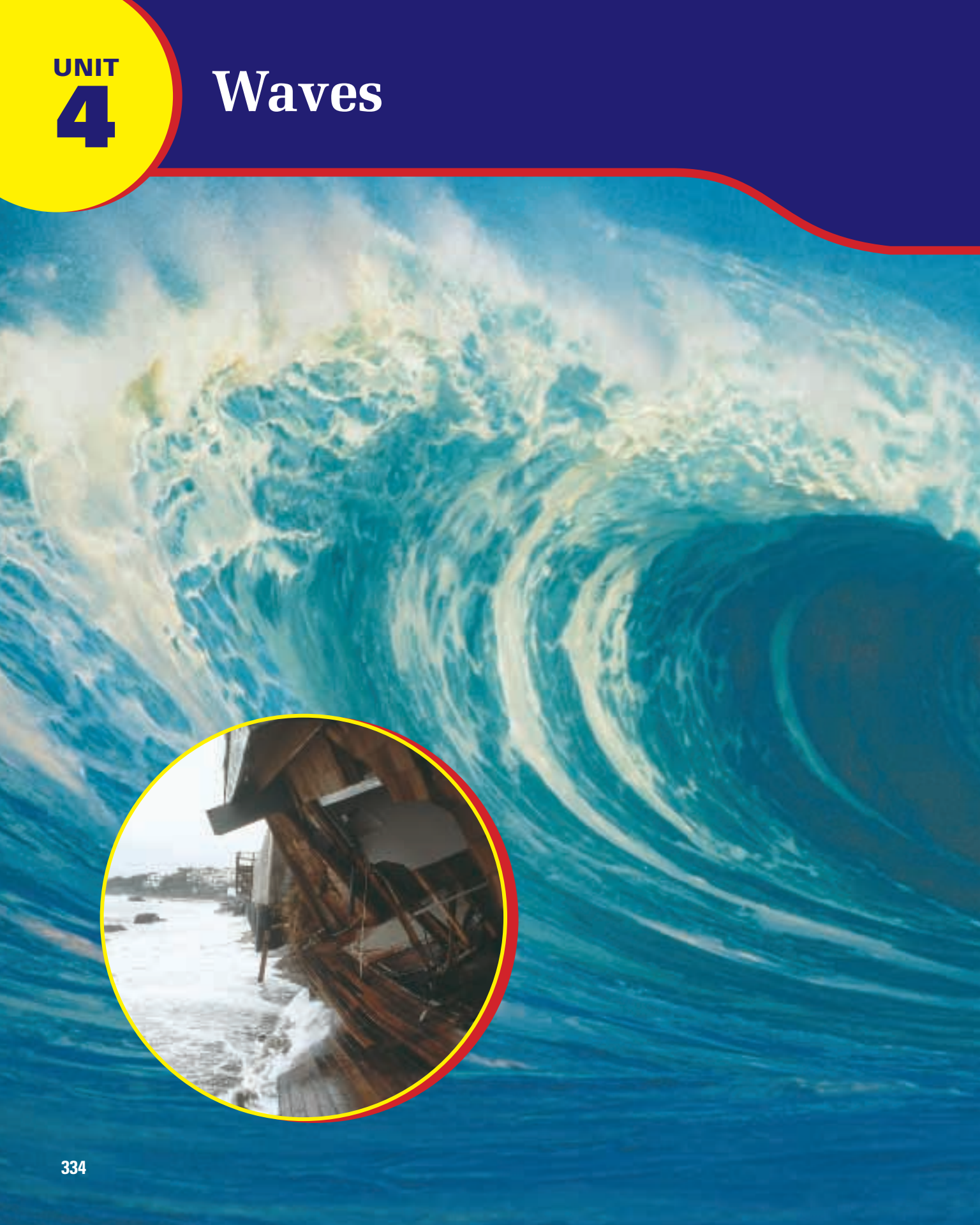
UNIT 4

Waves



UNIT CONTENTS

On May 22, 1960, in the early afternoon, an earthquake rocked the floor of the Pacific Ocean off the coast of south-central Chile. In fishing villages on the coast, many inhabitants took to their boats to escape the shaking. This was a mistake. About fifteen minutes later, the level of the ocean water dropped. Shallow harbours emptied of water, and boats thudded down onto the seabed. Then, the sea returned in a thunderous breaker, picking up the boats and pitching them onto the land.

The giant wave, a tsunami, was generated when a huge area of the ocean floor suddenly sank several metres during the earthquake. The westbound portion of the wave raced across the Pacific at speeds of up to 700 km/h, as fast as a small passenger jet. About fourteen hours later, a wave, three storeys high, swept to the shores of the Hawaiian Islands, 10 000 km from its starting point. The force of the debris-filled waters uprooted trees, bent parking meters, and pushed houses off their foundations.

Almost a day after the quake, the wave reached Japan, half a world away from its source. It was reported that 119 people were killed.

How do waves, like this tsunami, transfer their energy over such great distances? What keeps them going? What determines their speed and height? These, and other questions about wave action, can be answered through a study of waves, energy, and interestingly, the nature of sound.

UNIT PROJECT PREP

At the end of this unit, you will have an opportunity to develop a noise policy document. Go to your e-book to see the issues to consider as you read this unit.

- How does the nature of sound waves affect how you address the issue of noise in your community?