Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Other group members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Geochronologist Puzzle**

**Background:** Alfred Wegener was a meteorologist in the late 1800's and early 1900's. Wegener had the idea in 1915 that the continents were not always in the place they are now. In fact, he believed the continents fit together in a supercontinent called Pangea.

**Task:** Your team of scientists has been studying how the seafloor is spreading all around the world. The attached page of seafloor evidence shows your many years of research. Your job as geochronologist is to view the evidence provided and determine whether your data supports or refutes Wegener's idea of continental drift.

**Directions:**

1. Label each continent on the page of BLANK continents (NOT the colored document).

2. As a team, cut out each of the continents along the edge of the continental shelf (the outermost dark line).

3. Once you have cut out the continents, arrange the continents to look like their current locations on Earth. Draw a rough sketch of your arrangement in the box labeled "Current Continent Locations".

4. Look at the colored world map provided. This map shows the age of the seafloor using Uranium dating. On the gray half-sheet version provided, color the sea floor the same as in the colored picture.

**Red sections** are 0-20,000 year old, **orange** is 20,000-30,000 years old, **yellow** is 30,000-50,000 years old, **green** is 50,000-130,000, and **blue** is 130,000-150,000 years old.

5. Using the evidence you just colored, note where the youngest and oldest parts of the sea floor are located. On your newly colored map, draw arrows to show where the sea floors (and continents) are moving. Logically piece the continents together to show how sea floor spreading moved the continents.

Draw a sketch of your supercontinent in the box labeled "Probable Past Supercontinent Location". (Note: To find the shape of the past supercontinent, think of the sea floor spreading in REVERSE of what you drew to simulate the past.)

|  |  |
| --- | --- |
| Current Continent Locations | Probable Past Supercontinent Location |

6. Imagine you are Alfred Wegener. Write at least four sentences that summarize your work. Your summary must include: 1) What your map shows about the Earth 225 million years ago (What does the map show?)

2) How the seafloor evidence helped to put the landmasses together (What was your process?)

 3) Why the seafloor evidence is accurate (Why do you think your map is a good one?)

7. Very few scientists agreed with Wegener until more evidence was provided in the 1960's and 70's. Imagine you are a skeptic of Alfred Wegener. Write at least four sentences that criticizes his work. Your critique must include: 1) Why the continents could NOT possibly move the way Wegener is describing

2) Another PLAUSIBLE way the seafloor age could naturally be different in the places Wegener found them, WITHOUT the continents moving

 3) Why Wegener is not qualified to be proposing theories in the fields of geology and Earth history

8. Now that your team has found a supercontinent based on your evidence, it's time to present your information to the other scientist groups. Remember, you are archaeologists and experts in your field… it is your job to teach the other groups about your content. In the space below, write the main points of what you found, including:

1) A description of your evidence

2) Evidence that supports the idea of continental drift

3) Other possible explanations for your evidence

4) The general shape of the supercontinent