

The Ant Attack

Summary

By learning about and observing ants students will make predictions about the effects of changes in the ants' environment.

Materials

Ant Farm Habitat

Journal

- [Measuring Ants](#) pdf
(ruler)
- [Ant Math Attack](#) pdf
- [Ant Anatomy and Life Cycle](#) pdf

Additional Resources

Into the Forest card game (Nature's Food Chain Game) - 2-6 players, age 7 and up. Ampersand Press 1-800-624-4263

Onto the Desert card game (A Game of Survival) - 2-6 players, age 7 and up. Ampersand Press 1-800-624-4263

Predator card game (The Forest Food Chain Game) - 2-6 players, age 7 and up. Ampersand Press 1-800-624-4263

Books

- *One Hundred Hungry Ants*
, by Elinor J Pinczes
- *A Remainder of One*
, by Elinor J. Pinczes
- *The 512 Ants on Sullivan Street*
, by Carol A. Losi

Background for Teachers

Ants are one of Earth's oldest residents and play an important role by maintaining a balance in nature. Ants are insects (six legs and three body parts) that live and work together. There are over 8,000 species of ants. Ants provide food for birds, other insects, and mammals. They are scavengers that clean up dead plants and animals. Some large animals live entirely on ants and other insects for their survival. Ants help aerate soil by digging their many tunnels which in turn help us.

In some ways, ants and people are alike. Both ants and people take care of their young, live together, have different jobs, and depend on each other. Ants have all the senses that humans have but use different body parts to achieve the same goals. Ants don't have ears; instead they use their legs and antennae to feel vibrations. They use antennae to hear, smell, and touch things. They talk or communicate by tapping their antennae together. Ants have an exoskeleton (outer covering), but have sensory structures all over their body so they know when something is touching them. Ants don't have a tongue, but they have finger like pulps around their mouths that have the ability to taste.

Unlike humans, ants have two stomachs; the second stomach is filled and used to feed other ants. Ants have two types of eyes; one set has many lenses, while the other set of eyes called "simple eyes", allows them to judge light levels in the environment. Ants don't chew their food; instead they use their powerful jaws to squeeze the juices out of their prey and also to defend themselves. Each ant colony has their own scent and can recognize an intruder. The soldier ants (larger ants) defend those who try to invade. They also use this scent to track food that their sisters have found.

An ant's reproduction goes like this: The queen fertilizes the eggs creating all females. Ants that are

fed more in the larva stage are called soldier ants. Once a year, the queen creates a male by not fertilizing that egg and fertilizes other eggs to create females, one which will become a princess. The eggs hatch within eight to 10 weeks. At this time, the male ant and Princess ant, both having wings, fly away and mate during flight. (Mating happens around the end of June until early August and the female can mate with more than one male.) After mating, the princess ant loses her wings, becoming a queen and begins her own nest or colony. Male ants are created only as needed for reproductive purposes and die shortly after mating.

Intended Learning Outcomes

Science

1. Use science process and thinking skills.
2. Manifest science interests and attitudes.
6. Understand the nature of science.

Math

5. Connect mathematical ideas within mathematics, to other disciplines, and to everyday experiences.
6. Represent mathematical ideas in a variety of ways.

Instructional Procedures

Invitation to Learn

Ask, "What do you think it is like to be an ant?"

Ask, "How do ants impact our lives and our environment?"

Say, "Today we are going to read, *Hey Little Ant* by Phillip and Hannah Hoose"

Instructional Procedures

Order ants from the link below.

After receiving the ants, place ants in their new environment (ant farm habitat).

Have students predict the changes that will occur as the ants spend more time in their new environment with one another.

Have students record their predictions in their Ant Journals.

Have students observe, draw, and record in an Ant Journal what they see (at least every other day) and write at least one question they want to know about ants.

Have a class discussion about ants and answer any questions the students have about ants from their Ant Journal entries. (See website for ant information.)

Have students share their observations and what they find interesting about ants to their classmates.

Have students take time to write answers to their own questions in their Ant Journals and ask any other question that they might want to know for the next class discussion about ants.

When ending the ant unit, have students go back and reflect upon their predictions and observations and write a revision of what they know.

For a math activity use *Measuring Ants* and *Ant Math Attack* allowing the students to explore fractions like thirds and using addition, subtraction, and multiplication by cutting them up and creating their own math problems. (Some examples are on *Ant Math Attack*).

Extensions

Research the websites about ants listed in Additional Resources.

Check out books and magazines on the subject.

Make your own ant habitat.

Do a written/oral report about ants.

Family Connections

Read about ants from different resources.

Have your family observe an anthill and place three different foods a few feet away from the anthill (e.g. a cube of sugar, a cracker, and a cookie). Predict which food they will go to first.

Watch what the ants will do and which food they seem to like the best.

Have your family build an ant farm.

Assessment Plan

Ant Journal entries-KWL- Response to ant farm observations.

Check to see if student's Ant Journal drawings change as ant habitat changes.

Students will self reflect upon their predictions and observations and write a revision of what they see.

Bibliography

Research Basis

Bransford, J.D., Brown, A.L. & Cocking, R.R, (Eds.) (1999). *How People Learn; Mind, Experience, and School*. Washington, DC: National Academy Press.

The authors explored the methodologies and barriers in motivating young learners to enjoy and participate in classroom science research and learning. They concluded that a standard-based curriculum provides information on what students should learn concluding that teachers make the curriculum accessible to students through their choice of instructional materials, lessons, homework, and types of assessment.

Louckes, S.H., Hewson, P.W., Love, N., & Stiles, K. (Eds.) (1998). *Designing Professional Development for Teachers of Science and Mathematics*. Thousand Oaks, CA: Corwin Press.

In this study the authors identified three components of effective professional development that nurture continuous improvement: context, process and content. Professional development requires careful planning with the needs of teachers being an integral part of the process.

Authors

[Utah LessonPlans](#)