

Grade 2 Fall Garden Lessons to Compliment Soils Curriculum and help Meet NGSS

STC Soils Curriculum provides great opportunity to observe characteristics of soil including sand, clay and humus. Students have the opportunity to create their own compost and observe worms in the decomposition process.

Below is a table of suggested 2nd grade garden lessons to enhance current curriculum with expanded focus on the 3 soil particle sizes to include silt (along with sand and clay) and understanding the full web of life in soil habitat that aid in decomposition. Students gain a better understanding of decomposition and the nutrient cycle and will predict and experiment to determine what materials decompose faster in soil. In addition there is a link to English Language Arts in lessons that encourage development of descriptive words.

GC – Growing Classroom; LL – Local Lesson; SGP – School Garden Project of Lane County

2nd Grade Lessons	Garden Lesson ideas to Bolster STC Soils – and meet NGSS – Fall or Spring		
Lesson # and Date	Lessons	Source	Primary standard
1) 9-15-9/30 Descriptive language	A) Six of One Half Dozen – students find opposite words in a scavenger hunt developing sensory awareness and language	GC pg 66	2-PS1-1
	B) Everyone needs a Rock – sensory awareness	GC pg 64	2-PS1-1
	C) Tasting in the garden – using our senses – crunchy vs. juicy and spicy vs. sweet;	LL	2.L.5.a
2) Soil exploration For only 2 groups - combine B and C	A) Soil Exploration – based on Space Travelers	GC – pg 81	2-PS1-1 2-L.5.a
	B) WAMO – Soil from a plants view. Water, Air Minerals and Soil. Can we make it on our own?	SGP	model
	C) The Nitty Gritty– we can analyze our own soil with this simple test. Understand the 3 particle sizes of soil	GC pg 83	2-PS1-1 2-PS1-2
3) Decomposition And organisms	A) Bring in the clean- up Crew – Predict and discuss what materials (10) will decompose fastest to slowest. Bury them to find out	GC pg 100	2-PS1-1 2-SL-1 2-W-7
	B) Compost Bingo – Students evaluate the compost -search for the creatures that help break down the O in WAMO	LL	2-LS4-1
4) Soil make up	A) Eat the Earth – a model demonstration of the soil on earth available for growing food. It is scarce	GC pg 216	2-ESS2.3 2.SL.1
	B) Nitty Gritty follow up analysis	GC pg 83	2-PS1-1 2-PS1-2
	C) Water through soil- a game – SGP	School Garden Project	2-PS1-2
5) Compost	A) Bring in the clean - up Crew pg 100– Day 2 Review predictions, dig up items and compare results to predictions. What decomposes fastest? Why? How?	GC pg 100	2-PS1-1 2-SL-1 2-W-7
	B) Let's Make a Compost Cake – students make a large batch of compost and review the creatures that break down	GC pg 103	2-LS4-1 3-LS1-1
6) erosion	A day at the Races – students test different ways to prevent soil erosion	GC pg 113	2-ESS2-1

Lesson objective summary and questions

In the spirit of science as an outcome of curiosity, we'll work to get students into the garden activities to fire up the brain with observations and creating questions. Then it will be important to leave time at the end of each garden visit to summarize and ask questions and to guide students to what they need to know. Below is the outline of lessons with a reference to the NGSS ideas being met and questions that station leaders should have ready to spur contemplation and help students bring their thoughts together around the main ideas. Read the actual lessons first. *In preparation for the lesson, the garden coordinators provide electronic and hard copy versions to the teacher, and provide all station leaders with their full lesson to read beforehand.*

NGSS Standard Code	Performance Expectation or Standard Description
2-PS1-1	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties
2-PS1-2	Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose
2-SL.1 Language arts	Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups
2.W.7 Language Arts	Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats
3-LS1-1	Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death
2-ESS2-1	Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land
2-ESS2-3	Obtain information to identify where water is found on Earth and that it can be solid or liquid

2 nd Grade Spring Lessons	
Date - lessons	Summary ideas, questions to ask and theme roundup for all stations (if possible)
1) 9/15-9/30 A) 6 of 1 half dozen of the other B) Everyone needs a rock C) Fruit and Veggie Tasting	<p><u>Developing descriptive language</u> is important in communicating about science. Students learn to use all their senses in developing descriptions.</p> <p>A) What things felt the scratchiest, smelled the strongest, and were most colorful? How did you find them?</p> <p>B) List adjectives used in describing the rocks. How many colors were in your rock? How much do you think your rock weighed.</p> <p>C) Describing taste as well as feel and smell, list adjectives that best describe these fruits and vegetables. Are there opposites? This lesson also covers an English Language Arts standard –Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy).</p> <p>NGSS: Matter can be described and classified by its observable properties (e.g., visual, aural, textural), by its uses, and by whether it occurs naturally or is manufactured. Different properties are suited for different purposes.</p>
2) 9/15-10/15 A- Sensory Soil and texture by feel	<p><u>What is Soil made of? Can we make soil if we run out?</u></p> <p>A) What are the ingredients in soil? Can we dissect our garden soil to find out? Is soil alive? What do earthworms do for the soil? Is soil important?</p>

<p>B- Nitty Gritty C- WAMO</p>	<p>B) What are the 3 different particle sizes in soil? Which is the biggest? Which is smallest? What do you predict will make the soil better for gardening? Why? What soil particle holds the most water and what particle holds the least water? Is it important for our garden soil to hold water? C) What is soil made of? Water, Air, Minerals and Organic Matter. Make a WAMO jar and ask what does it need now to turn into soil? Time. Minerals and Organic Matter make up the particles and Water and Air make up the space between particles in soil.</p>
<p>3) 10/1-10/20 A)Clean Up Crew B)Compost Bingo C)</p>	<p>Decomposition and Nutrient cycling. A) What can decay and what cannot decay? What will decay the fastest? How can we tell? Make predictions. What can we plan to put into a compost pile? B) How do things break down? What creatures help to break things down? How many of these creatures can we find? What is the evidence that these creatures help break things down? Are creatures that live in the compost different than creatures that live in the garden? How are they the same? NGSS: Matter can be described and classified by its observable properties (e.g., visual, aural, textural), by its uses, and by whether it occurs naturally or is manufactured. Different properties are suited for different purposes. How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms? Living things can survive only where their needs are being met. If some places are too hot or too cold or have too little water or food, plants and animals may not be able to live there.</p>
<p>4) 10/15-10/30 A)Compost Cake B) Nitty Gritty Follow up C) water through soil game</p>	<p>What makes a good soil? A) What are the ingredients of a compost pile? What will happen to the organic matter? What will the compost look like after a few months? How will it be useful after it has decomposed? What could you use at home to make compost? B) What do the results of the Nitty Gritty test tell us about our soil? What are the three different particle sizes in soil? Which one is biggest? Will this soil be good at holding water? Holding nutrients? Do we need to add anything to make the soil better? C) Plants need nutrients, just like we do. Test the soil for the 3 basic nutrients (Nitrogen, Potassium and Phosphorus) to make sure there is enough for healthy plants. If there is not enough, what can we do to fix the problem? (Compost is a good start). NGSS: All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light (<i>and nutrients</i>) to live and grow.</p>
<p>5) 10/15-10/30 A)Clean Up Crew B) Eat the Earth C) A day at the Races A & C or B & C If class skips Eat the Earth – provide that to the teacher to do in class.</p>	<p>Soil is precious – How much is there and how can we keep it from washing away? A) What factors affected the speed of decay of the various materials? How did the results compare with your predictions? Which of the items we buried would be good items to put in a compost pile? B) Do we need our natural resources? Does it seem as if we have enough land to farm and enough water to drink? Who is responsible for taking care of these resources? How do we want to treat the farmland and water we have? C) Discuss which box lost the most soil. Which lost the most water? Which methods were more effective in controlling erosion in the experiment? What other methods might help conserve the soil? NGSS: Plants and animals, including humans, depend on the land, water and air to live and grow. They in turn can change their environment (e.g., the shape of land, the flow of water). Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. It carries soil and rocks from one place to another and determines the variety of life forms that can live in a particular location.</p>