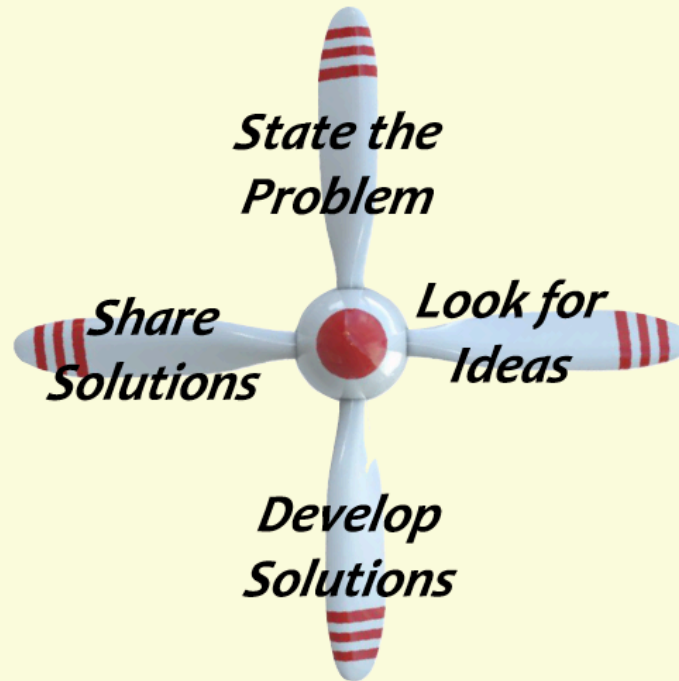


Engineering Design Processes



Engineering Design Process (EDP) Grades K-2



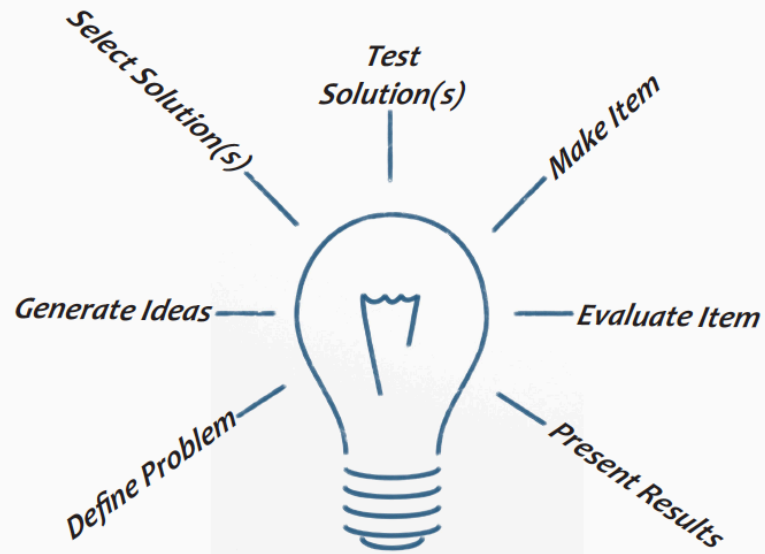
Big Idea:
The process is used to solve problems.

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Engineering Design Process (EDP) Grades 3-5



Grades 3-5 Big Ideas:

- The process is used to solve problems.
- The process is a method to turn ideas into finished products and systems.
- The process can be used in any order to produce the best results.
- It is important to gather as much information as possible, be creative and consider all ideas.
- Models are used to test ideas, make changes to designs, and learn more about what would happen to a similar, real object.



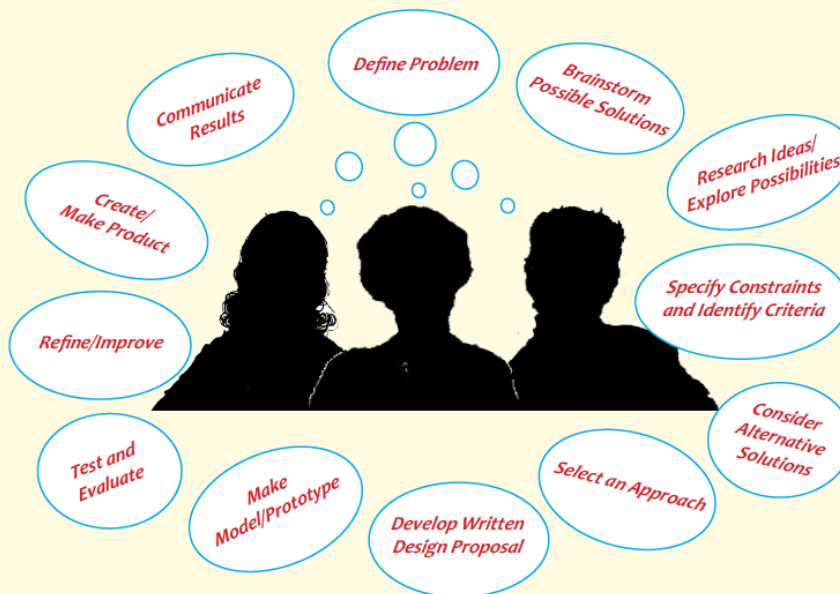
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Engineering Design Process (EDP) Grades 6-12



Grades 6-8

Big Ideas:

- It is important to continue to consider alternative solutions throughout the process.
- Criteria and constraints establish the requirements of the design.
- The steps in the process can be performed in different sequences and repeated as needed.
- Every problem is unique, and engineers and designers may choose to approach the design process in different ways.
- Brainstorming is a group problem-solving process in an open form without criticism.
- Modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions.

Grades 9-12

Big Ideas:

- Established design principles are used to evaluate existing design, to collect data, and to guide the design process. The principles include: flexibility, balance, function, and proportion.
- Engineering design is influenced by personal characteristics, such as creativity, resourcefulness, and the ability to visualize and think abstractly.
- A prototype is a working model that is used to test a design concept by making actual observations and necessary adjustments.
- An engineer must not only design a product that works—s/he must consider many other factors, such as safety, environmental concerns, ethical considerations, and risks and benefits.

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