

Martin Luther King Engineering Design Process

Ask: After studying MLK, students will be presented with the task of creating a flag that represents his fight for equality. During this section, students will be given the constraints for their project. Including their materials list and the criteria that their flag, and flag pole must meet.

Materials & Tools

- Pipe cleaner sticks
- Construction paper
- White copier paper
- Unsharpened pencils
- Coloring pencils
- Markers
- Scissors
- Rulers
- Craft sticks
- Straws
- Glue
- Masking tape
- Scotch tape
- Hole punch
- Pencils

Criteria & Constraints

- the flag prototype must be approximately 5 x 7 inches
- have a logo in the middle that represents freedom or MLK
- must be supported (similar to a flag pole)

Imagine: Students will sketch out possible designs for their flag and think about possible ways they could go about solving the problem.

Plan: Students will choose their best idea and created a more detailed rough draft of their flag as well as a list of materials they will be using to create their project.

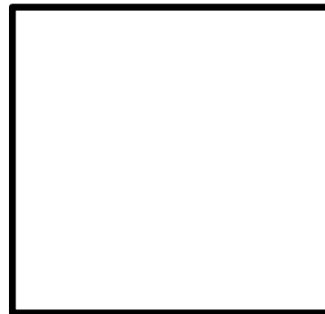
The worksheet is titled "Freedom Flag Planning Sheet" and is framed with a decorative, wavy border. It is divided into four quadrants by a central horizontal and vertical line. The top-left quadrant is labeled "STEAM" in large red letters, with "ASK" in blue below it. It contains a question mark icon and the text "What is the problem or challenge?" followed by a large empty rectangular box. The top-right quadrant is labeled "IMAGINE" in yellow letters, with a lightbulb icon and the text "Think about ways to solve the problem or complete the challenge." followed by a large empty cloud-shaped box. The bottom-left quadrant is labeled "PLAN" in green letters, with a small cartoon character icon and the text "Draw your best idea/design." followed by a large empty rectangular box. The bottom-right quadrant is labeled "MATERIALS" in red letters, with the text "Make a list... what materials do I need?" followed by a large empty rectangular box. At the top right, there is a line for "Name: _____".

Create: Students will build their flag and flag pole

Improve: Students will reflect on their project and choices, noting what worked well and what could have been done differently. Students will record those observations on the graphic organizers provided. Students will share their reflections and final projects on the seesaw app.

Why do you think your freedom flag is a good choice to honor Martin Luther King, Jr?

STEAM Challenge
Growth Mindset



This is a picture of my Freedom Flag prototype.

engineer: _____

What part of this challenge was hard for you?

What mistake did you make or how did you improve your work?
