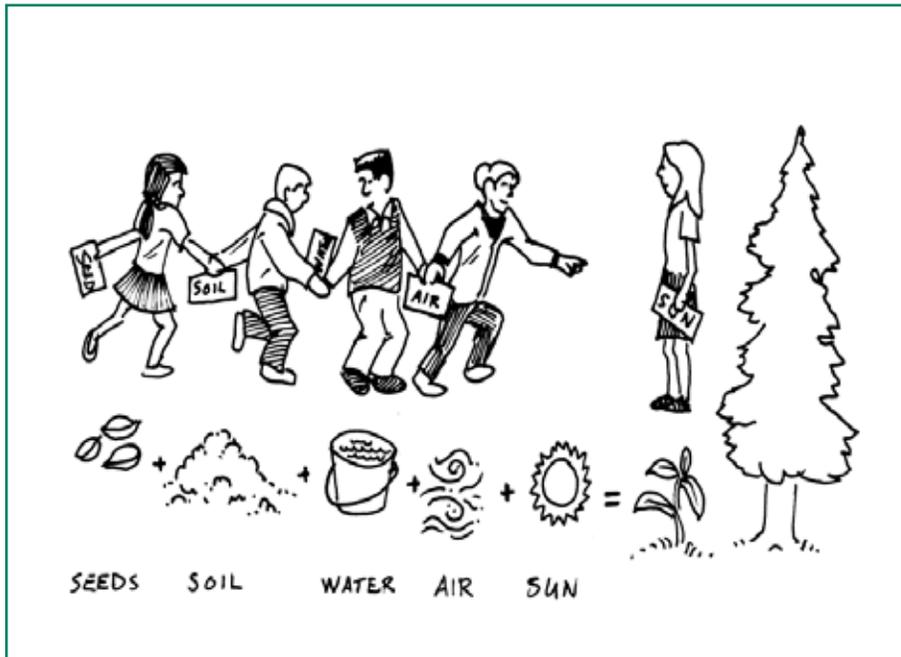


# Tree Seed Chain Game

## 1 EXTENSION



### Section 2 FOREST ACTIVITIES

**Grade Level:** K - 3

**State Standard:** S A-14

**NGSS:** K-LS1-1.,K-ESS3-1.,3-LS4-3.

**Subjects:** Science, physical education

**Skills:** Classifying, memorizing

**Duration:** 30 minutes

**Group Size:** Whole class

**Setting:** Outdoors (or gym)

**Vocabulary:** Living, non-living, germination

### Objective:

Students will sequentially demonstrate the elements of a forest food web required for the survival of a tree.

### Teaching Strategy:

In a game, students race to collect the nonliving requirements for seed germination.

### Complementary Activities:

*OUTDOOR:* “Fungi” and “Detritivores” in this section.

### Materials:

For a class of 30 students: six seed cards (labeled “SEEDS need soil, water, air, and sun”), six soil cards (labeled “SOIL”), six water cards (labeled “WATER”), six air cards (labeled “AIR”), six sun cards (labeled “SUN”). Alternately, you can fill Ziploc bags with seeds, dirt, water, sun cutouts and air (nothing). The seed bags also contain the sentence: “SEEDS need soil, water, air, and sun.”

### Background:

See **INSIGHTS, Section 2, Forest Ecosystems.**

### Procedure:

1. Divide the class into two groups of equal size, each divisible by 5. If there are extra students, they can become judges at the finish line or markers for the playing field.
2. Hand out one card (or Ziploc bag) to each student, and tell the students to keep their identities a secret (except for seeds). Set the boundaries of the playing area.
3. Tell the students that the goal of the game is for seeds to obtain all the nonliving parts of the ecosystem they need to germinate, **in the order** they need them (*soil, water, air, sun*) and to be the first to cross the finish line. *Without soil, water, air, and sunlight, seeds will not grow.*
4. Begin the game with the seeds at the end of the field opposite the finish line. Divide the nonliving things equally along the two other sides of the field. *Caution students not to run into another tree seed chain.*
5. The seeds will run from one side of the field to the other, asking **only one** person per side if he is soil (or the next requirement on the list). Nonliving requirements (soils, waters, airs, suns) can only answer “yes” or “no.” They



should not tell what they are. Seeds may need to consult with the teacher for the next item on the list, depending on reading-skill level.

6. When a seed finds soil, the seed and the soil join hands to form a chain and head for the opposite side of the playing area to look for the next requirement on the list. This process keeps going until the seed has, in order, all the requirements she needs to survive as a tree. A completed chain proceeds to the finish line. Continue the game until all the seeds have found all their nonliving requirements.

### **Evaluation:**

Students name (in order) the four essential nonliving requirements for tree growth.

### **EXTENSION:**

**Experiment with seeds and nonliving elements.** Divide the class into four groups to conduct scientific experiments on plants, observing their need for soil, water, air, and sun. Assign a group to each of the following: 1) soil problems, 2) water problems, 3) air problems, 4) sunlight problems.

Using green beans, or other fast-growing plants, students design a growth experiment that demonstrates what happens if there is a missing nonliving component in an ecosystem. Each group should have an experimental and a control plant and design its own tests. Students keep records in daily logs and present their findings to the class.

### **Credits:**

Adapted from Rocky Rohwedder, "Tree Chain Game," Project Learning Tree, Leaflet No.15, 1991.

### **Curriculum Connections:**

(See appendix for full citations)

### **Books:**

*Ancient Ones, The World of the Old-Growth Douglas Fir* (Bash)

*The Big Tree* (Hiscock)

*Crinkleroot's Guide to Knowing the Trees* (Arnosky)

*Mighty Tree* (Gackenbush)

*One Small Square: Woods* (Silver)

*The Tremendous Tree Book* (Brenner)

### **Teacher Resources:**

(See appendix)

**Conifers take a long time to produce and release their seeds compared with broadleaves. Black spruce cones may hang on branches for many years.**

