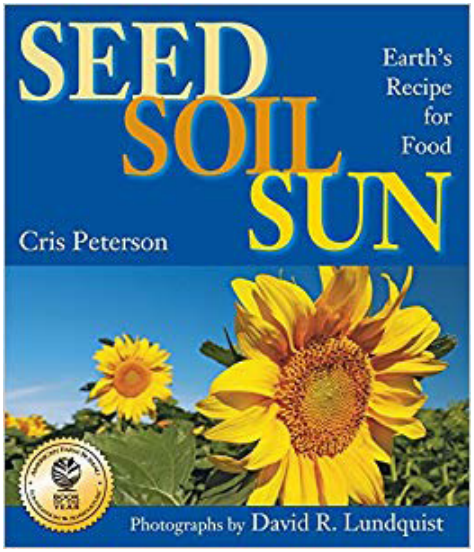
NEBRASKA AGRICULTURE IN THE CLASSROOM
NEBRASKA FARM BUREAU FOUNDATION

Literature Guide

Seed Soil Sun: Earth's Recipe for Food

By: Cris Peterson

Activity Level: Basic



PURPOSE

This guide provides three worksheets for language arts activities for suggested grade levels: syllable study for Kindergarten, word and sentence re-ordering for 1st grade, and digraphs study for 2nd grade.

Vocabulary for many basic principles important to plant life are introduced, including germination, soil properties and quality, and photosynthesis. This story balances abundant information on the sequence, parts and processes of plant growth as well as delightful connections to those of us who enjoy eating them!

Be sure to browse the extended learning resources at the end of the guide for activities in other subjects.

NEBRASKA STATE EDUCATION CONTENT STANDARDS CONNECTION

LA.K.RI.3 | LA.1.RI.3 | LA.2.RI.3
Determine and explain the author's purpose in an informational text, including what the author wants to answer, explain, or describe.

LA.K.F.2.c | LA.1.F.2.c | LA.2.F.2.c
Delete initial and final phonemes in words including words with blends.

LA.K.V.1 | LA.1.V.1 | LA.2.V.1
Recognize and use conversational and grade-level academic vocabulary.

LA.K.F.3 | LA.1.F.3 | LA.2.F.3
Know and apply phonics and word analysis skills in decoding and encoding (spelling) words.

WHAT'S THE CONNECTION TO AGRICULTURE?

Understanding how plants work and what they need for healthy growth allow farmers to do their best in producing crops for us. Farmers learn what plants need to do their best and how to provide for them at each stage: from seed to shoot to full-grown crop.

Taking care of the earth's soil is important so there are fertile places to plant the crops we need to feed animals and humans. Farmers strive to be good stewards of the land and to protect and use soil and water wisely to produce food, fiber, and fuel.

Understanding how plants work allows farmers to do their best in producing crops for us. Farmers know the best time to plant crops, how to keep them healthy, how to keep pests and weeds out of the fields, and the best

time to harvest crops.

Working with nature, farmers like those around us in Nebraska, produce crops that provide for our everyday lives!

MATERIALS

One worksheet per student depending on language arts focus:

- Growing Syllables worksheet (Kindergarten)
- Seed, Soil, Sun Scrambles worksheet (1st grade)
- Recipe for Vowel Digraphs worksheet (2nd grade)

VOCABULARY

Debris – scattered pieces of waste or remains

Fertilizer – a substance added to soil to increase its fertility

Germinate – to begin to grow and put out shoots

Moisten – wet slightly

Nutrients – a substance that provides nourishment essential for growth and the maintenance of life

Photosynthesis – the process by which green plants use sunlight to synthesize food

Recipe – Instructions and ingredients for preparing something new

Seedling – a young plant, especially one raised from seed and not from a cutting

Sprout – a shoot of a plant

BACKGROUND AGRICULTURAL INFORMATION

The process of a seed sprouting roots and a shoot is called germination. Once the shoot reaches air and sunlight, plants can begin changing carbon dioxide from air, water from soil, and light from the sun into food. This process is called photosynthesis.

INTEREST APPROACH

- Watch this time-lapse video showing the germination process of a seed:
  - *https://www.youtube.com/watch?v=E__rbDzNOZI*
  - 0:00-1:12 shows roots growing toward soil
  - 1:13-2:23 shows sprouts and leaves reaching up toward sunlight
- Pose this question:
  - What does this seed need to become a plant that we eat, like broccoli, a tomato, or sweet corn?
    Expected responses: warmth, water, fertile soil, sunlight, time

LISTENING QUESTIONS

- What makes a plant healthy?
  Good seeds, fertile soil, sun, air, and rain combine to grow the plant
- How do plants start?
  Seeds that are planted in soil, moistened by rain (or other water source) and warmed by the sun.

PROCEDURE

1. Read *Seed Soil Sun* aloud to the class.
2. Choose a worksheet based on grade level for activity:
   - **a. Kindergarten "Growing Syllables"**
     - i. Students will complete a syllables worksheet about the Seed Soil Sun vocabulary.
     - ii. First, students will look at the picture of the vocabulary word, look at the vocabulary word, and trace the vocabulary word.
     - iii. Next, students will say the word aloud and determine how many syllables it contains.
     - iv. Last, students will circle the number of syllables the word has.
   - **b. 1st Grade "Seed Soil Sun Scrambles"**
     - i. Unscramble these compound words that were heard in Seed Soil Sun.

       esshiunn (sunshine)
       pepalneip (pineapple)
       rwotrhmea (earthworm)
       ebyanos (soybean)
       dbykarac (backyard)
       npcproo (popcorn)

     - ii. The words in the sentences below are scrambles. Re-write the words so that they make sense in a sentence.

       seeds. Plants from grow (Plants grow from seeds.)

       down soil. Roots into the grow (Roots grow down into the soil.)

       the for reach Shoots up sun.(Shoots reach up for the sun.)

       that breathe. roots help dig Earthworms tunnels (Earthworms dig tunnels that help roots breathe.)

       energy. Plants into sunlight turn (Plants turn sunlight into energy.)

   - **c. Second Grade 'Recipe for Vowel Digraphs'**
     - i. Use the box to fill in the missing vowel combination (digraph) for each word.

       Vowel Combinations oi ui oo ou ee oe ea

       m _ _ st (moist)

       spr_ _ t (sprout)

       s_ _ d (seed)

sh _ _ t (shoot)

_ _ rth (earth)

r_ _ t (root)

fr _ _ t (fruit)

am _ _ ba (amoeba)

br_ _ the (breathe)

l _ _ ves (leaves)

FOLLOW UP QUESTIONS

- Name parts of a plant that emerge from a seed.
  Root, shoot
- Who can name some elements that make up soil?
  Silt, sand, clay, dead leaves, twigs, tiny organisms, insects, bacteria, fertilizer from worms.
- Why is it important to preserve and take care of our soil? Why is soil quality important in agriculture?
  Taking care of our soil is important so we have fertile places to plant crops. We need crops to feed animals and humans. Farmers strive to be good stewards of the land to protect and use soil wisely to produce food, fiber, and fuel. Soil also serves the very important function of filtering water as it percolates through the soil. Percolation also allows water to reach the roots of plants.
- Why is plant growth important to us?
  We need crops to feed animals and provide many of our basic needs. Farmers strive to be good stewards of the land to wisely produce food, fiber, and fuel. Understanding how plants work allows farmers to do their best in producing crops for us. Farmers know the best time to plant crops, how to keep them healthy, how to keep pests and weeds out of the fields, and the best time to harvest crops.

EXTENSION ACTIVITIES

- Make and Eat Soil Profile – NE AITC
  - *https://nefbfoundation.org/images/FOUndation/Educators/Enriching-Activities/Make-and-Eat-Soil-Profile.pdf*
- Edible Plant Parts – NE AITC
  - *https://nefbfoundation.org/images/FOUndation/Educators/Enriching-Activities/Edible-Plants.pdf*
- Farming in a Glove – NE AITC
  - *https://nefbfoundation.org/images/FOUndation/Educators/Enriching-Activities/Farming-in-a-Glove.pdf*
- Food Products – NE AITC
  - *https://nefbfoundation.org/images/FOUndation/Educators/Enriching-Activities/Food-Products.pdf*
- My Ag Roots – NE AITC
  - *https://nefbfoundation.org/images/FOUndation/Educators/Enriching-Activities/My-Ag-Roots.pdf*

NATIONAL AGRICULTURAL LITERACY OUTCOMES

- **Agriculture and the Environment**
  - **T1.K-2 Describe how farmers use land to grow crops**
  - **T1.K-2** Describe the importance of soil and water in raising crops
- **Plants and Animals for Food, Fiber & Energy**
  - **T2.K-2** a. Explain how farmers/ranchers work with the lifecycle of plants and animals to harvest a crop
- **Culture, Society, Economy & Geography**
  - **T5.K-2** a. Discuss what a farmer/rancher does
  - **T5.K-2** d. Identify plants and animals grown or raised locally that are used for food, clothing, shelter, and landscapes

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Seed, Soil, Sun Scrambles

Name: _____

Unscramble these compound words that were heard in Seed Soil Sun.

esshiunn _____

pepalneip _____

rwotrhmea _____

ebyanos _____

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The words in the sentences below are scrambles. Re-write the words so that they make sense in a sentence.

1. seeds. Plants from grow

_____

2. down soil. Roots into the grow

_____

3. the for reach Shoots up sun.

_____

4. that breathe. roots help dig Earthworms tunnels

_____

5. energy. Plants into sunlight turn

_____

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Growing Syllables

- Look at the picture of the vocabulary word, look at the vocabulary word, trace the vocabulary word.
- Say the word aloud and determine how many syllables it contains.
- Circle the number of syllables the word has.

Shoot

1 2 3

Popcorn

1 2 3

Tomato

1 2 3

Seedling

1 2 3

Earthworm

1 2 3

Fruit

1 2 3

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Growing Syllables

Broccoli

1 2 3

Root

1 2 3

Potato

1 2 3

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Recipe for Vowel Digraphs

Name: _____

Use the box to fill in the missing vowel combination (digraph) for each word.

oi	ui	oo	ou	ee	oe	ea

m___ ___st _____

spr___ ___t _____

s___ ___d _____

sh___ ___t _____

___ ___rth _____

r___ ___t _____

fr___ ___t _____

am___ ___ba _____

br___ ___the _____

l___ ___ves _____