
GARDEN EXPLORER ACTIVITY PACKET

Brought to you by:
Umpqua Valley Farm to School
UVF2S.ORG



WHATS IN YOUR KIT?

UVF2S has provided you with:

- Boards and nails to construct your planter box
- A garden explorer notebook
- 1 magnifying glass
- 1 watercolor paint palette
- 2 sheets of watercolor paper
- 1 16oz. plastic container and lid
- Seeds: 2 bean, 2 garbanzo, buckwheat, grass seed, lettuce, and radish
- A garden explorer activity packet
- A coloring book



Check in with us on Facebook live to let us see what you have done with your kit! Dates are to be determined and will be sent out via email!



DIY Planter Box

Planter boxes are a great way to enjoy small plants indoors or outdoors. They are simple to build and can be designed to fit your space, or even built vertically to accommodate small spaces where larger plants will not fit. Herbs, flowers, lettuce, and succulents are great for planter boxes and some can be grown in your kitchen window to allow for culinary cutting as needed.

For this box, all you need is basic skills and a small workspace, like a table or the ground.

Supplies Included:

3x7 " boards
2x6" boards
Finish nails
Twine

What You'll Need:

Hammer
Wood Glue (optional)
Soil
Seeds or plants

Directions

Attach two of the 7" boards to the third 7" board lengthwise as the sides of your box. They will need to sit on top of the bottom piece, so your nails will be hammered through the bottom pieces into the two side pieces. Once you have those attached, put the

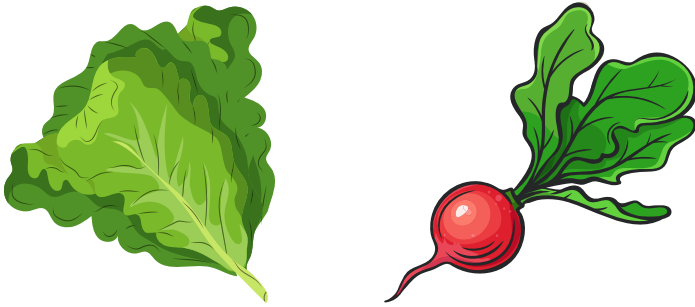
end pieces on. These will attach to the sides of the bottom piece, not sit on top of it. You'll have to experiment until you find the way it fits right.

*Optional: wood glue can be used to attach the pieces together before nailing them for an added layer of security.

GROWING YOUR LETTUCE AND RADISH SEEDS

FOR THIS ACTIVITY YOU WILL NEED:

- Your constructed planter box kit
- Soil
- Lettuce and radish seeds
- Water
- Popsicle stick garden markers (optional)
- Your garden explorer notebook



PACKED WITH VITAMINS!

Lettuce and radishes are items you may overlook when you think of nutritious veggies, but they are both packed with lots of vitamins and minerals that are beneficial to our bodies. Lettuce is high in vitamin A, radishes are high in antioxidants, and they both supply vitamin C.

DID YOU KNOW?

As shown in the photos below, there are many different types of radishes and lettuces, many more than you might expect! Radishes come in all different colors, shapes, and sizes, they be as small as an inch long, or as long as a foot! There are over 25 different types of lettuce. Lettuce you may have seen at the store includes: romaine, iceberg, butterhead, and little gems. Spinach and kale are varieties that you might not have known are in the lettuce family!

DIRECTIONS:

1. Fill your planter box with soil, leaving about an inch of space at the top.
2. Poke four 1/2 inch indentations into the top of the soil spaced equally apart on one side, for the radish seeds, and four 1/4 inch indentations for the lettuce seeds.
3. Drop 4 lettuce seeds in the holes on one side, and 4 radish seeds in the holes on the other side.
4. Sprinkle the top of the soil with more soil until the seeds are lightly covered.
5. If you have them, insert labels into the soil on each side, so you remember which sprouts are what.
6. Gently water the soil until it is damp, but not soaking wet.
7. Make sure the check the soil every couple of days and water when the soil is getting dry.
8. Place in a sunny location indoors or outdoors and wait! Your radish seeds should sprout in as little as 4 days, and your lettuce seeds should take a little over 1 week to sprout.

DOCUMENT!

As your seeds germinate and grow into crops, document their progress in your garden explorer notebook!

Answer these questions as you go:

Do the lettuce and radish embryos look similar or different?

Which crop is growing faster?

Which crop is growing taller?

Which crop is growing in the ground, and which is growing above the ground?



PLANT PARTS

There are six main plant parts. Look at the diagram below and unscramble the words to name each plant part. Can you identify one plant from each category that we eat?

rolefw



deses



velase



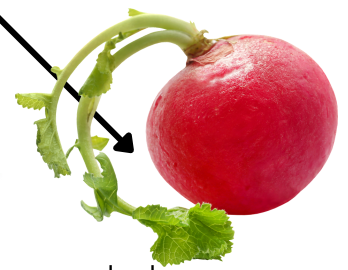
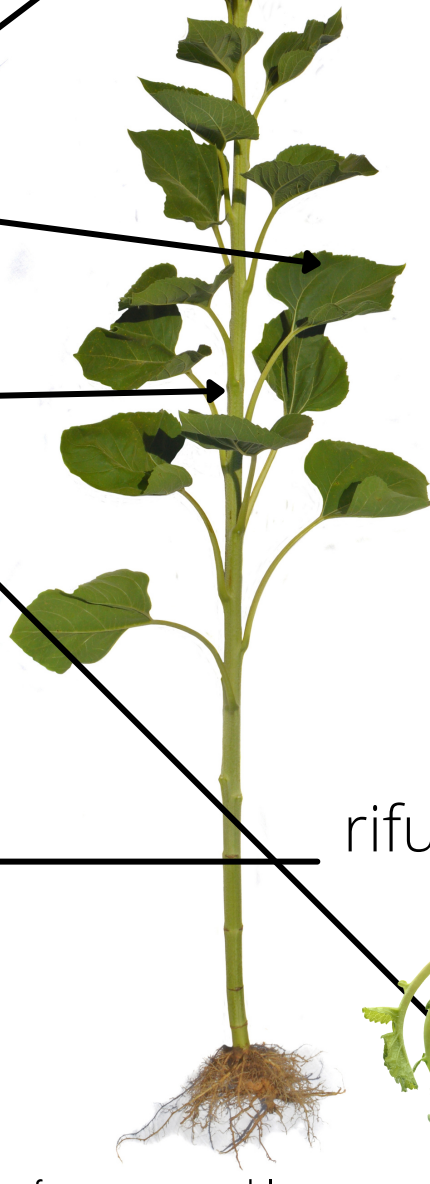
mtes



toros



rifut



Write a sentence or two about your favorite fruit or vegetable to eat and what part of the plant it is. On the watercolor paper provided in your kit, paint a picture of your favorite plant. Check the back of this page for famous examples of plant paintings!

FAMOUS PLANT PAINTINGS

Vincent Van Gogh's
Sunflowers



Sue Zimmermann's
Fresh Vegetables

Jacob Van Es's
Still Life with Fruits in Porcelain



Seed Germination Project



Lets see how seeds grow!

Seeds grow in different ways, varying by the amount of time it takes for them to sprout, how tall they can grow, how their roots grow, and what they produce!

In this lesson, you'll learn what it looks like when a seed is on its way to becoming a plant. That process is called germination. There are several factors that are needed for a seed to become a plant. They need just the right amount of light, water, and soil, and each plant is different in how much of it they need. In this activity we will be giving our seeds only water and light, so that we can see what they look like when they are growing. Because of this, the seeds probably wont grow into a full plant. But thats okay, because the goal of this activity is observation!

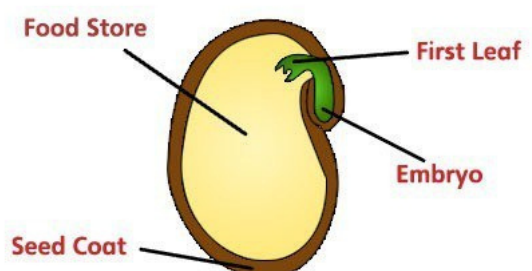
For this activity you will need:

- your 16 oz. container
- a couple of paper towels
- 4 different seeds
- water
- your ruler
- and your notebook!

Parts of a Seed Vocab:

- Seedcoat: protects the inside of the seed from injury, parasites, and extreme temperatures.
- Endosperm: provides food the embryo.
- Embryo: tiny starter plant that breaks out of the seed.
- Germination: the seed coat goes through a process of breaking open to allow the embryo (tiny plant) to grow into a larger plant.

Parts Of Seed

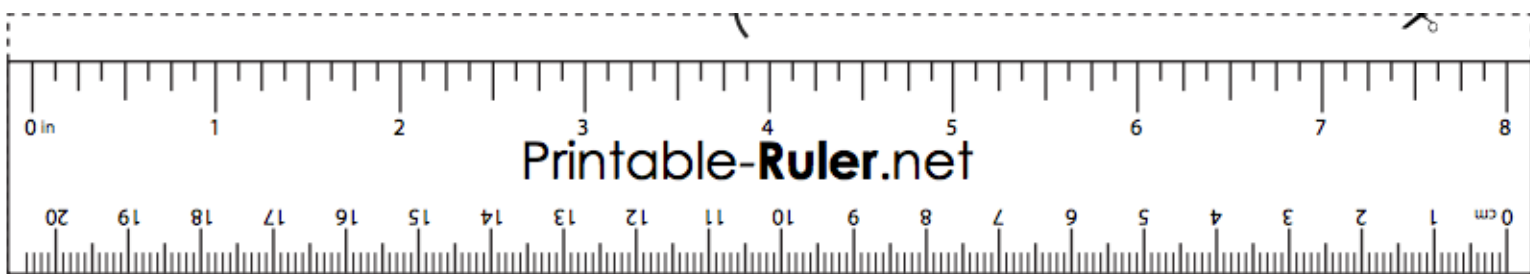


Directions:

1. Ball up a few pieces of paper towels and place them inside your 16 oz. container until it is full.
2. Pick out 4 different seeds and place them in the cup
3. between the side of the cup and the construction paper towels.
4. Gently water the paper towels in the center until saturated.
5. Place the cup (or cups if you would like to try multiples) on a shelf or windowsill and watch them grow.
6. First you will notice the seed coat expanding (wrinkling) as the seed absorbs water, and then the root will
7. start to grow in 2 to 3 days. Water as necessary to keep the paper towel and seeds continually moist
8. After the roots emerge, the stem and leaves will begin to appear. You can continue to grow your
9. plant as long as you want for observation.
10. As your seeds germinate and grow, document the similarities and differences between how the seeds grow in your garden explorer notebook.



Cut out this rule to measure
how long your seed stems
grow!



Native Species, Native Foods Scavenger Hunt



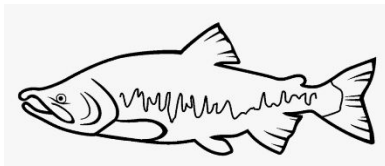
Hazelnuts



Maple Leaves



Oyster Mushrooms



Salmon



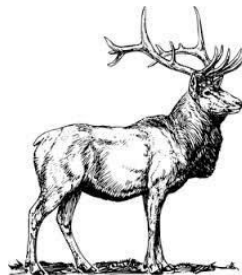
Horsetail



Huckleberries



Squirrel



Elk



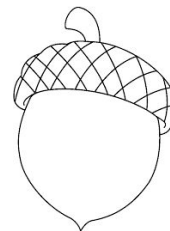
Wild Onion



Chokecherries



Common Camas



Acorn



WHAT IS SOIL?

Setup Time: 20 minutes

Observation Time: 2-3 Days

Although many factors contribute to a thriving garden, any seasoned gardener will stress the importance of good soil. In addition to anchoring roots, soil provides life-sustaining water and nutrients. Plants in poor soils will struggle to grow, even if optimal water and light are available. In contrast, plants in good soils will grow to their fullest potential and experience fewer problems with insects and disease.

Soil is composed of minerals and organic matter. Sand, silt, and clay are the mineral particles derived from rock broken down over thousands of years by climatic and environmental conditions (rain, glaciers, wind, rivers, animals, etc). The largest, coarsest mineral particles are sand. These particles are 2.00-0.05 mm in diameter and feel gritty in your fingers. Silt particles are 0.05-0.002 mm and feel similar to flour. Clay particles are extremely fine – smaller than 0.002 mm – feel sticky in your fingers when wet, and clump to the point that you can't see an individual particle without a microscope. The proportion of these three minerals in a soil determine its texture or they way it feels.

Organic matter is the decayed remains of once-living plants and animals. Good plant growth and development depends on the mineral and nutrient content of soil, as well as its structure. Soil is teeming with life, including microorganisms like bacteria and fungi (billions in a single teaspoon!) and larger animals such as worms and sow bugs. Many of these underground inhabitants feed on remains of plants and animals, breaking down their tissues. In the process, they create pore space and release nutrients that plants need and the cycle begins again.

Pore space – the arrangement of soil particles in relationship to each other – is an important component of soil structure. In an optimal situation about 50 percent of the volume of the soil would be pore space, with half of that filled with water and half filled with air. The other 50 percent would be sand, silt, clay, and organic matter. Roots need air as much as they need water; plants can actually suffocate or drown if they are completely submerged in water for extended periods of time. The proportion of these different-sized particles affects the amount of air, water, and nutrients available to plants, and how the soil “behaves.” The smaller the soil particles, the more they stick together when wet. Thus clay soils can be sticky and difficult to work. With fewer air spaces, they drain poorly, and roots may suffer from a lack of oxygen. However, clay soils can be rich in minerals. In contrast, sandy soils can drain water too quickly and be low in nutrients, but they are easier to work. Adding organic material can offset many of the problems associated with either extreme.

While there's no such thing as a perfect soil, particular plants grow best in particular soils. In general, common garden plants prefer loam – soils with a balance of different-sized mineral particles (approximately 40 percent sand, 40 percent silt, and 20 percent clay) and ample organic matter and pore space, but some common plants grow better in sandy conditions, while others are well adapted to clay soils.



MATERIALS:

16 ounce container with lid

1/2 Cup of soil

Water

Notebook

Setup Time: 20 minutes

Observation Time: 2-3 Days

EXPERIMENT:

Find some soil in your yard or use the soil provided. Use your fingers and feel the soil. Do you feel sand, sticks, or clay in it? Does it have a smell? Use your magnifying glass and look closely at the soil. Use your journal and write down what you observe.

Using your 16 ounce plastic container, add about 1/2 cup of soil to it. Next, fill the container 3/4 of the way full with water. Put the lid on the container and shake it carefully but vigorously, making sure the lid stays on. Place the container in an area and leave it undisturbed for 2-3 days. As the soil settles, use your notebook to write down any changes you notice.

- Does the soil all settle at the same rate?
- Does it settle in layers?
- What settled first?
- What does the water look like each day?

- **I didn't expect...**



WHO LIVES IN OUR GARDEN?

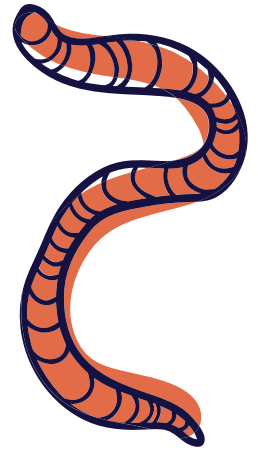
Along with plants, gardens are home to many living creatures, including fungi, worms, and small animals (insects, mollusks, birds, snakes, and much more).

For this activity, you will need:

- your garden explorer journal
- your 16 oz. jar
- a magnifying glass
- something to write with

REMEMBER:

- Respect all life in the garden. Observe living creatures with your eyes, not your hands.
- Write down or draw as many details as possible.
- Look in the soil and under leaves and rocks.



To start: head outside and look at your surroundings. Take time to observe as much as you can.

What do you see when you look up to the sky?

Or in the trees?

Or under a rock?

Write your answers in your explorer's notebook.

Next: Use the jar from your kit to collect some living creatures to draw and inspect, such as worms or roly-pollies.

Use your magnifying glass to inspect the creatures you've collected.

In your notebook, write down your observations and draw a picture of what you've collected.



In the Garden Word Search

S S S R H G K S S S Z Y G R R
F U K T G S E B N T L J R E E
S N N Q N V I A R E E B O W W
N L F O A O I D T O W M O O O
A I W E I L I T A N C R T L L
E G L O H N U T O R M C S F F
B H S T R C O I A K I D O I J
E T R E E G T F T N A L P L U
S A E P E A S O I L I O O U I
E L I P G D Q A P X Q M T A M
H F A I S O S Q O Y U D R C M
I M R E N D O S P E R M E E Q
G R S T O R R A C I V V E G G
I E M B R Y O W X A V Y J Q Y
V J A A G J G C E M J G J E Y

BEANS

CAULIFLOWER

ENDOSPERM

GROW

LETTUCE

PLANT

SEEDS

STEM

WORM

BROCCOLI

EARTH

FLOWER

IRRIGATION

ONION

RADISH

SNAIL

SUNLIGHT

CARROTS

EMBRYO

GERMINATION

LEAVES

PEAS

ROOTS

SOIL

TREE