

Presenting:

Exploring Career Clusters

***Project-Based
Courseware and Equipment Package***

 **Learning Labs, Inc.**

Career Cluster Exploration Course Overview

Course Description

This Career Cluster Exploration course is project-driven program based on the national career and technical education model. The instructor-based lessons combined with career-related project experiences allow your students to identify academic and technical knowledge and skills needed to pursue a wide range of career opportunities. This one-semester, project-based course starts with a three-week, whole-class introduction that includes discussion of each of the career clusters. During the introduction sessions students will also complete a sample project to introduce them to the equipment and resources provided. The included laser engraver, sign/banner printer, and 3D printer will all be used in the introductory project to prepare students for their frequent use of the equipment throughout the semester. Upon completion of the introduction, students will then work in pairs though 12 unique stations to complete projects and open-ended challenges related to the career clusters.

Course Equipment and Supplies

The course includes versatile equipment and consumable supplies (enough for 50+ students per project). This equipment will be used throughout the career cluster units and can also be used for many other projects. Some included items are:

- Laser engraver
- Sign/banner printer
- 3D printer
- Unmanned aerial vehicle
- Alternative energy kit
- Robotics equipment
- pH Soil test kit
- Forensics investigation kit

Course Content

The 16 career clusters are explored through the completion of project-based units presented in 12 individual stations. They are as follows:

Agriculture, Food and Natural Resources

Students will explore the areas of agriculture, food and natural resources while gaining hands-on experience with soil testing and conservation. They will build and test alternative energy systems. Projects include:

- Soil science – test pH of soil sample
- Wind energy – determine how many blades are best
- Solar energy – determine the effects of heat on solar panels

Architecture and Construction

Students will explore the areas of Architecture and Construction while gaining hands-on experience with scaled drawing and computer aided design software. They will use their drawings to create a small building model using a laser engraver.

Projects include:

- Design and construction – laser cut a small scale house
- 3D printing – design/print pieces of scaled furniture

Arts, Audio/Visual Technology and Communication

Students will explore the areas of arts, audio/visual technology and communication while gaining hands-on experience with video and image editing software. Projects include:

- Digital video editing – create and edit short video
- Digital photo editing – explore color and saturation
- Graphic design – create a logo to be applied to removable fabric

Business Management, Administration and Finance

Students will explore the areas of business management, administration, and finance while developing a business plan and building a stock portfolio. Projects include:

- Stock management – use an online stock market game
- Business management – develop a business plan

Education and Training

Students will explore the areas of education and training. Projects include:

- Educational planning – develop a step-by-step lesson related to the class project
- Educational assessment – determine your learning style
- Curriculum design – develop an educational presentation

Government and Public Administration, Law and Public Safety

Students will explore the areas of government and public administration, law, and public safety while gaining hands-on experience with modern crime scene investigation techniques. Projects include:

- Forensic science – blood typing
- Government - research your local, state and federal representatives

Health Science

Students will explore the area of health science. Projects include:

- Vital signs – measure temperature and monitor blood pressure
- Sports medicine - athletic taping and establishing your maximum heart rate
- Dentistry – brushing your teeth correctly
- Optometry – take an eye chart exam
- Mental health – practice stress relief
- Alternative medicine – practice acupuncture

Hospitality and Tourism and Human Services

Students will explore the areas of hospitality, tourism, and human services. Projects include:

- Tourism – create a travel brochure featuring a local park or other areas of local interest
- Nutritional health – tracking your eating habits

Information Technology and STEM

Students will explore the areas of information technology. Projects include:

- Mechanisms – assemble various simple machines
- Information technology – create a basic website
- Information technology – create a mobile app

Manufacturing

Students will explore the area of manufacturing while gaining hands-on experience with producing a product. Projects include:

- Laser engraving – cut and build a whirligig
- 3D printing – print a gear

Marketing

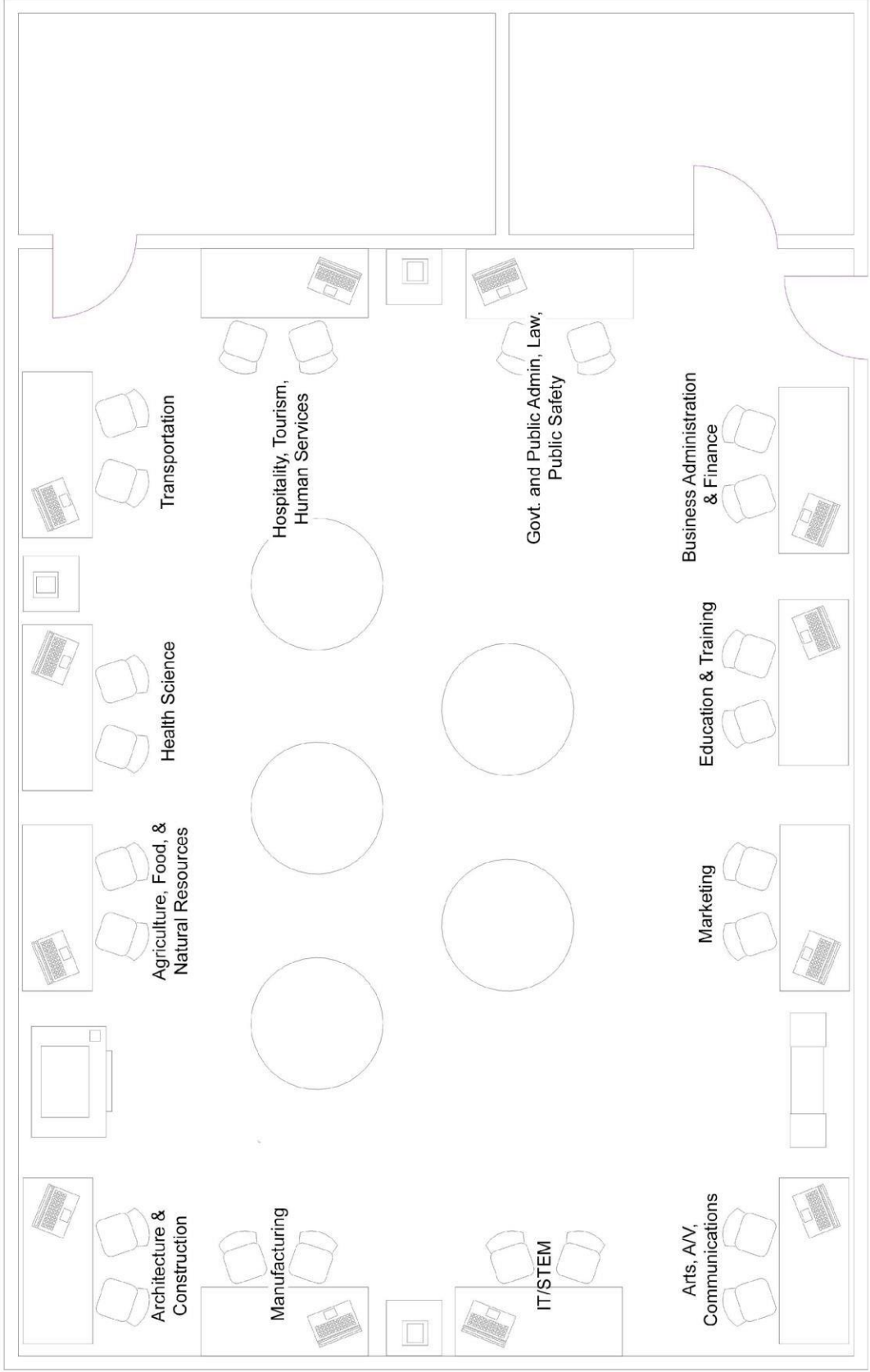
Students will explore the area of marketing while gaining hands-on experience by creating a marketing plan for the class project. Projects include:

- Graphic design – design a new logo
- Marketing – create a marketing plan for a product developed in the lab

Transportation

Students will explore the area of transportation.

- The forces of flight – perform Bernoulli's experiment
- Fluid dynamics – testing shapes and airfoils in a virtual wind tunnel
- Aeronautics – design and fly a hand-thrown glider
- Aerospace – build a model pneumatic rocket



Minimum Middle School Lab Configuration - 30'X 40' Classroom