

Name:

Date:

Class:

Introduction Worksheet

Designing a Building in an Earthquake Zone

How do earthquakes affect people? In highly populated areas, buildings and infrastructure (such as highways) can fail and crush people to death during an earthquake. In California, there are strict building codes (such as using earthquake-resistant concrete) to prevent large numbers of deaths. Why? In 1986, an earthquake of 7.1 on the Richter scale hit near San Francisco, killing 40 people. By contrast, in 2010, a 7.0 earthquake hit Haiti, a very poor country with no earthquake-resistant building codes, resulting in 250,000 deaths. This demonstrates the effectiveness of building codes.

1. Earthquakes generate waves that can destroy buildings. The buildings that collapse can kill people. Engineers work to make buildings safer in earthquake zones. The following video explains what causes buildings to fail.
https://www.youtube.com/watch?v=H4VQul_SmCg
 - a. The video shows that in 1985, Mexico City had a devastating earthquake that caused some buildings to fail, while others remained standing. What was the issue that caused some buildings to collapse?
 - b. How could the collapses be avoided?
2. Go to the following website to look at how engineers stabilize buildings in earthquake zones. <https://www.bigrentz.com/blog/earthquake-proof-buildings>.
 - a. Which types of structures would help the most to keep a building safe in an earthquake?
 - b. Which ideas do you think would be the most cost-effective?
 - c. Which would be the most expensive?