

THE STANDARD

Comparing Design Solutions

Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.



ETS1.B • Developing Possible Solutions

There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors.

When you test three designs, you rarely get one clear winner. Design A handles load like a champ but costs too much. Design B is cheap but flexes under weight. Design C is light but slow to build. The work isn't picking a winner. **The work is reading the data, naming what each one did well, and combining those strengths into a v4 that beats all three.**



Analyzing and Interpreting Data

Analyze and interpret data to determine similarities and differences in findings.

Students aren't picking favorites or going with gut feel. They're analyzing test data, finding the similarities and differences across designs, and using those patterns to decide what to keep, what to drop, and what to combine. **The data drives the redesign, not the prettiest prototype.**



(not specified)

Engineering standards typically do not specify a single CCC.

Patterns show up across the test results. One design fails the same way every trial. Another excels under one condition and tanks under another. Spotting those patterns is what tells you which features are real strengths and which were lucky one-offs. **No pattern, no useful redesign.**