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| Notes: Tidal Zones & Marine Ecosystems  I can identify biotic and abiotic factors in marine ecosystems and describe how they interact with one another. |
| **Essential Question**:  How do adaptations increase the likelihood of a species’ survival in the intertidal zones? |
| **What are the two major ecology concepts that come into play in intertidal zones**?  1.  2.  **Tidal Zone Adaptation**   * Tidal habitats change daily with the tides, or organisms \_\_\_\_\_\_\_\_\_, or adjust to changing environmental conditions with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to:   1.  2.  3.  **Types of Tidal Habitats**   * Sandy Beaches and mud flats   + Substrate offers lots of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, but little structure for attachment   + Animals \_\_\_\_\_\_\_\_\_ themselves in mud   + Can also attach to \_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Rocky Shores   + Little \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from strong waves: animals much anchor   + Complex tide pools possible   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ offer protection from drying   **Tidal Zones**   * Tidal habitats are divided into zones based on relative beach \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and how often they are covered by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. * The zones are: * Zones are affected \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by changing tides * Adaptations are required to avoid drying out, \_\_\_\_\_\_\_\_\_\_ action, and predators. * Tides are controlled by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gravity pulling on the ocean.   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **SPLASH ZONE**   * \_\_\_\_\_\_\_\_\_ on beach * Out of water most of the time * Species must tolerate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_, heat, cold and \_\_\_\_\_\_\_\_\_\_\_\_\_ dry periods * *Adaptation example*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and algae are most tolerant to desiccation (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_) * **Splash Zone Life Examples:**   **HIGH TIDE ZONE**   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ wave action * Tide pools provide some \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Adaptations include ability to survive \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to air without drying out and survive \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_. * *Adaptation example*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ survive wave action by attaching themselves to the sheltered side of large rocks. * **High Tide Zone Life Examples:**   **MIDDLE TIDE ZONE**   * Most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ region * Covered and uncovered \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a day * Life must tolerate BOTH submersion in water and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to air. * Animals move in and out of adjacent (next to) zones to feed. * *Adaptation example:* The \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ of an ochre sea star allow it to suction onto surfaces. * **Middle Tide Zone Life Examples:**   **LOW TIDE ZONE (SUBTIDAL ZONE)**   * Most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and shelter * Most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of organisms compared to other zones * Less exposure to air and heat- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for a lot of the time * Animals unable to exist in other zones because they will \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_. * *Adaptation example:* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have tentacles that inject a paralyzing neurotoxin when touched. * **Low Tide Zone Life Examples:**   **Exposure to Water**  Most time  Splash Zone  High Tide Zone  Middle Tide Zone  Low Tide Zone  **Summary**: |