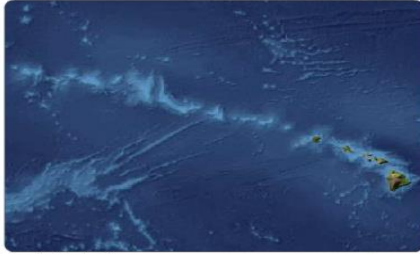


Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Lab Report: 2.09: Submit by October 5 for full credit.



Hawaiian island chain



The Hawaiian Island Chain, comprised of 132 islands, is host to active volcanoes, beautiful coffee farms, and even a tropical rainforest. The islands, however, are not only beautiful – they are fascinating to study. How did this Island Chain form? Is the shape of the islands random? Are the islands still forming and growing? Which Earth processes may have caused its formation? In this lab, you will be a geologist and study data in order to uncover the mystery of the Hawaiian Island Chain.

Follow the steps below to get started:

**Step 1:** Download the [Student Guide](#).

**Step 2:** Read all pages of **lesson 2.09** in the SCI113 course VERY CAREFULLY! Take notes. All information regarding the topic of this lab can be found in the lesson.

Need more information on Hawaii? Check out these helpful websites:

- <http://pubs.usgs.gov/gip/dynamic/hotspots.html>
- <http://oceanservice.noaa.gov/facts/hawaii.html>
- [http://www.soest.hawaii.edu/GG/ASK/hawaiian\\_hotspot2.html](http://www.soest.hawaii.edu/GG/ASK/hawaiian_hotspot2.html)
- [http://www.soest.hawaii.edu/GG/HCV/haw\\_formation.html](http://www.soest.hawaii.edu/GG/HCV/haw_formation.html)
- <http://geology.com/usgs/hawaiian-hot-spot/>

**Step 3:** Answer all questions below fully (**in complete sentences**).

**Note:** Some questions have multiple questions. Be careful to answer all parts of each question in order to receive full credit.

**Step 4:** Turn the lab into the Dropbox by October 5 for full points. Any work submitted after the midnight deadline will be counted for up to 70% of the points possible (30% off).

(Click the link for [Instructions to use Dropbox](#))

**Remember – we do NOT do Discussions in this course!!**

**Note:** If you get confused, please send your teacher a kmail asking for help – make sure to ask a *specific question* in your kmail so I can help you best!

## Form your hypothesis.

*(1 point)*

1. Do the islands appear to be the same age, or are they older at one end of the chain or another? You will probably want to look at the column titled "Radioactive Age".

Explain what evidence supports your conclusion.

Hint: Use the data on the chart (pg 3) to answer this question.

Answer:

Score

*(1 point)*

2. Where are new volcanoes forming?

Hint: Use the data on the chart (pg 3) to answer this question. You will probably want to look at the column titled "Radioactive Age". Use the data to make an educated guess.

Answer:

Score

*(1 point)*

3. What is the direction of the plate and how does this compare to the trend in direction of the island chain?

Hint: Using the information on the chart below, make your best guess to answer both parts of the question.

Answer:

Score

*(2 points)*

4. Based on these observations and what you have learned in the lessons, develop a hypothesis to answer the following question:

**"How did the Hawaiian Island chain form?"**

Hint: Remember to write your hypothesis as an If...Then statement!

(Examples: If I hit my brother, then I will get in trouble. If I study for the test, then I will get a good grade)

Answer:

Score

## Test your hypothesis and plot your data.

In this lab, you will test the hypothesis by examining actual data. Your hypothesis is based on a general trend in the age and elevation of the volcanoes. To confirm your hypothesis, test it against actual data. The data below shows distance, elevation and radioactive age. Distance is your independent variable because you're seeing how things change with distance along the chain. Plot elevation with distance and radioactive age with distance on the graphs provided.

**Note:** You may round the data on your chart to make it easier to plot.

<b>Number (reference only, do not plot)</b>	<b>Volcano Name (reference only)</b>	<b>Distance from Kilauea Along Trend of Chain (km)</b>	<b>Approximate Elevation (m)</b>	<b>Radioactive Age (mya)</b>
1	Kilauea	0	1,248	0.0
2	Mauna Kea	54	4,205	0.4
3	Kohala	100	1,670	0.4
4	Haleakala	182	3,055	0.8
5	Kahoolawe	185	452	1.1
6	West Maui	221	543	1.3
7	Lanai	226	1,026	1.3
8	East Molokai	256	1,515	1.8
9	West Molokai	280	1,515	1.9
10	Koolau	339	287	2.6
11	Waianae	374	137	3.7
12	Kauai	519	293	5.1
13	Niihau	565	381	7.9
14	Kaula	600	171	4.0
15	Nihoa	780	84	7.2
16	Necker	1,058	84	10.3
17	La Perouse Pinnacles	1,209	58	12.0
18	Brooks Bank	1,256	0	13.0
19	Gardner Pinnacles	1,435	61	12.3
20	Laysan	1,818	12	19.9
21	Midway	2,432	5	27.7
22	Pearl and Hermes Reef	2,281	0	20.6
23	Northampton Bank	1,841	0	26.6
24	Unnamed	2,600	0	28.0
25	Unnamed	2,825	0	27.4
26	Colohan	3,128	0	38.6
27	Abbott	3,280	0	38.7
28	Daikakuji	3,493	0	42.4

(4 points)

- 5. Plot distance vs. radioactive age, then draw a trend line that shows the general interpretation of the data points. **Note:** Drawing a trend line does not mean you connect the dots. A trend line is a line that shows your interpretation of the general trend of the data.

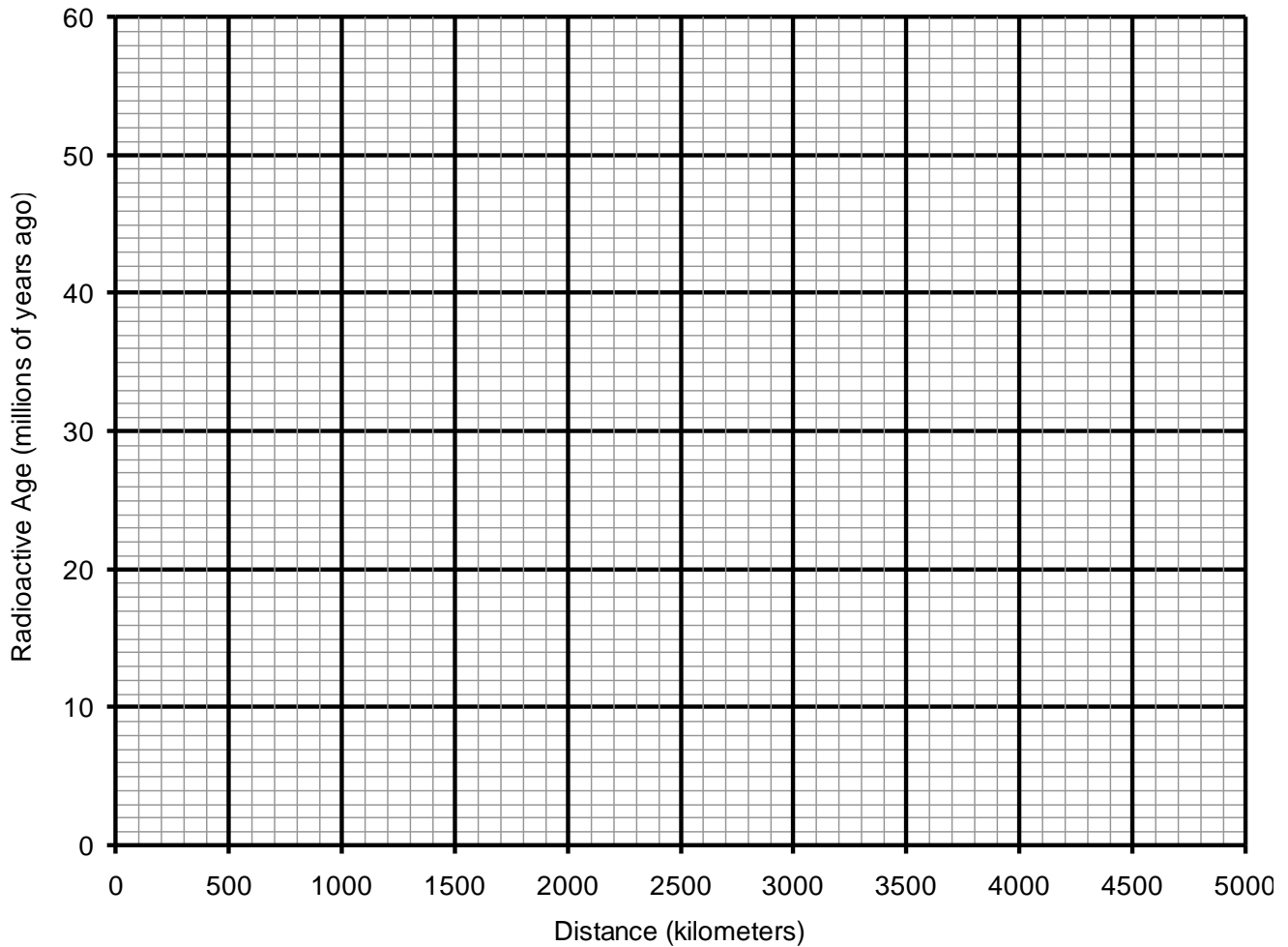
Score

Hint: You will need to use the data on the chart above (page 3) to make this graph.

Still confused? Watch this video for help graphing ☺: <http://www.screencast.com/t/8KdGXPd1sEs7>

Answer:

Distance vs. Age



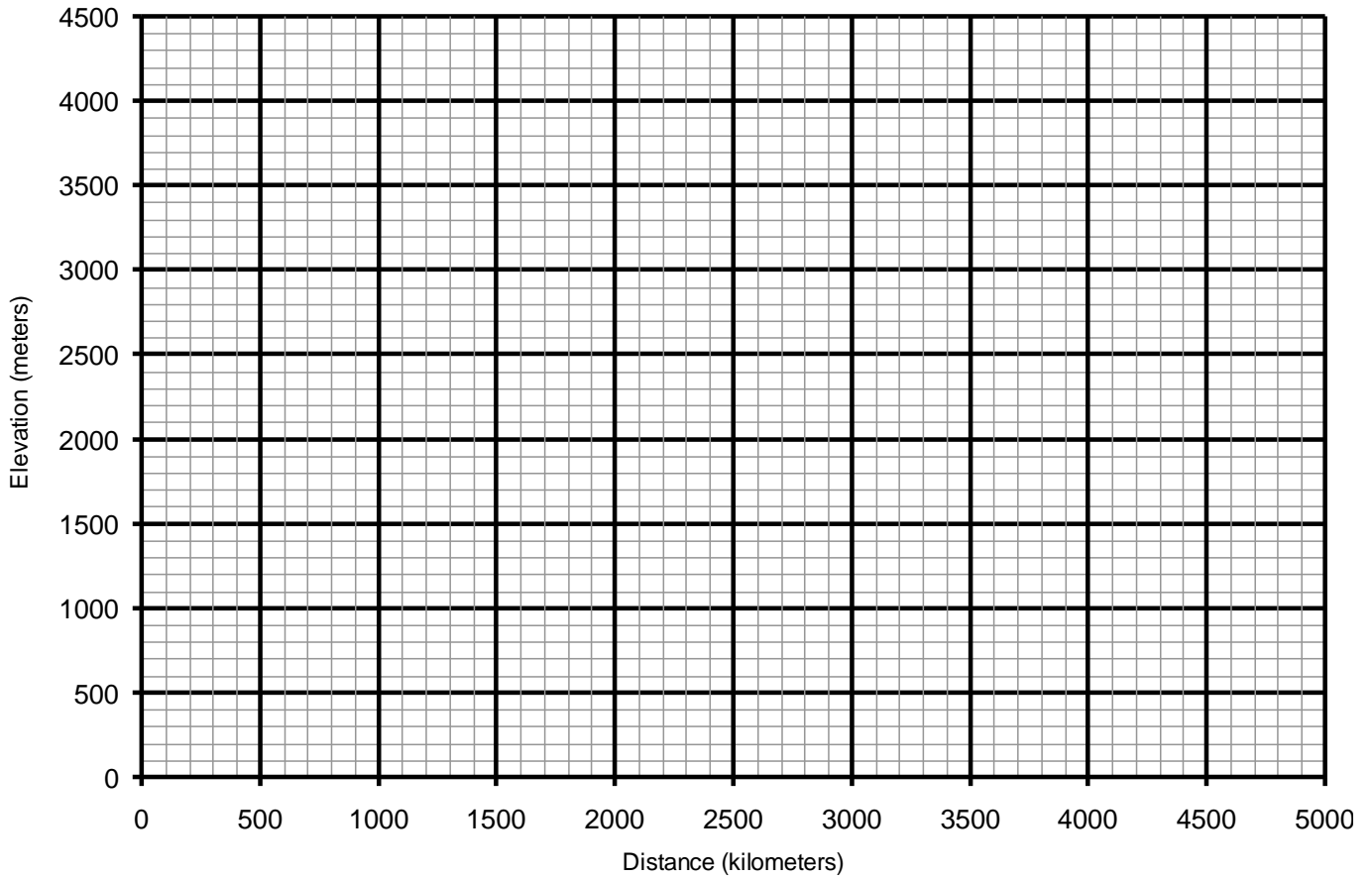
(4 points)

6. Plot distance vs. elevation, then draw a trend line that shows the general interpretation of the data points. Drawing a trend line does not mean you connect the dots. A trend line is a line that shows your interpretation of the general trend of the data.

Score

Answer:

Distance vs. Elevation



**(2 points)**

7. Look at the distance vs. elevation plot. Describe the relationship between distance and elevation *and explain how* it supports or does not support your hypothesis.

Hint: Your answer should answer all parts of this question.

Score

Answer:

- a. Look at your graph for question 5. What is the relationship between distance and elevation?
  
- b. Does this relationship support or not support your hypothesis? **Explain.**

**(2 points)**

8. Look at the distance vs. age plot. Describe the relationship between age and distance and **explain how** it supports or does not support your hypothesis.

Answer:

- a. Look at your graph for question 5. What is the relationship between distance and elevation?
  
- b. Does this relationship support or not support your hypothesis? **Explain.**

Score

**(2 points)**

9. Restate your hypothesis, changed to reflect what you have learned. If it is the same as above, make sure you include how the data supports your explanation.

Answer:

Score

**(1 point)**

10. The radioactive dates represent years of research from different teams. If radioactive dating was not reliable, would the data show a trend or would you expect the points to be random?

Answer:

Score

<b>Your Score</b>	___ of 20
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