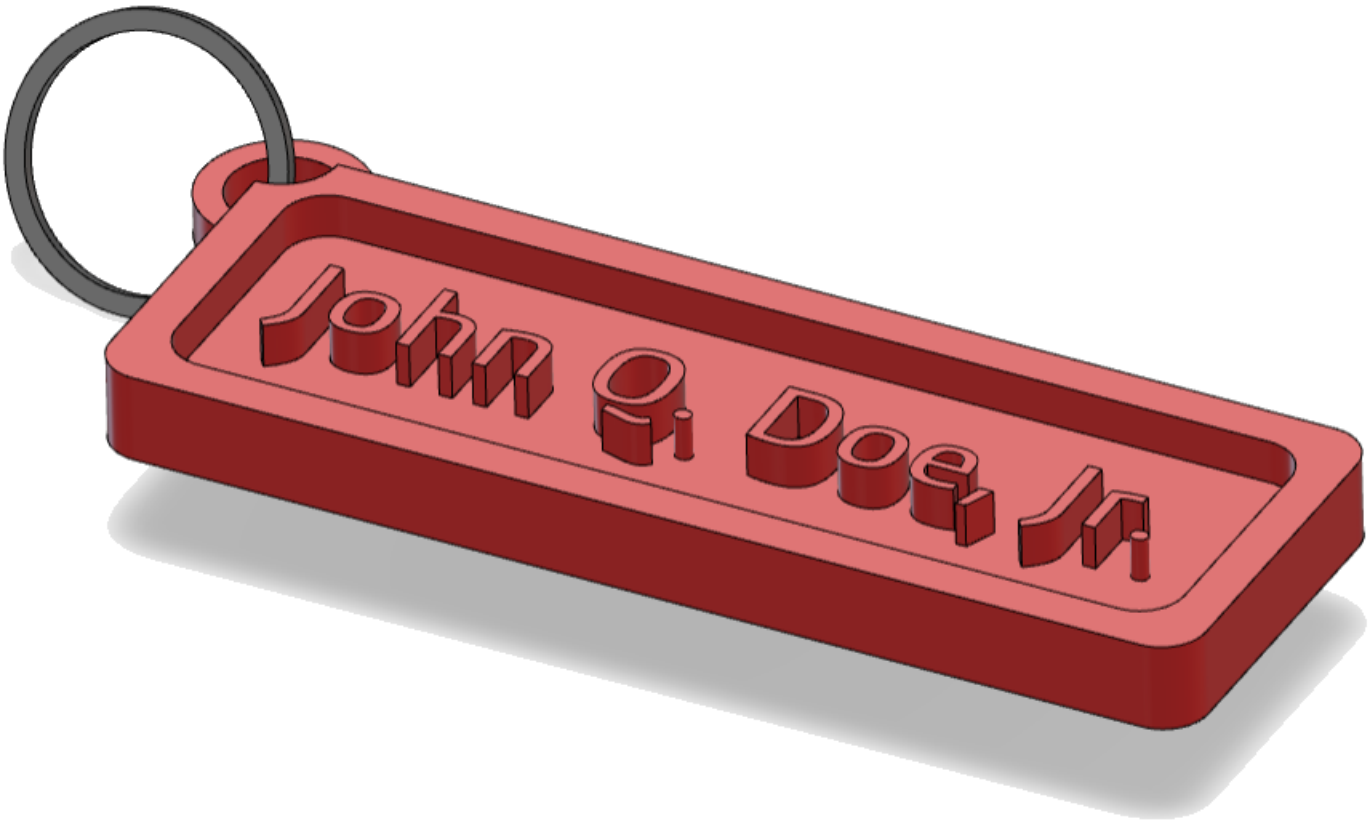
DESIGN PROJECTS



PERSONALIZED NAME TAG

GRADE LEVEL

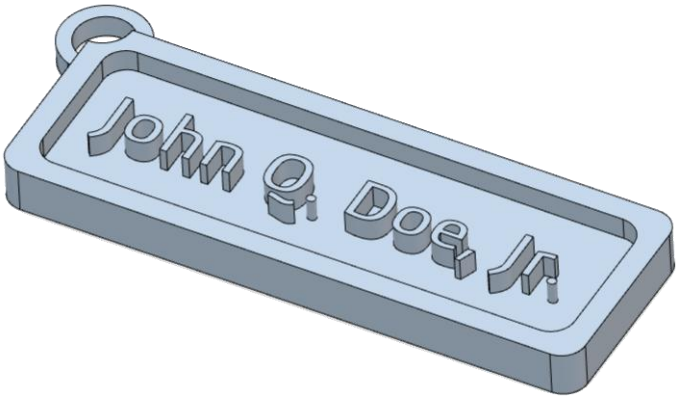
Grades 6–8

MODELING TIME

1-2 hours

MATERIALS

- CAD software (SOLIDWORKS or xDesign)
- 3D printer with filament (e.g., PLA) for fabrication
- Split Keyring



DESIGN OBJECTIVES

- Model should include text that displays your name, nickname, or initials.
- Name tag requires an opening that will accept a split keyring.
- Model should be 3D Print ready.

DESCRIPTION

A name tag is a useful accessory for your backpack or keys.
For this project, students are encouraged to create a personalized model; a rectangular shape that includes their name embossed on a flattened surface.
Students are also encouraged to be creative. For example, they may change the name tag size, change the font type or font size, or choose to engrave rather than emboss their name.

EDUCATIONAL CONCEPTS

MATHEMATICS

- Sizing text to fit name tag size.
- Sizing for split keyring attachment.

ENGINEERING PRINCIPLES

- Understanding material properties

TECHNOLOGY

- Using CAD software to model components
- 3D printing techniques

CREATIVITY AND PROBLEM-SOLVING

- Designing a multi-use, personalized name tag.

LESSON TOPICS

Phase 1: Brainstorming and Planning

- Think about the end goal: A name tag with text embossed on it.
- What text will be used?

Phase 2: CAD Modeling

- **Sketching and Features**
  - Begin with a 2D sketch of a rectangle on a CAD software plane.
  - Add an extrusion to turn the 2D sketch into a 3D model.
  - Repeat this procedure to remove or add more material.
  - Round off sharp corners with fillets.
  - Add text and extrude it.

Phase 3: Prototyping

- **3D Printing:** Print the piece, ensuring dimensional accuracy.
- **Testing:** Ensure the split ring fits on the name tag.
- **Iteration:** Modify CAD designs based on testing feedback and remake as needed.

Phase 4: Final Assembly and Presentation

- Present the finished name tag to the class, including the design process and challenges faced.

DISCUSSION STARTERS

- If your name is too long for the tag, how can you make it fit?
- How can I make the name tag smaller, or larger?
- How do you change the text from embossed to engraved?

OPTIONAL CHALLENGES



Additions:

- Strengthen the base.
- Design multiple split ring attachment points.

Design Twist:

- Use engraved, rather than embossed, text.

ADVANCED OPTIONS

- Use your own name tag shape.
- Create a sports-themed name tag.

ASSESSMENT CRITERIA

- Do the components fit within the parameters of the 3D printer, and print properly?
- Can you attach a standard split ring to the name tag?
- Can the name tag be attached to a backpack; can keys be attached to the name tag?

ADDITIONAL RESOURCES

- LINK TO DOCUMENTS
- LINK TO YOUTUBE VIDEO
- LINK TO STEP-BY-STEP

NAME TAG IDEAS



