NASA

PBS: Design Squad

ENGINEERING DESIGN PROCESS
ASK · IMAGINE · PLAN · CREATE · IMPROVE · EXPERIMENT
THE GOAL

IDENTIFY PROBLEM → BRAINSTORM → DESIGN → BUILD → REDESIGN → TEST & EVALUATE → SHARE SOLUTION

NGSS

Define: Specify criteria and constraints that a possible solution to a simple problem must meet

Optimize: Improve a solution based on results of simple tests, including failure points

Develop solutions: Research and explore multiple possible solutions

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Similarities

- Iterative cycles
- General activities
- General order
- Problem solving

Differences

- Simplicity/Complexity
- Number of steps
- Depth of activity in each step
- Point of iteration
- Usefulness for cognitive level of student
- Not all have all of the same general activities
    - Share

Synthesis:

ASK — Identify problem, Criteria, Constraints
Imagine — Brainstorm, Research
Plan — Design, Develop
Create & test — Build, Experiment, Evaluate
Improve — Analyze & Redesign, Optimize
Share