

Physical Science Laboratory: Geological Models Illustrate Surface Processes

Objectives:

- . To be able to identify many geological landforms formed by surface processes on three-dimensional geological models.
- . To be able to locate landforms using a coordinate system.
- . To learn the names of these typical topographical forms.
- . To categorize these landforms according to the forms, depositional or erosional, that formed them.

Materials:

Model 1: Coastline of Submergence

Model 3: Fault Block Mountains

Model 4: Alpine Glaciation

Model 6: Continental Glaciation

Models Booklets: Geology Models Study Guide

Instructions:

The following questions are provided to aid you in your study of the geological models. You should answer all the questions on a separate piece of paper while you are studying the features of the model. Sometimes it is helpful to try to draw the features on the models but that is not required. In order to evaluate your progress there will be a written test given on this material. The test will consist of multiple choice questions and identification of model features questions. Your grade will be based on the outcome of this laboratory test. Do not turn in this study aid. Use it to help in answering the test questions. The test will be given after the lab.

Model 1: Coastline of Submergence

Find the following features on Model 1: **Delta, Oxbow lake, Sediments.**

1. How is an oxbow lake formed? What does it tell you about the age of the river valley?
2. Is a delta a depositional feature or an erosional feature? Explain your answer.
3. What is sediment?

Model 3: Fault Block Mountains

Find the following features on Model 3: **Playa, Alluvial Fan, Crescent Dunes.**

1. What are the factors that influence how dunes are shaped?
2. What is the relationship between an alluvial fan and a delta?
3. Why are the playas short-lived?

Model 4: Alpine Glaciation

Find the following features on Model 4: **Hanging Valley, End Moraine, Lateral Moraine, Waterfall, Cirque, Tarn, Horn.**

1. Classify the features you have found on this model as depositional or erosional.
2. Why are valleys formed by glaciers U-shaped?
3. What is the difference between a cirque and a hanging cirque?

Model 6: Continental Glaciation

Find the following features on Model 6: **Terminal Moraine, Ground Moraine, Outwash Plain, Drumlins, Esker, Kame, Kettle Lake, Meander, Oxbow Lake, Karst Topography, Sink Hole, Flood Plain, Caverns, Glacial Till.**

1. Classify the features you have found on this model as depositional or erosional.
2. How are sink holes formed?
3. What is glacial till?
4. What is the difference between a terminal moraine and a ground moraine?
5. Under what conditions does Karst Topography develop?
6. How would you tell the difference between a drumlin and a moraine?

General

1. Make a list of all of the features you have studied on these models. For each feature be sure you know if it is caused by erosion or deposition. Also be sure if you know if it is associated with glaciers, deserts, rivers, or underground water.