Engineering Design Process (EDP)
Grades K-2

State the Problem

Share Solutions

Look for Ideas

Develop Solutions

Big Idea:
The process is used to solve problems.

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**Engineering Design Process (EDP)**

**Grades 3-5**

![Diagram of the Engineering Design Process]

**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—she must consider many other factors, such as safety, environmental concerns, ethical considerations, and risks and benefits.

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