

## Chapter 17

Use with Section 3

## ENRICHMENT

## ● Ocean Waves and Tides

## Calculating Wave Speed

The speed of waves can be easily calculated if you have some basic information. To calculate the speed of a wave, you need to know two things: the wavelength and the wave period. A wave period is the time it takes for two consecutive wave crests to pass the same place (or point). For example, if a wave crest passed a rock and 8 seconds later the very next wave crest passed the same rock, the period would be 8 seconds.

Scientists have determined that wave speed is equal to the wavelength divided by the period of the wave. That means that once you know the wavelength and the wave period, you can find the wave speed, using this formula:

$$\text{Wave speed (m/s)} = \frac{\text{Wavelength (m)}}{\text{Periods (s)}}$$

Notice that wavelength is measured in meters (m) and wave period is measured in seconds (s). Use the formula to help you complete the table below. Show all of your work on the back of this worksheet.

| Wavelength (m/s) | Period (s) | Wave speed (m/s) |
|------------------|------------|------------------|
| 24               | 8          |                  |
| 165              | 10         |                  |
| 48               | 8          |                  |
| 112              | 4          |                  |
| 172              | 10         |                  |
| 15.4             | 2          |                  |
| 196.5            | 15         |                  |

