Name _____

LAB: SEDIMENTARY ROCKS AND PALEOGEOGRAPHIC MAPS

The purpose of this lab is to draw a paleogeographic map based on the relative positions of rock "outcrops" in the classroom. You must first identify the rock type exposed in each "outcrop", then make an interpretation of the environment the sediments were deposited in.

PROCEDURE:

1. Identify the rocks located on the tables. Assume that all are layered and so are sedimentary rocks.
   Use handouts or table in lab book for sedimentary rock identification and sedimentary environments.

2. Determine the sedimentary environment for each rock.
   It is possible that you may have more than one interpretation until you've examined *all* the outcrops.
   For example, you identify a conglomerate which could indicate a river channel, alluvial fan, or rocky beach environment. You might expect to find a river *channel* next to a river *floodplain*.
   SO, pay attention and think about what the nearby "outcrops" indicate. They could be different parts of the same environment!

   Record your rock data on the attached chart and note the location of the outcrop on your map.

3. PALEOGEOGRAPHIC MAP:

   Label each rock & environment on your map and
   Use an appropriate color and/or symbol to visually identify it.
   Copy and use my suggestions from the board.
   Examples: large circle for a lake, waves or blue color for the ocean, meandering course for a river, DASHED line for the shoreline.

QUESTIONS TO ANSWER:

1. Which direction is the river flowing? (draw an *arrow* next to the river *on your map*)
   What evidence did you use to determine this? List at least TWO pieces of evidence.

   _____

   _____

   _____

2. Which location (A-J) is the source of the sediments in the beach? _____

   List some evidence for your answer: _____

   _____

CONTINENTAL ***on land (includes lakes and streams)***			
Environment Name	**Common Sedimentary Rock Types**	**Common Sedimentary Structures**	**Common Fossils**
stream - channel	conglomerate, sandstone	cross-beds,ripple marks	high energy, oxidizing environment with few fossils
stream - floodplain	shale	mud cracks	terrestrial plants and animals
alluvial fan	conglomerate, arkose	poorly sorted, cross-beds	high energy, oxidizing environment with few fossils
desert dune (aeolian)	sandstone	well sorted, large scale cross-beds	terrestrial reptile traces
glacier - till	tillite	angular to rounded grains, poorly sorted, unstratified (massive)	high energy environment with few fossils
glacier - outwash	sandstone, conglomerate	ripple marks, cross-beds, similar to stream channel	high energy, oxidizing environment with few fossils
swamp	bituminous coal, coal	cross-beds, ripple marks, mud cracks	plant fossils
lake	sandstone, shale, freshwater limestone, claystone	graded beds, thin beds, varves, ripple marks, mud cracks	lake dwelling organisms
TRANSITIONAL ***where land meets ocean***			
Environment Name	**Common Sedimentary Rock Types**	**Common Sedimentary Structures**	**Common Fossils**
delta	marine and nonmarine mudstone, siltstone, sandstone, coal	possible cross-beds, ripple marks	terrestrial plants, mollusk shells, bioturbation
beach	Sandstone, coquina	fine to medium-grained, well-sorted, cross-beds	mollusk shells, bioturbation
tidal flat	mudstone, siltstone, sandstone, possible evaporites	fine-grained, ripple marks, cross-beds, mud cracks	mollusk shells, bioturbation
MARINE ***in the ocean***			
Environment Name	**Common Sedimentary Rock Types**	**Common Sedimentary Structures**	**Common Fossils**
shelf/platform	limestone, shale, sandstone, oolitic limestone	cross-beds, ripple marks	fish, coral, mollusk shells, sponges, echinoderms
reef	limestone	massive	coral
slope/rise	mudstone, graywacke	graded beds, turbidites	microscopic plankton
deep marine	chert, chalk, limestone, mudstone	thin beds	microscopic plankton
shallow restricted circulation in arid hot climate	gypsum, anhydrite, halite	mud cracks, thin beds, salt casts	extreme chemical environment with few fossils

Sedimentary Rock Chart

#	**Rock Name**	**Features** of the rock used to identify it	**Identify Fossils** If present	**Environment sediments were deposited in**
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				

I _____
env: _____

D _____
env: _____

H _____
env: _____

B _____
env: _____

A _____
env: _____

J _____
env: _____

C _____
env: _____

F _____
env: _____

E _____
env: _____

G _____
env: _____