

MARINE SCIENCE: The World of Water

FOR SEA: Grades 9 to12 - Oceanography and Marine Biology

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Unit I: The Oceans: Historical Perspectives

- 1. That Was Then, This Is Now...A Brief History of the World From the Perspective of Oceanographers..... 43**
 Students create a timeline depicting the history of European and Mediterranean peoples' interactions with the sea.
- 2. Meanwhile, in the Pacific...Where Did the Polynesians Come From? 57**
 Students read and compare two theories about the origins of the people who colonized the islands in the Pacific.
- 3. Meanwhile, in the Pacific...Where Did the Polynesians Come From? Part 2 - Polynesian navigation 71**
 Two journal articles describe efforts to learn and practice Polynesian navigation.
- 4. Charles Darwin 103**
 Students read and interpret an article about Darwin's voyage aboard the Beagle and the development of his ideas.
- 5. Explorers of the Ocean Depths: The Challenger Expedition of 1872-1876 115**
 Students read and interpret an article about the first major scientific expedition to systematically gather data about the oceans.
- 6. Animals! 135**
 Students learn how scientists such as those on the Challenger, classify organisms. They observe and group marine animals and become familiar with major marine invertebrate phyla.

- 7. The Sting- Cnidaria..... 163**
This reading and puzzle provide an overview of characteristics and representative animals of the phylum Cnidaria.
- 8. The Shelled Animals- Mollusca..... 177**
Students read and answer questions about the phylum Mollusca and the five classes into which the molluscs have been classified.
- 9. The Jointed-Foot Animals- Arthropoda 195**
This reading describes the characteristics common to all arthropods and introduces the major marine classes and orders.
- 10. The Spiny-Skin Animals- Echinodermata 203**
Students use a reading about echinoderms to solve a word puzzle.
- 11. Urchins 215**
Students observe the structures and behaviors of a living urchin and then observe the fertilization and development of larval urchins. A bioassay technique using sand dollar gametes is included as a possible extension.
- 12. “Starfish Threaten Pacific Reefs” - Three Level Guide 233**
This journal article describes the effects the voracious crown-of-thorns sea star has on coral animals in tropical reefs.