

Content Outline

# Endeavor: STEM Career Exploration™



## COURSE INTRODUCTION AND ABOUT ME

<b>DESCRIPTION</b>	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 opportunities.
<b>TOPICS</b>	<ul style="list-style-type: none"> <li>• Course Introduction</li> <li>• Self-exploration</li> <li>• STEM Career Exploration</li> </ul>
<b>LEARNING OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Gain insight into their skills, interests, and aptitudes.</li> <li>• Identify STEM careers of interest.</li> </ul>

## DESIGNING THE ULTIMATE PROTOTYPE

<b>DESCRIPTION</b>	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.
<b>TOPICS</b>	<ul style="list-style-type: none"> <li>• Engineering Design Process</li> <li>• Materials and material science</li> <li>• 3D printing process</li> <li>• Testing and comparative data analysis</li> <li>• STEM Career Exploration</li> </ul>
<b>LEARNING OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Solve a virtual engineering problem from a set of constraints.</li> <li>• Explain the basic process for additive 3D printing.</li> <li>• Identify the steps of the design process and explain how it is utilized by designers and engineers.</li> <li>• Differentiate between synthetic materials and explain why one might be preferable to another.</li> <li>• Identify STEM careers that utilize engineering-related skills and identify one or more that might be of interest.</li> </ul>

## CONNECTING THE HOME OF THE FUTURE

<b>DESCRIPTION</b>	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 etc.) to make cost and energy of protecting their personal information when using connected devices.
<b>TOPICS</b>	<ul style="list-style-type: none"><li>• Classifying data</li><li>• Interpreting/analyzing data</li><li>• Password security</li><li>• Connected devices/IOT</li><li>• STEM Career Exploration</li></ul>
<b>LEARNING OBJECTIVES</b>	<ul style="list-style-type: none"><li>• Define the Internet of Things and describe its potential impact on day-to-day lives.</li><li>• Identify appropriate visual data formats (scatter plot, line graph, bar graph, etc.) for specific data sets.</li><li>• Understand the steps necessary to create a secure password.</li><li>• Identify STEM careers that utilize data literacy-related skills and identify one or more that might be of interest.</li></ul>

## BUILDING THE PERFECT PLAYLIST

<b>DESCRIPTION</b>	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.
<b>TOPICS</b>	<ul style="list-style-type: none"><li>• Classifying data</li><li>• Interpreting/ analyzing data</li><li>• Content filtering</li><li>• Collaborative filtering</li><li>• STEM Career Exploration</li></ul>
<b>LEARNING OBJECTIVES</b>	<ul style="list-style-type: none"><li>• Explain how recommendation engines utilize different types of data to predict user preferences.</li><li>• Distinguish between content and collaborative filtering.</li><li>• Identify how data might be utilized for recommendation engines.</li><li>• Identify STEM careers that utilize data literacy-related skills and identify one or more that might be of interest.</li></ul>

## MEDICAL MACHINES

<b>DESCRIPTION</b>	Learners act as doctor at a medical practice, gathering and analyzing patient information to diagnose each patient. Along the way, they learn how to use diagnostic tools and medical machines to make an accurate diagnosis and understand the day-to-day job of a doctor.
<b>TOPICS</b>	<ul style="list-style-type: none"><li>• Gathering patient data</li><li>• Analyzing patient history</li><li>• Conducting physical exams</li><li>• Diagnostic machines</li><li>• STEM Career Exploration</li></ul>
<b>LEARNING OBJECTIVES</b>	<ul style="list-style-type: none"><li>• Explain the process by which a physician gathers and uses data to treat a patient.</li></ul>

	<ul style="list-style-type: none"> <li>• Understand how aspects of a physical exam contribute to accurate assessment of patient's condition.</li> <li>• Identify three types of imaging, how they work, and their purposes.</li> <li>• Identify STEM careers in the medical field and how they may be of interest.</li> </ul>
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## DATA CHAMPIONS

<b>DESCRIPTION</b>	Learners are asked to make decisions when faced with data related challenges. Through problem-based learning, learners will compare sets of data and use technology to gather and track data. Learners will connect these data analysis skills to STEM careers which require research, of data.
<b>TOPICS</b>	<ul style="list-style-type: none"> <li>• Qualitative and quantitative data</li> <li>• Bivariate data</li> <li>• Make decisions using data</li> <li>• Technology &amp; data collection</li> <li>• STEM Career Exploration</li> </ul>
<b>LEARNING OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Define dependent and independent variables.</li> <li>• Using historical data, predict outcomes based on data.</li> <li>• Observe bivariate data to evaluate performance.</li> <li>• Compare qualitative and quantitative data.</li> </ul>

## GAME DEVELOPMENT STUDIO

<b>DESCRIPTION</b>	Learners are shown the game design process using best practices in software development. Through the lens of a game producer learners are asked to problem solve, apply and use tools to get work done, and limitations.
<b>TOPICS</b>	<ul style="list-style-type: none"> <li>• The software development process</li> <li>• The video game design process and roles</li> <li>• Build and maintain a timeline</li> <li>• Computer science terms</li> <li>• Evaluate and apply decision-making criteria</li> </ul>
<b>LEARNING OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Describe the benefits of using standard software development methodologies.</li> <li>• Develop a project timeline.</li> <li>• Evaluate and select programming languages based on criteria.</li> <li>• Identify tools needed to perform tasks.</li> </ul>

## TRANSPORTATION CENTRAL

<b>DESCRIPTION</b>	Learners explore the industry of transportation, distribution, and logistics (TDL) through a simulation detailing the events that occur between customers placing an order for a product through delivery. Learners must use industry best practices to solve common problems along the way.
<b>TOPICS</b>	<ul style="list-style-type: none"> <li>• Inventory and Logistics</li> <li>• Inventory Management and Other Industry Best Practices</li> <li>• Packaging, Shipping, and Handling</li> <li>• Transportation and Transportation Maintenance</li> <li>• STEM Career Exploration</li> </ul>

<b>LEARNING OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Understand STEM concepts through simulated experience of modern manufacturing, with a focus on transportation, distribution, and logistics.</li> <li>• Relate basic STEM concepts to manufacturing.</li> <li>• Connect to the diverse opportunities and paths for careers in the manufacturing industry.</li> <li>• Use STEM concepts to determine what careers in manufacturing might be of interest.</li> </ul>
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## MY FIELD GUIDE

<b>DESCRIPTION</b>	Learners explore different career opportunities based on their interests, skills, and course progress. In addition to the careers selected for the learner, learners can also access this resource at any point during their course.
<b>TOPICS</b>	<ul style="list-style-type: none"> <li>• STEM Career Exploration</li> <li>• About Me</li> </ul>
<b>LEARNING OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Identify STEM careers of interest.</li> <li>• Identify next steps for careers of interest.</li> </ul>