

## THE STANDARD

# Modeling Waves

*"Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move."*

## DCI

DISCIPLINARY  
CORE IDEA

### PS4.A · Wave Properties

*"Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is no net motion in the direction of the wave except when the wave meets a beach."*

A wave is a pattern of motion that repeats. Make a wave on a rope or in water and you see the same shape over and over. Amplitude is how tall the wave is. Wavelength is how far apart the bumps are. **4th graders draw that pattern and label both parts.**

## SEP

SCIENCE &  
ENGINEERING  
PRACTICE

### Developing and Using Models

*"Develop a model using an analogy, example, or abstract representation to describe a scientific principle."*

4th graders do not just watch a wave. They build a stand-in for it. A drawing, a shaken rope, a bent wire, all stand for the real wave so they can show its parts. **The model just needs to show amplitude and wavelength clearly enough to read.**

## CCC

CROSSCUTTING  
CONCEPT

### Patterns

*"Similarities and differences in patterns can be used to sort, classify, and analyze simple rates of change for natural phenomena."*

Waves repeat, and that repeating shape is the pattern. Once 4th graders see the pattern, they can compare waves: this one is taller, that one has bumps closer together. **Spotting how two waves are alike and different is exactly the thinking the standard wants.**