Bigger Faults Make Bigger Earthquakes
K-5

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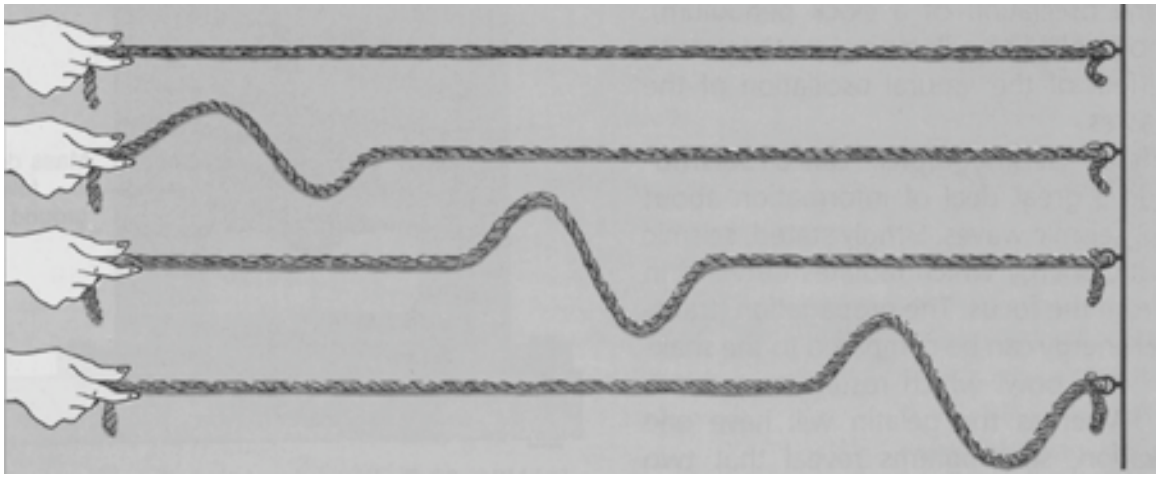

(from Lutgens & Tarbuck, 1989)

Key Points:

- Earthquakes happen on faults.
- Bigger faults produce bigger earthquakes.
- Bigger earthquakes last for a longer amount of time.

Materials:

- Three pieces of string or rope that are of different lengths. Suggested lengths: 2 ft., 10 ft., and 20 ft.

Procedure:

1. Discuss earthquakes with students.
2. Break the class into three groups and give each group a length of string. Have them pretend that the string is a fault.
3. Have one student hold each end of the string and have one assigned to "be the earthquake".
4. Explain that during an earthquake the whole fault doesn't move at once, but it unzips like a zipper.
5. Have the student that is being the earthquake put their thumb and forefinger on the rope and slowly walk the length of the rope.

6. The other students in the group should "experience the earthquake" by shaking or jumping up and down from the time the person that is the earthquake starts walking until the time they stop. (This should be done on the playground or in the gym where noise won't be a problem.)
7. After each group has practiced have them observe each other.
8. Explain that each point on the fault that moves releases energy in the form of waves, which we feel as shaking. So the longer the fault, the more energy that is released, and the larger the magnitude of the earthquake.

Questions:

1. Which "earthquake" lasted the longest amount of time? Why? (Because it took longer for the earthquake to move the whole length of the fault.)
2. What is the starting point of the earthquake called? (The hypocenter. The epicenter is the point on the surface of the earth directly above the hypocenter)
3. Which earthquake would last for a longer amount of time, a 3.0 or an 8.0? Why?

Extension:

1. Have the students look at a fault map and determine which faults they think are capable of the longest earthquakes.
2. Have the student's research different earthquakes and see how big the fault and magnitude were, and how long the earthquake lasted.
3. Use this as an opportunity to talk about earthquake safety. The bigger an earthquake is the longer it will last, so it's important not to panic, even if the earthquake goes on for a really long time!
4. Do the Magnitude and Intensity exercises.