

THE STANDARD

Solutions to Natural Hazards

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



ESS3.B • Natural Hazards

"A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, volcanic eruptions). Humans cannot eliminate the hazards but can take steps to reduce their impacts."

4th graders learn one honest truth: nobody can stop an earthquake, a flood, a tsunami, or a volcano. Those are natural Earth processes and they're going to happen. But people are not helpless. We can build smarter, warn earlier, and plan ahead so fewer people get hurt. The job isn't to stop the hazard. **It's to shrink the damage it causes.**



Constructing Explanations and Designing Solutions

"Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution."

This standard is engineering, so 4th graders don't just have one idea. They come up with several solutions, then hold them up against each other. Which one protects the most people? Which one fits the rules, like only using the materials we have? Comparing is the real skill. One idea is a guess. **Three ideas you can test and rank is engineering.**



Cause and Effect

"Cause and effect relationships are routinely identified, tested, and used to explain change."

Every hazard is a cause that leads to an effect. A flood (cause) washes out a road (effect). 4th graders trace that chain, then design something that breaks it or softens it. A levee blocks the rising water, so the road stays dry. **When they test a solution, they're checking whether their fix really changes the effect, not just hoping it does.**