

I. Objectives

1. Use Google Earth (GE) to explore coastal land features.
2. Connect coastal processes with coastal shapes.

II. Introduction

Citizens of the 21st century have unparalleled opportunities to view Earth from above from an airplane window seat, by zooming around the world using Google Earth, or by enjoying the satellite image of the day from NASA's Earth Observatory. Coastal features often stand out, highlighted by adjacent oceans. Many of the features described in this unit can be found although some are only found in certain climatic regimes.

While the path of any given shoreline may seem haphazard, almost all shorelines are indicative of one or more of the following processes or characteristics: prevailing currents, winds, sources of sediment, climate, underlying geology, geologic history and even anthropogenic alterations. Just as learning how to identify trees or animal tracks gives one a greater appreciation of nature, learning how to identify and decode the shape of a shoreline will unlock some of the secrets of the Earth's surface. Some coastal features may be windows into the past – particularly paleo-shorelines that are more often seen around large glacial lakes or inland basins.

III. Materials

Internet and Google Earth

IV. Prelab Definitions

1. atoll
2. barrier island or barrier spit
3. cove or harbor
4. delta
5. estuary
6. jetty or groins
7. keys (as in Florida Keys)
8. mangrove swam
9. paleo-shore
10. terminal moraine

V. Lab Procedure

1. Working in groups of two, use Google Earth, Google Maps or NASA’s Earth Observatory to explore four different coastal environments, as described below.

2. Investigate four coastal environments. Divide the four views into two different groups from different parts of the world. Each group should consist of similar types of structures or environments, such as those listed in Table 1a, or related to similar processes, such as those listed in Table 1b, so that you can compare and contrast what you find from different locations around the Earth.



Figure 1: Cape Cod, MA

Table 1: Examples of Features & Processes to be Investigated	
a. Features	b. Processes
atoll	long shore drift
barrier island or barrier spit	sediment transport
cove or harbor	erosion
delta	sediment patterns
estuary	tidal flows
jetty or groins	seasonal effects
keys (as in Florida Keys)	change over time (eons)
mangrove swamp	works of man
paleo-shore	
terminal moraine	

3. For each profile, copy and paste an image similar to Figure 1 above into a Powerpoint or Word document.

4. Resize the images so that there are two images per page.

5. Label any features you find particularly interesting using the Word *Insert Text Box* tool.

6. Include your name on the first page and as part of the filename, for example, lastname_coastal.doc.

7. Submit the document into the MyPima class folder labeled “Coastal_Processes.”

8. Complete Table 2 below and answer the discussion questions for each image.

Table 2: Physical Characteristics of Coastal Locations						
Descriptive name	Start point latitude	Start point longitude	Body of water	Features	Processes	Scale x dimension in km

VI. Lab Discussion

1. Compare and contrast the prominent features in your first group of images. How do they differ?
2. How are they similar?
3. What visual clues suggest different processes at work? Be specific.
4. Focus on one image in group 1. Would you find this feature/process anywhere in the world or only in specific climatic or geographic settings? Be specific.

