



ENGINEERING

PRE-LESSON PLAN

Lesson Title

- SoFi Stadium as a Living Machine: What Do Engineers Really Do?

Basic Information

- Grade Level: 4–8.
- Duration: 60 minutes.
- Subject Areas: Engineering, Science, Career Exploration, English Language Arts.

Lesson Objectives

- Introduce engineering concepts relevant to careers featured in the video.
- Build curiosity and vocabulary around sustainability, stadium systems, and engineering.
- Promote reflection on personal interest in engineering-linked careers.

Learning Objectives

- Students will:
 - Predict engineering responsibilities at SoFi Stadium.
 - Identify tools and systems they believe engineers use.
 - Consider multiple pathways to engineering careers.
 - Record observations and questions to deepen engagement with video content.

Vocabulary

- **Engineering** - Designing, building, or maintaining systems that solve problems.
- **Sustainability** - Making choices that protect resources so they last into the future.
- **HVAC** - Heating, Ventilation, and Air Conditioning systems that control temperature and air quality.
- **Facilities** - The buildings, equipment, and systems that keep a stadium running.

Standards Alignment

Next Generation Science Standards (NGSS)

- 3-5-ETS1-1: Define a simple design problem reflecting a need or want with specified criteria for success.
- MS-ETS1-1: Define criteria and constraints of a design problem with sufficient precision to ensure a successful solution.

Common Core ELA Standards

- RI.4–8.1: Refer to details and examples to explain and infer.
- RI.4–8.7: Interpret information presented visually, orally, or quantitatively.
- W.4–8.7: Conduct short research projects using multiple sources.
- SL.4–8.1: Engage effectively in collaborative discussions.
- SL.4–8.4: Present claims and findings clearly.

Career Technical Education (CTE) Standards

- CRP 7: Employ valid and reliable research strategies.
- CRP 10: Plan education and career paths aligned to personal goals.

Lesson Components & Educator Guidance

1. Warm-Up: What Keeps a Stadium Alive? (15 min)

Introduce the idea that without engineers, buildings can't be constructed and they can't be maintained. Help students start to re-frame their idea of what an engineer does from something cerebral and hands-off to something that can also be very tangible, task-oriented and practical. Note that while engineering is a field that can be very formal and require a license, it relies on the support of many fields and occupations that are engineering-adjacent and that are central to executing an engineer's vision.

Prompt: Ask students: "What keeps a giant stadium like SoFi running?"

Chart their brainstormed ideas on the board. If they are struggling, give them a few of the following examples:

- Lights
- Plumbing
- Trash
- HVAC
- Security

Teacher Tip - Break the Stereotype: Find an image of a stereotypical engineer online (lab coat, blueprints, etc.) and project it for the class. Ask your students: Is this the only kind of engineer? Why or why not?

Let students know that engineers are doers. They solve problems everyday. They aren't just designing things, they are fixing them. Introduce the work of a [Field Engineer](#) to help bring this idea home.

2. Engineering Predictions Activity (25–30 min)

Hand out the [Engineering Predictions Worksheet](#). Have students work individually or in pairs.

Walk your class through the worksheet, and let them know that, in it, they will:

- Predict what the video's featured engineers' jobs might involve.
- List or sketch tools, machines, or systems they think stadium engineers use.
- Consider whether an engineer at SoFi would need college, and why or why not.
- Imagine one "engineering challenge" at a stadium and describe or draw it.

Teacher Tip: Encourage both written and visual thinking. Sketches can be a great way for some students to engage with engineering ideas. Circulate to ask questions like the following, or choose some that you prefer:

- Why do you think engineers would need that tool?
- What's the hardest part of keeping a stadium running?
- Have you ever been to Sofi Stadium or Hollywood Park?
 - If yes, what's something you saw there that makes you think of engineering? Was it working as best it could? How would you improve it?

3. Share & Reflect (10–15 min)

Have groups share their predictions aloud. As they do, record patterns and ideas.

Guide reflection with these questions, or some others you think will inspire the class:

- What assumptions do we commonly make about engineers?
- What's one thing you hope to learn about engineering when we watch the video?

Materials Needed

- Engineering Predictions Worksheet
- Whiteboard/markers
- Online example (to project) of an “engineer stereotype” image

Assessment

- Completed worksheets
- Quality of participation in brainstorm and group reflection