

Habitat Adaptation Activity: Teacher's Guide

Introduction

An amazing range of animals call the ocean their home. This is partly because there are so many ocean habitats. Students learn about common adaptations seen in three habitats: **Open Ocean, Coral Reef and Sandy Bottom**. They will then predict which animals call each habitat their home.

Suitability: Groups of 3 or individuals – great for follow up post incursion

Learning objectives

- Learn why different animals live in different habitats
- Explain how the external structures of marine creatures help them to survive in their habitats
- Predict the habitat of certain marine animals from their physical characteristics

Material

- Habitat Worksheet (1 per student or group of 3, plus 1 extra)
- Animal Cards (one set for each student or group of three, plus an extra set)
- Scissors
- Colored pencils
- Glue

Key terminology

- **Habitat:** The natural home or environment of an animal, plant, or other organism.
- **Adaptation:** A heritable trait that helps an organism survive and reproduce in its environment.

Methodology

Introduce Topic

1. **Ask the question** – “Think about your body. What about our bodies makes us good at living on land? Why are we designed for living on land?”

Answers - feet and legs, hands and arms, standing upright, breathing air. These are all human adaptations.

2. Show pictures of the 3 marine habitats: **Open Ocean, Coral Reef and Sandy Bottom**
3. Discuss what adaptations animals would need to live in these habitats – write responses on the board.

Tip: Some of the habitats are home to multiple types of adaptive strategies; for example, the open ocean is home to strong swimmers and free floaters.

Introduce Activity

You will be making predictions on where different animals live based on their adaptations.

Procedure

1. Give out 1 Habitat Worksheet per student or group of 3
2. Students color their habitat for a few minutes

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3. Give out 1 set of Animal Cards per student or group. Discuss what color adaptations each animal has
4. Students color the animals then cut them out
5. Students use glue to attach their animals to the correct section of the Habitat Worksheet - encourage students to discuss their predictions. Note – many of these animals are found in multiple habitats, so encourage students to place them where they think they are most often found or on the border between habitats. Each habitat should have multiple animals
6. When finished, students put their Habitat Worksheets on a wall
7. Students look at other's predictions and discuss each other's work

Class feedback

1. Put a blank Habitat worksheet on the board. Take each animal picture and ask the students which habitat they placed it in.
2. Discuss answers then place each animal in the correct habitat, explaining why they are adapted for that habitat. Students may then change where they have placed animals.

Background for Educators

Open Ocean

Also known as the pelagic zone, this is the entire depth of water between the surface of the sea almost down to the bottom. It may be divided into five layers (epipelagic, mesopelagic, bathypelagic, abyssopelagic, and hadopelagic) depending on its' depth. The top layer, or Epipelagic zone, receives the most amount of sunlight. The animals in this activity may all be found in this zone.

Vertebrates in this habitat tend to be strong swimmers, so large creatures such as whales or sharks. Others, like anchovies, swim in schools. Camouflage here is scarce, so colors often follow the rules of countershading: darker on the top with a light-colored belly. This allows animals to blend in with the dark ocean beneath when being looked down upon but blend in with the sunlit waters above when being spied from below. Many invertebrates here are plankton: free floating with limited swimming ability.

Coral Reef (tropical)

Coral reefs are incredibly diverse underwater ecosystems created by calcium carbonate structures secreted by corals. Coral are in fact animals - they are invertebrates, closely related to sea jellies and anemones. Reefs need calcium from the water to grow, which is more often available in shallow warm waters (although they do sometimes occur in colder water). Coral reefs need water that is between 68 - 82°F (20 - 28°C), which is often located along the eastern shores of land – such as The Great Barrier Reef. Reefs usually develop in areas that have a lot of wave action because the waves bring in food, nutrients and oxygen to the reef.

Animals that survive well in coral reef habitats have adaptations that allow them to live there. Fish tend to be small and slender, allowing them to navigate between corals or hide in cracks. They are often brightly colored. Colorings often portray what sex they are or act as defence mechanisms. Invertebrates found in coral reefs, including the corals themselves, are either slow or stationary, with adaptations that keep them anchored down to the reef, so they are not swept up in the current.

Sandy Bottom

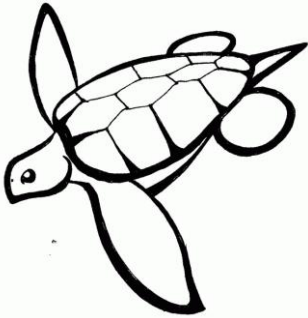
Although not as colorful as the coral reef, this is a very vibrant habitat for small and large animals. Exceedingly small ocean creatures live amongst the grains of sand and larger animals such as flat fish and stingrays, hide themselves in the sand to await their prey.

This habitat has little structure compared to the coral reef, so these animals have adaptations that allow them to live on one plane. Fish that dwell here tend to be flat, their belly resting on the sand and their eyes above. They will often be colored to camouflage in the sand. They are often not great swimmers.

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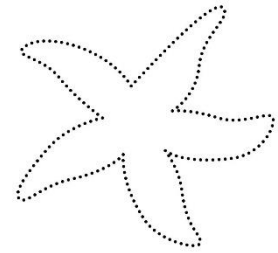
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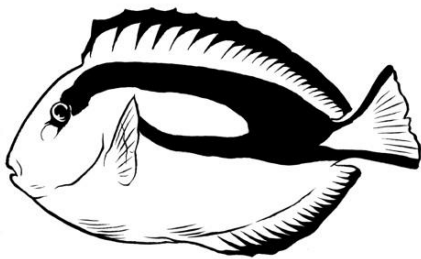
SEA JELLY



SEA STAR



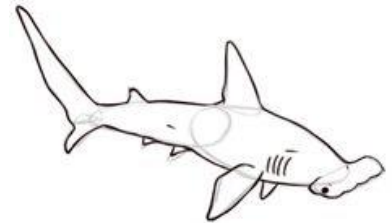
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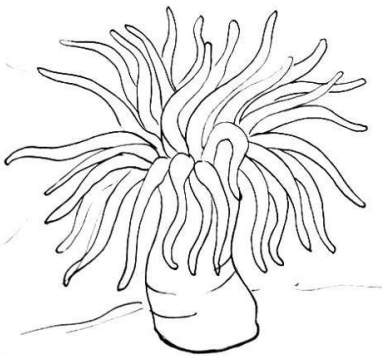
STINGRAY



SHARK



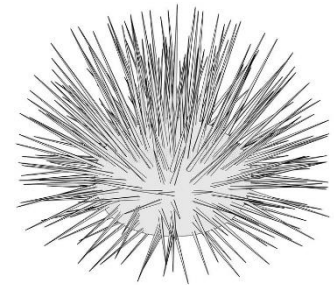
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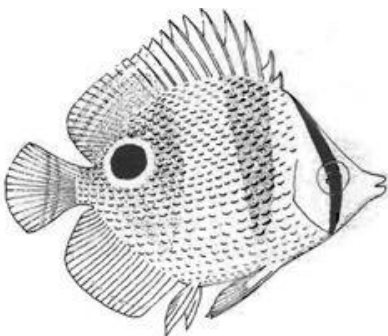
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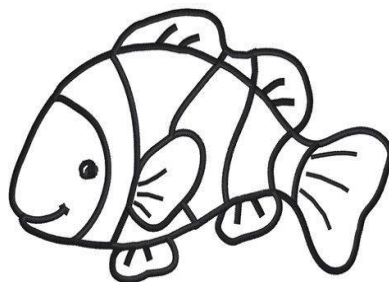
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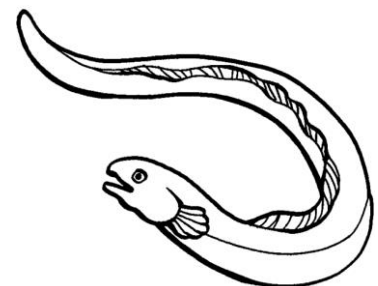
BUTTERFLY FISH



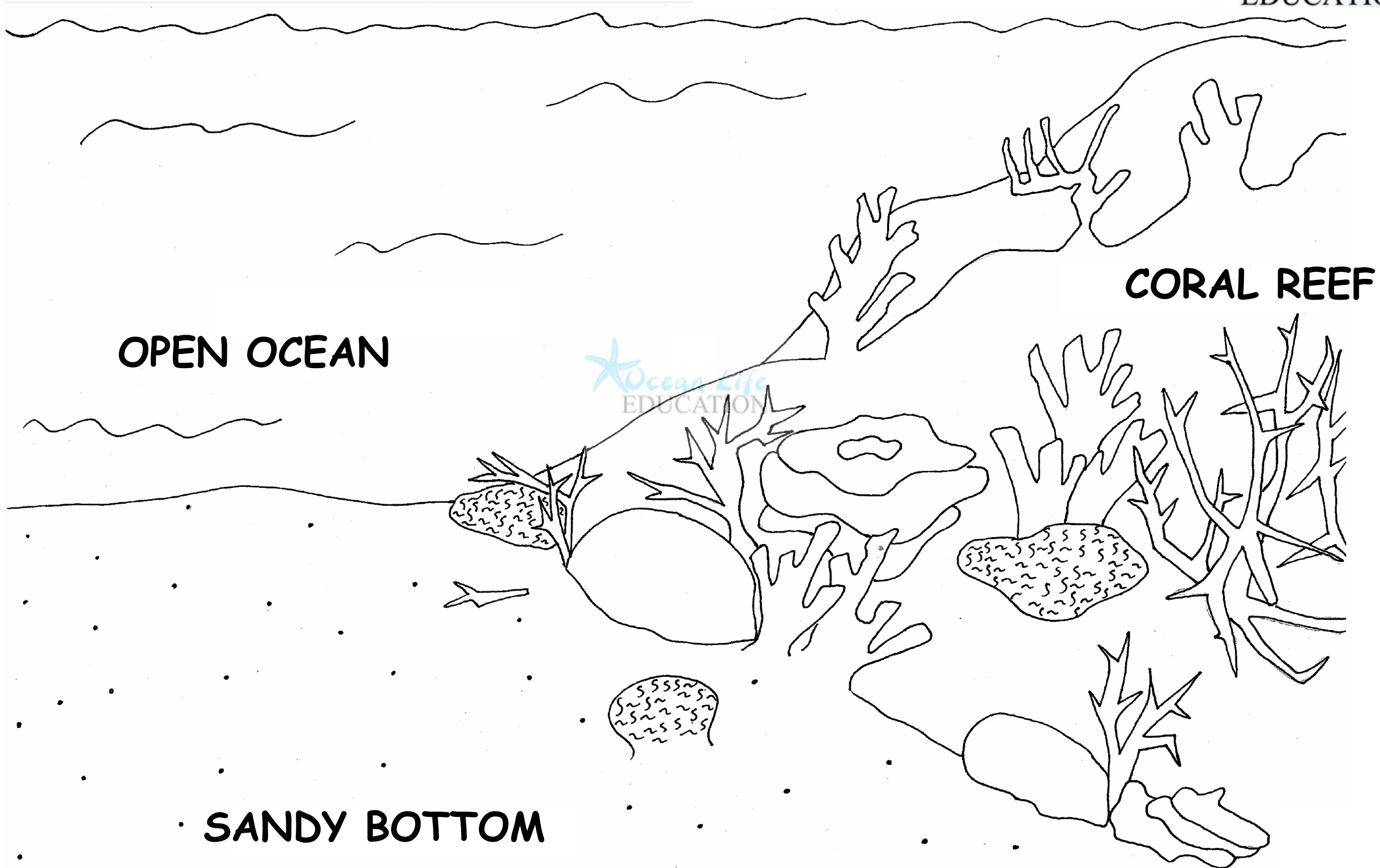
CLOWN FISH



EEL



OCEAN HABITATS WORKSHEET



OPEN OCEAN

CORAL REEF

SANDY BOTTOM