



Insects and Spiders

Grade Levels	Program Length
1, 2, 3, 4, 5	Approximately 45 minutes

Science Presentations

Science Presentations are designed to help illustrate and elaborate science concepts taught in the classroom and to stimulate student interest in the subject matter.

Description

Welcome to the world of six- and eight-legged monsters! Learn about their life cycles, meet (and touch!) them, and see the world through their eyes. Students will learn to recognize the differences between insects and spiders when two lucky volunteers are transformed using vivid costuming.

North Carolina Essential Standards Correlation

1st Grade	1.L.1, 1.L.2.2
2nd Grade	2.L.1, 2.L.2
3rd Grade	3.L.1

Objectives

- 1) Students will observe the differences between insects and spiders including body segments, legs, eyes, mouth parts, antennae, wings and how they breathe.
- 2) Students will observe the similarities between insects and spiders including exoskeletons, reproduction and being cold-blooded.
- 3) Students will learn why insects are important pollinators, decomposers and food sources for other animals.
- 4) Students will evaluate other creatures that may appear to be an insect or spider at first glance and determine they are not.

Featured Animals

Madagascar Hissing cockroach

tarantula

millipede or whip-tailed scorpion

Vocabulary

abdomen	carnivore	head	pedipalps	spinnerets
antennae	cephalothorax	herbivore	pollinator	spiracles
arachnid	compound eye	insect	proboscis	thorax
book lungs	decomposer	metamorphosis	simple eye	venom
body segments	exoskeleton	omnivore	spider	

Useful Links and Lessons

Reading Passages (Fiction and Non-Fiction), Activities, Lesson Plans:

<http://www.kathimitchell.com/insects.html>

<http://insected.arizona.edu/lessons.htm>

Insect F.A.Q.s

<http://www.scholastic.com/teachers/article/general-facts-about-insects-and-bugs>

<http://www.funology.com/facts-about-insects-and-bugs/>

Butterfly Life Cycle Activities:



Pasta Life Cycle: <http://www.scholastic.com/teachers/article/butterfly-life-cycle-plate-craft>

Reading in the Content Area:

The following is a 2nd/3rd grade level informational text with science content and a few questions to check for understanding.

The original passage, fictional reading about insects, and additional information and activities can be found at: http://www.chewonki.org/tnhp/documents/tp_BugMobile_Insects_and_their_relatives.pdf

STAYING ALIVE

Excerpt from NWF's Nature Scope. Incredible Insects.



Insects are a very successful group of animals. They have been around for over 350 million years and were here long before the dinosaurs roamed the earth. And they have managed to survive in almost every type of habitat. One of the reasons for their success is their ability to reproduce quickly. Like all living things, insects have the ability to adapt to a changing environment. (Adaptations occur over many, many generations.) Because of their high reproductive rate, insects can adapt more quickly to new situations than many other types of animals. The ability to reproduce quickly is just one of the ways insects have adapted. Here are other adaptations that have contributed to the success of insects:

Small Size:

Because of their small size, insects can live in places that many other animals can't. This gives them an advantage in finding a place to live and in hiding from enemies.

Hard Exoskeleton:

Having a hard exoskeleton is a great protection-from enemies and from drying up.

Eggs for the Future:

Insects have large numbers of offspring and a high reproductive rate. For example, some pomace flies have 25 generations in one year or season. (Compare that to humans, who have one generation every 25 years.) Each female can lay up to 100 eggs. Now suppose a female laid 100 eggs and all those eggs hatched into adults (50 males and 50 females). And suppose all those flies mated and the females each laid 100 eggs and they all hatched, survived to adulthood, mated, and the females laid 100 eggs each. Now if these ideal conditions kept up for 25 generations, by the end of the year, if all the offspring lived and reproduced, there would be 10^{41} flies. If you rolled all those flies into a ball, it would fill the distance from here to the sun. Now that's a lot of flies. And from just one original female!



Of course, all insects don't survive. Most are eaten by other animals, poisoned by insecticides, infected by diseases or parasites, or killed in some way before they get a chance to mate and lay eggs. But having large numbers of offspring is important. Most insects, like other invertebrates, do not care for their young after they hatch. The females lay hundreds of eggs and leave them to survive on their own. These large numbers ensure that at least some of the young will survive. (Mammals and birds have a different reproductive strategy. They have very few young. But each one has a much greater chance of surviving because it is cared for by the parents and may learn from its parents.)

Camouflage:

One of the best ways to keep from being eaten is to keep from being seen. Hiding and disguising are forms of camouflage. Moths, walking sticks, caterpillars, katydids, and many other types of insects are expert camouflage artists.



A Strong Defense:

Some insects will defend themselves from enemies with special protective adaptations such as chemical sprays (bombardier beetles, skunk beetles), biting jaws (ants, tiger beetles, hellgrammites), stingers (bees, wasps), poison (blister beetles, some caterpillars), and other weapons.

Mimicry:

Many insects look like something they're not. This is called mimicry. Some use mimicry to escape from being noticed. For example, some weevils (a type of beetle) look just like bird droppings—something most hungry animals wouldn't be interested in. Some caterpillars look just like sticks or twigs. And many insects mimic thorns or leaves.

Sometimes harmless insects mimic poisonous or stinging ones. For example, flower flies mimic wasps and bees. If a bird has tried to eat a wasp or bee and has gotten stung it will avoid anything that looks like a stinging insect, even if it is a harmless fly.



Escape:

Many insects such as cockroaches and silver fish, have specialized legs adapted for running that allow them to make a fast getaway from enemies. And many insects fly away when trouble gets near.

Surprise:

Some insects surprise their enemies with unexpected "tricks." For example, many caterpillars and moths have huge eyespots on their wings or heads to scare off or confuse their enemies. Others have false heads. And one caterpillar puffs up to look like a snake when it is disturbed.

Freeze:

Many insects, such as weevils and walking sticks, freeze or play dead when enemies try to attack.



NAME: _____

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Select the best answer for each question.

1. **Insects are a very successful group of animals because they _____.**
 - a. have been on earth for a long time
 - b. live very long lives
 - c. reproduce quickly and have many adaptations
 - d. do not care for their young after they hatch

2. **The best definition of the word reproduce in this passage is:**
 - a. a forgery or fake
 - b. to fight quickly
 - c. to make something
 - d. to produce offspring or babies

3. **Insects lay many eggs because:**
 - a. they eat a lot of food
 - b. most insects do not care for their babies
 - c. there are a great number of insects in the world
 - d. mammals only have a few offspring

4. An example of an adaptation is
 - a. stingers
 - b. mimicry
 - c. laying many eggs
 - d. All of the above

5. **Another word for mimic is:**
 - a. pretend
 - b. scare
 - c. stick
 - d. bug



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ANSWERS

1. C

2. D

3. B

4. D

5. A