

Community in the Classroom Presentation Plan

Lesson Name Build a Bug (learning the external structure of insects)

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Grade Level K or 1

Standards Connection(s)

- Lifescience: observe and describe insect
- Identify different external features (and how these relate to environment for 1st grade)
- Compare and sort insects into classes based on physical attributes/external features
- Record observations and data with pictures, numbers or written statements
 - record the relative position of body parts on different insects using two references (above, next to, below, left of, and possibly dorsal, ventral, posterior, anterior for 1st grade)
- Assess food based on mouthparts of insects (for 1st grade)

Abstract:

Your opportunity to tell teachers and kids what's going to be fun and interesting about your visit!

In this presentation students will learn to how to identify insects and discriminate the organism's main body parts through several hands on activities. We will start with a brief introduction on what organisms insects are by showing pictures and asking questions to see how well they would be able to identify an insect and discriminate it from other arthropods.

We will break the class into 4 groups of 4-5 students. As a first activity, students will use several laminated body parts to build an insect. They will consult a book and pictures to help them identify the right body part, depending on the kind of insect they want to build (bee, fly, butterfly, etc). As a second activity, students will be asked to look at live or pinned insect specimens, make direct observations and try to identify the kind of insect they are looking at by consulting books and pictures. As a wrap up activity, students will use a dichotomous key with illustrations to identify a plastic insect.

This presentation connects well with the standards for 1st grade, as the students will be making observations, comparisons, and creating their own data on the external anatomy of these organisms and finally they will be learning how to follow the logic of a dichotomous key by rejecting or accepting a statement based on observed evidence.

Vocabulary/Definitions:

3 – 6 important (new) words

- **Entomology:** The science and study of insects
- **Arthropods:** Animals that have a hard body part (skeleton) outside of their body to hold it in contrast to humans that have it inside their body.
- **Insects (vs. spiders and scorpions or other arthropods):** Arthropods that have a body with three parts: head, thorax, and abdomen, 6 legs, 4 wings (usually) and 2 antennae. Spiders (arachnids) in contrast have 8 legs and lack antennae and wings.
- **Head, thorax, abdomen, wings, antennae:** Parts of the insect body. **Head** is where the eyes, mouth, and antennae are. **Thorax** is the middle of the three body parts and it is where the legs (6) and wings (usually 4) are. **Abdomen** is the last body part. **Wings** (2 or 4) are structures that allow the insect to fly. **Antennae** (2) are structures that allow the insects to detect odors and communicate. WILL SHOW PICTURE FOR THESE.



Optional vocabulary for advanced classes

- **Taxonomy/classification:** the science of grouping together animals that look similar, for example lion and cat are both carnivores, bee and beetle are both insects.
- **Identification/dichotomous key:** A tool that a scientist (entomologist in this case, or a student!) uses to help them identify an insect (or other organism) and place it into a group.
- **Insect order:** a group of insects that look very much like each other but differ a lot from other insects. For example flies and mosquitoes belong to the same order because they have only 1 pair of wings unlike the rest of the insects. All beetles have their own order because they have a hard shell covering their body.
- Dorsal, ventral, posterior, anterior—for 1st grade: terms that refer to the position of a part on the insect body that are used to help identification. Dorsal: top. Ventral: underside. Posterior: rear. Anterior: front.

Materials:

We will bring

- 2 build-a-bug sets, laminated (set includes 6 general outlines and parts of 6 kinds of insects)
- 20 dichotomous keys (1/student) to work through, laminated (with grease pencils to write on keys)
- 2 sets of 4-5 live or pinned insect examples in containers with magnifying lenses on top
- 20 magnifying glasses for students to use then take home
- 20 plastic insects for students to identify
- 2 colorful insect book(s) for students to look through
- 20 bug erasers for students to use then take home

What students should have ready

- Pencils
- Paper

Classroom Set-up:

Student grouping, Power/Water, A/V, Light/Dark, set-up/clean-up time needed

-Break the students into four groups of 4-5.

-Set up two main activity stations:

1) build-a-bug using laminated bug parts by consulting books, pictures (2 of these stations)

2) insect observations & identification from live or pinned examples (2 of these stations)

Have two groups work at station 1 while other two work at station 2 for 10 minutes. Then switch stations for another 10 minutes. By the end each group of 4-5 students will have visited each station for 10 minutes.

3) Conduct the identification/dichotomous key activity as the wrap-up with each student filling it out individually to reinforce and assess what they've learned.

Classroom Visit

1. Personal Introduction:

_____ **5** _____ **Minutes**

Who are you? What do you want to share with students and why? How will you connect this with students' interests?



- Say our names, where we are from, and what we do
- Introduce ourselves as **entomologists** and **scientists** and define these terms
- Ask kids the question: if you studied an insect, which one would you study and why?

Topic Introduction: _____ **5** **Minutes**

Big Idea(s), vocabulary, assessing prior knowledge. What questions will you ask to learn from students?

- Ask kids the questions: Who has observed an insect before? How did you know it was an insect?
- Explain insects versus arachnids or other arthropods
- Briefly present (using pictures) the main insect body parts and which ones we use for identification, to group insects into orders.

2. Learning Experience(s): _____ **20** **Minutes**

Demonstrations, hands-on activities, images, games, discussion, writing, measuring... What will you do, what will kids do? Describe in order, including instructions to kids.

Activity 1: Build-a-bug—use the laminated body parts to construct different possible bugs with other group members. You will use books and laminated pictures of insects to help you choose the right body parts for each insect order. We will have 6 different bugs (e.g. bees, flies, butterflies, beetles, ants).

Activity 2: Insect Observation / Identification—try to draw, describe, and record data for the live and pinned insect specimens available.

- Try to identify which insect you are looking at. Is it a bee, beetle, moth, fly, butterfly, ant, grasshopper, stick insect?
- Try to identify all body parts for these insects. What does the antenna look like, what mouthparts do they have, what do the wings look like? (We will verbally help K students to recognize and point to insect parts, and allow them to draw insects and parts. We will have an example data sheet for 1st graders).

3. Wrap-up: Sharing Experiences and Building Connections _____ **10** **Minutes**

Putting the pieces together – how will students share learning, interpret experience, build vocabulary?

Activity 3: Identification/Dichotomous Key—You will receive a sample plastic insect or a live/pinned specimen to identify using the key. Decide at each fork in the key which body part your insect has and therefore which way to go in the key. Keep examining your insect for all the features in the key until you have reached its final identification into group/order.

At the end we will talk about the vocabulary again to wrap up what they've learned.

4. Close: _____ **5** **Minutes**

How can kids learn more? Thanks and good-bye! Clean-up.

- How kids can learn more: go to museums, come to our school on CalDay, go outside and collect and observe bugs!
- Provide teacher with websites s/he can use for follow-up activities
- Thanks and good-bye!
- Clean-up

TOTAL _____ **45 – 55** **Minutes**

Follow-up – After Presentation



Suggest students write a letter explaining “How we learned about _____?”

List or attach examples of activities, websites, connections for additional learning.

Attach worksheets, hand-outs, visuals used in classroom presentation.

