Puzzling Pangaea

Name:_____ Period:_____ Date: 9/17/18

IV DV

Problem: What is the effect of convection currents on the location of the continental crust due to the movement of the Earth's plates (lithosphere)?

Class Vote: Think about the following two statements. One is true and one is false. Determine which you believe to be true based on your current knowledge and which is false. Complete the chart that goes along with the statement and be prepared to share out.

Statement	True or False?	Justification. Why?
The plates (lithosphere) move because of convection currents in the asthenosphere but no changes are made to the continents or the way the Earth looks since they are all moving.	F	There is proof that the continents are moving apart.
The plates (lithosphere) move because of convection currents in the asthenosphere which completely changes the continents location and the way the Earth looks over time.	T	Plates move at different rates, different times, and different directions.

Research:

Puzzle Research: Analyze the shapes you have received. As a group, predict which continent each shape represents. (You may refer to the picture of the current-day continents made available to you.) Write your predictions near each shape. Record your experience here:

Peer Interview Knowledge: Discuss the following questions and answer them based on research you have already completed (science you already know!).

1. What are convection currents? What do they do?
   A convection current is the flow that transfers heat in a fluid. They move the lithospheric plates.
2. What are lithospheric plates?
   Regions of the Earth's crust and upper mantle that are broken into plates.
3. What does the Earth look like now? (think about social studies and the continents and the oceans)
   - Two main land masses.
   - Two large islands separated by oceans.
   - 7 continents.

Book Research: Answer the following questions using the reading on pages 136-140.

1. Who was Alfred Wegener (where was he from? what did he propose? what is the name of his theory? etc.)?
   German scientist. He proposed the continents were once connected. Proposed theory know as continental drift.
2. Define Pangaea.
   Name means "All Lands." Supercontinent 300 million years ago.
3. List the seven landmasses that existed millions of years ago.
   Eurasia, Africa, N. America, S. America, India, Antarctica, Australia.
4. Complete the table of evidence for Pangaea:

Type of Evidence	How does this prove Pangaea existed?
Fossil	Plant and reptile fossils found on continents separated by oceans.
Land Features	Coal beds, some continents (North & South America) that look like puzzle pieces, mountain ranges.
Climate	· Tropical plant fossils found in Arctic areas. · Glacial scratches found in tropical areas.

5. What happened to Pangaea?
   It separated because the land masses moved.

Class Vote – Take 2!: Think about the following two statements. One is true and one is false. Determine which you believe to be true based on your current knowledge and which is false. Complete the chart that goes along with the statement and be prepared to share out.

Statement	True or False?	Justification
~~The plates (lithosphere) move because of~~ convection currents in the asthenosphere but no changes are made to the continents or the way the Earth looks since they are all moving.	F	
The plates (lithosphere) move because of convection currents in the asthenosphere which completely changes the continents location and the way the Earth looks over time.	T	

Hypothesis: Record your hypothesis based on the research you completed today! (HINT: Refer back to the original problem you are trying to solve!)

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