

Pumpkin Lesson Outline Grades 3-5 Teacher Outline

BEFORE ACTIVITY

Objective: Students demonstrate a basic understanding of the processes which take place in order to produce a pumpkin.

1. Soil Fact Sheet (soil types and development) **Some of the vocabulary may be difficult for some students, so it may be helpful to read and review the soil facts as a class. This will also make it easier for students to reflect on the type of soil at the pumpkin patch.*
2. Plant Growing Conditions & Soil Organisms

DURING ACTIVITY

Objective: Observation Skills & Pumpkin Harvest Thoughts

Students consider the different factors which help grow their pumpkins. They develop observation skills in considering the things which made it possible for the pumpkin to grow in this environment.

- What type of soil do you think the pumpkins are growing in?
- What can you see that the farmer has done to make it possible for these pumpkins to grow?
 - Soil conditions (furrows, fertilizer)
 - Watering system
 - Weeding
- Write down three observations of things you see, touch, hear or smell at the pumpkin patch.

AFTER ACTIVITY

Objectives: During reflection, students are able to make connections between the discussion of soil and the production of the pumpkins. Students are able to summarize the different components important to growing a plant. Students begin thinking about the connection between growing plants and human life.

- What steps would you take to grow a pumpkin at home? Write them out in order, or draw them, including notes about what you might do to help the pumpkin grow.
- Think back to what you learned about soil before going to the pumpkin patch. What do you think the soil looks like underneath the surface where the pumpkin was growing? (Draw a picture: layers, organisms, plant roots)
- What are you going to do with your pumpkin? What else do people use pumpkins for? Write or draw examples.

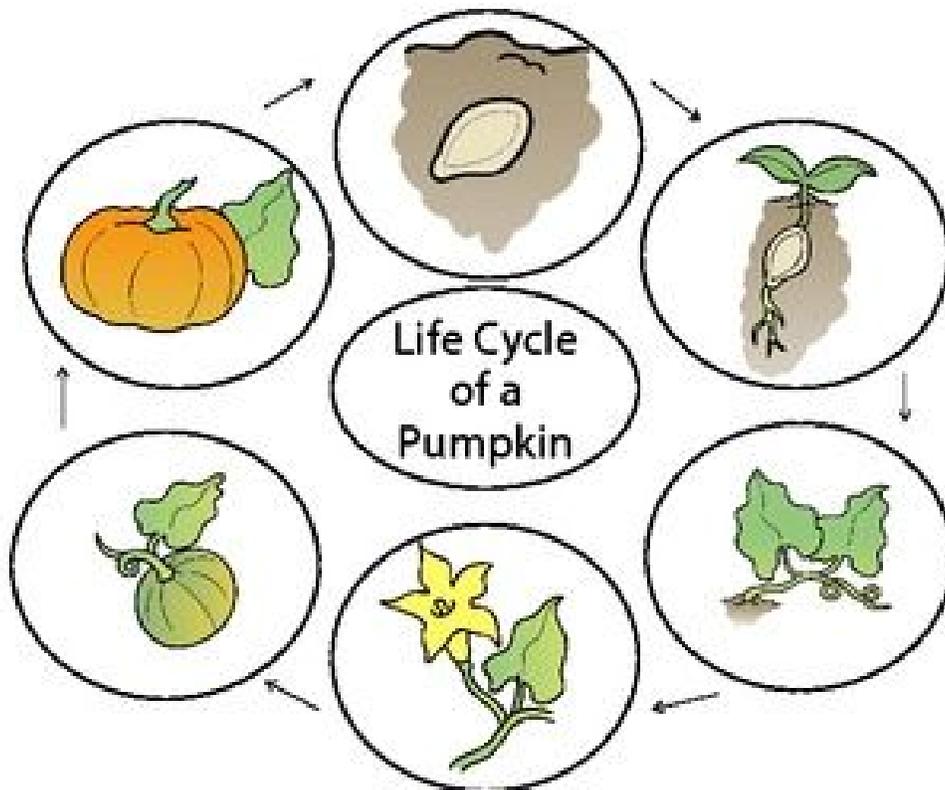
Pumpkin Patch: a little to know before you go



Planting a Pumpkin

Pumpkins need a long growing season. Their seeds should not be planted until there is certainty of no more frost, meaning that the ground is nice and consistently warm. If the ground gets too cold, then their seeds will be injured and could potentially rot during a thaw. It is safe to plant them in June and early July here in the San Luis Valley.

Life Cycle of a Pumpkin



Take a look at the life cycle of a pumpkin. Label as many parts as you can.

The Importance of Soil

What is soil?

Soil is the naturally occurring mixture of water, air, rocks/sand, and organic matter.

Organic matter is made up of decomposing plants and animals. The bugs and tiny organisms that live in soil help break down the minerals and organic matter so that plants can use them to grow.

Types of Soil

Soils can be categorized based on the texture of the soil particles. Three main categories are *clay*, *silt*, and *sand*.

Clay: very small particles, turn sticky and form a lump when wet

Silt: medium size particles, smooth like flour, crumble when wet

Sand: lots of larger, grittier particles, like sand on a beach



Soil layers

Soil scientists have named the different layers of soil with letters.

The top layer, "O," is only about an inch thick. It is made up of the organic matter which will break down and help keep the soil healthy.

"A" is the topsoil where tiny organisms live and plant roots grow.

"B" and "C" have less organic matter and plants roots have trouble getting down that far.

Plant Growing Conditions

Plants need certain conditions to grow strong and healthy.

- ✓ Sun
- ✓ water
- ✓ Healthy organisms

The **sun** provides energy for the plant to convert nutrients into food.

water is the building block of the plant. Moisture can be received through the roots in the soil or through the leaves from precipitation (rainfall, irrigation). After plants use the moisture, they release the excess in a process called **evapotranspiration**. This is how the plant “breathes” and puts water back into the air.

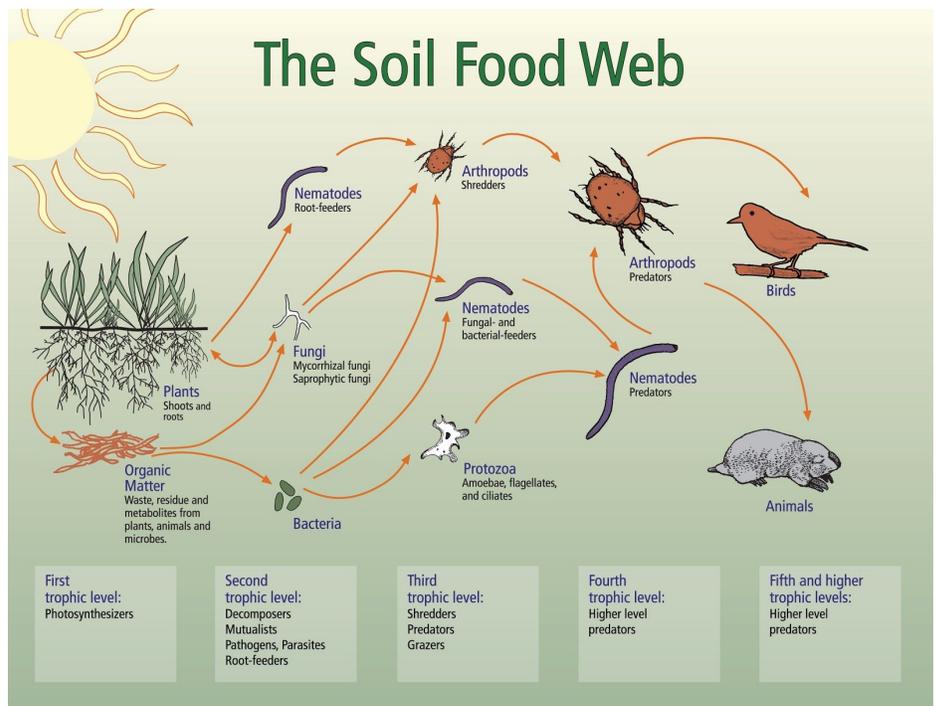
Healthy organisms are the creatures that live in and around the soil, providing nutrients for the plants’ root system. These include:

Decomposers (fungus, earthworms)

Arthropods (insects)

Bacteria (transfer chemicals into useful nutrients for plants to “eat”)

Protozoa & Nematodes (microscopic creatures that eat bacteria and move chemicals through the soil)





Pumpkin Harvest Thoughts

What type of soil do you think the pumpkins are growing in? Does the soil look dry, moist, light, or dark? Pick up a handful of soil and notice how it feels when you roll or crumble it in your hands. Talk with a classmate about what you notice.



What do you think the farmer has done to help the pumpkins grow? Think about things like water, soil conditions, and pests (bugs or rodents which might try to eat the pumpkins).

Write down or draw three observations of things you see, hear, touch, or smell at the pumpkin patch.

1.

2.

3.



Reflection



What steps would you take to grow a pumpkin at home? Write them out in order, or draw a life cycle from seed to pumpkin including notes about what you might do to help the pumpkin grow.



Think back to what you learned about soil before going to the pumpkin patch. What do you think the soil looks like underneath the surface where the pumpkin was growing? (Draw a picture: layers, organism, plant roots)

Did you observe any existence of creatures in the soil? Insects or soft dark soil? Do you think the pumpkins are growing in healthy conditions? Why or why not?

