

GOALS of LESSON

Students will understand what a symbiosis is.

Students will understand that ants can be farmers, just like humans. They cooperate and work together to bring food to a fungus. The fungus then makes food for the ants. This is a symbiosis.

LIST OF MATERIALS

Coloring page (s)

Green construction paper or poster board

Cardboard box

Styrofoam packing peanuts

Tape

A paper crown

(optional) small marshmallows

Classroom discussion

1. What is a symbiosis? A symbiosis is when two or more different organisms live together and depend on each other. Another way of saying it is "a partnership between two different kinds of living things." Some examples are;
 - humans and the food that we grow,
 - different kinds of animals that live in a group to find food together,
 - cleaner shrimp that swim along side big fish and clean their gills.
 - when birds eat fruit from a tree, they carry it away from the tree. This means the seeds (inside the fruit) get to a new area of the forest. The bird gets food and the seed gets transport.
2. Can the kids think of an example?
3. Leaf-cutting ants have a symbiosis with a fungus. The leaf-cutting ants carry leaves and flowers to their nest, where they feed them as a compost to their garden. Then the fungus uses the nutrition from the leaves and converts it into food for the ants. The Ants depend on the

fungus for their food, and the fungus depends on the ants for their food. Neither partner can survive alone.

Classroom activities

Have the students watch videos from our website of foraging leaf-cutting ants.

1. Print out and staple the leaf-cutting ant coloring book that is attached to this email. Kids can color it or you can read it to them. If you prefer, you can just select one page that seems appropriate for your class to print out as a coloring sheet.

2. · Role-play activity: The students are split into "castes" or different groups to do different jobs. The characters: 1 queen – 3 garden workers – 12 to 15 leaf cutters – 2 to 6 soldiers. The queen (wearing a crown) directs the workers to go and cut leaves. The kids march in a line to an area where green paper and scissors are waiting. They cut circles of leaves and line up, holding the leaves over their heads. They march in a line towards the nest, with the soldiers patrolling back and forth to protect the cutters. When they arrive at the nest, they hand the leaf pieces to the garden workers, who use tape to tape the leaves onto the garden (an upside-down cardboard box). Then they tape on pieces of white Styrofoam (the fungi). **OPTIONAL** At the end, hiding under the garden box is a bowl of white small marshmallows (fungi!) that the ants get to eat. Working together means everybody gets to eat!