



## «Science Lesson Plans

# Thrive & Survive

Published on August 7, 2009 by Megan McGhee, Becky Welch, Jill Ellington

## Description

*Learners explore the importance of plant structures, their functions, and various adaptations made to investigate how leaves and seeds are adapted for survival and reproduction. Students will cooperatively work from various biomes and report on their adaptations.*

## Grade Level

2nd grade, 3rd grade, 4th grade

## Lesson Objective

The student will identify the needs of plants.

The student will know structural organs of plants, and their functions.

The students will know that adaptations allow plants to survive in their environment.

The students will know that leaf adaptations are structural adaptations that help contribute to a plant's survival.

The students will understand that there are a variety of seed adaptations that help seeds scatter.

The student will understand that structures of living things are adapted to their function in specific environments.

The student will use reference materials to obtain information related to science concepts.

The student will use a variety of tools to observe and study minute details of objects.

The student will pose questions about objects, organisms, and events in the environment.

The student will compare and contrast observations and results.

The student will develop descriptions and explanations using evidence.

## GLEs

3.1.A. Describe the basic needs of most plants (i.e., air, water, light, nutrients, temperature)

3.1.B. Describe and sequence the stages in the life cycle (for a plant) of seed germination, growth and development, reproduction, and death (i.e., a flowering plant)

- 3.1.D Plants and animals have different structures that serve similar functions necessary for the survival of t
- 3.1.D.c Identify the relationships between the physical structures of plants  
and the function of those structures (e.g., absorption of water, absorption of light energy, support, rep
- 3.1.D.a. Identify the major organs (roots, stems, flowers, leaves) and their  
functions in vascular plants (e.g., absorption, transport, reproduction) (Do  
NOT assess the term vascular)
- 4.3.C Natural selection is the process of sorting individuals based on their ability to survive and reproduce w
- 7.1.A Scientific inquiry includes the ability of students to formulate a testable question and explanation, and  
investigative methods in order to obtain evidence relevant to the explanation.
- 7.1.B Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations.
- 7.1.C Evidence is used to formulate explanations.
- 7.1.D Scientific inquiry includes evaluation of explanations (hypotheses, laws, theories) in light of scientific p  
(understandings).
- 7.1.E The nature of science relies upon communication of results and justification of explanations.

## Depth of Knowledge

Level 4

## Instructional Strategies

5E (Engage, Explore, Explain, Elaborate, Evaluate), cooperative learning groups, student research, jigsaw, q  
prior knowledge, reading for information, summarizing, note taking

## Time Needed

6-8 Days

## Materials

### Materials are Lesson Specific:

*Secret Seeds:*

**Seeds** 5 seeds per student (use something other than Lima Beans). The lesson authors suggest Great Nortl

**Plastic Test tubes** 1 per student. The test tubes should be pre-drilled with two holes at the top on opposite s

**Other items needed:** string or yarn for creating test tube necklaces, potting soil, Dixie cups , graduated cylinc  
rulers, and science notebooks.

*Potted Plant Demonstration:*

**A living house plant(s) or large potted plant**

**A plastic sandwich bags** (1 per pair of students)

**A twist-tie** for securing the bag closed (1 per pair of students)

*Leaf Lab:*

**Paper towels** (4 sheets per group) The authors suggest using Select-A-Size towels for a quicker ex  
**Water**  
**Baking sheet** (cookie sheet) **or Scott Foresman Plastic Trays** (2 per group)  
**Waxed paper** (2 sheets per group)  
**Adhesive tape**  
**Heat lamp or other light source (optional)**

*Seed Lab:*

**Hand lenses**  
**Variety of seeds** for each station  
**Fan(s)**  
**Tub(s) of water**  
**Pieces of fox fur, felt, cotton socks**  
**Measuring tape** (cm)

The authors suggest setting up two of each station based on a class size of 24.

*Other Materials:*

Construction paper for foldable book (Day 2) – one piece per student  
Posterboard or large chart paper for demonstration foldable (teacher use Day 2)  
Paper and wide variety of craft supplies for Alien Plant Project (Day 6)

**Academic Vocabulary**

see lesson plan

**Lesson Plan**

 [Thrive and Survive Lesson Plans](#)

**Resources**

 [plant foldable example](#)

 [leaf lab student page](#)

 [seed lab student page](#)

 [biome jigsaw student page](#)

 [alien plant student page](#)

 [alien plant rubric](#)

 [plant song lyrics](#)

 [leaf lab rubric](#)

 [seed lab rubric](#)

 [Survive This! GPS Lab Welch](#)

 [Plant Mania GPS Lab Ellington](#)

GPS Lab McGhee

## Literature links

**Title:** The Tiny Seed **Author:** Eric Carle **Publisher:** Simon & Schuster Books for Young Children **Year:** 1987

**Title:** Lucy's Secret **Author:** Mireille Levert **Publisher:** A Groundwood Book Douglas & McIntyre **Year:** 2004

**Title:** Plant **Author:** Star, Fleur **Publisher:** DK Publishing, Inc.

**Year:** 2005 **Genre:** Non-Fiction

## Text book link(s)

### Scott Foresman Textbook

4<sup>th</sup> Grade – Chapter 2, pp. 41-72

3<sup>rd</sup> Grade – Chapter 1, pp. 2-31

2<sup>nd</sup> Grade – Chapter 1, pp. 1-32

Leveled Readers: *Animals and Plants (1<sup>st</sup>)*, *How Plants and Animals Live (1<sup>st</sup>)*, *All About Plants (2<sup>nd</sup>)*, *Desert Living Things Grow and Change (2<sup>nd</sup>)*, *Plants (2<sup>nd</sup>)*, *Plants and Animals (2<sup>nd</sup>)*, *Plants and How They Grow (3<sup>rd</sup>)*, *Growing (3<sup>rd</sup>)*, *Where Plants and Animals Live (3<sup>rd</sup>)*, *Energy from Plants (4<sup>th</sup>)*, *How Plants Grow and Change (4<sup>th</sup>)*, *Classification (4<sup>th</sup>)*, *Weird Plants (4<sup>th</sup>)*, *Plants (5<sup>th</sup>)*

**Key concepts:** [plant life cycle](#) [plant needs](#) [adaptations](#) [plant organs](#) [transpiration](#) [seed scatter](#) [biomes](#)

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