

## THE STANDARD

# Solutions to Natural Hazards

*"Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans."*

 ANCHORING PHENOMENON

## The Two Towns and the Same Earthquake

Two towns sit right next to each other on the same shaky ground. One day an earthquake hits both of them with the exact same force. In one town, buildings crack and fall. In the other town, the buildings shake hard but stay standing. Same earthquake, same ground, but completely different outcomes. 4th graders will want to know what the second town did differently.

## DRIVING QUESTION

*"If the earthquake was the same in both towns, why did one town's buildings fall while the other's stayed up?"*

 INVESTIGATIVE 1

### Stop the Wave Before It Hits the Houses

Pour a tub of water and tip it to send a tsunami wave rolling toward a row of toy houses. The wave knocks them flat. Now let your 4th graders add a barrier in front, like a wall of clay or a row of blocks. The wave can't be stopped, but the damage can. Test two walls and see which protects more houses.

## DRIVING QUESTION

*"We can't stop the wave, so what can we build in front of the houses to keep them dry and standing?"*

 INVESTIGATIVE 2

### Two Ways to Survive the Flood

Set toy houses in a low tray and slowly pour in water to flood the town. Then let your 4th graders try two different solutions on different houses: one team raises a house up on stilts (blocks), another team builds a levee wall around theirs. Pour the flood again. Now they have two solutions to compare instead of one, which is exactly what the standard asks for.

## DRIVING QUESTION

*"When the flood comes, which house stays drier, the one up on stilts or the one behind the wall?"*