Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Measuring Epicentres**

To find the epicenter of an earthquake, scientists calculate the difference in arrival times for P and S waves. The difference in times correlates to the distance away from the earthquake as shown in the graph below. **The difference in arrival times is in minutes.**

Time Between Arrival of P-Waves and S-Waves (minutes)

Distance from Epicentre (km)

Using the graph above and the map below, follow the steps to determine the location of an earthquake. The scale for the map is roughly 1cm = 100 km

1. In Quahog, the S wave arrived 0.64 minutes after the P wave. Use the graph to calculate the distance of the earthquake from Quahog. Can you determine the earthquake’s exact location using only this information? Why or why not?
2. In Bobafett, the S wave arrived 0.9 minute after the P wave. How far is the earthquake from Bobafett? Can you determine the location of the earthquake now? Why or why not?
3. In Yolatengo, the S wave arrived 29 seconds after the P wave. How far is the earthquake from Yolatengo? Where is the epicenter of the quake?
4. How much time is there between the p-waves and s-waves in Felttippedmarker?

**SCALE: 1CM=100KM**

Culabooloo

Felttippedmarker

Bobafett 

Horsetooth

Sebadoh

Burgoolup

Fishgourd

Yolatengo

Polvo

Iggypop

Quahog

Kingston

Sasafrass

Empire

Cornbowl

Red Hat

Mammananagaga

Husker Du

Monkeylips

How many earthquake stations do you need to calculate the epicentre of an earthquake?

**SCALE: 1CM=100KM**

Culabooloo

Felttippedmarker

Bobofett 

Horsetooth

Sebadoh

Burgoolup

Fishgourd

Yolatengo

Polvo

Iggypop

Quahog

Kingston

Sasafrass

Empire

Cornbowl

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