

Rain Shadow Lesson:

Name _____

Why is Las Vegas a Desert?

Period _____

Introduction

In general, weather patterns move from west to east across the United States. In the Southwestern United States, weather patterns move across the Pacific Ocean over Southern California and Nevada, which are a part of the Mojave Desert. The Mojave Desert is located mostly in California, the southern portion of Nevada and the western edge of Arizona. In the following lesson, you will discover how topography causes a rain shadow effect resulting in the Mojave Desert.

Maps of Area

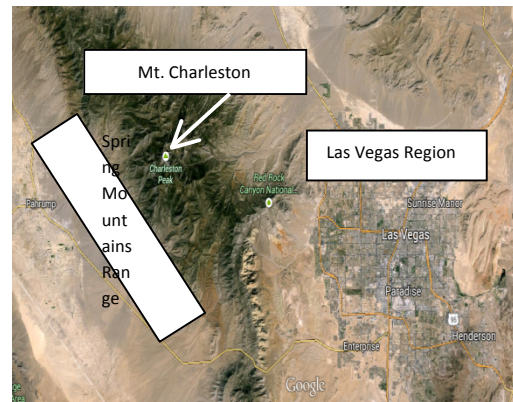
Weather Pattern Movement in Southwest US



(Map courtesy of Landsat and Google Maps)

Figure 1-1 Weather patterns (represented by black arrow) move from the Pacific Ocean over Southern California and Southern Nevada. The yellow rectangle represents the area shown in Figure 1-2.

Spring Mountains and Las Vegas Region



(Map courtesy of Landsat and Google Maps)

Figure 1-2 Map of Spring Mountains and Las Vegas region. The Spring Mountains Range is west-northwest of the Las Vegas region.

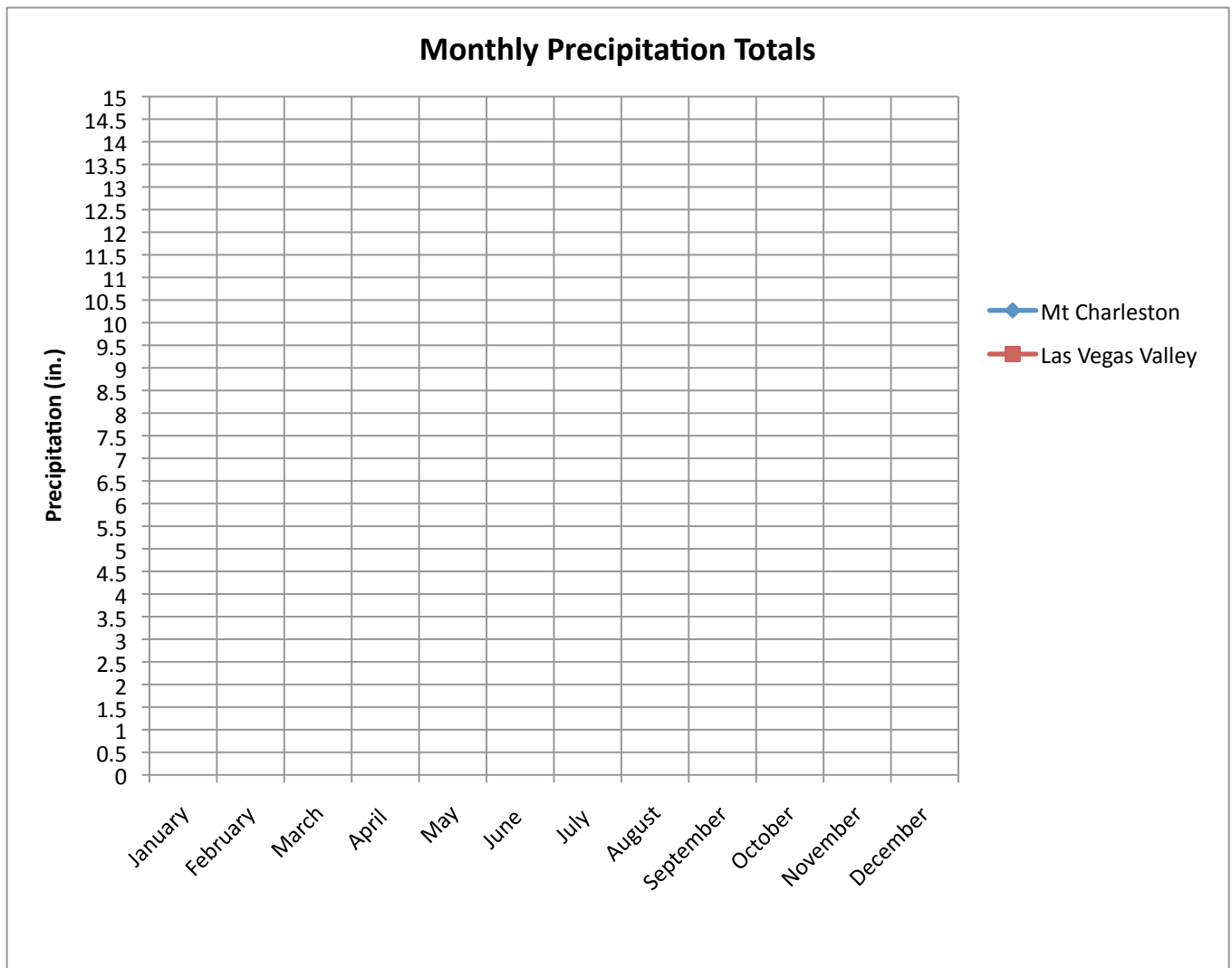
Using the data below, generate a double-line graph that shows the monthly precipitation at the two different locations.

Precipitation Data

Mount Charleston Monthly Precipitation (in.)		Las Vegas Region Monthly Precipitation (in.)	
January	14.45	January	0.54
February	5.88	February	0.76
March	3.33	March	0.44
April	0.65	April	0.15
May	0.80	May	0.12
June	0.00	June	0.07
July	3.59	July	0.40
August	8.31	August	0.33
September	1.05	September	0.25
October	2.78	October	0.27
November	0.04	November	0.36
December	0.24	December	0.50

(Data courtesy of wrh.noaa.gov – 2005 Precipitation Record)

Precipitation Model



Data Analysis

1. What is the total yearly amount of precipitation for Mt. Charleston? _____
2. What is the total yearly amount of precipitation for Las Vegas Valley? _____
3. During which month is there the greatest difference in precipitation for the two locations?

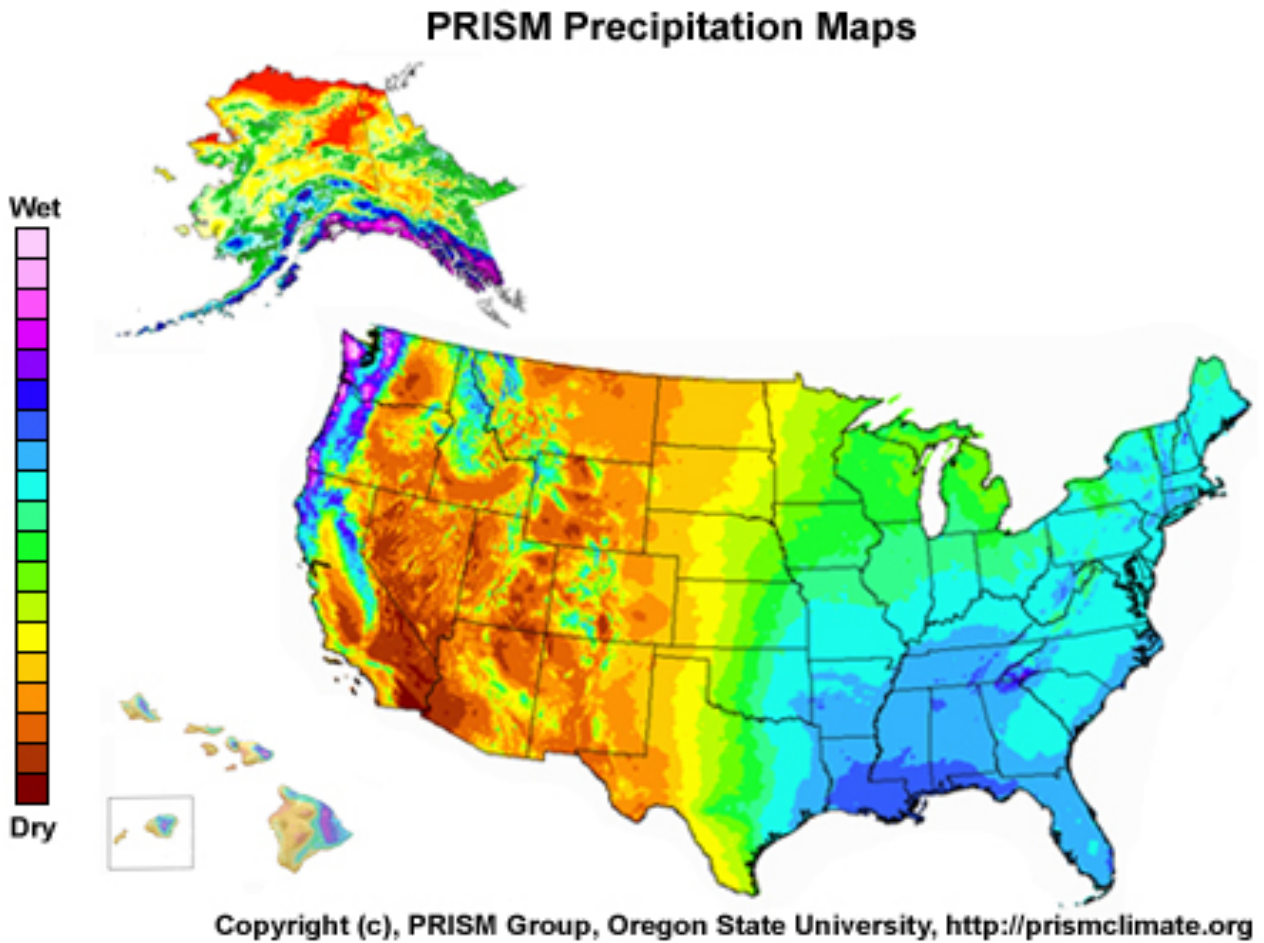
4. During which month is there the least difference in precipitation for the two locations?

5. What is the greatest difference in precipitation for the two locations? _____
6. What is the average monthly precipitation for each location? Record Answer Below.

Mount Charleston Average Monthly Precipitation (in.)	
Las Vegas Valley Average Monthly Precipitation (in.)	

Additional Rain Shadows

Using the map below and your knowledge of weather patterns, label the map with a star where additional locations in the United States might experience a rain shadow effect?

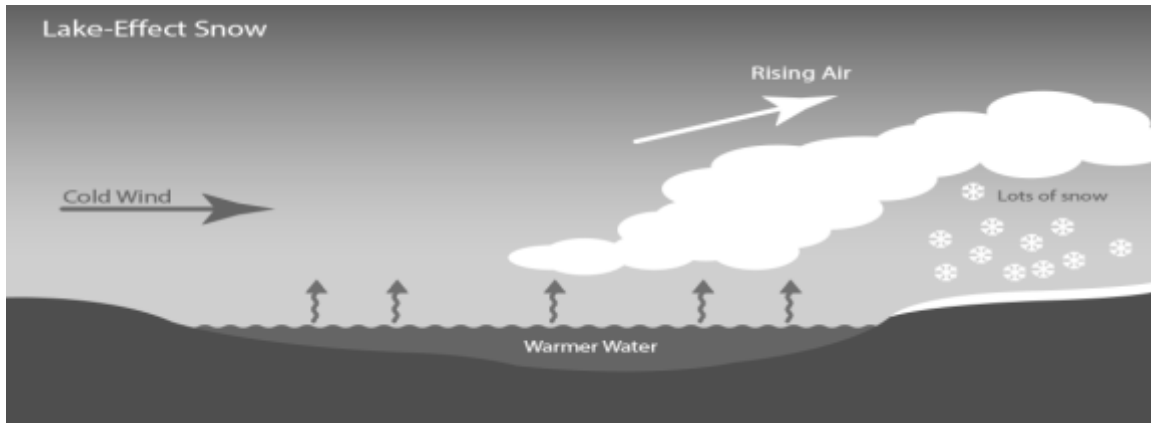


Justify the additional rain shadow locations you have added to the map above.

Extension: Lake Effect Snow

In addition to rain shadows, some locations near the Great Lakes and other large bodies of water, such as Lake Tahoe, experience lake effect snow. When winds move over a body of water, water will evaporate, develop large storm clouds and generate significant snowfall and sometime blizzards.

Lake Effect Snow



(Photo courtesy of: <http://scijinks.jpl.nasa.gov/review/lake-snow/lake-effect-diagram.png>)

Using the diagram above and map below, list three states or regions that might experience large snowfalls and potential blizzards based on their location. (Note: winds generally move from west to east).

Great Lakes Region



(Map courtesy of http://glakesonline.nos.noaa.gov/images/great_lakes.gif)

Three states or regions that might experience lake effect snow:
