

## Grade 6 Lesson

# What is growing in the field!

You can use monarchs to teach about anything! Stone Mountain Memorial Association (SMMA) uses the monarch butterfly to help students apply their knowledge in other contexts and to different disciplines. The activities relate a grade-level specific GPS to monarch life, habitat, or migration.

GPS correlation: S6E5. Students will investigate the scientific view of how the earth's surface is formed. Social Studies Map and Globe Skills. 1. Use cardinal directions, 6. Use map key/legend, 8. Draw conclusions, 9. Use latitude and longitude.

### **Preparation:**

Read the background information (Do not read it to students). Print the worksheet, or make an overhead, or display on your Promethean Board. Make copies for each student or for pairs of students. Obtain a piece of pumice from the garden mulch section of Lowe's or Home Depot to show the students the type of rock in Mexico. You can also visit [http://www.swisseduc.ch/stromboli/glossary/icons/pumice\\_2.jpg](http://www.swisseduc.ch/stromboli/glossary/icons/pumice_2.jpg) to view a picture of pumice. (You could also use scoria as an alternative picture.)

### **Background Information:**

In this lesson, we will classify volcanic rock and study how rocks change by examining the formation of a Mexican volcano. Students will also use map skills.

Monarch butterflies migrate to the Transvolcanic Mountains of central Mexico to overwinter. They spend the winter in these mountains clustered in oyamel fir trees, 10,000 feet above sea level. The geology of this Mexican range consists of very high, old volcanic mountains. The volcanic rock, usually known as scoria, is very jagged and rough with many small holes.

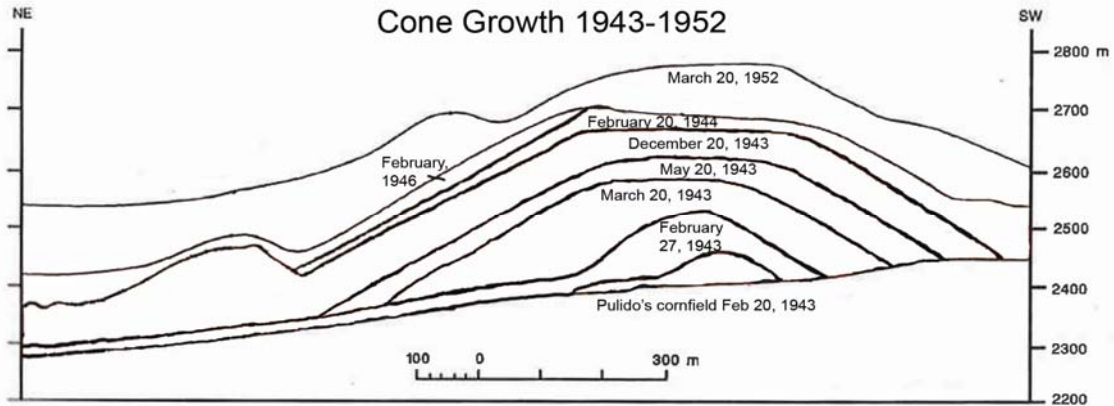
This area has many inactive cinder cones. The youngest one is called Volcan Paricutin. It was 'born' or began erupting in 1943 in a cornfield farmed by Dionisio Pulido, a local farmer. It eventually destroyed five small villages and the surrounding forest. Pulido and a few villagers had always seen a small fissure, or opening, in the field that gave off smoke and rumblings. After weeks of rumblings and earthquakes in the area, the fissure gave off an enormous amount of smoke, ash, and steam on February 20, 1943. Within months, five surrounding towns were covered with lava and solidified lava rock (tephra).

The volcano continued erupting and growing for nine years. Both Mexican and American geologists spent that entire time monitoring the destructive and constructive forces at work when a volcano erupts. View a short animation of the eruption at [http://volcano.oregonstate.edu/vwdocs/volc\\_tour/mex/paricutin\\_evolution.html](http://volcano.oregonstate.edu/vwdocs/volc_tour/mex/paricutin_evolution.html).

**Activity:** Read students the essential question so they understand the focus of the lesson. Hand out worksheets.



Essential question: What kind of rock formed in this cornfield in Mexico? Does a map of the area help me understand what happened at the earth's surface?

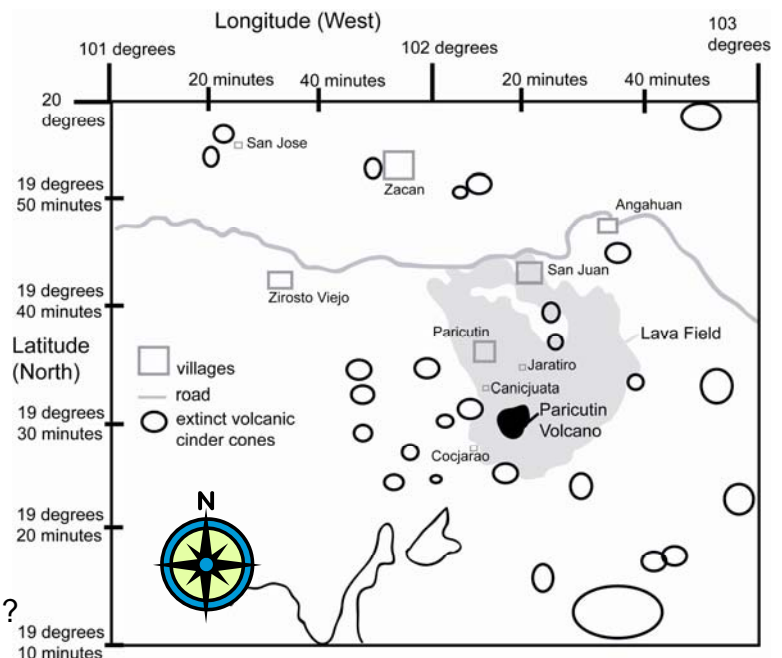


Lava starting flowing from a crack in Pulido's cornfield on February 20, 1943. Note the date and height of each layer.

1. What landform was being created from February 1943 to March 1952?
2. What kind of rock has formed here?
3. What agent caused change in this area? Circle one:  
deposition                      volcanic eruption                      weathering

**Map skills**

1. In what direction did most of the lava flow from its source?
2. How many villages were covered by lava?
3. Put an x on five extinct cinder cones.
4. What is the exact location (latitude and longitude) of the landform Paricutin (not the village)?



Latitude: \_\_\_\_ degrees \_\_\_\_ minutes North  
Longitude: \_\_\_\_ degrees \_\_\_\_ minutes West



## Grade 6 Lesson answers

1. What landform was being created from February, 1943 to March 1952?

A volcano

2. What kind of rock has formed here? Igneous rock or also accept tephra, obsidian or pumice

3. What agent caused change in this area? Circle one:  
volcanic eruption

### Map skills

1. In what direction did most of the lava flow from its source?

North

2. How many villages were covered by lava?

Five

3. Put an x on five extinct cinder cones. Any area that is around circle on the map represents an extinct volcanic cone.

4. What is the exact location (latitude and longitude) of the landform Paricutin (not the village)?

Latitude: 19 degrees 30 minutes North

Longitude: 102 degrees 20 minutes West



You can have the students get a more exact location by going to Google Earth.