



Lesson Plan: Arthropods

Grades: 6 – 8

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(Lesson edited and formatted
by Real Curriculum, Inc.)

Summary	Students compare and contrast three types of arthropods.
Topic(s)	<ul style="list-style-type: none">• Skills of a Scientist: Observation, collection and presentation of information about specimens• Life Science: Life cycles of arthropods• Life Science: Function and Structure• Life Science: Adaptation
Concepts	<ul style="list-style-type: none">• Adaptation• Metamorphosis
Knowledge and Skills	Characteristics of arthropods: <ul style="list-style-type: none">• jointed body segments• jointed limbs• exoskeleton• invertebrate• pupae• larvae Types of arthropods: <ul style="list-style-type: none">• arachnids• centipedes• insects• crustaceans
Equipment and Materials	For class: <ul style="list-style-type: none">• One of more hand-held camera microscopes (ProScope or Scope on a Rope™) and TV or computer monitor for display For each group of students: <ul style="list-style-type: none">• Cricket, spider and butterfly• Viewing box• Hand lenses



Objectives:

1. List the four main characteristics of arthropods.
2. Describe the different body parts of the four kinds of arthropods.
3. Explain the two types of metamorphosis in insects.

Standards Covered (California Science Framework)

- 2a. Students learn the differences between the life cycles and reproduction of sexual and asexual organisms.
- 5a. Students learn that plants and animals have levels of organization for structure and function, including cells, tissues, organs, organ systems, and the whole organism.
- 7a. Students will select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

Warm Up – 5 minutes

Prompt students to list (in their science journals) the 4 main characteristics that set arthropods apart from other organisms. (Supports Standards 5a and 7a.)

Word Wall – 5 minutes

After discussing the warm-up, write down the vocabulary words that were discussed by the class and also the words that weren't mentioned. These vocabulary words are as follows: jointed body segments, jointed limbs, exoskeleton, invertebrate, metamorphosis, pupae, larvae, and types of arthropods such as arachnids, centipedes, insects, and crustaceans. Ensure all words are understood.

Attention Getter – 10 minutes

Using the ProScope, have a couple of students project pictures of different arthropods up on the screen to show the similarities and differences of these organisms (see pictures on next page). Have students point out the jointed body and limbs as well as the exoskeleton. After introducing the general characteristics of arthropods, discuss how these characteristics may have helped arthropods adapt to nearly all environments and to diversify to make up the largest group of animals on Earth. Talk about the life cycle of each arthropod and the different stages. (Supports Standards 2a, 5a, and 7a.)

Teach – 30 minutes

Students will have a cricket, spider and a butterfly at their desks. Using a viewing box, the student will identify and draw each type of arthropod, labeling the structures that make each organism unique. Students' pictures should reflect the fact that spiders have two main body parts, four pairs of legs, and no antennae, whereas insects have three main body parts, three pairs of legs, and one pair of antennae. Next, the students will describe the differences between the life cycle of the butterfly and the cricket or spider (complete metamorphosis vs. incomplete metamorphosis). Students can volunteer to show their specimen to the rest of the class using the ProScope. Supports Standards 2a, 5a, and 7a.



Examples

These pictures were taken in class using the ProScope with the 50X lens.

Pictures #1, #2, #3, #4, and #5 can be used to show the similarities/differences of the head of a cricket and mealworm. These close up, detailed pictures shows the segmented aspect of the heads of both arthropods, as well as the antennae. The exoskeleton is also highly visible.





These pictures show other details of these arthropods, such as the segmented body parts, as well as the jointed limbs.

