Invertebrates Lesson Plan

2nd-6th grade

Watkins Nature Center

Approximately 95% of all life on Earth are invertebrates. Let our naturalist teach you how something spineless is anything but wimpy! Learn about the different groups of these amazing creatures and how they are so successful at survival. Meet arthropods, arachnids, and insects! These simple creatures are simply cool!

**Learning Objectives**

By the end of this lesson, students will be able to:

* Know several of the major phylum of invertebrates
* List some unique physical and behavioral adaptations of arthropods
* List some unique physical and behavioral adaptations of mollusks
* List some unique physical and behavioral adaptations of annelids
* List some unique physical and behavioral adaptation of coelenterata
* Discuss similarities and differences between major invertebrate groups
* Classify animals according to their shape and adaptations

**BIG IDEAS/ ENDURING UNDERSTANDINGS (EU’S)**

• While all classified as invertebrates, there are many big differences between the major groups.

• Animals are grouped, or classified, by similar characteristics.

**ESSENTIAL QUESTIONS**

• How are invertebrates alike and different?

• How does an invertebrate meet its needs for survival?

* How can we use the observable properties of invertebrates to group them?

**CONTENT OUTCOMES ADDRESSED**

Students will be able to

• develop a simple classification system for grouping organisms.

• recognize adaptations different groups of invertebrates have for survival.

**COMMON MISCONCEPTIONS**

Students may think all invertebrates are “bugs”.

**BACKGROUND INFORMATION**

**Invertebrates were the first types of animals on this planet, and they still thrive today. 95% of life on this planet are invertebrates. Invertebrates have numerous unique adaptations that allow them to be successful. They are also the backbone of many food chains, as well as the cornerstone of many types of habitats. Invertebrates are found in every ecosystem across the globe. They are some of the most adaptable organisms on the planet and also one of the fastest to reproduce. All of these traits make them the most diverse animals on the planet.**

**Arthropods:**

* Hard Exoskelton
* Segmented Body Parts
* Both are ectothermic, or cold blooded. They cannot regulate their own body temperatures and they are easily affected by outside temperatures.
* Breath Trough pores in the exoskeleton

**Includes:**

Insects

* Have three body parts: head, thorax and abdomen.
* Have a single pair of antennae on the head.
* Have three pairs of legs originating from the thorax (6 legs).
* Young go through metamorphosis

Arachnids

* Have two body parts: cephalothorax and abdomen.
* No antennae
* Young don’t go through metamorphosis

**Mollusks**:

* Have No Hard Exoskeleton
* Have a mantle that excretes a shell
* Not all even have a shell though!

**Includes**:

* Oysters
* Octopus
* Snails
* Slugs

**Annelids:**

* **These are the worms**
* **Main feature is three layers skin**

**Coelenterata:**

* **They have one singular opening for food and waste**

**Includes:**

* **Coral**
* **Jellyfish**

**VOCABULARY**

**• species: a group of animals that are more like each other than they are like any other group of animals**

**• classification: a systematic arrangement in groups**

**• metamorphosis: the process of transformation from an immature form to an adult form in two or more distinct stages**

**• adaptation: anything an animal has or does that helps it to survive**

**• ectothermic: “cold blooded” an organism that can’t make enough heat to keep themselves warm**

**• camouflage: a defense mechanism where an animal blends in with its surrounding in some way to hide from predators/ prey**

**• predator: an organism that hunts other organisms for its food**

**• prey: organism that is hunted for food**

**• exoskeleton: hard outer shell of invertebrates made of chitin**

**• chitin: a fibrous material that is used to make exoskeletons**

**• invertebrate: organism without a backbone**

**• mantle: the dorsal body wall which covers the organs of digestion, reproduction and movement that secretes calcium carbonate and creates shell**

**• native: organism that originates from an area**