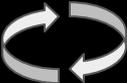


|  | <b>NASA's BEST<br/>Engineering Design Model</b>  | <b>Dartmouth<br/>Design Process</b>  | <b>Teach Engineering<br/>Engineering Design Process</b>              |
|--|--|--|--|
| <b>ASK AND<br/>DEFINE</b><br>↓   | <b>ASK:</b> Students identify the problem, requirements that must be met, and constraints that must be considered.   | <b>DEFINE</b> the problem<br><b>RESTATE</b> the problem<br><b>DEVELOP</b> constraints/criteria/specifications  | <b>ASK</b> to identify the need and constraints                      |
| <b>IMAGINE AND<br/>RESEARCH</b><br>↓   | <b>IMAGINE:</b> Students brainstorm solutions and research ideas. They also identify what others have done.  | <b>BRAINSTORM</b> ideas<br><b>RESEARCH</b> alternatives  | <b>RESEARCH</b> the problem<br><br><b>IMAGINE</b> possible solutions |
| <b>PLAN AND<br/>DESIGN</b><br>↓  | <b>PLAN:</b> Students choose two to three of the best ideas from their brainstormed list and sketch possible designs, ultimately choosing a single design to prototype.                | <b>ANALYZE</b> alternatives by a trade-off matrix<br><b>IDENTIFY</b> a potential solution<br><b>RESEARCH</b> in detail the potential solution<br><b>DESIGN</b> a potential | <b>PLAN</b> by selecting a promising solution                        |
| <b>CREATE</b><br>↓   | <b>CREATE:</b> Students build a working model, or prototype, that aligns with design requirements and that is within design constraints.   | <b>CONSTRUCT</b> a prototype   | <b>CREATE</b> a prototype  |
| <b>TEST AND<br/>EVALUATE</b><br>↓  | <b>TEST:</b> Students evaluate the solution through testing; they collect and analyze data; they summarize strengths and weaknesses of their design that were revealed during testing. | <b>EVALUATE</b> the prototype  | <b>TEST</b> and evaluate the prototype                               |
| <b>IMPROVE</b>   | <b>IMPROVE:</b> Based on the results of their tests, students make improvements on their design. They also identify changes they will make and justify their revisions.                | <b>REITERATE</b> if necessary<br><b>SIMPLIFY</b> if possible   | <b>IMPROVE</b> and redesign as needed                                |