

Example Application

Supersocieties: the secret lives of social insects

EYH 2012 Cornell University

- I. *What is the main goal of your workshop? In 2-3 sentences describe what the participants should know, be able to do, etc., after attending.*

The goal of the workshop is to expose participants to the complexity of social insect colonies, exemplified by honeybees and ants. After attending, participants should be able to identify some different types of social insects and their behaviors, understand why they are biologically interesting, and not be afraid of them!

- II. *Please provide us with a bulleted summary of your planned activities during the workshop and the learning objectives for each one. We would like to use these to get an idea as to what the exact content of the workshop would be, please be as detailed as possible. Remember, you will have an entire hour.*

Girls and buddies will be divided into groups and will spend about 15 to 20 minutes at different stations.

1. Explore an observation hive (an indoor, glass-walled hive)
 - Find and discuss the different types of bees (workers, males, queen)
 - Discuss the many ways bees communicate and work together
 - Discuss why a family of bees helps each other
 - Look for bees doing tasks such as building comb, collecting food, raising babies,
 - controlling temperature, etc.

Learning objectives: understand that there are different types of bees in a colony, and that bees do many different tasks.

2. Observe slave-making ants in lab nests
 - Point out different aspects of ant nests: queen, brood pile, workers
 - Identify the two different ant species in the nest
 - Observe how behavior differs between the two types of ants

Learning objectives: To understand how a slave-making ant colony works

3. Outside, open up a small, calm colony of bees (weather permitting)
 - See how a hive is organized
 - See how the frames come in and out of the hive
 - Allow volunteers to hold drones or young workers (which can't sting)

Learning objectives: understand that bees build an impressive home for themselves, and that bees aren't always as scary as you might think

4. Alternate activity if weather is bad: Decode waggle dances
 - Learn the components of the waggle dance, and how to decode it
 - Work in pairs to determine direction and distance of dances seen in the observation hive

- Find on a map where these dancers are foraging

Learning objectives: learn about how bees use the waggle dance to tell one another about the location of food sources, and practice decoding the messages bees are sending

III. *What prior knowledge (if any) do you expect the girls to have to complete your workshop?*

The girls do not need to have specific knowledge about honey bees or ants to participate in the workshop. However, it would be helpful if they were familiar with the following ideas:

1. Animals behave in ways that enhance their ability to survive and reproduce
2. Plants and animals depend on each other and their physical environment

IV. *What materials do you anticipate needing to obtain to make the workshop as interactive and engaging as possible?*

We already have all necessary materials from workshops in previous years.

NOTE: Special requirements

The girls will need to be outside for at least half an hour, since we will be visiting a bee yard located at the Liddell Biological Station of Cornell University. They will need to wear long sleeve shirts, long pants, and closed-toe shoes. Although unlikely, there is always the possibility of getting stung when handling bees, so girls with known allergies to honey bees should not attend the workshop.