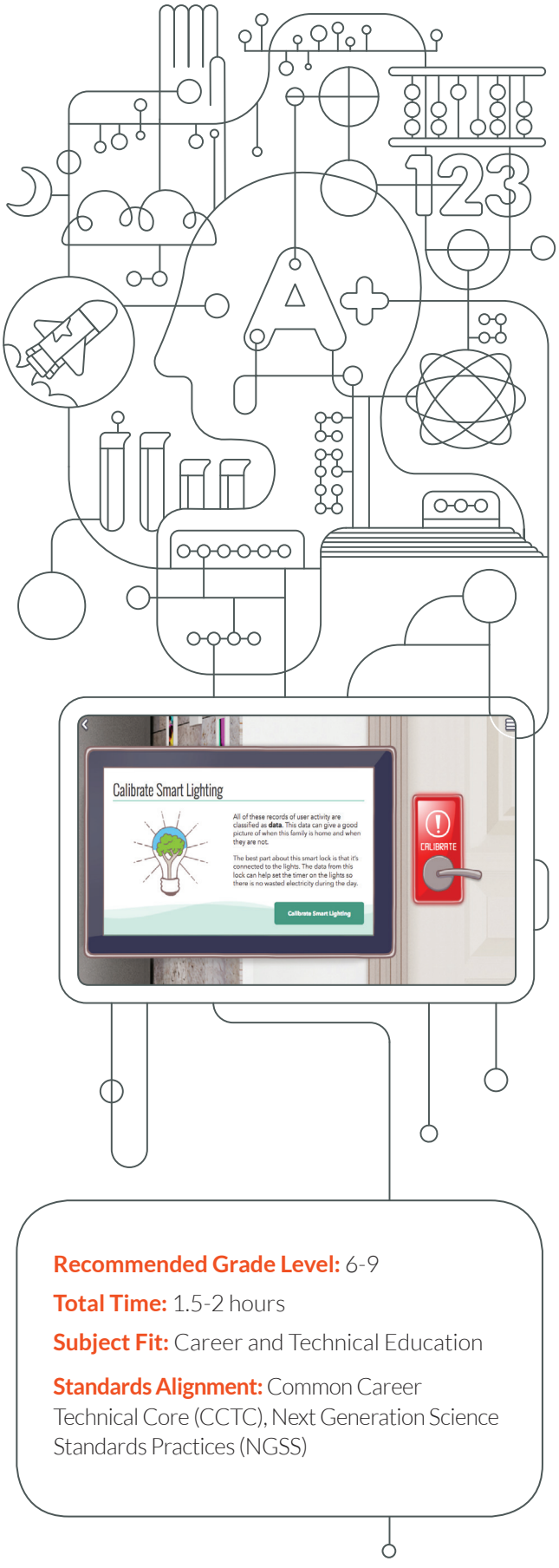
Endeavor

STEM Career Exploration

Eighty percent of the nation's fastest-growing careers require skills from one or more STEM fields. In fact, science and engineering job opportunities are expected to grow at double the rate of jobs in other industries.

Our nation's global competitiveness hinges on our ability to create the first fully STEM-literate generation and empower students with the knowledge they need to pursue career opportunities that may have once seemed out-of-reach. One key indicator determining high school graduates' pursuit of a STEM degree is their interest entering high school.

Endeavor is a first-of-its-kind interactive program designed for middle school students -- where the ground for STEM literacy and career exploration is most fertile. Learners engage with interactive content that reinforces key STEM skills while exploring exciting STEM careers that await.



Course Highlights

- Interactive activities that reinforce critical STEM topics
- Insight into student skills, interests, and aptitudes, and how they might connect to exciting STEM careers
- Scaffolded hints and just-in-time instruction that provide targeted feedback to learners in need
- Personalized takeaway with student interests, skills, aptitudes, and relevant careers

Course Topic Areas

- The Careers Powering STEM Industries
- Big Data and the Internet of Things
- Future of Manufacturing and Design
- The Algorithms Behind Recommendations

Recommended Grade Level: 6-9

Total Time: 1.5-2 hours

Subject Fit: Career and Technical Education

Standards Alignment: Common Career Technical Core (CCTC), Next Generation Science Standards Practices (NGSS)

Course Flow

Lesson 1
About Me Quiz

Lesson 2
Designing the Ultimate Prototype

Lesson 3
Connecting the Home of the Future

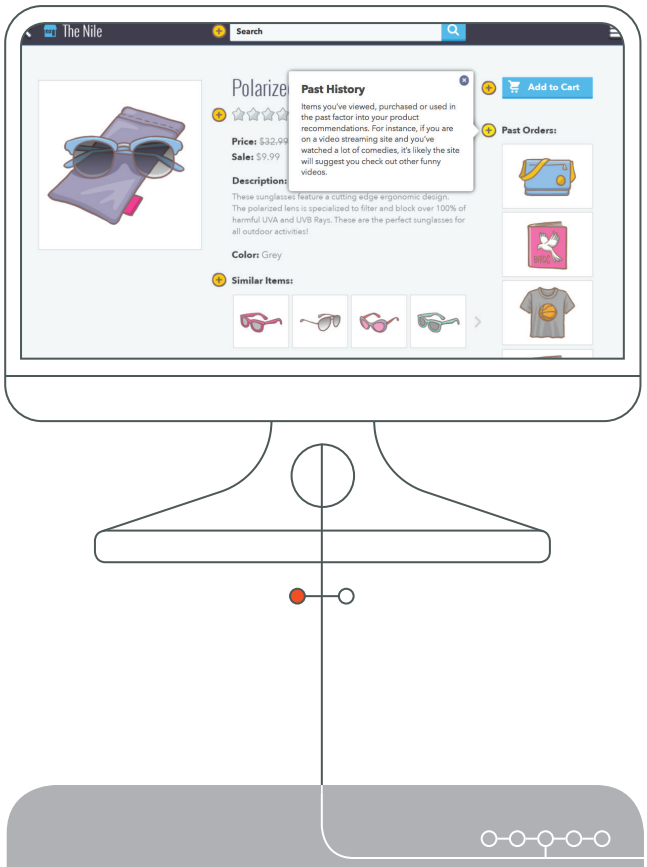
Lesson 4
Building the Perfect Playlist

Lesson 5
My Field Guide

The STEM workforce is expected to include **8.65 million** workers by 2018[1].

Science and engineering career opportunities are **expected to grow at double the rate of growth** (20%) of the overall workforce[2].

One key indicator determining high school graduates' interest in STEM is **learner interest entering high school**[3].



Learning Activity Highlights

The Future of Manufacturing - Sophisticated manufacturing technologies are shaping the way we design and build new products. In this activity, learners will explore the design process and topics in material science as they design and "3D print" a custom sneaker. Through experimenting with different material options and calibrating printer settings, learners will gain critical exposure to the topics and careers that are defining the future of manufacturing.

Perfect Playlist - While predictive algorithms play an increasingly important role in online behavior and daily decision-making, learners are often unaware of the impact their behavior has on what they see online. In this open-ended activity, learners act as "Head of Curation", exploring collaborative and content-based filtering techniques to build the perfect musical playlist.

For more information about bringing this program to your school or district, visit everfi.com/k-12

1. STEMconnector, 2013.
2. National Science Board, 2016.
3. Tytler, eet al., 2008.

EVERFI is the leading education technology company that provides learners of all ages education for the real world, through innovative and scalable digital learning.

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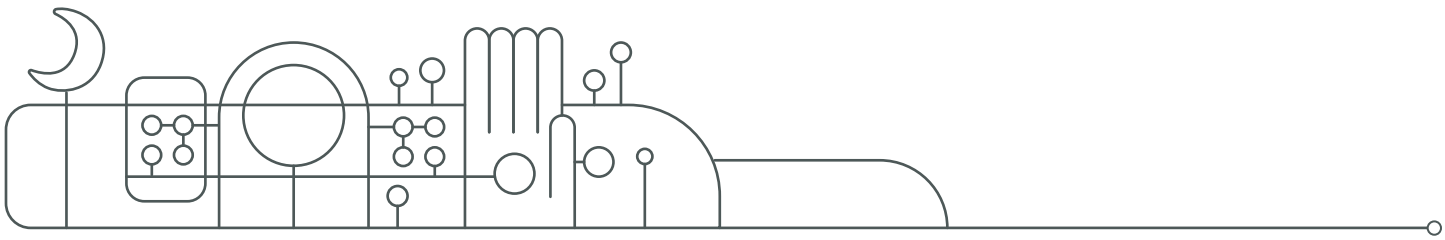
Endeavor STEM Career Exploration

Course Outline

Module	Topics	Lesson Description	Learning Objectives *"Students will be able to..."*
Course Introduction and About Me	○ Course Introduction ○ Self-exploration ○ STEM Career Exploration	Learners are introduced to the course and complete an interactive self- assessment where they dig deeper into their interests, skills, and aptitudes. Learners connect their resulting STEM profile to several career opportunities.	○ Gain insight into their skills, interests, and aptitudes ○ Identify STEM careers of interest
Designing the Ultimate Prototype	○ Engineering Design Process ○ Materials and material science ○ 3D printing process ○ Testing and comparative data analysis ○ STEM Career Exploration	Learners explore advanced manufacturing techniques by designing and rapidly prototyping a custom sneaker. Through iterative design, learners will link the design process to the high-tech manufacturing techniques shaping the future of production. Learners will connect these skills to STEM careers in engineering and/or which require design and programming skills.	○ Solve a virtual engineering problem from a set of constraints ○ Explain the basic process for additive 3D printing ○ Identify the steps of the design process and explain how it is utilized by designers and engineers ○ Differentiate between synthetic materials and explain why one might be preferable to another ○ Identify STEM careers that utilize engineering-related skills and identify one or more that might be of interest
Connecting the Home of the Future	○ Classifying data ○ Interpreting/ analyzing data ○ Password security ○ Connected devices/iOT ○ STEM Career Exploration	Learners will explore the world to come by calibrating a connected home. Using a variety of data sources to achieve optimal settings, learners will adjust their smart thermostat, lighting control system, and intelligent refrigerator. For each of these activities, learners will interpret basic data sets (from utility bills, fitness tracker data, etc.) to make cost and energy efficiency decisions. Students also briefly explore the importance of protecting their personal information when using connected devices.	○ Define the Internet of Things and describe its potential impact on day-to-day lives ○ Identify appropriate visual data formats (scatter plot, line graph, bar graph, etc.) for specific data sets ○ Understand the steps necessary to create a secure password ○ Identify STEM careers that utilize data literacy-related skills and identify one or more that might be of interest



Module	Topics	Lesson Description	Learning Objectives *"Students will be able to..."*
Building the Perfect Playlist	○ Classifying data ○ Interpreting/ analyzing data ○ Content filtering ○ Collaborative filtering ○ STEM Career Exploration	Learners act as curation engineers at a music software company, analyzing content and user data to determine a perfect playlist. Along the way, they learn about how recommendation engines collect information about users from online behavior.	○ Explain how recommendation engines utilize different types of data to predict user preferences ○ Distinguish between content and collaborative filtering ○ Identify how data might be utilized for recommendation engines ○ Identify STEM careers that utilize data literacy-related skills and identify one or more that might be of interest
My Field Guide	○ STEM Career Exploration ○ About Me	Learners explore different career opportunities based on their interests, skills, and course progress. Learners can access this resource at any point during their course.	○ Identify STEM careers of interest ○ Identify next steps for careers of interest