NO PREP

Worms in the Ocean

Flatworms to Segmented Worms

Includes: Student reading, case study, differentiated questions, teacher key

Name: Period: Date:

Worms in the Ocean: Flatworms to Segmented Worms

Simple Bodies, Big Impacts

Marine worms may not seem as flashy as coral reefs or as intimidating as sharks, but they are vital to ocean ecosystems. Worms in the ocean belong to several major groups, including flatworms (phylum Platyhelminthes), roundworms (phylum Nematoda), and segmented worms (phylum Annelida). Despite their differences, they share important traits such as soft, elongated bodies and adaptations for living in sediment, coral crevices, or open water. Flatworms are some of the simplest multicellular animals. They lack a body cavity and specialized circulatory systems, which limits their size. Instead, oxygen and nutrients diffuse directly through their flat bodies. Some flatworms are free-living predators, while others are

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Burrowers and Ecosystem Engineers

Annelids, especially polychaete worms, are essential for the health of marine ecosystems. Their burrowing activity increases oxygen levels in sediments and helps recycle nutrients, making them available for other marine life. In this way, worms contribute to the productivity of ecosystems such as seagrass beds, coral reefs, and

estuaries. Flatworms also play an ecological role, particularly as predators of small invertebrates. Their ability to regenerate body parts allows them to survive injury and adapt to changing environments. Some flatworms form symbiotic relationships with algae, while others are brightly colored to warn predators of their chemical defenses. Roundworms are often overlooked because of their microscopic size, but they are among the most numerous animals on Earth. In marine environments, they can be found in sand, mud, and even deep-sea hydrothermal vents. They break down organic matter and recycle nutrients, fueling marine food webs. Though simple, worms are keystones in marine systems. Without them, nutrient cycles would slow down, and sediments would become less oxygenated, harming countless other marine species.

Case Study: Polychaete Worms and Seagrass Beds

In tropical and subtropical waters, seagrass beds provide habitat for countless marine species. A key player in these ecosystems is the polychaete worm. By burrowing into the sediment, polychaetes oxygenate the soil and release nutrients that stimulate seagrass growth. In one study, researchers found that areas with high worm activity had healthier, denser seagrass beds compared to areas with fewer worms. The worms also create small tunnels in the sediment, which serve as microhabitats for tiny crustaceans and mollusks. However, when pollution reduces oxygen levels in sediments, worm populations decline, leading to stressed seagrass ecosystems. This example shows how even small, often-overlooked organisms can have large impacts on marine environments.

1. How do polychaete worms contribute to the health of seagrass beds?

_____

_____

2. What could happen to seagrass ecosystems if worm populations decline?

_____

_____

Multiple Choice

1. What feature makes annelids more advanced than flatworms?

    a) Photosynthetic symbionts

    b) Lack of body cavity

    c) Body segmentation

    d) Regeneration ability

2. Which worms are most common in marine sediments and recycle nutrients?

    a) Roundworms

    b) Leeches

    c) Flatworms

    d) Polychaetes

3. What is a key ecological role of marine worms?

    a) Filtering water like sponges

    b) Recycling nutrients and oxygenating sediments

    c) Producing coral skeletons

    d) Acting as apex predators within marine ecosystems

Matching

Write the letter of the correct definition on the line next to each term.

Term	Definition
1. ___ Flatworms	A) Repeating body sections giving flexibility and mobility
2. ___ Roundworms	B) Segmented worms with bristles that burrow and mix sediments
3. ___ Polychaetes	C) The most complex of the three worm phyla
4. ___ Annelids	D) Microscopic or small worms found abundantly in sediments
5. ___ Segmentation	E) Regeneration ability; flat-bodied

Fill-in-the-Blank

1. Flatworms rely on _____ to exchange oxygen and nutrients.

2. Polychaete worms improve seagrass health by _____.

3. Roundworms are extremely abundant in _____ environments.

Short Answer

Answer each question in 2-4 complete sentences.

1. Why are worms considered "ecosystem engineers"?

_____

_____

_____

2. Explain how flatworms use coloration as an adaptation.

_____

_____

_____

3. Compare the digestive systems of flatworms and roundworms.

_____

_____

_____