

Invertebrate Casserole

Grades: 4-6

Materials

- Animal pictures with fact card
- Blank sheet of paper
- Pencils
- Paper plates with riddles

Topics

This exercise will help students develop their observational, analyzing and deduction skills. They will also learn the main difference between vertebrates and invertebrates, basic identification of common marine invertebrates, and gain a brief view of the beautiful marine invertebrate world

Description

1. Ask the students to discuss. "What foods could be on the menu of a marine feast?" and let them write down the answer.
2. The teacher will help divided the names of the animals into two groups: vertebrate and invertebrate, and let the students discuss what is the major difference of the two groups.
3. Allow them to answer but emphasize the dorsal nerve chord (vertebrae) that characterizes vertebrates.
4. Show some pictures of marine invertebrate (from less developed to advanced phylum), and give students some basic introduction
5. Explain that during the introduction of marine invertebrates and they will learn to recognize many marine invertebrates and discover their importance in the human and animal food chain.
6. Make four (4) groups, each representing an invertebrate group: The Mollusks, The Echinoderms, The Crustaceans, and The Cnidarians. Each group will receive a clipboard with a pencil for taking notes of which picture they saw today is belonged to their group.
7. Give students the riddle sheet, and ask them write down the possible answer, maybe not one.

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Student Sheets

Part 1) What foods could be on the menu of a marine feast?

Part 2) Group your answer of part 1 by plants and animals (invertebrates and vertebrates)

Plants _____

Invertebrates _____

Vertebrates _____

Part 3) What do you think the biggest difference between invertebrates and vertebrates?

Part 4) You will be in one of these four groups: The Mollusks, The Echinoderms, The Crustaceans, and The Cnidarians. After the teacher introduce some interesting marine invertebrates, write down the animals which is belonged to your group.

Part 5 **Riddles in menu:**

1. To eat me you have to remove my armor. *Crab*
2. Only sea turtles like to eat me.
3. Not only are we delicious but we make pearls.
4. More than being dinner, I prefer to be in the sky.
5. Although I'm an echinoderm, when you eat me my spines won't bother you.
6. To eat me you need a parrot-like beak.
7. Teeth eat me yet I don't have teeth.
8. You can cook me in my ink.
9. I can distribute my arms into eight dishes.
10. The most delicious part of my body is my tail.
11. After you eat me you can keep my shell.
12. Be careful when you eat me, I'm surrounded by spines!

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Answer Key for Teachers

Invertebrates are animals that have no dorsal nerve chord and we often say they do not have an internal skeleton. The majority of the invertebrates have a shell or a hard carapace (exoskeleton) which provides protection and support.

Mollusks:

Mollusks are invertebrates with soft bodies that secrete an external shell of calcium carbonate which protects the animal, like clams and snails, or have internal shells for support like octopus, squids, and sea slugs. The majorities live in marine and can be found in all oceans of the world.

Echinoderms:

All the representatives of this group are marine. Their skeleton is found beneath a layer of skin and is formed by small calcium carbonate plates. The name echinoderm means “spiny skin”. Within this group we find sea stars, sea cucumbers, sand dollars, and sea urchins.

Crustaceans:

All the members of this group have an exoskeleton made of a substance called chitin which is similar to our nails. This exoskeleton must be molted or changed periodically as the animal grows. Examples of this group are crabs, lobsters, and shrimp.

Cnidarians (formerly Coelenterates):

The cnidarians have simple sack-like bodies with a single opening in the center surrounded by tentacles. These marine organisms exist in colonies or can be solitary. Some forms secrete a skeleton of calcium carbonate or other softer substances while others have bodies made almost entirely of water. Within this group you will find the corals, jellyfish, and sea anemones.

Vocabulary:

Invertebrates, cnidarians, crustaceans, echinoderms, mollusks, sea star, sea cucumber, corals, anemone, jellyfish, octopus, sea urchin, snail, lobster, shrimp, oyster, squid, conch,

Riddles in menu:

1. To eat me you have to remove my armor. **Crab**
2. Only sea turtles like to eat me. **Jellyfish**
3. Not only are we delicious but we make pearls. **Oyster**
4. More than being dinner, I prefer to be in the sky. ?
5. Although I'm an echinoderm, when you eat me my spines won't bother you.
Sea Urchin
6. To eat me you need a parrot-like beak. **Snail**
7. Teeth eat me yet I don't have teeth. ?
8. You can cook me in my ink. **Squid**
9. I can distribute my arms into eight dishes. **Octopus**
10. The most delicious part of my body is my tail. ?
11. After you eat me you can keep my shell. **Conch**
12. Be careful when you eat me, I'm surrounded by spines. **Sea Urchin**