



Activity: Invertebrate Critter Cards

Related Video Titles:

- “Life on the Move” (*Cnidarians*)
- “The Conquerors” (*Arthropods*)
- “Survival Game” (*Molluscs*)
- “Ultimate Animal” (*Echinoderms*)
- “Powerful and Capable Worms” (*Annelids*)

Activity Subject: Animal body plans and parts; animal diversity. *Critter activity*

Grade Level: 4-8 grades

Introduction:

In this activity students explore how animals are classified. For centuries taxonomists have been classifying the diversity of animal life based on observations and measurements of animals’ body plans. And now, with DNA sequencing, scientists have for the most part confirmed the work of earlier taxonomists.

Students will learn the characteristics that define five of the major invertebrate phyla by watching videos, reading and sorting animal cards. The phyla are: Cnidarians, Annelids, Arthropods, Molluscs, and Echinoderms.

Assessments:

Students sort animal cards (provided) into the groups (phyla) to which they belong, and write-down the critical characteristics of each animal for its group.

Time:

Maximum six class periods to view the five episodes and complete the activity. Each video is about 15 minutes long, so it would be possible to view more than one video in a class period.

Group Size

Entire class views videos and contributes to discussion; pairs or small teams of students conduct activity.

Materials & Preparation

Copy the accompanying “Invertebrate Critter Cards” page for individual students, or for pairs or groups of students. Print critter cards on card stock for durability.

NEXT GENERATION SCIENCE STANDARDS

MS-LS1.A Structure and Function

In multicellular organisms, the body is a system of interacting tissues and organs, specialized for particular body functions.

Nature of Science: Scientific Knowledge Assumes an Order and Consistency in Natural Systems:

Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation.

Cross Cutting Concepts: Patterns

Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.



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PROCEDURE – TEACHERS' EDITION

- 1) As an entire class, view the five phyla episodes (Cnidarians, Annelids, Arthropods, Molluscs, and Echinoderms) covered in this activity with your students.
- 2) At the completion of each episode, review with students how animals are classified and the characteristics that determine the phylum featured. Have students read about each phylum on Resource page for that phylum.
- 3) Determine the group size for the activity that will work best for your class. Write the names of the five phyla on the board:
 - Cnidarians
 - Annelids
 - Arthropods
 - Molluscs
 - Echinoderms
- 4) These instructions are for each group of students. Pass out sheets with animal cards and five blank pieces of paper. Then, ask the groups to cut apart the animal cards, turn them face down and then shuffle them. Next, ask the groups to write each phylum name on a blank piece of paper.
- 5) Taking turns, students draw one card at a time and discuss which phylum that animal belongs in and why. Then the student places the animal card on that phylum page. Continue this until all the animal cards are gone.
- 6) Have a student from each group write out following sentence about each animal
This _____ is
a(n) _____ because it has _____
(Example: This earthworm is an annelid because it has segmentation and a flow-through gut.)
- 7) Review. When completed, collect all cards and if additional review or assessment is desired, hold up one animal card at a time, covering the name of the animal with your fingers. Ask students to name: the animal, the group, the characteristics of that group, and other animals in the same group.



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TEACHERS' RESOURCES AND ANSWERS

Phylum characteristics

Cnidarians

- Two tissue layers with nerve and muscle cells
- Tentacles that surround a mouth
- Nematocysts, which are harpoon-like structures contained in special stinging cells that catch food or defend from predators
- Two main life forms: free-swimming medusa (e.g., jellyfish) or stationary polyp (e.g., anemone)
- Has a mouth and stomach but not a one-way gut

Annelids

- Elongate and bilateral with segmented body
- Complete circulatory system with capillaries, arteries and veins
- Body wall made of circular and lengthwise muscles
- Continuous gut running from mouth to anus
- Bristle-like structures projecting from body called setae (except in leeches)

Arthropods

- Hard exoskeleton made of chitin and protein
- Possess numerous jointed appendages
- Segmented body
- Must molt to grow

Molluscs

- Rasping organ called a radula; present in all groups except bivalves
- Muscular foot used for locomotion and other tasks
- A sheath of tissue called a mantle that covers the body and secretes the shell (if there is one)
- A mantle cavity that houses the gills or lungs
- A shell made of calcium present in most molluscs, while others have completely lost it e.g., slugs, nudibranchs and octopus.

Echinoderms

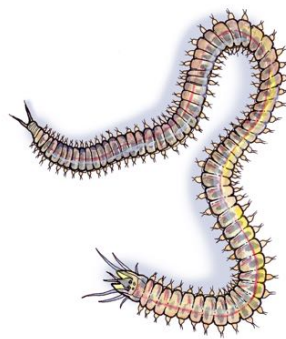
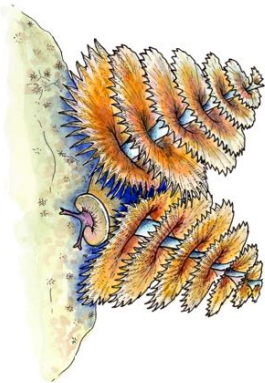
- Internal skeleton made of little plates made of calcium
- Five-part symmetry
- Tube feet
- Special fluid-filled system (called a water vascular system) that operates the tube feet



Jelly



Xmas Tree Worm



Nereid Worm



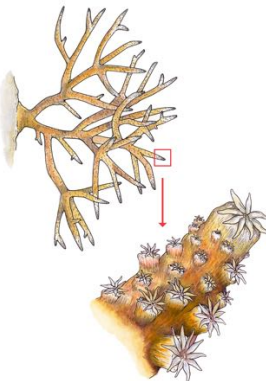
Monarch



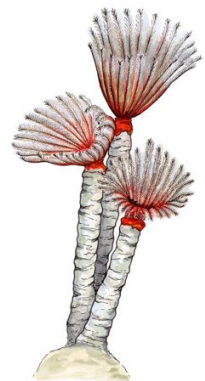
Nautilus



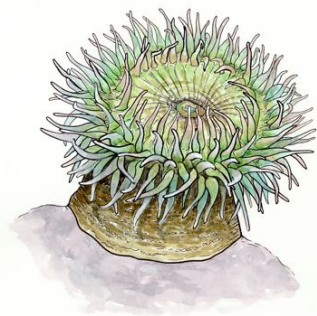
Mussel



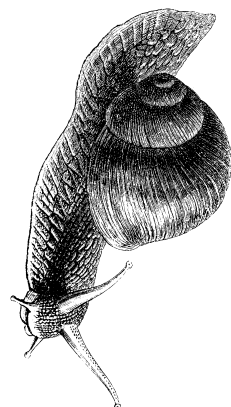
Coral With Polyps



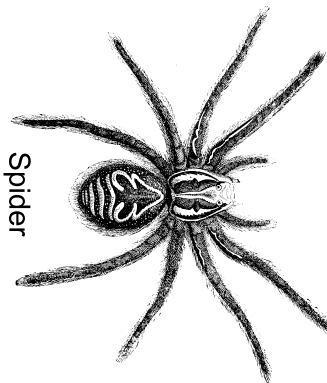
Feather Duster



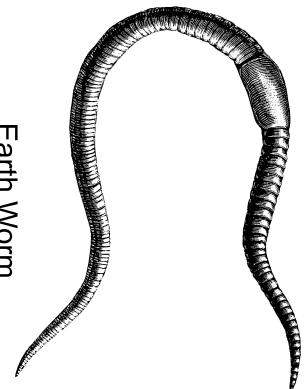
Green Anemone



Snail



Spider



Earth Worm



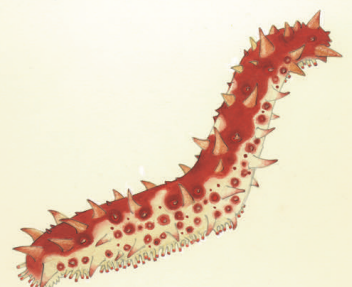
Brittlestar



Crab



Cray Fish



Cucumber



Marine Snail

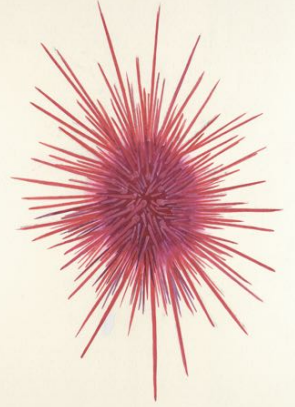


Octopus



Sea Star

Sea Urchin



Spot Prawn