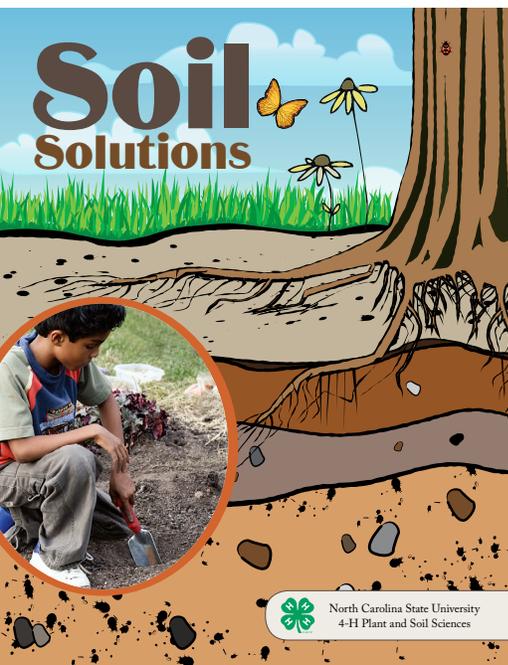




## Materials

- Small craft plastic bags
- Cotton balls
- Basil seeds
- Black bean seeds (from the grocery store)
- String or yarn
- Hole punch
- Video clip

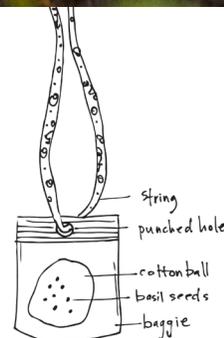


**FIGURE 3-1** Soil Solutions is one of many North Carolina 4-H curricula that explore ideas in agriculture including plants, soils, insects, pollinators and more. To find your local agent: visit <https://www.ces.ncsu.edu/>

North Carolina State University  
4-H Plant and Soil Sciences

# LESSON 3 BASIL SEED GERMINATION NECKLACE

This lesson comes from North Carolina 4-H's *Soil Solutions*, a school enrichment curriculum for the third grade focused on plants and soils. It is an easy hook activity to start the conversation on seed germination. Any 4-H curriculum is freely available to any NC educator through a local Cooperative Extension's 4-H Youth Development Agent.



## LET'S DO IT

1. Give each youth a pinch of basil seeds and ask, "What is seed germination?"
2. Having them still hold the seeds, watch a short video clip of a black bean germinating ([go.ncsu.edu/basil](http://go.ncsu.edu/basil)).
3. What did you observe? What do you think seeds need in order to grow? List the youth's ideas.
4. Take a water dropper and squeeze a few drops onto their seeds.
5. Wait a few minutes and the seed coat should start to break down and form what looks like mucus.
6. Tell the students that the basil seeds are starting to germinate.
7. To observe the process of seed germination, make a germination necklace.
8. Give each student a small craft plastic bag with a hole punched in the top, a cotton ball, and a string.
9. Demonstrate dipping the cotton ball into water, gently squeezing the excess water, and putting the basil seeds on the ball and slipping it inside the baggie.
10. Thread the string through and tie around the neck. The germination necklaces will let students observe the basil seed growth.
11. ried beans also work very well for this exercise.

## TALK IT OVER

Seeds must be given adequate moisture, oxygen, and a proper temperature for germination to occur. In order for the seeds to germinate, the seed coat must be weakened, so water may be imbibed or taken in by the seed. Gases are also exchanged through the weakened seed coat.

1. What other factors might affect seed germination?
2. What is the value to the seed for not germinating in the absence or overabundance of water? At low temperatures?
3. Have the students think about how seed germination relates to their own lives. How does knowing about the process of seed germination help you? When would you have had to know about seed germination before?
4. Where can you go to get more information about seed germination? How could the things you learned today be used in other situations?



**FIGURE 3-2** Basil seeds will start the germination process by forming a gelatinous coat when exposed to water



**FIGURE 3-3** Youth can plant their basil seedlings and record the growth

## ACTIVITY EXTENSION

Seeds have evolved with survival mechanisms that will inhibit seed germination when the conditions are not favorable.

1. Explore the effects of plant density, planting depth, light (lettuce seeds require red light), or dormancy temperature requirements (stratification).
2. What is the value to the plant for having these limitations?

## BASIL SEED NECKLACE - CARING FOR YOUR PLANTS

To grow your basil seedlings into plants, follow these easy steps:

1. Once your seeds are on the cotton ball and tucked into a baggie, be sure to keep it moist by misting it every few days.
2. The basil seeds will start to sprout in 3-5 days.
3. After 7-14 days, your seedlings should be ready to transplant. They should have 2-4 leaves.
4. Start by filling a 4" pot with potting soil and water it thoroughly.
5. Press a hole into the moistened soil.
6. Then, gently hold one of the seedling leaves and carefully tug the seedling off of the cotton ball.
7. Tuck the seedling into the hole.
8. If the stem breaks, discard the seedling.
9. Firmly move potting soil around the seedling for support.
10. Keep soil moist, but not wet. Transplant into the garden or a container once the seedling has grown to 3-4" or about 4-5 weeks.