

# Plant Life Cycle Game

**Purpose:** In this game, students play rock, paper, scissors in rounds moving through the plant growth stages. This game provides an active opportunity to reinforce learning about plant life cycles and parts.

**Time:** 10-20 minutes

**Level:** 1-3

**Materials:**  
NONE



## Minnesota Science Standards and Benchmarks

2.4.3.1.1 Describe characteristics of plants at different stages of their life cycles.

3.4.1.1.1 Compare how the different structures of plants and animals serve various functions of growth, survival and reproduction.

## *Background*

Most plants complete a life cycle from seed to seed that involves five major steps (also called stages or phases).

1. **Seed** - When a seed starts to grow, it germinates. The cotyledons store food for the baby plant inside the seed. When the seed starts to germinate, the first thing to grow is the main root. The seed's growing conditions usually need to be damp, warm, and dark, like springtime soil. A dry seed will stay dormant until it soaks in some water, then it will start to germinate.
2. **Sprout** - The plant begins to grow roots and begins to sprout leaves and a stem. Roots are an essential part of the plant life-cycle. Without the roots, there would be no way for the plant to absorb water and get it up to the leaves. Roots also hold the plant tightly in the ground and keep the soil from being washed away.
3. **Plant** – The plant begins to grow a main stem, more leaves and complete transpiration, photosynthesis, and respiration. All plants have stems. The main stem holds up the plant and carries water throughout the plant. Secondary stems grow out from the main stem. Leaves grow out of the secondary stems. Green leaves are responsible for making most of the plant's food. Chlorophyll is the green substance in plant leaves and stems that works with energy from the sun to help carbon dioxide and water combine to make food for the plant in the process of photosynthesis. Plants pull water upward from the soil through the stem in a process called transpiration.
4. **Flower** –Flowers originally developed as a way to attract insects for pollination. Flowers contain a female part – Pistil (contains the stigma, style and ovary) and a male part – Stamen (contains anther and filament). All flowers share common parts for reproduction or creating seeds. Flower pollen, held on the stamen, provides food for insects, especially bees, and it is often produced in great quantities. Nectar attracts insects to the flower which guarantees that the pollen is carried away. When an insect collects nectar from a flower, some pollen from the stamens sticks to its body. When the insect flies to another flower, some pollen may rub off onto the pistil of another flower.
5. **Fruit** – Once pollen has been transferred from the stamen to the pistil seeds begin to form. At the base of the flower a fruit develops to contain and protect the seeds. A seed contains everything necessary to produce a new plant. When a seed leaves the fruit or flower it is called dissemination. If the seed is in fruit, dissemination occurs when the fruit falls from the plant or when an animal carries the fruit away. Some of these seeds end up in the soil and grow into new plants.

*Plant Life Cycle information from: <http://www2.yk.psu.edu/~sg3/ist311/games/team3/>*

In this game, students play rock, paper, scissors in rounds moving through the following plant growth stages with each round. Movement through the stages is determined by the rules below. This game is a great way to reinforce learning about plant life cycles and parts.

#### Plant Growth Stages:

1. Seed – squatting close to the ground
2. Sprout – standing with arms straight at sides
3. Plant – standing with hands on hips to make leaves
4. Flower – standing with arms above head, open like a flower
5. Fruit – standing with hands interlaced in front of body making a circle like a fruit

#### Rules:

1. Students may only play a match of rock, paper, scissors with another student in the same plant stage (ex. seeds can only play with seeds, flowers can only play with flowers).
2. Winners of a match of rock, paper, scissors always advance to the next stage, losers remain in their current stage (ex. in sprout vs. sprout the winner becomes a plant, and the loser stays a sprout).
3. When students become a fruit, they are overall class winners.

### *Procedure*

1. Introduce the game and rules to the students. Demonstrate what all of the plant growth stages look like and have students practice them with you. Then, have all students start in seed position and find a partner to play rock, paper, scissors.
2. Instruct students to play one round of rock, paper, scissors with their partner. Remind them that the winner becomes a sprout, and the loser stays a seed.
3. Now guide students to find new partners to play a second round of rock, paper, scissors. Make sure seeds find another seed and sprouts find another sprout. Have the students play another round of rock, paper, scissors. Just like the last round, winners of the seed match become a sprout, and the losers stay a seed. Additionally, winners of the sprout match become a plant, and losers stay a sprout. Continue the game for as many rounds as time allows or until a few students have made it to the fruit stage.

### *Extensions and Additional Activities*

1. Instead of having students stop when they become a fruit, allow them to play fruit vs. fruit, with the winner becoming an overall class winner and the loser going back to being a flower or have the winner of fruit vs. fruit become a seed allowing the students to move through the cycle a second time.

2. Adjust the plant growth stages to make the focus of the game plant parts (ex. root, stem, leaves, flower, fruit, seed), or reduce the number of stages (ex. seed, flower, fruit) to simplify the game.
3. Ask students if all plants go through the same stages. Use this as a starting point for a discussion about the difference between annuals, biennials, and perennials, which all have slightly different life cycles.

*Adapted from Education Outside, FoodCorps and Green Mountain Farm to School*

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