

Shark Habitats: Exploring the Ocean's Zones!

Materials Needed: Computer with internet access, Printer (optional), Large paper/whiteboard, Markers/colored pencils, Blue construction paper (various shades), Scissors, Glue, Pictures/printouts of various sharks, Optional: Clay/playdough.

Introduction (Engage - 10 mins)

Start by activating the student's interest in sharks! Ask questions like:

- What's your favorite shark? Where do you think it lives in the ocean?
- Do all sharks live near the sunny surface where we swim? Why or why not?
- What might be different about the ocean deep down compared to near the top?

Introduce the idea that the ocean is incredibly deep and changes a lot as you go down. Today, we'll explore these different ocean 'neighborhoods,' called zones, and see which sharks call them home.

Exploration (Explore - 20 mins)

Activity 1: Discovering Ocean Zones

1. Use online resources (videos, diagrams - search for 'Ocean Zones for Kids') to introduce the five main zones:
 - **Sunlight Zone (Epipelagic):** Top layer, lots of light and warmth, most familiar ocean life.
 - **Twilight Zone (Mesopelagic):** Some sunlight penetrates, but it's dim; pressure increases, temperature drops.
 - **Midnight Zone (Bathypelagic):** Pitch black, very cold, high pressure; some animals make their own light (bioluminescence).
 - **Abyss (Abyssopelagic):** Even deeper, near freezing, immense pressure, very little life.
 - **Trenches (Hadalpelagic):** Deepest Canyons in the ocean floor, extreme conditions.
2. **Activity 2: Zone Characteristics Chart**
3. On your large paper or whiteboard, draw vertical sections representing the ocean getting deeper. Label the five zones.
4. Together, list or draw the key characteristics for each zone: Amount of Sunlight (Draw sun/rays fading), Temperature (Thermometer reading), Pressure (Arrows pushing inwards), and maybe some known animals (besides sharks for now).

Explanation (Explain - 15 mins)

Connecting Sharks to Zones:

1. Show the pictures/printouts of different shark species. Discuss each one briefly.
2. Ask the student to hypothesize: Based on what we learned about the zones, where do you think this shark lives? Why?
3. Discuss specific adaptations:
 - **Great White Shark:** Lives mainly in the Sunlight Zone. Powerful swimmer, countershading (dark top, light bottom) for camouflage near the surface.
 - **Hammerhead Shark:** Often found in Sunlight/Twilight zones near coasts. Unique head shape helps find prey buried in sand.
 - **Goblin Shark:** Lives in the Midnight Zone. Flabby body withstands pressure, unique jaw shoots out to catch prey in the dark.
 - **Cookiecutter Shark:** Migrates between Twilight and Midnight Zones. Uses

bioluminescence to attract prey/camouflage, specialized teeth take 'cookie-cutter' bites.

- **Frilled Shark:** Lives in Twilight/Midnight zones. Eel-like body, primitive features suited for deep water.
 - **Whale Shark:** While huge, often feeds near the surface in the Sunlight Zone (filter feeder).
4. Emphasize how the shark's body and behavior are perfectly suited (adapted) for the challenges of its specific zone.

Elaboration (Elaborate - 20 mins)

Activity: Ocean Zone Shark Diorama/Collage

1. Use the different shades of blue construction paper to represent the ocean zones, layering them from light blue (top) to very dark blue/black (bottom) on another piece of paper or inside a box.
2. Have the student cut out the shark pictures (or draw/sculpt them from clay).
3. The student then glues or places each shark into its correct primary habitat zone on the collage/diorama.
4. Encourage the student to add details representing the zone (e.g., bits of green for seaweed in Sunlight, white dots for bioluminescence in Midnight).

Optional Extension: Choose one deep-sea shark (like the Goblin or Frilled Shark) and research one more fascinating adaptation it has for living in extreme conditions.

Evaluation (Evaluate - 5 mins)

Review the student's diorama/collage for accurate placement of sharks.

Ask questions like:

- Which zone gets the most sunlight? Which shark lives there and why?
- Can you name a shark that lives in the Midnight Zone? What's one adaptation it has for the dark and pressure?
- Why is it important for a shark to be adapted to its specific ocean zone?
- Where is the pressure highest in the ocean?

Observe the student's ability to connect shark adaptations to the environmental conditions of the ocean zones during the discussion and activity.