

BABY PLANTS SNAPSHOT

DRIVING QUESTION: HOW CAN WE GROW NEW PLANTS?

Recommended Grades: K – 6; Adaptations for 6 – 12.

Classroom or Center Activities	Outside or Larger Space Activities	Technology-Based Activities	Stem-to-Go Take Home	Field Work and/or Natural Area Needed
X	X	X	X	X

Materials: For Seeds to Salad: Radish seeds, radishes, potting soil, white glue, single-ply toilet paper, water, 2 ssplanting containers or garden area. For DNA: strawberries, salt, shampoo, rubbing alcohol that is chilled in the freezer (91% works best), sealable quart size storage bags, water, teaspoon, coffee stirrer. For Small Starts: Clear glass jars with or without lids, potting soil, teaspoon, repurposed containers for planting, water, a sunny window. Recommended plants for propagation: Jade Pothos, Nerve Plant, Spider Plants, or Spiderwort.

Participant activity: 30 minutes for each activity, but several of these activities require 4 – 6 weeks for plants to sprout and grow.

Objectives:

1. Describe the structures of a plant.
2. Explain the plant life cycle.
3. Apply experimental design to infer factors that affect plant growth.
4. Extract DNA from strawberries.
5. Compare and contrast plant propagation methods.

Teacher Tips: Baby Plants

Plan ahead: Incorporate principles of Reduce Reuse Recycle by collecting small containers for plant propagation. Wide mouth jars like spaghetti sauce jars are easier for small hands to plant terrariums. Seed packets are available March – June and harder to find after that. Be sure to purchase radishes in bunches with greenery intact. Ask for donations of clippings from these plants.

Jade Pothos



Spider Plants



STEM Skills

S: Explain the life cycle of a flowering plant.

T: Extract DNA from strawberries.

E: Apply and evaluate plant propagation techniques.

M: Graph plant growth over time.

Total prep: < 15 minutes to make copies and assemble materials

Safety: Check for allergies (strawberries) and ensure that students wash their hands after playing in the dirt. Rubbing alcohol is toxic.

Sensory Integration Issues: Textures and scents can be intense for some children.

Cost: Minimal, <\$2 per person.

What else do I need? Paper towels/rags.

Clean Up: Hands, equipment, and surfaces can be washed with soap and water.

NC CAP's Unit Planner

<i>Classroom or Center Activities</i>	<i>Outside or Larger Space Activities</i>	<i>Technology-Based Activities</i>	<i>Stem To-Go</i>	<i>Field Work and/or Natural Area Needed</i>
Seeds to Salad	Pepper Seed Dance https://www.youtube.com/watch?v=4gtZYnX8fas	Interactive organism sort for sexual or https://learn.genetics.utah.edu/content/basics/reproduction/	Radish Friend	Flower Walk
Small Starts		Build a DNA Molecule Interactive: https://learn.genetics.utah.edu/content/basics/builddna/		
DNA from Strawberries				

NC Essential Standards Correlations: Baby Plants

K.P.1.1. Compare the relative position of various objects observed in the classroom and outside using position words such as: in front of, behind, between, on top of, under, above, below and beside.

K.P.2.1: Classify objects by observable physical properties (including size, color, shape, texture, weight, and flexibility).

K.L.1.2: Compare characteristics of living and nonliving things in terms of their structure, growth, changes, movement, basic needs.

1.L.1.1: Recognize that plants and animals need air, water, light (plants only), space, food, and shelter and that these may be found in their environment.

1.L.1.2: Give examples of how the needs of different plants and animals can be met by their environments in North Carolina or different places in the world.

1.L.1.3: Summarize ways that humans protect their environment and/or improve conditions for the growth of the plants and animals that live there (e.g., reuse or recycle products, avoid littering)

1.L.2.1: Summarize the basic needs of a variety of different plants (including air, water, nutrients, and light) for energy and growth.

1.L.2.2: Summarize the basic needs of a variety of different animals (including air, water, and food) for energy and growth.

2.L.2.1: Identify ways in which many plants and animals resemble their parents in observed appearance and ways they are different.

2.L.2.2: Recognize that there is variation among individuals that are related.

3.L.2.1: Remember the function of the following structures as it relates to the survival of plants in their environments: Roots – absorb nutrients, stems – provide support, leaves – synthesize food, flowers – attract pollinators and produce seeds for reproduction.

3.L.2.2: Explain how environmental conditions determine how well plants survive and grow.

3.L.2.3: Summarize the distinct stages of the life cycle of seed plants.

4.L.1.1: Give examples of changes in an organism's environment that are beneficial to it and some that are harmful.

5.L.2.3: Infer the effects that may result from the interconnected relationship of plants and animals to the ecosystem.

5.L.3.1: Explain why organisms differ from or are similar to parents based on the characteristics of the organism.

6.L.1.1: Summarize the basic structures and functions of flowering plants for survival, reproduction, and defense.

6.L.1.2: Explain the significance of the processes of photosynthesis, respiration, and transpiration to the survival of green plants and other organisms.

- 6.L.2.1: Summarize how energy derived from the sun is used by plants to produce sugars (photosynthesis) and is transferred within food chains and webs (terrestrial and aquatic) from producers to consumers to decomposers.
- 6.L.2.2: Explain how plants respond to external stimuli (including dormancy and forms of tropism) to enhance survival in an environment.
- 6.L.2.3: Summarize how the abiotic factors (such as temperature, water, sunlight, and soil quality) of biomes (freshwater, marine, forest, grasslands, desert, Tundra), affect the ability of organisms to grow, survive, and/or create their own food through photosynthesis.
- 7.L.1.2: Compare the structures and functions of plant and animal cells, including the major organelles (cell membrane, cell wall, nucleus, chloroplasts, mitochondria, and vacuoles).
- 7.L.2.1: Explain why offspring that result from sexual reproduction (fertilization and meiosis) have greater variation than offspring that result from asexual reproduction (budding and mitosis).
- 8.L.4.2: Explain the relationship between genetic variation and an organism's ability to adapt to its environment.