Name Answer Key

Epicenter Location

Procedure:

1. Convert the arrival time of P waves to seconds. Record this time in the data sheet.
2. Since P waves move at 6 kilometers per second, multiply the number of seconds by 6. Record this as the distance from the epicenter using P wave arrival time.
3. S waves move at half the speed of P waves and, therefore, take twice as long tn get to each station. Double the arrival times (in seconds) and record in the appropriate space.
4. ~~Convert the arrival time of the S wave to mixed units by dividing by 60. The remainder from the long division is the number of seconds.~~
5. To plot the earthquake epicenter on the map of the Lost Continent, the scale distance for the map must be calculated. Copy the "Distance from the Epicenter Using P-wave Time" from your own figures in the "Earthquake Event Data" chart to the "Distances to be Plotted on the Map" chart.
6. Divide the distance by [redacted] (100 km per cm) in order to find out what measurement on the map represents scale distance to the epicenter.
7. Set a drawing compass to the scale measurement and draw as much of a circle around each station as is possible given the size of the paper.
8. The point that all circles come together is the epicenter.

Earthquake Event Data

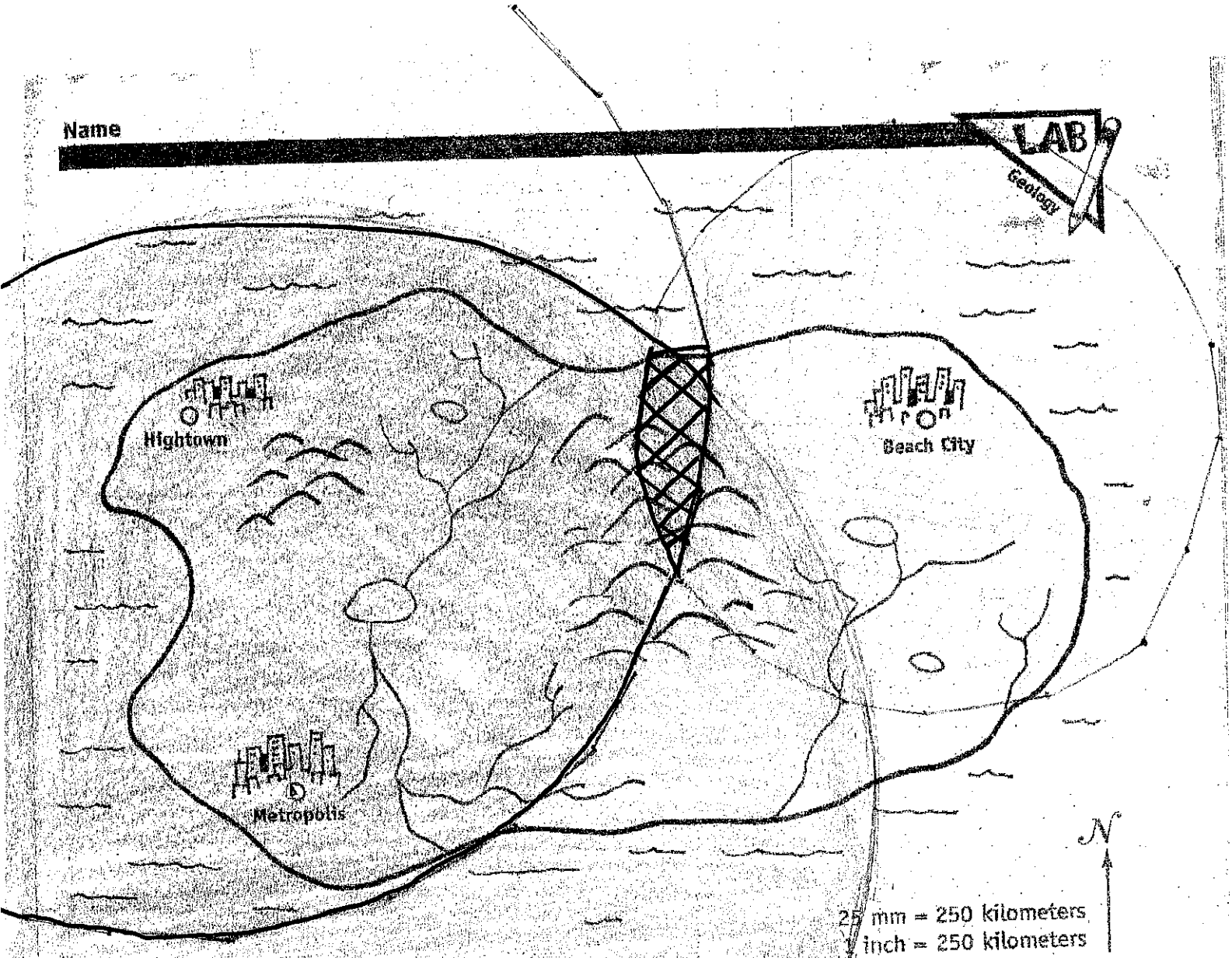
Seismic Station	P-wave Arrival Time (mixed units)	P-wave Arrival Time (seconds)	Distance from Epicenter Using P-wave Time	S-wave Arrival Time (seconds)	S-wave Arrival Time (mixed units)
Hightown	2 min., 29 sec.	149 sec.	894 km	298 sec.	
Beach City	1 min., 24 sec.	84 sec.	504 km	168 sec.	
Metropolis	2 min., 47 sec.	167 sec.	1,002 km	334 sec.	

Distances to be Plotted on the Map

Seismic Station	Distance from Epicenter Using P-wave Time	Distance Represented to Map Scale
Hightown	894	÷100 = 8.94 cm
Beach City	504	÷100 = 5.04 cm
Metropolis	1,002	÷100 = 10.02 cm

Name

LAB Geology



Questions:

1. Describe where the epicenter is in terms of the shape of the Lost Continent.

Middle of island, north end, north/middle of mountains

2. How many seismic stations are necessary to plot the location of an epicenter?

3

3. What is the problem in trying to locate an epicenter with only two seismic stations?

Without the 3rd station, the area would be too large.