

## THE STANDARD

# Iterative Testing & Modification

*Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.*



## ETS1.B • Developing Possible Solutions

*A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. Models of all kinds are important for testing solutions.*

Engineering doesn't happen in one shot. You build a version, test it, study what the data tells you, and change one thing. Then you test again. Each round (each iteration) makes the design a little better. The goal isn't a perfect solution. **It's the best one you can land on inside the criteria, constraints, and time you've got.**



## Developing and Using Models

*Develop a model to generate data to test ideas about designed systems, including those representing inputs and outputs.*

Students aren't sketching a final design and calling it engineering. They're building a model (physical, drawn, or digital) for the purpose of generating data. The model exists to get tested. The data from that test points to the next change. **The model is a question, not an answer.**



## (not specified)

*Engineering standards typically do not specify a single CCC.*

NGSS doesn't list a single crosscutting concept for engineering standards. The one that fits best here is the Influence of Engineering, Technology, and Science on Society and the Natural World. **Iterative design is how every tool, gadget, and process around students got refined: try, measure, change, retry, until it's good enough to ship.**