

High School Lesson Plan

Science Grade 11

OBJECTIVES

1. Students will investigate the ecological dynamics of the local marine ecosystem.
2. Analyze advanced concepts of dolphin behavior.
3. Propose solutions for coastal conservation challenges.

TEKS ADDRESSED

Science (11.10) - Organisms and Environments: The student knows the role of living organisms in the local ecosystem.

PRE-TRIP ACTIVITIES

1. **Ecosystem Dynamics:** Discuss ecological concepts such as trophic levels, energy flow, and nutrient cycling in marine ecosystems. Explore case studies of ecosystem disruptions and their impacts on biodiversity.
2. **Advanced Dolphin Behavior Studies:** Assign students to conduct advanced research on dolphin behavior, including topics such as vocalizations, cognitive abilities, and cultural transmission. Facilitate discussions on the complexity of dolphin societies and their implications for conservation.

FIELD TRIP- ECOLOGICAL INQUIRY

1. **Field Research:** Engage students in field research activities focused on ecological monitoring of the marine ecosystem. Use advanced techniques such as remote sensing, GIS mapping, or biodiversity surveys to collect data.
2. **Behavioral Observation:** Lead students in observing dolphin. Discuss how technological advancements have enhanced our understanding of dolphin communication and social behavior.

POST-TRIP ACTIVITIES

1. **Data Synthesis and Presentation:** Have students synthesize the data collected during the field trip and present their findings to the class. Encourage them to draw connections between ecological dynamics, dolphin behavior, and coastal conservation efforts.
2. **Policy Proposal:** In groups, have students develop policy proposals addressing specific coastal conservation challenges identified during the field trip. They should consider scientific evidence,

ASSESSMENT

Students will be assessed based on the depth of their pre-trip research, their ability to apply scientific concepts to field research and data analysis, and the quality of their policy proposals.