCCCS:

Science Content (Declarative Conceptual Knowledge)	NJCCCS
Students Will Know and Understand:	
Wood is a resource that comes from different kinds of trees	5.2A
Some woods are processed and transformed by people	5.2A
Wood is used for many everyday things	5.2A
Wood has many observable properties	5.2A
Wood floats in water. Some kinds of wood sink more easily than others.	5.2A
Wood absorbs water	5.2A
Wood that is waterlogged sinks	5.2A
Sanding can change the shape of wood	5.2A
Sawdust can be recycled into usable wood	5.2A
Gluing (laminating) thin sheets of wood together produces much stronger wood	5.2A
Some objects occur in nature. Others are made by people.	5.2A, 5.3C
Paper has many observable properties	5.2A
Some kinds of paper absorb water while others do not	5.2A
Many objects are made from paper	5.2A
The properties of different papers determine their use	5.2A
People make paper from wood. Wood is a resource that comes from trees	5.2A, 5.3C, 5.4G
New paper can be made from old paper	5.2A, 5.4G
Recycling extends the use of trees	5.2A, 5.4G
The properties of recycled paper can be compared to those of new paper	5.2A, 5.4G
Paper can be soaked in wheat paste to make it soft and moldable when wet, and stiff and strong when dry	5.2A
Knowledge of the properties of wood and paper can be used to make useful or artistic constructions	5.2A
Paper containers we use everyday began as flat pieces of paper	5.2A
Paper can be woven by using an under-over alternating pattern	5.2A

Thinking Processes (Procedural Knowledge) NJCCCS 5.1 A-D Students Will Be Able To:	NJCCCS
Observe a variety of wood	5.2A
Communicate observations about wood	5.2A
Compare properties of different kinds of wood found in the classroom	5.2A
Compare how different kinds of wood interact with water	5.2A
Sort wood samples by their properties	5.2A
Organize results to discover which wood is harder to sink	5.2A
Observe how wood can be changed by sanding	5.2A
Compare sawdust to wood shavings	5.2A
Observe the transformation of sawdust into particleboard	5.2A
Compare the strength of a single piece of wood to several pieces that have been glued together	5.2A
Observe a variety of kinds of paper	5.2A
Communicate observations about paper	5.2A
Compare properties of different kinds of paper	5.2A
Communicate observations about paper	5.2A
Compare properties of different kinds of paper, including how they fold or whether they are useful for writing surfaces	5.2A
Observe how different kinds of paper interact with water	5.2A
Observe and compare the properties of paper before and after it has been recycled	5.2A, 5.4G
Compare the properties of paper before and after it has been made into papiermâché	5.2A
Observe and communicate how paper containers are constructed	5.2A
Compare a tracing of flat paper container to the reconstructed container	5.2A
Communicate knowledge of paper and wood properties to describe new constructions	5.2A

Assessment: Teacher observations, running records of skill attainment

Sunshine and Shadows

This unit explores shadows from every possible angle. Students identify that a light source, a solid object, and a surface are needed to create a shadow and then experiment with different variables that affect the position, size, shape, and length of shadows. From their experiments, students will draw conclusions about the variables, like the Sun's movement, that affect shadow shapes. They will also create silhouettes to examine shadow properties.

Unit Length: 3-4 weeks

Resources: DSM (Delta) Sunshine and Shadows Module
DSM (Delta) Sunshine and Shadows Reader

Essential Questions: How can shadows be produced?
How can shadows change their physical properties?
How do shadows change position during the course of a day?

NJCCCS:

Science Content (Declarative Conceptual Knowledge)	NJCCCS
Students Will Know and Understand:	
A light source, solid object, and a surface are needed to produce a shadow	5.2C
A silhouette is the shadow outline of an object	5.2C
Light passes through some objects and not others	5.2C
Certain objects will produce shadows and others will not	5.2C
The shade of shadow varies depending on the amount of light the objects lets pass through	5.2C
The position of a shadow changes depending on the time of day and position of sun	5.4A
A shadow always falls opposite the light source that creates it	5.2C
The shadow length depends on the angle at which light shines on an object	5.2C

Thinking Processes (Procedural Knowledge)	NJCCCS
NJCCCS 5.1 A-D	
Students Will Be Able To:	
Observe and describe a shadow	5.2C
Identify the three things needed to produce a shadow	5.2C
Observe how a light source, solid object, and a surface interact to create a shadow	5.2C
Compare the shape of an object to the shape of its shadow	5.2C
Observe that light passes through some objects and not others	5.2C
Predict whether certain objects will produce shadows or not	5.2C
Observe that objects produce light shadows, dark shadows, or no shadows, depending on how much light they allow to pass through them	5.2C

Record the changes in the position of a shadow from morning to midday to afternoon	5.4A
Observe changes in the Sun's position in the sky during the course of a day	5.4A
Communicate that shadow changes are caused by changes in the Sun's position in the sky	5.4A
Observe outdoor shadows and note which side of the object the shadows fall on in relation to the sun	5.4A
Observe indoor shadows and note the change in their position when a light source is moved	5.2C
Communicate that a shadow always falls opposite the light source that creates it	5.2C
Create and describe shadows of different shapes and sizes	5.2C
Observe ways to increase and decrease the size of a shadow	5.2C
Communicate that shadow size depends on the distance between an object and its light source	5.2C

Assessment: Teacher observations, running records of skill attainment