

Summary Description

This is the sixth in a series of 11 lessons that introduces the student to Biology.

Learning Objectives

To have the student learn a few key facts about insects.

Approximate Time for Lesson

40 minutes

Suggested Maturity Level for Instruction

Student should be able to read simple words and perform simple addition and subtraction. Also, student should be able to sit still and engage in one-on-one conversation.

References:

Let's Talk About Insects - <http://urbanext.illinois.edu/insects/01.html>

Cool Bug Stuff - <http://coolbugstuff.com/index.php>

An Introduction to Insect Life Cycles - <http://www.earthlife.net/insects/lifecycles.html>

Materials Needed

1. Internet Access – Pull up the following:
 - a. Picture of parts of an insect (go to <http://www.nicksspiders.com/insects/anatomy.jpg>)
2. Insect worksheet describing parts of an insect

Preparation

Make sure you have materials open, printed and/or available prior to beginning the lesson.

Script

Introduction (5 minutes)

1. **Teacher:** OK - so last lesson we learned about plants. Can you name some parts of a plant? What are the parts of a plant? [Engage the Student in conversation, but any of the following are parts of a plant: 1) roots, 2) stem, 3) leaves, and 4) flower]
2. **Teacher:** Great. Now today, we're going to learn about creepy crawlers we call insects. Are you ready to learn about insects? [Get positive response from Student and begin lesson]

Lesson (30 minutes)

1. **Teacher:** Great. Now, I want to teach this a bit differently today – instead of teaching you what insects are, I want to tell you first by teaching you what insects are not. For example, insects belong to a group of animals (yes – insects are animals) that do not have backbones – we call animals that do not have backbones “invertebrates”. Can you think of other animals that are invertebrates? I'll give you a hint...think about animals that are gooey and can bend in all sorts of directions. [Engage the Student in

conversation – some common examples of invertebrates are worms, snails, and jellyfish]

2. Teacher: Good. And the invertebrates I want to teach you about today are insects because, believe it or not, insects make up most of the entire animal population in the whole world! In fact, in our country, the United States, scientists think that the total weight of all insects is 50 times more than the total weight of all of us Americans. Do you know what that means? It means if all the Americans stood together on a scale and weighed 10 pounds, then all those tiny insects in the U.S. sitting together on a scale would weigh...500 pounds! That sure is a lot of insects...and remember that's only our country...think then, how many insects there are in the whole world.
3. Teacher: But wait, how do you tell what is an insect? For example, are worms insects? Are spiders insects? Well, there is a way to tell if an animal is an insect – and here's how.
4. Teacher: [Show the picture of parts of an insect] You can always tell an insect by the body parts. Looking at the picture, all insects have a head, thorax, and abdomen – three different parts. Also, all insects have six legs. Can you see these parts in this picture? [Get Student's positive response]
5. Teacher: Good. Now, the head has the eyes, mouth, and antennae. Now, I know you know what the eyes and mouth is for since we have them, but what do you think the antennae are for on an insect? [Engage the Student in conversation but come to the point that the antennae help sense the environment around them]
6. Teacher: That's right – and so, the antennae act kind of like our ears, helping insects to know their environment.
7. Teacher: Now, the thorax is the middle part of the insect, which is the part that includes the six legs. If the insect has wings, the wings will also be attached to the thorax. And finally, the abdomen is for digesting food, making baby insects, and breathing.
8. Teacher: That's right, when I said the abdomen is used for breathing, it wasn't a mistake. We humans have lungs in our chests to breathe, but insects have holes called spiracles, located on the sides of their abdomen that is used to breathe air. Can you imagine though, if we were like insects, we would have holes in our stomachs for breathing air? Wouldn't that look strange? [Engage the Student in conversation]
9. Teacher: Anyway, that's how you tell if an animal is an insect. Now let's talk about the life stages of an insect. A life stage means a time in the insect's life where you can tell how old the insect is.
10. Teacher: For example, all insects start out as eggs, which is the first life stage. And all insects end as adults, which is the last life stage. But, depending on the kind of insect, some insects go through only one stage in between their egg and adult stages while others go through two stages. The insects that go through only one stage between the egg and

adult stages, called the nymph stage, start off after the egg stage looking like little versions of adults - kind of like us humans. As these insects grow up, they start to grow their wings. Examples of insects that go through these three life stages are grasshoppers and cockroaches.

11. Teacher: So to summarize, some insects like grasshoppers and cockroaches go through three life stages, the egg stage, the nymph stage, and the adult stage. The changing of an insect through these three life stages is called incomplete metamorphosis. Can you say "metamorphosis"? [[Have the Student repeat the word](#)]
12. Teacher: Good. Metamorphosis means the process of changing from an egg to an adult. It's called "incomplete" metamorphosis because these insects don't change too much from what they looked like as nymphs.
13. Teacher: Other insects, on the other hand, go through four life stages. Again, the first and last stages are the same and the ones I said before (the egg and adult stage), but the two stages in between are called the larva stage and pupa stage. During the larva stage, the insect looks completely different from the adult stage. During the pupa stage, the larva rests by building a cocoon to get ready for its final adult stage of life.
14. Teacher: You might have already guessed it, but the butterfly is the best example of an insect that goes through these four life stages; it hatches from an egg and lives as a caterpillar during its larva stage. Then, it builds a cocoon to rest and, when it's ready, it hatches out of its cocoon to become a butterfly.
15. Teacher: And because this process of growing into an adult begins with a larva that looks so different from the adult stage, this four-stage process of growing into an adult is called complete metamorphosis.
16. Teacher: So to summarize, some insects go through life in three life stages, called incomplete metamorphosis while other insects, like the butterfly, go through life in four stages, called complete metamorphosis.
17. Teacher: Ok - now that you learned about parts of an insect and the life stages of an insect, here's a worksheet that shows parts of an insect. [[Give the Student the insect worksheet](#)]
18. Teacher: Only thing is, you have to use the words on the bottom of the worksheet to fill in the blanks. Once you're done labeling the worksheet, you can color it if you want. You may begin. [[Give the Student 15 minutes to complete the insect worksheet](#)]
19. Teacher: Alright - looks like you did a great job!
20. Teacher: Ok - time for review. Stand up and get in front of the class (consider inviting other members of the family also to set the stage). [[Ask Student the following:](#)

- a. Is an ant an insect? Why or why not? An ant is an insect since it has a head, thorax, abdomen, and six legs.
- b. Is a snail an insect? Why or why not? A snail is not an insect since although it has a head, it does not have a thorax, abdomen, and six legs
- c. How many life stages does a grasshopper go through? As a bonus, can you name all the stages? A grasshopper goes through three life stages; egg, nymph, and adult.
- d. What is the process called when an insect goes through four stages of life? Complete metamorphosis
- e. What is an example of an insect that goes through complete metamorphosis? A butterfly

Teacher reviews any questions that the Student missed].

Wrap Up (5 minutes)

Teacher: [Clapping] You did GREAT! Wonderful job! Are there any questions that you have regarding insects? [Engage in conversation with the Student and follow up with questions you cannot answer by researching the Internet]