

Earth Science Lab

Topic: Continental Drift

Learning Standards: (New York)

Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity. Students will describe chemical and physical changes, including changes in the states of matter.

Materials:

Laboratory Handout
State Reference Table

Introduction:

Students will discuss their hypotheses as to how the current position of the Earth's tectonic plates has changed since their formation.

Class Participation:

Students will be broken up into lab groups to complete the laboratory handout listing different changes that has occurred with each of the Earth's tectonic plates. Students will also make further inferences and analyze images selected from the reference table as to what geological processes have occurred. (Supplemental information can be derived from available textbooks and other resources)

Assessments:

Short Term: Upon completion of their labs students will be encouraged to discuss their findings. This exercise will be a valuable asset in aiding their understanding the idea of continental drift. This exercise will also utilize library and referencing skills.

Long Term: Practice regents questions will be assigned throughout the year. Supplemental resources such as graphic organizers, labs and review sheets will help the students become more comfortable with scientific material in preparation for the New York State Earth Science Regents Exam. Student will also exhibit a basic understanding of the dynamics that govern our ever-changing environment.

Conclusion: Students will exhibit an understanding of continental drift and the geological process that govern the positional changes of the Earth's tectonic plates. Students will submit their labs for a grade and be documented in accordance with New York State laws and mandates pertaining to the earth science curriculum.

Instructor Diagnosis and Amendments:
Amendments:

Administrative Approval and Suggested

Instructor _____
 Name _____ I.D.# _____
 Period _____

Date _____
 Mark _____

Continental Drift

Objective: Students will exhibit an understanding of **Continental Drift** and draw conclusions of the Earth's tectonic plates and their past and current positions.

Vocabulary:

Sea Floor Spreading

Subduction

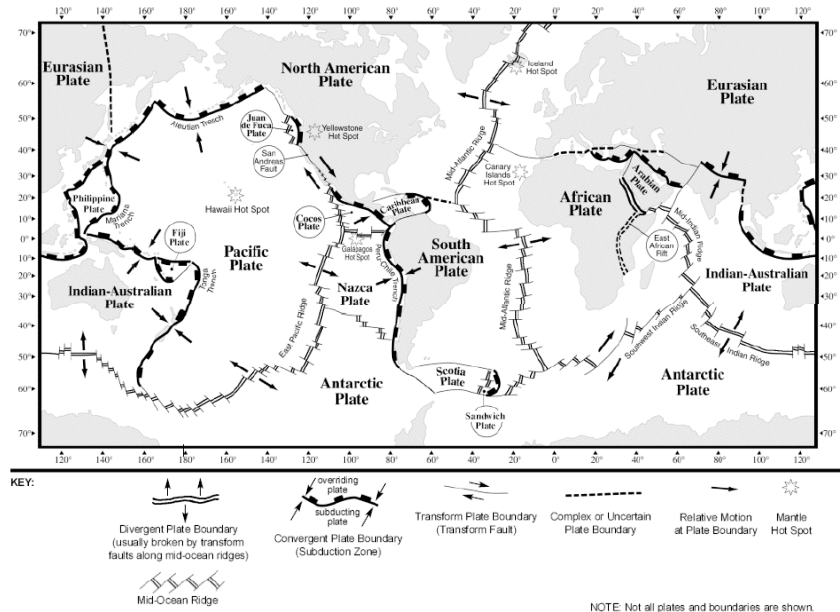
San Adreas Fault Line

Rift Zone

Pangaea

Procedure:

Examine the current positions of the Earth's **tectonic plates**. Photocopies of your Earth Science Reference table will provide you with the cut outs you will use to reconnect them for the following exercises.



Exercise One:

Cut out and reconnect the plates so that they mirror the environment 225 million years ago. (**Pangaea**) Use your Earth Science Reference tables as a guide.

Exercise Two:

Inference their respective paths and arrange them in way they will be arranged 100 million years from now. Try to utilize the current directions of the Earth's tectonic plates.

Questions:

1. According to the changes you have observed over the last 225 million years how has the relative position of North America changed with respect to the Equator?

2. What might have been the environmental characteristics of North America during this time, what evidence supports your reasoning?

3. Where other than in the Unties States have geologists found evidence of continental drift?

4. What could explain the existence of coal deposits in Antarctica?

Conclusion:

What evidence is there that we can visibly see that the present day continents were once a single landmass (**Pangaea**)?

Answer Key: Continental Drift Lab

Questions:

- 1.** North America has moved in a north-by-north western direction over the course of 225million years.
- 2.** A hotter, wetter environment was the most likely the characteristics of a more southerly North America. Evidence for this is in the fossil record where we see organisms indigenous to these environment in rock samples that date during this time period.
- 3.** Fossil samples have been found on the west coast of South America and the east coast of Africa. Congruently, the same elemental constituents throughout the rock layers ideally matches, further promoting Wegener's theory of continental drift.
- 4.** Antarctica at one point must have had a vast amount of vegetation of which died off and decayed to form the organic compounds that coal is comprised of.