



GRADES: 2–6

DIFFICULTY: ● ○ ○

TIME NEEDED: 30–60 mins

PROJECT OVERVIEW

Create a replica of the American flag that moves, lights up, or makes sound.

PROJECT SEQUENCE

DREAM

1. Ask students to determine which function their flag will perform. Will their flag move, light up, or make sound?

DESIGN

2. Have students make a list of the materials they will need to create their flags and perform their functions.
3. Then ask students to sketch pictures of their flags. Remind students to label the materials they plan to use.

MAKE

4. Have students gather the materials they need and begin creating their functioning flags.
5. Partway through the build, remind students that they must update their sketch pages with any changes as they test and modify their flags.

SHARE

6. Ask students to share their flags and explain how they chose the functions their flags can perform.

REFLECT

7. After students have cleaned up their areas, have them discuss what they learned by answering the reflection questions in a group.

SUGGESTED MATERIALS

- Construction paper
- Fabric
- Scissors
- Glue or a needle and thread
- Markers
- Crayons
- Rulers
- Other craft supplies if desired
- littleBits™
- K'NEX
- Strictly Briks®
- Makey Makey®
- Copies of the student guide (one per student or group)

TEACHER TIPS

1. **Think about how you might encourage the creative process.**
 - Will you allow students to decide between creating their flag with paper and sewing their flag?
 - If so, how will you manage the two mediums?
2. **Be mindful of student placement.**
 - This project can be noisy and distracting. How will you create workspaces that encourage students to focus?
3. **Think about student grouping.**
 - Do you want students to complete this challenge independently or in teams?
 - If students work in teams, how will you ensure they share the workload and responsibilities?
 - ◆ Will students choose their teams, or will you select the teams yourself?

4. **Consider how students will reflect and communicate.**
 - How will you facilitate communication between students?
 - ◆ Will they share daily reflections?
 - ◆ Will they give one another feedback?
 - ◆ Will they have time to reflect on what they've shared with other students or teams?
 - ◆ Can students comment on their classmates' projects or provide constructive feedback?
5. **Be on the lookout for students who jump into iteration instead of planning ahead of time.**
 - This will also be important as they prototype, test, and modify. Make sure that students track the changes they make and keep their sketches up to date.

EXTENSION ACTIVITIES

1. This project lends itself easily to adding many or all of the functions listed. Consider giving extra time or assistance to students who would like their flags to perform more than one function.
2. The various components of the American flag are interesting and important. Consider facilitating a short history unit on how the American flag became what it is today.