The Engineering Design Process

The Engineering Design Process is a series of steps that engineers use to guide them as they solve problems. Many variations of the model exist. Because EiE focuses on young children, we have created a simple process that depicts fewer steps than other renditions and that uses terminology that children can understand.

While having a guide is useful for novices who are learning about engineering, it is important to note that practicing engineers do not adhere to a rigid step-by-step interpretation of the process. Rather there are as many variations of the model as there are engineers. The Engineering Design Process is cyclical and can begin at any step, or move back and forth between steps numerous times. In real life, engineers often work on just one or two steps and then pass along their work to another team.

Moving through the Engineering Design Process might involve asking the following questions or making the following decisions:

ASK

- What is the problem?
- What have others done?
- What are the constraints?

IMAGINE

- What are some solutions?
- Brainstorm ideas.
- Choose the best one.

PLAN

- Draw a diagram.
- Make lists of materials you will need.

CREATE

- Follow your plan and create it.
- Test it out!

IMPROVE

- Talk about what works, what doesn't, and what could work better.
- Modify your designs to make it better.
- Test it out!

After you improve your design one, you may want to begin the Engineering Design Process all over again to refine your technology. Or you may want to focus on one step. The Engineering Design Process can be used again and again!