

Curriculum Guide

COURSE MISSION

Building and Moving: STEM Careers aims to spark curiosity and encourage growth mindset in high school students through exposure to modern Building and Moving career options that are education and industry-aligned using the Advance Career and Technical Education (CTE) Framework.

COURSE DESCRIPTION

This two-lesson course includes opportunities to explore careers that focus on enhancing efficiency and innovation across various industries. The first lesson introduces students to the wide range of careers within the Building and Moving Advance Career Technical Education (CTE) cluster group. From engineers and architects to logistics managers and skilled tradespeople, they all work together to design, build, and maintain the infrastructures around us. The second lesson explores the role of engineering in the auto racing industry. Students discover how engineers work on everything from engine performance to data analysis and race strategy, each playing a crucial role in a team's success on the track.

COURSE OVERVIEW

TOPIC	DESCRIPTION
Building and Moving Careers	Students discover careers in construction, advanced manufacturing, and supply chain and transportation. They learn about job requirements, education options, and ways to prepare for a potential career in these industries.
Engineering Careers in Auto Racing	Students will explore the role of an engineer in auto racing. They will consider key skills, education, and experiences that are unique to engineering careers in auto racing.

COURSE STRUCTURE

Pre-survey	Lesson 1: Building and Moving Careers	Lesson 2: Engineering Careers in Auto Racing	Post-survey
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DETAILED COURSE OUTLINE

Lesson 1: Building and Moving Careers

In this lesson, learners will discover careers in construction, advanced manufacturing, supply chain and transportation.

Learning Objectives

Students will be able to...

- Discover careers in construction, advanced manufacturing, and supply chain and transportation that align with student interests, sense of purpose, and impact they want to make on their communities.
- Describe ways to prepare for a career in construction, advanced manufacturing, and supply chain and transportation.

ACTIVITY TOPIC	ACTIVITY DESCRIPTION
What Building and Moving Careers Can Do	Students learn how building and moving jobs can play a crucial role in sustainability, public health, economic development, and education.
Which Type of Career Is Right for You?	In this activity, students take a quiz to see if a career in construction, advanced manufacturing, and supply chain and transportation may be a good fit for them.
Meet the Construction & Advanced Manufacturing Team	Students learn about the job roles of mechanical engineers, construction planners, and civil engineers.
Build a Roller Coaster	Students play a simulation game where they design and create their own roller coaster while learning more about engineering.
Meet the Supply Chain and Logistics Manager	Students learn about the role of a supply chain and logistics manager.
Supply Chain Simulation	In this activity, students figure out the supply chain needed to get cotton candy to the amusement park.
Find Your Career	Students take a career quiz to identify potential career interests.

Lesson 2: Engineering in Auto Racing

In this lesson, learners will explore the role of an engineer in auto racing. They will consider key skills, education, and experiences that are unique to engineering careers in auto racing.

Learning Objectives

Students will be able to...

- Define the structure of the racing industry.
- Classify the types of engineering roles in the auto racing industry.
- Identify key skills needed for engineering jobs in auto racing.
- Describe the benefits of different hands-on experiences that prepare a person for an engineering role in auto racing.

ACTIVITY TOPIC	ACTIVITY DESCRIPTION
The Structure of the Auto Racing industry	In this activity, students learn about sports car racing, the size and scope of the market, technological innovations, and fan engagement.
Engineering Roles in the Racing Industry	In this activity, students explore the kinds of engineers who work in auto racing, what bachelor's degrees to consider, and what qualities they need to succeed in those roles.
How to Prepare for a Career in Auto Racing	Students discover what classes they might take to prepare in high school and what hands-on experience might help a student.