

# San Andreas Fault Analysis

Name:

Period:

The San Andreas fault is a transform fault system that runs for 800 miles through California. The Pacific Plate is on the west side of the fault, and the North American Plate is on the east side. The plates slide past each other every time the San Andreas fault moves. The Pacific Plate moves northwards, while the North American Plate moves southwards. Such movement happens at a rate of about 3.5 cm [about 1.5 inches] a year. Eventually, this will move the Los Angeles area up next to San Francisco in about 15 million years.

When you look at the shape of the San Andreas Fault on a map, you will notice that it does not make a perfectly straight line. In a few spots it bends a little bit. This puts pressure on that area, creating hills and mountains because the fault cannot slide smoothly. Hills and mountains formed by this pressure include the San Gabriel Mountains in southern California, the Santa Cruz Mountains, and the steep hills of San Francisco.

In the spaces below, glue down the two maps of California that you have marked and cut out. On the left, glue down the map that shows what California looks like at the present. On the right, glue down the map you made to show what California might look like 15 million years from now.

California today	California in 15 million years

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*Answer the questions below using the maps that you glued down.*

1. In what direction is the Pacific Plate moving?
2. In what direction is the North American Plate moving?
3. What is the average rate at which the plates move each year?
4. Why will the Los Angeles area be part of San Francisco in 15 million years?
5. Where will the city of Salinas be found in 15 million years?
6. Do we need to worry about earthquakes happening in Salinas? Explain your answer.
7. Will Salinas ever fall off California and sink into the Pacific Ocean during an earthquake? Explain your answer. *Hint: think about the direction of plate movement.*
8. Of all of the cities shown on the map, which do you think would have the worst earthquakes? Explain your answer using evidence from the map.

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Use the following maps to show what California looks like today, and then what it might look like 15 million years from now.

Before you cut out the maps, do the following to them:

- Add labels for Pacific Plate and North American plate on each map
- Draw arrows that point in the direction each plate is moving on each map
- Trace the San Andreas Fault using a red colored pencil on each map
- Lightly color the land brown and the ocean blue on each map
- Cut out map #1 (what California looks like today) and glue it down in the box on the left
- Cut out map #2 (what California will look like in 15 million years)
- Cut along the San Andreas Fault in map #2 through California and Mexico to cut the map in half
- Slide Los Angeles up along the San Andreas Fault until it is up next to San Francisco, then glue down both pieces into the box on the right

