

MARINE BIOLOGY

Name: _____ Date: _____

Guidelines for Project Proficiency Award

Date
Leaders
Initials

Beginning

HEAD:

1. Identify 4 tidal zones and explain differences of each. (characteristics) _____
2. Define indicator species and identify two for each tidal zone. _____
3. Identify/discuss these terms: high tide, spring tide, low tide, neap tide, continental shelf, continental slope. _____
4. Explain/diagram tides and the cause of them. _____
5. Understand the differences between these habitats: rocky, sandy, piling, and estuary. _____

HEART:

1. Attend a low tide field trip. _____
2. Understand and discuss grey whale migration. _____
3. Identify and give 2 characteristics of 3 other species of whales. _____
4. Explain and give examples of why oceans are important to man. _____

HANDS:

1. Discuss how organisms have adapted to survive repeated exposure to the air and sun. _____
2. In a tidal pool, locate and identify 5 common inhabitants. _____
3. Understand causes and explain the differences in salinity of tidal pools, open ocean, estuary. _____
4. Be able to read and understand a tide table book. _____

HEALTH:

1. Identify "red tide", discuss what causes it, and explain its effects on man. _____
2. Discuss how oceans can become polluted, give 2 examples, and explain how ocean pollution affects all life. _____
3. Define "feeding frenzy." _____
4. Give a demonstration at County Presentation Day. _____

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INTERMEDIATE

HEAD:

1. Compare and contrast the life cycles of salmon and steelhead.
2. Define: benthic, current, trench, sea mount, swell, sea level, tsunami.
3. Identify and discuss the importance of the "holdfast" to the sea palm.
4. Identify and describe 2 marine mammals (other than the whale).
5. Explain the differences between marine mammals and fish.

HEART:

1. Attend a whale watching field trip.
2. Adopt a whale.
3. Define: ecosystem, niche, commensal, parasitic, symbiotic.
4. Understand the differences between phytoplankton and zooplankton, and give examples of each.
5. Discuss the importance of healthy plankton, where it is the most abundant, and why it is important to the health of the world.

HANDS:

1. Identify 3 seaweeds and discuss their importance to the ecosystem and to man.
2. Define "food chain," give 5 examples and be able to diagram one.
3. Cook and eat some fish or seaweed.
4. Explain predator and prey and discuss why both are necessary for a healthy ecosystem.

HEALTH:

1. Define and discuss the importance and necessity of biodiversity.
2. Explain the difference in the oxygen level in both warm and cold water, and discuss what effects this has on marine organisms.
3. Define buoyancy and explain the difference in buoyancy in warm and cold water.
4. Give a demonstration at County Presentation Day.

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ADVANCED

HEAD:

1. Describe the coloration found on many open ocean fish, and discuss why they have adapted to this coloration. _____
2. Identify eels, and describe their life cycle. _____
3. Describe how a sea anemone gets its food. Identify 2 common sea anemones. _____
4. Describe 3 methods organisms can use to protect themselves. _____

HEART:

1. Discuss the relationship between the sea otter and man. _____
2. Describe 2 uses man has found for seaweed. _____
3. Visit an aquarium. _____
4. Describe the requirements necessary for a healthy environment for open ocean dwellers. _____
5. Describe 3 ways that deep water creatures use to survive. _____
6. Explain how and why aquariums are used to provide the public with information. _____

HANDS:

1. Eat some seaweed. _____
2. Describe waves and how they move. _____
3. Make a collection of shells and identify them. _____
4. Identify the radula on some shells and discuss its importance and usage. _____
5. Identify 3 types of coral and explain the importance of coral reefs to man. _____

HEALTH:

1. List several safety rules used to lessen the danger of shark attack. _____
2. Identify 3 poisonous ocean organisms, describe characteristics and where they may be found. _____
3. Explore in depth one area of marine biology which especially interests you. _____
4. Give a demonstration at County Presentation Day. _____

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