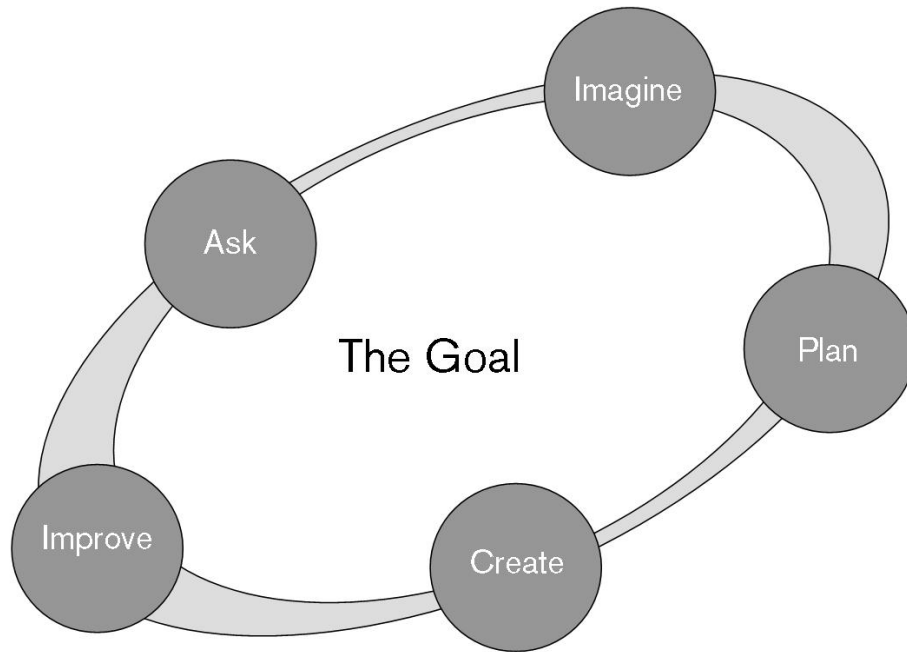


## The Engineering Design Process: Five Steps for Engineering Design



**Ask:** What's the problem?  
What have others done?  
What are the constraints?

**Imagine:** What could be some solutions?  
Brainstorm ideas.  
Choose the best one.

**Plan:** Draw a diagram.  
Make a list of materials you'll need.

**Create:** Follow your plan and create it.  
Test it out!

**Improve:** Make your design even better.  
Test it out!

Name: \_\_\_\_\_ Date: \_\_\_\_\_

A

B

Design #

## Designing a Hand Pollinator Engineering Design Process: Create!



1. Did your hand pollinator pick up pollen? Circle one answer:

**Yes**

**No**

2. How much pollen did it pick up? Circle one answer:

**A lot**

**A little bit**

**None**

3. Did your hand pollinator drop off pollen? Circle one answer:

**Yes**

**No**

4. How much pollen did it drop off? Circle one answer:

**A lot**

**A little bit**

**None**

5. What parts of your hand pollinator worked well? How do you know?

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6. What parts of your hand pollinator did not work well? Why not?

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Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Hand Pollinator Cost

*Directions: Using the table below, calculate how much your hand pollinator will cost to build.*

Material	Cost per Unit	Units Needed	Total Cost
<b>Example:</b> <i>pompom</i>	\$1.00	1	$\$1.00 \times 1 = \$1.00$
<b>Total Cost =</b>			_____



Name: \_\_\_\_\_ Date: \_\_\_\_\_

## **Hand Pollinator Materials Price List**

1 pompom.....	\$1.00
1 pipe cleaner.....	\$1.00
1 eraser.....	\$1.00
6" (15 cm) of tape.....	\$0.50
1 marble.....	\$0.50
2" x 2" (5 x 5 cm) square of foil.....	\$1.00
1 craft stick.....	\$0.75
1 plastic drinking straw.....	\$0.75
6" (15 cm) of wire.....	\$0.75
6" (15 cm) of string.....	\$0.75