

Constructing Explanations and Designing Solutions 6-8

NGSS Practice 6

Constructing explanations and designing solutions in 6–8 builds on K– 5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.

- Construct an explanation that includes qualitative or quantitative relationships between variables that predict(s) and/or describe(s) phenomena.
- Construct an explanation using models or representations.
- Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
- Apply scientific ideas, principles, and/or evidence to construct, revise and/or use an explanation for real- world phenomena, examples, or events.
- Apply scientific reasoning to show why the data or evidence is adequate for the explanation or conclusion.
- Apply scientific ideas or principles to design, construct, and/or test a design of an object, tool, process or system.
- Undertake a design project, engaging in the design cycle, to construct and/or implement a solution that meets specific design criteria and constraints.
- Optimize performance of a design by prioritizing criteria, making tradeoffs, testing, revising, and re- testing.