Earthquakes as strong as the 1989 Loma Prieta quake can cripple a city. Buildings crumble, trapping people inside. Phone and electric lines are downed. Natural gas escaping from broken lines may ignite and cause fires.

One technology that helps people respond quickly to these emergencies is the seismographic network. During an earthquake, remote seismographs send information to a central computer, which calculates the earthquake’s epicenter and magnitude. Within minutes, scientists and emergency managers get this information on pagers. The scientists feed the information into a computer that relates it to local geological conditions. The computer produces a color-coded map showing where shaking is likely to have been strongest. (A map created after the 1994 Northridge earthquake is shown below.) Emergency managers use the map to determine where building damage and human injuries may be the most serious. Rescue crews are then sent to those areas.

Emergency managers also rely on simple radio technology to protect rescue workers from dangerous aftershocks. Because radio waves travel more quickly than seismic waves, radios can be used to give rescue workers advance warning of potential shaking. The benefits of such an emergency warning system were apparent after the Loma Prieta earthquake. The warning came just in time when workers clearing wreckage from a collapsed freeway were told that they had 25 seconds to move to safety before an aftershock would rumble through the area.

**Extension**

**RESEARCH ACTIVITY**

Research the supplies that should be included in an earthquake disaster kit. Create an emergency supply kit.

Learn more about the impact of earthquakes in populated areas.

Keycode: ES1008

**ANALYZING** Emergency officials used this computer-generated map to make important decisions about how to provide emergency relief after the 1994 Northridge earthquake. The white line represents the fault along which the earthquake occurred.