1st Grade **30-45 minutes**

ZONES AND ADAPTATIONS

Oregon Science Content Standards:
1.1 Structure and function: Living and non-living things have characteristics and properties
1.1P.1 Compare and contrast physical properties and composition of objects
1.2 Interaction and Change: Living and non-living things interact
1.2L.1 Describe the basic needs of living things.
1.3 Scientific Inquiry: Science explores the natural world using evidence from observations
1.3S.2 Record observations with pictures, numbers, or written statements.

Ocean Literacy Essential Principles:
5. The ocean supports a great diversity of life and ecosystems

Goals:

- To learn about the tides.
- To introduce students to different zones at the rocky seashore.
- To have students understand that different animals live in different zones at the seashore.

Concepts:

- The rocky intertidal has zones or distinct areas where certain seaweeds and animals are found. Some animals are only found in certain zones.
- The rocky seashore has 5 major zones: the splash zone (highest and driest), high zone, mid zone, low zone, and sub/tidepool zone (wettest).
- Animals and seaweeds living high in the intertidal are better adapted to dry conditions than those animals living in the low and sub zones.

Materials:

- Intertidal Zone PowerPoint
- Intertidal Zone Worksheet

Lesson Plan:

1. Ask the class what "high tide" means. Then have the class explain what "low tide" means. Have a drawing of the rocky seashore on the board. Have a volunteer come up to the board and draw a blue line showing how high the water would be at high tide. Label it. Do the same with low tide. Tell them that there are actually 5 zones. Ask them where the other three might go. Make suggestions to lead the discussion and have students come up and draw 3 more zones on the board (splash, high, mid, low, sub/tidepool). For the sub zone (below water), ask them if they can come up with any words that have sub in them (submarine, subway, etc.) Discuss how tidepools are like mini sub-tide zones that can be found in other zones.

2. Ask the students to point out the zone that would be driest (splash zone). Then ask them where a sea star would go if it wanted to be wet all or most of the time (sub, tidepool, low). Ask them what zones would be covered at high tide (low and mid, to help demonstrate this you can use a sheet of blue butcher paper or blue saran wrap to represent water). Do this for low tide as well.
3. Say that you have a tidepool fish. Ask the class if it would be a good idea for the fish to live in the splash zone. Have them tell you why not, and have them suggest a better zone for it to live in. Next, do the same with a seagull. Continue until the idea that some animals can only live in certain zones is understood by the class.
4. Pass out the Zone Worksheet and have students label the zones just like you did on the board. Then show the class what kinds of animals are found in each zone by showing the PowerPoint. The students can follow along and draw one animal found in each zone on their worksheet.

Assessment: Zone Worksheet

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