

Name: \_\_\_\_\_ TB: \_\_\_\_\_ Date: \_\_\_\_\_  
LG #5

**ACTIVITY: Using the Modified Mercalli Scale to  
Locate an Epicenter**

**Objective:** You will read simulated reports of people's earthquake experiences and then assign Modified Mercalli scale values to these reports.

You will plot these values on a map and locate the epicenter of the earthquake.

**Background Information:** Earthquakes are classified using different scales. The Richter scale is a measure of the energy released during the earthquake. The Modified Mercalli scale is a measure of the amount of damage done by the earthquake. Scientists record responses from many people who experience the earthquake and assign a value from I (1) to XII (12). These numbers are plotted on a map and used to locate the epicenter of the earthquake. This method is based on the idea that the area closest to the epicenter will suffer the most damage.

**Materials:** colored pencils

**Procedure:**

**DAY ONE**

1. Read the Modified Mercalli scale in Table 1 so you become familiar with the descriptions.
2. Read the list of experiences from the various cities in Table 2. Assign a Mercalli value to each of the descriptions. Write this value in the column next to the description. Your value should be written in colored pencil. Use the color key below to help you
3. Check the Mercalli Values you assigned for each city with the key your teacher provides.

**DAY TWO**

1. Write each value on the map (Figure 1) next to the corresponding city.
2. Using a PENCIL, draw lines that connect cities having the same Mercalli value. Follow the example your teacher gives you.
3. Check the circles you drew with the key your teacher provides.
4. Highlight each of the circles you drew with a different colored pencil. Different colors should connect cities having the same Mercalli value. Use the following key to help you color correctly:

VALUE	COLOR
II (2)	BLUE
III (3)	PURPLE
IV (4)	GREEN
V (5)	YELLOW
VI (6)	ORANGE
VII (7)	RED

5. Use the pattern of circles you have drawn to estimate where the epicenter is located.

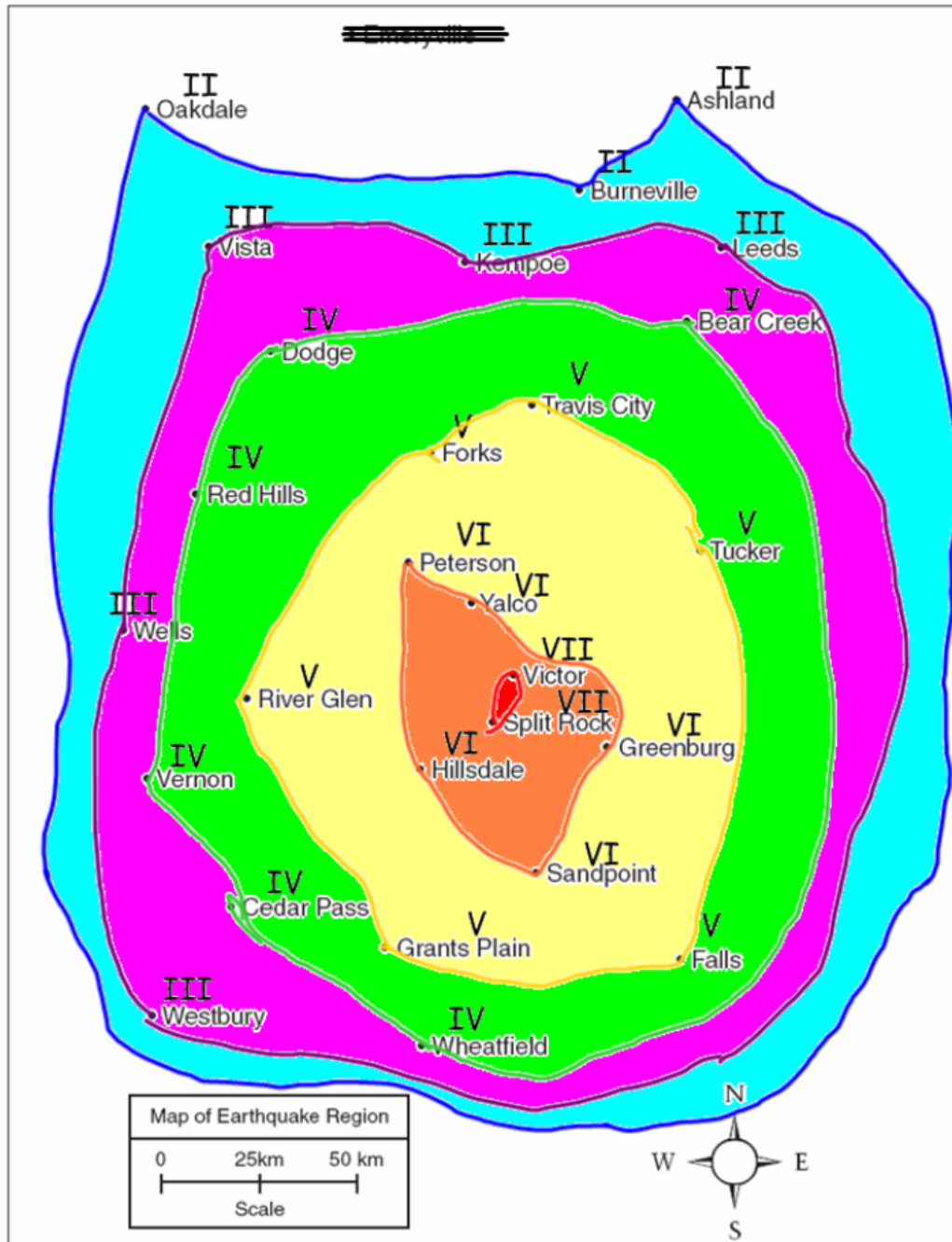
**Table 1**

Modified Mercalli Scale		
II.	(2)	A few people may feel movement if they are sitting still. Hanging objects may sway.
III.	(3)	Felt noticeably indoors, especially on upper floors. May not be recognized as an earthquake.
IV.	(4)	During the day, felt indoors by many people, outdoors by few. At night, some are awakened. Dishes, windows, and doors rattle.
V.	(5)	Felt by almost everyone. Sleeping people are awakened. Some windows are broken and plaster cracked. Some unstable objects are overturned. Bells ring.
VI.	(6)	Felt by everyone. Many people are frightened and run outdoors. Some heavy furniture is moved, and some plaster may fall. Overall damage is slight.
VII.	(7)	People run outdoors. Earth movement is noticed by people driving cars. Damage is slight in well-built buildings and considerable in poorly built structures. Some chimneys are broken.

**Table 2**

Earthquake Observations and Data			Mercalli value
1.	Ashland	Hanging lamps swayed.	II (2)
2.	Bear Creek	People outdoors did not notice anything, but windows and doors rattled.	IV (4)
3.	Burnsville	Felt by people sitting at dinner.	II (2)
4.	Cedar Pass	Families sitting at dinner noticed the dishes rattling.	IV (4)
5.	Dodge	Dishes, windows, and doors rattled.	IV (4)
6.	Emeryville	Not felt.	I (1) don't plot
7.	Falls	Felt by nearly everybody. A few windows were broken.	V (5)
8.	Forks	Big windows in stores downtown were broken.	V (5)
9.	Grants Plain	Church bells rang all over town. Plaster walls developed cracks. Candlesticks fell off the mantel.	V (5)
10.	Greenburg	Not much damage but felt by everyone.	VI (6)
11.	Hillsdale	Some plaster ceilings fell. Many people were scared.	VI (6)
12.	Kempoe	Felt by some people on upper floors. Some windows rattled.	III (3)
13.	Leeds	Noticed by many people working late in tall buildings.	III (3)
14.	Oakdale	Felt by a few people.	II (2)
15.	Peterson	Felt by almost everyone. Some plaster ceilings fell down.	VI (6)
16.	Red Hills	Some people are awakened out of their sleep.	IV (4)
17.	River Glen	Felt by almost everybody in town.	V (5)
18.	Sandpoint	Many windows were broken. Some people were scared.	VI (6)
19.	Split Rock	Poorly built structures were badly damaged. A few drivers noticed their cars moving strangely for a moment.	VII (7)
20.	Travis City	Almost everyone felt it. Church bells rang.	V (5)
21.	Tucker	Books fell off the shelves in the main library, and some windows were broken.	V (5)
22.	Vernon	Dishes in the cupboard rattled. Felt by people indoors.	IV (4)
23.	Victor	Most people were alarmed and ran outside. Chimneys were broken.	VII (7)
24.	Vista	Felt by people in upper floors of tall buildings.	III (3)
25.	Wells	Noticed by people on the third floor. Some windows rattled.	III (3)
26.	Westbury	Some people noticed the vibration but thought it was a freight train.	III (3)
27.	Wheatfield	People sitting at the dinner table noticed doors and windows rattling.	IV (4)
28.	Yalco	Many people ran outside. Many windows were broken.	VI (6)

MAKE SURE COLORED LINES DO NOT INTERSECT!  
YOUR END PRODUCT SHOULD LOOK LIKE COLORED RIPPLES IN A POND  
START DRAWING YOUR CIRCLES IN THE CENTER FIRST.



Discussion Question: ANSWER IN COMPLETE SENTENCES!!!

1. What cities were closest to the epicenter of the earthquake? How did you determine this?

VICTOR AND SPLIT ROCK WERE CLOSEST TO THE EPICENTER.  
THIS WAS DETERMINED BY THE FACT THAT THESE TWO TOWNS HAD THE  
HIGHEST MERCALLI VALUE (VII), MEANING THEY EXPERIENCED THE MOST  
DAMAGE. THE CLOSER A TOWN IS TO THE EPICENTER, THE MORE DAMAGE  
IT WILL EXPERIENCE.