A STAKE IN THE SHAKE: EARTHQUAKE EARLY WARNING

Have you ever felt an earthquake? What was it like? Where were you? What did you do? How are people injured during an earthquake? More than 143 million people are exposed to potentially damaging shaking in the United States.
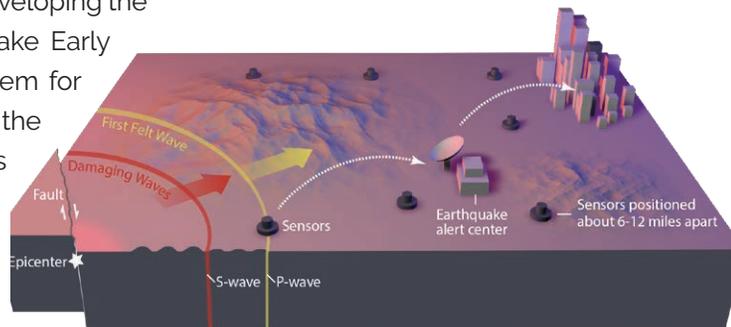
When an earthquake happens, seismic waves travel outward in all directions. Primary (P) waves travel faster than secondary (S) waves and S waves do the most damage. But electronic information can be sent faster than either wave. The ShakeAlert Earthquake Early Warning System can detect an earthquake very quickly and send an alert of imminent ground motion before strong shaking arrives.

The United States Geological Survey (USGS) along with universities and state agencies in Washington, Oregon, Nevada, and California are developing the **ShakeAlert** Earthquake Early Warning (EEW) System for the West Coast of the US. Several countries including Japan, Mexico, Taiwan, and China already use EEW systems.

A few seconds of warning does not sound long, but it is enough time to do something to protect yourself such as Drop!, Cover!, and Hold On!

A **ShakeAlert** can also be sent to a hospital, a light rail system, a fire station, a water provider utility, or a school to trigger automated actions such as starting emergency generators, slowing down trains, opening fire house doors, closing water system valves, or playing a pre-recorded message on a loud speaker.

ShakeAlert STEM Classroom Discussion:

How would each of the situations below be made more safe if people and automatic systems were alerted that they were about to experience earthquake shaking?

1. A surgeon performing an operation.

2. A chemistry teacher and students working in a lab.

3. A warehouse or construction worker.

4. An amusement park with lots of fast rides.

What other places could be made safer with earthquake early warning? What can you do to keep yourself safe during an earthquake?

Link to full classroom activity and more: STEM Connections to the ShakeAlert Earthquake Early Warning System:

www.ShakeAlert.org/resources

NGSS 3-D Learning

· **Science and Engineering Practices** – Obtaining, Evaluating, and Communicating Information

· **Disciplinary Core Ideas** – Earth and Human Activity

· **Crosscutting Concepts** – Cause and Effect