

## What Is Engineering? What Is Design? Worksheet

Your design challenge: *To design a picnic for your friends!*

Brainstorm how you would plan and organize a picnic for your friends.

Consider each of the steps in the design cycle and address each one.

Below is an example outline of how students might work through each step of the design process in order to design an ideal picnic for their friends. Note that design projects are considered “open-ended” because when you start to solve the problem, you don't know what the best solution will be to meet the requirements and many different solutions exist.

Also, the process is cyclical and may begin at, and return to, any step.

### Engineering Design Process Steps:

1. Ask - Concept
2. Imagine - Preliminary Design
3. Plan - Definitive Design
4. Create - Implement
5. Improve - Iterate

#### Ask/Concept:

Organize a three-hour picnic for eight friends at a park shelter in the neighborhood.

#### Imagine/Preliminary Design:

Food: Hot dogs? Subs? Pizza? Sushi? More than one? Soda? Who orders and brings? Share the food preparation among everyone? Other supplies? Clean-up?

Games: Frisbee? Softball? Volleyball? Skateboards? Who brings the games/equipment?

Expenses: Who will pitch in? Shared? What is the budget? What are the costs?

#### Plan/Definitive Design:

Come up with 2-3 options, and then discuss with a few friends and finalize a specific plan by writing down agreed-upon decisions and details.

**Create/Implement:** Follow the “final” design and organize and enjoy the picnic.

#### Improve/Iterate:

Find out from your friends what food was the biggest hit. Also, determine what game or activity was the best fit for the picnic. What worked? What could be improved? Tally expenses and see how they compared to what was expected. Write down lessons learned for organizing future picnics that are even better.