

# MARINE SCIENCE INSTITUTE

## Canoes In Sloughs Student Assessment

Name of School or Group:

Teacher Name:

Program Date:

Program Time:

We will be arriving: By Bus By Cars Grade Level

# Participant (maximum 27)

**Please contact MSI if your numbers exceed the maximum**

1. The following themes are available to help tie the learning stations together **(choose one)**

Biodiversity and Endangered Species  
Human Impact on the Bay

Food Web  
Scientific Method

Adaptation

2. To ensure that your instructional objectives and goals for the trip are met, a proper assessment of your students' place in the learning cycle is requested. Please take a few minutes to read "The Learning Cycle Model" before choosing the appropriate level.

3.

**ENGAGE:** Students are just beginning to generate interest in marine science.

**EXPLORE:** Students are already "hooked" on marine science. They have some basic understanding of terms and concepts related to marine science. Students are ready to actively make observations, form predictions, and collect and record data.

**EXPLAIN:** Students have been developing marine science comprehension skills for some time. They are ready to explain concepts and analyze data.

**APPLY:** Students have a mature understanding of marine science. I would like to see my students using and applying their knowledge in a different context.

4. Please indicate which topics your students will be familiar with on the day of the program:

Estuaries  
Tides  
Adaptations  
Wetlands

Plankton, Nekton, Benthos  
Photosynthesis  
Food Webs  
Scientific Method

Organisms: Plants/Animals  
Salinity  
Habitat / Niche

5. Please list any comments.

6. To help us better serve your students, please answer the following:

# of your students that speak English as a second language.

# of your students with special needs. (Please explain in space above)

Please return as soon as possible to:

Student Assessment, Marine Science Institute, 500 Discovery Parkway, Redwood City, CA 94063-4746, OR FAX to (650) 364-0416.

## **The Learning Cycle Model**

**Engage – Students are just beginning to generate interest in marine science.**

“The MSI program will be the hook from which I launch my unit and introduce my class to the excitement of marine science. I’m willing to come into this trip a bit cold...my main objective is to generate curiosity and get the students raising questions.”

The engagement stage is not a stage to stress over definitions, to ask for or to provide all the “right” answers, or to worry how to follow a dichotomous key! This is the time we invite the students to consider what they already know... it is a time to air out misconceptions and preconceived notions... it is a time to pose a problem, expose a conflict, and ask questions about the bay and it’s rich science resources.

**Explore – Students are ready to actively experience, form predictions, and make observations.**

“My students are already hooked on marine science. I’m bringing them to the MSI program with basic understandings and tools... They know a bit about the Bay and are ready to actively explore it. My objectives are for my students to make observations and to collect and record data. I’d like to see them make informed predictions and to begin framing their own critical questions.”

A student in the explore phase of marine science learning is already curious, engaged, and is asking informational questions. It is still a stage though of gathering information, manipulating materials, predicting, observing, and recording. It is in this phase that students start acquiring vocabulary, a process that can begin through classroom explorations prior to the cruise. BUT, expect new terms and concepts to arise during the program... if you have a scheme for recording these, they provide rich fodder for review and further exploration later on.

**Explain – Students have been developing understanding for some time, and are now ready to speak the language of marine science.**

“By the time we participate in our MSI program my students will have conducted serious investigations of topics related to the San Francisco Bay. My objective is to see them using the language of marine science... I’d like them to begin exploring important concepts and to comprehend and analyze other explanations.

It is the explain phase of the learning cycle where students are best able to process explanations, either their own or those of “guided experts”. Students are able to assemble previous experiences, recorded observations, and new terminology to communicate understandings and possible solutions to others.

**Apply – Students have a mature understanding of marine science, perhaps including aspects that are far afield from the San Francisco Bay area, and now are ready to relate that knowledge to their own backyard.**

“My group has a good handle on the major learning objectives I have set for marine science. MSI’s program is going to provide new scenarios for them to consider and address. My objective is to see my students using and applying their new knowledge in a different context.”

The apply phase is the mature end of the learning cycle where students are ready to apply their understanding and skills in new situations.

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