Module 5

Duration: 55 minutes

Exploring the Destinations

This module is designed to teach students about the clusters of occupations described on the Kuder assessment results. Administrators at sites where Navigator is used may choose to have these reports presented in either of two different clustering systems: the 16 National career clusters or the 6 Holland clusters. Both of these will be described in this lesson plan, but instructors only need to teach the one used at their sites. The first of these two classification systems, the 16 National career clusters, is the result of a U.S. Department of Education initiative to represent career opportunities for the 21st century. This system supports logical exploration by industry. The same system can be used to organize high school curriculum so students can make educational plans related to their tentative occupational choices. The second of these, the 6 Holland clusters, comes from the extensive research done by Dr. John Holland, an eminent international career choice theorist.

Objectives

At the end of this module, students will be able to:

- Describe how occupations can be grouped into clusters.
- Sort occupations and jobs into these clusters.
- Select two of these clusters as favorites based on present knowledge.

Module 5: Overview

Components

- **Introduction and Mini-Lecture: Exploring the Destinations**
  15 minutes
- **Activity 13a or 13b: Sorting Occupational Profiles into the 16 Clusters or 6 Clusters** *(depending on which clustering system has been selected at your site)*
  15 minutes
- **Activity 14: Placing Yourself in a Destination**
  15 minutes
- **Preparation for Next Session**
  10 minutes

Facilitator Preparation

- ❑ Read the lesson plan and resource material.
- ❑ Bring the Occupational Profile Cards (used in Module 1) to class.
- ❑ Print a copy of the career cluster signs (either for the 16 National career clusters or the 6 Holland clusters) found at the end of this Module.
- ❑ Duplicate materials for Handout 3: Taking the Kuder Career Interests Assessment and Kuder Skills Confidence Assessment.
- ❑ Make arrangements to show the PowerPoint presentation. This presentation can be accessed online from the ADMS.
- ❑ Additional materials that describe the 16 National career clusters – such as posters, sample educational plans, and brochures – are available at www.careertech.org/career-clusters.

Homework Assignment

Students are asked to take the Kuder Career Interests Assessment and the Kuder Skills Confidence Assessment online, following the instructions on Handout 3, and to print out the full report for each and bring them to the next class session.

National Career Development Guidelines Addressed

- Indicator CM3.A2: Demonstrate the ability to use different types of career information resources (i.e., occupational, educational, economic, and employment) to support career planning.
- Indicator CM3.K5: Identify occupations that you might consider without regard to your gender race, culture, or ability.
- Indicator CM3.K4: Identify several ways to classify occupations.
- Indicator CM3.A5: Demonstrate openness to considering occupations that you might view as nontraditional.

ASCA Mindsets & Behaviors for Student Success Addressed

B-LS 9. Gather evidence and consider multiple perspectives to make informed decisions.

Module 5: Lesson Plan

SLIDES 5-1 TO 5-3

Introduction and Mini-Lecture: Exploring the Destinations

(15 minutes)

In the last lesson, the emphasis was on you. In this lesson, we learn how the work world is organized. Even though occupations change, classification systems are flexible enough that you can use them throughout your lifetime. If you learn about one of these clustering systems today, it will help you choose high school courses, a major for vocational-technical school or college, your first occupation, and the multiple jobs that you will consider throughout your lifetime.

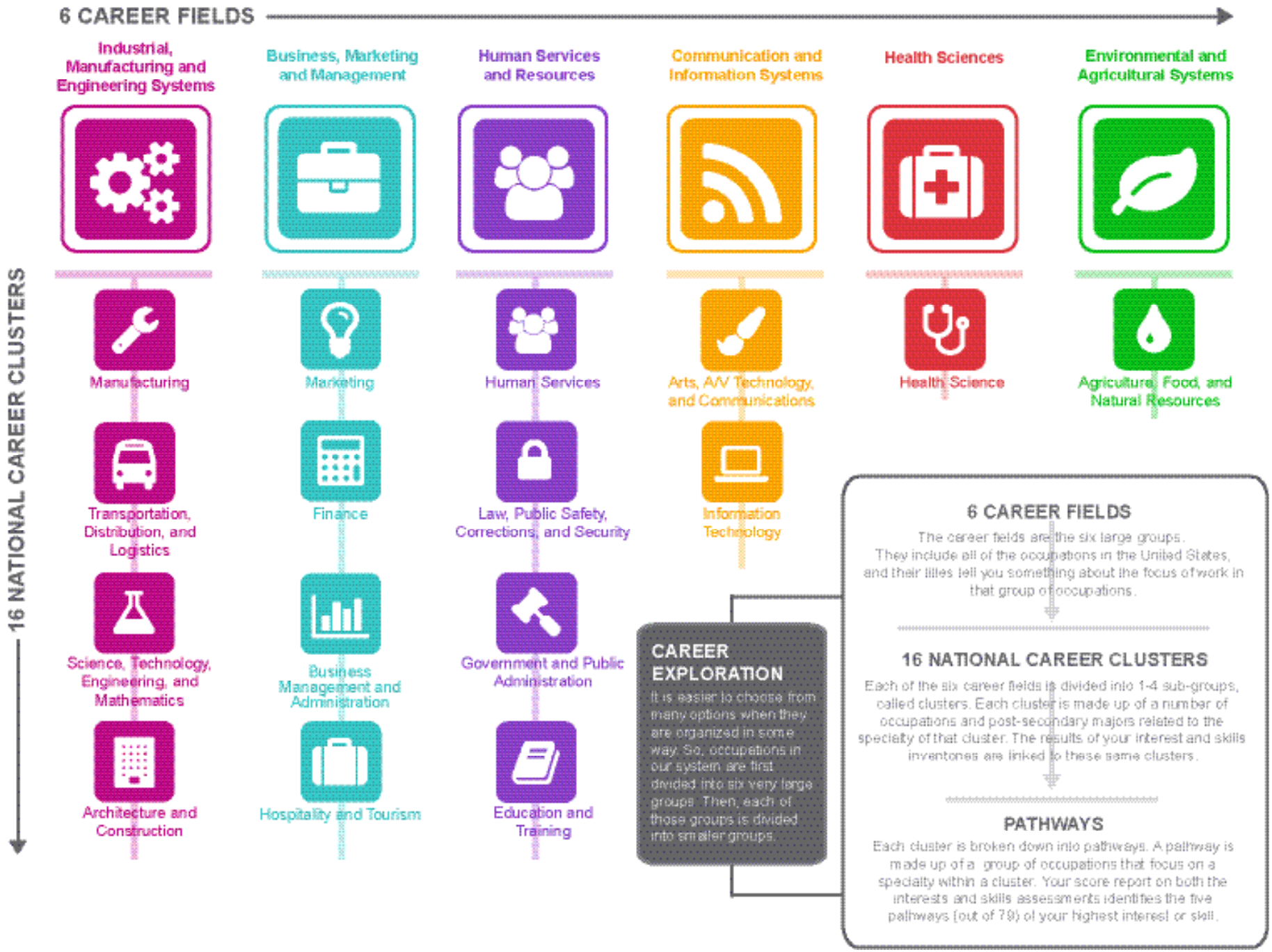
Based on more than 40 years of research by several organizations, we know that jobs can be organized into various clustering systems. Two such systems – National and Holland – are described in this lesson, though you may choose to study only the one used in your version of Navigator.

The 16 National Career Clusters

(Note: If your site has chosen the Holland clustering system, skip this section and move ahead to the description of the Holland system on page 87.)

In 2001, the U.S. Department of Education undertook the task of identifying 16 career clusters representing career opportunities for the 21st century. These 16 clusters are groups of occupations that relate to six career fields: Environmental and Agricultural Systems; Business, Marketing, and Management; Communication and Information Systems; Health Sciences; Human Services and Resources; and Industrial, Manufacturing, and Engineering Systems.

Please note from the graphic on the following page how the 16 clusters relate to the six career fields.



SLIDES 5-4 TO 5-7

Agriculture, Food, and Natural Resources

This part of the work world includes occupations related to farming, ranching, forestry, and saving natural resources. Workers may work outdoors, indoors, or some combination of both. They may be processing a plant or animal product of some kind, or designing environmental or natural resource systems. They may be interested in agribusiness, which involves growing food and preparing it for sale or taking care of animals.

If you have an interest in this area of the world of work, you may be doing some of the following:

- *Participating in Earth Day.*
- *Recycling household goods.*
- *Taking care of pets or farm animals.*
- *Growing your own garden.*

Architecture and Construction

People who work in this part of the work world like to use their creativity and problem-solving abilities to design, build, and maintain buildings. They may work outdoors or indoors. They may draw the plans for a new building and help build the structure, or they may help restore or repair an existing house or building.

If you have interest in this part of the world of work, you might be doing some of the following:

- *Building model airplanes.*
- *Working on your computer a lot.*
- *Designing and building playhouses or forts.*
- *Helping your parents with repairs around the house.*

Arts, A/V Technology, and Communications

People who work here express themselves through writing, singing, dancing, acting, or doing drawings or graphic designs. They typically work inside in studios, offices, or on the stage. They may perform directly for others, or they may produce work that is enjoyed by others. They may report events or opinions through newspaper writing or making films.

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If you are interested in this part of the world of work, you may be doing some of the following:

- *Taking lessons in music, dance, or art.*
- *Using your computer to create graphic art.*
- *Attending musical performances or art shows.*
- *Writing a detailed diary.*

SLIDES 5-7 TO 5-8

Business Management and Administration

People who work here enjoy planning, organizing, and directing business operations. These people are very important because they keep good track of details, keep things operating smoothly, and account for money carefully. Almost without exception, they work indoors with computers, printed reports, and files. They may plan or manage the day-to-day operation of a business and supervise the work of others.

If you are interested in this part of the world of work, you may be doing some of the following:

- *Organizing a campaign to increase volunteerism in your school.*
- *Serving as secretary of a group you belong to.*
- *Helping a friend get elected to a class office.*
- *Getting good at word-processing and other computer skills.*

Education and Training

People who work in this area are interested in planning, managing, and providing education and training services. They typically work indoors and teach children and adults new knowledge or skills. They may develop curriculum, supervise teachers, or manage large school districts or training programs.

If you are interested in this part of the world of work, you may be doing some of the following:

- *Volunteering to tutor younger students in your school.*
- *Helping classmates with homework.*
- *Teaching others a special skill you have.*

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SLIDES 5-9 TO 5-11

Finance

People who work in this cluster are interested in managing and keeping track of money. They typically work indoors. They may invest money for people, keep track of money for businesses or banks, or put together insurance plans for people and companies.

If you are interested in this part of the world of work, you may be doing some of the following:

- *Serving as treasurer of a school club.*
- *Observing stock market reports.*
- *Having a savings account to which you contribute regularly.*

Government and Public Administration

This cluster includes occupations related to government and public service. Work is typically indoors. Individuals may work in a state or agency or hold a public office. This cluster also includes workers that represent the United States in another country. This work area includes everything from the U.S. Foreign Service to revenue and taxation.

If you are interested in this part of the world of work, you may be doing some of the following:

- *Learning a foreign language.*
- *Serving as an officer in a school club.*
- *Planning how to make your school a better place.*

Health Science

This cluster includes occupations dedicated to making or keeping people well. Workers typically work indoors. They work in all aspects of medicine, but also include those who develop the tests to diagnose your problem or research cures for diseases. They may provide direct services or supervise facilities that address people's mental and physical needs.

If you are interested in this part of the world of work, you may be doing some of the following:

- *Learning CPR or taking a Red Cross safety course.*
- *Creating science fair projects.*
- *Watching medical shows on TV.*

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SLIDES 5-12 TO 5-14

Hospitality and Tourism

Occupations in this cluster relate to restaurants, hotels/motels, travel plans, and entertainment. These occupations are typically indoors. Workers may manage restaurants, hotels, or amusement parks. They may also sell or plan travel for other people.

If you are interested in this part of the world of work, you may be doing some of the following:

- *Traveling and staying in new places.*
- *Acting as a greeter at your school for new students.*
- *Planning special events.*

Human Services

People who work in this area serve the personal needs of others to help improve their lives in some way. They may work as mental health counselors, provide personal care services, or provide spiritual care.

If you are interested in this part of the world of work, you may be doing some of the following:

- *Listening to friends' problems.*
- *Babysitting and watching young children play.*
- *Volunteering at a food bank or other community agency.*

Information Technology

This cluster includes occupations related to providing computer or web-based services. Workers typically work indoors and may design and develop computer hardware, software, and systems to collect and use information. They may also manage database systems or operate computer networks.

If you are interested in this part of the world of work, you may be doing some of the following:

- *Fixing problems others have with computers.*
- *Surfing the Internet to get information.*
- *Helping others to access information on the computer.*

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SLIDES 5-15 TO 5-17

Law, Public Safety, Corrections, and Security

Workers in this area are interested in the enforcement of laws and the protection of the public. Work may be indoors or outdoors. Workers may work in emergency services such as police and firefighters, or they may deal with people who need legal services or possibly work in the corrections field.

If you are interested in this part of the world of work, you may be doing some of the following:

- *Acting as a school crossing guard.*
- *Helping to control crowds at school events.*
- *Participating on the debate team.*

Manufacturing

People in this area take raw materials and turn them into finished products. Workers typically work indoors. Along with making a product, workers may plan how to make a product, manage the production of a product, or check product quality.

If you are interested in this part of the world of work, you may be doing some of the following:

- *Carving things out of wood.*
- *Making products to sell.*
- *Creating scenery for the school play.*

Marketing

These occupations relate to promoting and selling goods and services. Work is typically indoors and workers may create the plan to market a product or directly sell a product or service to others. This cluster also includes those who manage the sale of products or services.

If you are interested in this part of the world of work, you may be doing one or more of the following:

- *Volunteering to sell tickets, candy, cookies, or something else to raise money.*
- *Leading a group at school, a place of worship, or in a club.*
- *Running for an office in the student government.*

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SLIDES 5-18 TO 5-19

Science, Technology, Engineering, and Mathematics

Occupations in this cluster relate to design, research, and development. People in this area are the problem solvers of our world. They typically work indoors and may do research in a laboratory setting. They may design and build new things, such as bridges or roads, or assist those who do.

If you are interested in this part of the world of work, you may be doing one or more of the following:

- *Figuring out how things work.*
- *Reading a lot of science fiction.*
- *Enjoying the process of solving problems.*

Transportation, Distribution, and Logistics

This cluster involves the planning, management, and movement of people, materials, and products by road, air, rail, and water. Work may be indoors or outdoors. Workers may drive or pilot trucks, ships, planes, or other forms of transportation or manage the people that do.

If you are interested in this part of the world of work, you may be doing one or more of the following:

- *Volunteering to figure out schedules for sports teams.*
- *Knowing how to read a train or airline timetable.*
- *Looking at the specs for cars to help your parents decide which to buy.*

One thing that is very important to know is that our school, town/city, country, or world could not function without having good workers in all 16 of these areas. No one area is more important than another; all are needed to make our society function well.

*You may have noticed that in four clusters – **Education and Training; Human Services; Hospitality and Tourism;** and **Marketing** – you work directly with people. In the first two groups – **Education and Training and Human Services**– the purpose would be to help them through physical care, spiritual care, teaching, counseling, or providing needed services through agencies. In the remaining groups – **Hospitality and Tourism,** and **Marketing** – the purpose would be to sell a product or service or to manage a group of employees toward a common goal.*

In all of these groups, it is very important to have good skills in relating to people and in communicating clearly through the spoken and written word.

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In five other groups – ***Agriculture, Food, and Natural Resources; Architecture and Construction; Information Technology; Science, Technology, Engineering and Mathematics;*** *and* ***Transportation, Distribution, and Logistics*** *– there is emphasis on working with equipment, tools, and technology. Knowledge of how to use computers is important, and many jobs in science require advanced work in science and math and the ability to work with concepts and ideas.*

While the clusters mentioned above have similarities, the remaining groups are unique. For example, the group called ***Arts, A/V Technology, and Communications*** *requires creative thinking, imagination, willingness to do things in a different way, and the ability to create something of beauty for the enjoyment of others. The* ***Business Management and Administration*** *group requires doing things in predetermined, standard ways, following procedures that are provided by others.*

Invite questions about the 16 clusters and then continue with the following discussion questions:

- ***How do you think the amount of education to enter these different clusters varies?*** There is a range of educational levels in all groups; however, many occupations in **Science, Technology, Engineering, and Mathematics** and **Health Science** tend to require more education than occupations in other groups. It is projected by the U.S. Department of Labor that about 65 percent of the jobs in this century will require up to two years of education or training beyond high school. Only about 20 percent of jobs require a four-year college degree, and a very small percentage (about 15 percent) can be entered with high school education or less.
- ***How might the availability of jobs vary in these 16 clusters?*** Probably the group with the lowest job demand is **Arts, A/V Technology, and Communications.**
- ***How do you think salaries vary in the 16 clusters?*** In general, people with a four-year college education in any group make more money than those without that degree. As a group, salaries are probably highest in **Marketing** and **Science, Technology, Engineering, and Mathematics**.
- ***How do you think the interests of workers vary in the 16 clusters?*** Some people enjoy working with their hands and have mechanical skills; some like to work with their minds and have scientific and mathematical skills; some like to create new things and perform to entertain others; some like to work with people to help them in some way; others like to work with people to manage, persuade, or convince them; and some like to work with numbers and information to organize it.

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Activity 13a: Sorting Occupational Profiles into the 16 Clusters

(15 minutes)

You have learned a lot about the 16 sections of the world of work. I am going to read a few descriptions from the set of the Occupational Profile Cards that we used in an earlier activity. Try to figure out which cluster each of these occupations belongs in.

Now, choose occupations from the list below and read the description (from the Occupational Profile Cards used in Module 1) to the class. After each description, students are asked to name the appropriate cluster. (Note: If time is short, choose three or four occupations from the list.)

- Landscape Architect **(Agriculture, Food, and Natural Resources)**
- Electrician or Electrical Engineer **(Architecture and Construction)**
- Radio and Television Announcers or Graphic Designer **(Arts, A/V Technology, and Communications)**
- Public Relations Specialist **(Business Management and Administration)**
- School Principal or Recreation Worker or Librarian **(Education and Training)**
- Accountant **(Finance)**
- Army Electronic Equipment Repair Specialist **(Government and Public Administration)**
- Physical Therapist or Dental Assistant or Radiologic Technologist **(Health Science)**
- Travel Agent **(Hospitality and Tourism)**
- Human Services Worker **(Human Services)**
- Computer Scientist or Data Entry Worker **(Information Technology)**
- Paralegal or Court Reporter **(Law, Public Safety, Corrections, and Security)**
- Assembler or Jeweler or Diesel Mechanic **(Manufacturing)**
- Real Estate Agent or Retail Salesperson **(Marketing)**
- Petroleum Engineer **(Science, Technology, Engineering, and Mathematics)**
- Flight Attendant or Air Traffic Controller **(Transportation, Distribution, and Logistics)**

Ask students to find Activity 11: Pairing Occupations, and ask two or three students to tell the class how they paired the occupations. There are no right or wrong answers, though there are two occupations from each cluster.

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SLIDE 5-20

The 6 Holland Clusters of Occupations

A second system for classifying occupations into clusters was developed by Dr. John Holland, the theorist mentioned in a previous lesson. His work is based on decades of research and is commonly accepted in the world of career guidance. In this system there are six clusters called Realistic, Investigative, Artistic, Social, Enterprising, and Conventional.

If students at your site will be getting the results of their Kuder Career Interests Assessment and Kuder Skills Confidence Assessment interpreted by the 6 Holland clusters rather than the 16 National career clusters, use the following descriptions instead of those provided previously.

SLIDE 5-21

Realistic

This part of the work world includes occupations in which people can work with tools, equipment, and their hands to build, plant, harvest, or repair something. The cluster includes all kinds of jobs in construction, agriculture, forestry, animal care, and manufacturing. The focus of the cluster is on the use of manual skills to make, produce, or repair something.

If you have an interest in this area of work, you may be doing the following:

- *Helping someone build a deck.*
- *Painting rooms in your house.*
- *Building a model airplane.*
- *Feeding and caring for animals.*
- *Repairing a broken tool or piece of equipment.*
- *Growing a garden.*

SLIDE 5-22

Investigative

This part of the work world includes jobs in which people work with their minds. Through observation and logical thinking, they solve problems, come up with new ways to do things, and diagnose medical conditions. Many of these jobs involve science and mathematics. Most jobs in this cluster require at least two years of education beyond high school.

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If you have an interest in this area of work, you may be doing the following:

- *Doing well in math and science courses.*
- *Reading a lot in the field of science and technology.*
- *Playing chess.*
- *Doing a science project.*
- *Inventing something new.*

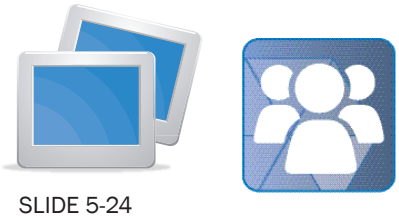
SLIDE 5-23

Artistic

This part of the work world includes jobs in which people can express themselves through art, music, writing, drama, and other kinds of artistic expression. People who work in this area enjoy entertaining others and having the opportunity to be free from a lot of rules. Some are performing artists while others work in occupations such as marketing, public relations, and web design.

If you have an interest in this area of work, you may be doing the following:

- *Playing in a band, orchestra, or other musical group.*
- *Taking piano or voice lessons.*
- *Writing poetry.*
- *Reading good literature.*
- *Taking art lessons.*
- *Enjoying crafts of various kinds.*



SLIDE 5-24

Social

This part of the work world includes jobs where people work face-to-face with other people to help them in some way. This may be in the form of physical care, counseling, teaching, coaching, or taking care of children. Workers in this group find satisfaction in improving the lives of others.

If you have interest in this area of work, you may be doing the following:

- *Teaching a class of younger children.*
- *Tutoring a person who has difficulty with English.*
- *Volunteering at the hospital to visit patients with your dog.*
- *Working as an assistant camp counselor.*

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SLIDE 5-25

Enterprising

This part of the work world includes jobs in which people work face-to-face with other people to lead them, manage them, influence them, or sell them a product or service. These jobs include all kinds of managers as well as people who sell products or services. Workers in this group enjoy the challenge of achieving sales goals or other objectives.

If you have interest in this area of work, you may be doing the following:

- *Selling candy or cookies to help raise money for your softball team.*
- *Running for a student council office.*
- *Starting your own lawn-mowing business.*
- *Convincing friends to help with a project you are planning.*

SLIDE 5-26

Conventional

This part of the work world includes jobs in which people make sure that business runs smoothly and efficiently. Workers attend carefully to details, events, orders, and records so that they are accurate and organized,
often using computers. Workers in this group find satisfaction in having things neat and orderly.

If you have interest in this area of work, you may be doing the following:

- *Organizing your photos in clearly titled albums.*
- *Learning to use Word and Excel on your computer.*
- *Getting your workshop organized.*

Invite questions about the six clusters and then continue with the following discussion questions:

- ***How do you think the amount of education needed to enter these different clusters varies?*** There is a range of educational levels in all groups; however, many occupations in the Investigative cluster require more education than occupations in other clusters.
- ***How might the availability of jobs vary in these six clusters?*** The cluster with the lowest job demand is Artistic. The cluster with the largest number of occupations is Realistic, so presumably more jobs would be available in this cluster.
- ***How do you think salaries vary in the six clusters?*** In general, people with a four-year college education in any group make more money than those without that degree. As a group, salaries are probably highest in Enterprising and Investigative.

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- ***How do you think the interests of workers vary in the six clusters?*** Some people enjoy working with their hands and have mechanical skills; some like to work with their minds and have scientific and mathematical skills; some like to create new things and perform to entertain others; some like to work with people to help them in some way; others like to work with people to manage, persuade, or convince them; and some like to work with numbers and information to organize it. So, the interests of people are spread across all six of these clusters.

ACTIVITY

Activity 13b: Sorting Occupational Profiles into the 6 Clusters

(15 minutes)

You have learned a lot about the six areas of the work world. I am going to read a few descriptions from the set of the Occupational Profile Cards that we used in an earlier activity. Try to figure out which cluster each of these occupations belongs in.

Now, choose occupations from below and read the description (from the Occupational Profile Cards used in Module 1) to the class. After each description, ask students to name the appropriate cluster. (Note: If time is short, choose three or four occupations from the list.)

- Landscape Architect **(Artistic)**
- Electrician or Electrical Engineer **(Realistic)**
- Radio and Television Announcers or Graphic Designer **(Artistic)**
- Public Relations Specialist **(Enterprising)**
- School Principal **(Enterprising)**
- Accountant **(Conventional)**
- Electronic Equipment Repair Specialist **(Realistic)**
- Physical Therapist **(Social)**
- Travel Agent **(Enterprising)**
- Human Services Worker **(Social)**
- Computer Scientist **(Investigative)**
- Court Reporter **(Conventional)**
- Diesel Mechanic **(Realistic)**
- Real Estate Agent **(Enterprising)**
- Petroleum Engineer **(Investigative)**
- Flight Attendant **(Enterprising)**

Ask students to find Activity 11: Pairing Occupations, and ask two or three students to tell the class how they paired the occupations. There are no right or wrong answers.

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ACTIVITY

Activity 14: Placing Yourself in a Destination

(15 minutes)

Place the 16 or 6 signs (with the names of the clusters) provided with this lesson on the walls of the classroom. Ask students to stand by the sign of one of the clusters that they think they might like most. Students are asked to tell someone else who is there why that particular group appealed to them.

After about three minutes, ask students to move and stand near the sign of the second cluster that appealed to them. Again, they are asked to tell someone there why they have chosen this cluster.

After all students have selected two of the clusters, ask them to return to their seats and then ask questions such as:

- *Have you taken any courses that relate to one or both of the clusters you chose? If so, did your reactions to these courses confirm interest in the cluster?*
- *Have you participated in extracurricular activities or volunteer activities that relate to the first or second cluster of your choice? Did these experiences confirm your interest in these clusters?*
- *What do you need to do academically (high school courses you need to take or other future education needed) in order to explore these clusters further or to acquire the skills that you need?* (If the 16 National career clusters are being used, the sample four-year high school plans available for a minimal fee at www.careertech.org, would be helpful to show in connection with this question.)

Preparation for Next Session:

(10 minutes)

As homework for the next class session, you will take the Kuder Career Interests Assessment, and the Kuder Skills Confidence Assessment. The results will tell you about your current interests and skills and about others that you may want to explore or expand.

HANDOUT 3

Provide the students with Handout 3: Taking the Kuder Career Interests Assessment and Kuder Skills Confidence Assessment. Students are asked to be sure to print out the reports and bring them to the next class session.

In preparing students to take the assessments, be sure to include the following concepts:

- *Just as the kinds of trips you want to take change as you get older, so may your interests.*
- *There are no right or wrong answers.*

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- *When you answer the questions on the interests assessment, you will be asked to rank your interest in various activities in a range from "Strongly Dislike" to "Strongly Like". You will likely find some things that you do not want to do at all, some that you would love to do, and other activities that fall somewhere between those extremes ("dislike," "neutral," or "like").*
- *Review the results of your assessments, and be sure to explore related occupations. Write down the titles of at least five occupations that you want to explore in depth later on.*
- *Be sure to print out your assessment results and bring them to the next class session.*
- *During the next class, I will help you understand what this information means.*
- *The results of your assessments belong to you. You will have a copy to keep for yourself and to show to your counselor and parent(s)/guardian. Your parents can also view them by entering the Parent section of Navigator.*
- *The results of your assessments have been automatically saved to your My Portfolio Items* (described in Module 10)*. You may add information to the portfolio as you continue in school, have work experience, and make career plans.*

SLIDE 5-27

Homework Assignment

Take the Kuder Career Interests Assessment and the Kuder Skills Confidence Assessment online, following the instructions provided on Handout 3: Take the Kuder Career Interests Assessment and Kuder Skills Confidence Assessment. Print out your results and bring them to the next class session.

Optional Activities

- Invite speakers from each of the occupational clusters to the class.
- If available, show videos representing the clusters. (These are available for the 16 National career clusters in Navigator and at www.acinet.org/videos.)
- Take students on a field trip to observe occupations in the clusters.
- If your school has a job shadowing program, arrange one or more job shadowing experiences for students in clusters of their choice.
- Organize the various jobs at the school (teachers, counselors, maintenance staff, cafeteria staff, bus drivers, administrators, security personnel, etc.) into the 16 or six clusters. Provide these lists to students; perhaps assign them to interview some of these people about their work.

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Module 5: Resource Material

The latest edition of The Dictionary of Occupational Titles (1991) lists 12,741 occupational titles. Its replacement, O*NET, reduced this vast number of options by describing nearly 1,000 groups of occupations. Regardless of which of these two numbers students face when exploring occupations, it is a daunting task to attempt to explore so many options to make career choices. Without some system of organization, it would be like shopping in a large grocery store without any aisle signs. The purpose of this lesson is to teach students how occupations are organized so they can narrow their exploration to one or two clusters.

There are different ways to organize occupations – by industry, level and type of work, or by characteristics. For the purposes of exploration, it is effective to use an occupational classification system that:

- Is simple enough to explain to students from the middle school years on through adulthood.
- Is research-and theory-based.
- Can be used to organize other information relevant to career planning – that is, the interests and skills of persons doing the exploration, school courses, postsecondary majors, non-school activities, and jobs.
- Can be used to organize occupational information and activities such as job shadowing and career days.

These criteria are met by a commonly known classification system that has six groups, or clusters, of occupations. It is difficult to assign ownership of this system to any one source. Dr. Anne Roe, a theorist of the late 1950s, first proposed such a system. Her plan proposed eight clusters of occupations (Technology, Outdoor, Science, General Cultural, Arts and Entertainment, Service, Business Contact, and Organization) organized within six different educational entry levels (unskilled, semi-skilled, skilled, semi-professional, professional/managerial II, and professional/managerial I). This organizational scheme offered a matrix of 48 boxes into which occupations could be classified. Roe's research also led her to propose that the arrangement of these eight clusters should be circular rather than linear – that is, that the Technology cluster should be linked with the Organization cluster.

Following Roe's work, Dr. John Holland began research to develop and document his six-cluster (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) arrangement. As did Roe, he proposed that these six clusters should be arranged in a specific order and in a circular configuration that he arranged as points on a hexagon. Further, he identified specific personality traits of individuals who relate best to each of the six clusters of occupations and proposed that persons who can make a close match between personality characteristics and a similarly coded work environment are likely to be satisfied.

Dr. Holland's work was followed by that of Dr. Dale Prediger, who further documented the existence of these six distinct clusters, their relationship to each other, and the characteristics of occupations that should be assigned to each of them. Using different names for these same six clusters, Dr. Prediger arranged them in the same order around a circle, which is called the World-of-Work Map (ACT, 2001).

In addition, he identified the basic dimensions that underlie the Holland hexagon, or in other words, that occupations can be viewed on two different axes: those that offer work with people versus those that offer work with things (tools, equipment, machines, etc.) and those that offer work with data (facts, files, figures, etc.) versus those that offer work with ideas (abstract thinking). Finally, he specified sub-clusters of occupations within each of the six larger clusters, called career areas, to allow students to explore at a more detailed level.

References are listed at the end of this material for those who wish to study this sequence of research in detail. Suffice it to say that three significant streams of study have occurred since the late 1950s that lay a basis for arranging occupations into six clusters, arranged in a specified circular fashion. The chart on the next page shows the relationship of titles of these clusters by these three different sources.

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ROE	HOLLAND	PREDIGER
Technology Outdoor	Realistic (R)	Technical
Science	Investigative (I)	Science & Technology
General Cultural Arts & Entertainment	Artistic (A)	Arts
Service	Social (S)	Social Service
Business Contact	Enterprising (E)	Administration & Sales
Organization	Conventional (C)	Business Operations

Since the initial statement of this classification system and the theory behind it, many researchers have designed and carried out studies to further document the existence and relationship of these six clusters. This organizational scheme is now commonly accepted in the field of career guidance, though the cluster names vary when used by different publishers. If administrators at your site have chosen to have students browse occupations by the 6 Holland clusters and get the score reports from interest and skills assessment in this way, students will learn this method of classification because you will select that section of the lesson plan that describes the Holland system.

In 2001, the U.S. Department of Education Office of Vocational and Adult Education (OVAE) initiated a career clusters project. Sixteen career clusters representing career opportunities for the 21st century were identified. Broad-based national advisory committees of experts in each of the industry clusters were formed for the purpose of framing opportunities for students as they pursue postsecondary education and a wide range of career opportunities from frontline to professional and managerial careers. Many states have adopted this approach as the basis for career planning.

The 16 industry clusters can be roughly grouped within the 6 Holland clusters as follows:

Realistic	Agriculture, Food, and Natural Resources Architecture and Construction Manufacturing Transportation, Distribution, and Logistics

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Investigative	Health Science Science, Technology, Engineering, Mathematics
Artistic	Arts, A/V Technology, and Communications
Social	Education and Training Hospitality and Tourism Human Services Law, Public Safety, Corrections, and Security
Enterprising	Business Management and Administration Marketing
Conventional	Finance Government and Public Administration Information Technology

This listing relates the 16 National industry-based clusters to the more commonly used Holland six-cluster arrangement. We have included this information for your knowledge as facilitator. We provide material in the lesson plan to address either of these two methods of classifying occupations. The names and definitions of the 16 National career clusters are listed below. These correspond to the names of the 16 clusters on the report provided for the Kuder Career Interests Assessment and the Kuder Skills Confidence Assessment if your site has selected this approach. The information on clusters is gathered from the Career Technical Education (CTE) site (www.careertech.org). In this system, all occupations in O*NET, high school courses, and postsecondary majors are related to 16 industry-based clusters, as follows:

- ***Agriculture, Food, and Natural Resources:*** Careers in the planning, implementation, production, management, processing, and/or marketing of agricultural commodities and services including food, fiber, wood products, natural resources, horticulture and other plant and animal products; this includes related professional, technical, and educational services.
- ***Architecture and Construction:*** Careers in designing, planning, managing, building, and maintaining the built environment. People employed in this cluster work on new structures, restorations, additions, alterations, and repairs.
- ***Arts, A/V Technology, and Communications:*** Careers in designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services. Many people enjoy hobbies and avocations in this cluster rather than full-time employment.

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- ***Business Management and Administration:*** Careers encompass planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations.
- ***Education and Training:*** Careers in planning, managing, and providing education and training services, and related learning support services.
- ***Finance:*** Careers in financial and investment planning, banking, insurance, and business financial management.
- ***Government and Public Administration:*** Careers in executing governmental functions to include governance, national security, foreign service, planning, revenue and taxation, regulation, and management and administration at the local, state, and federal levels.
- ***Health Science:*** Careers in planning, managing, and providing diagnostic, therapeutic, and information and environmental services in health care.
- ***Hospitality and Tourism:*** Careers in the management, marketing, and operations of restaurants and other food services, lodging, attractions, recreation events, and travel-related services.
- ***Human Services:*** Careers in which people help others with a variety of kinds of needs. Some work with children in day care centers, others counsel young people and adults who have career, emotional, and mental health needs. Still others provide a variety of personal and consumer services to the general public.
- ***Information Technology:*** Careers in design, development, support and management of hardware, software, multimedia, and systems integration services.
- ***Law, Public Safety, Corrections, and Security:*** Careers in planning, managing, and providing legal, public safety, protective services, and homeland security, including professional and technical support services.
- ***Manufacturing:*** Careers in planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.
- ***Marketing:*** Careers in planning, managing, and performing marketing activities to reach organizational objectives.
- ***Science, Technology, Engineering, and Mathematics:*** Careers in planning, managing, and providing scientific research and professional and technical services (including physical science, social science, and engineering) including laboratory and testing services, and research and development services.

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- ❑ ***Transportation, Distribution, and Logistics:*** Careers in the planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment, and facility maintenance.

In this lesson, you are asked to teach these 16 clusters to students, using the PowerPoint presentation provided. Given the body of research that supports the existence and differentiation of these clusters, you will also want to convey the following concepts to students:

- It is possible for students to identify one or two clusters of their highest preference by self-selecting (based on some knowledge of the kinds of work activities performed in each) or by taking assessments such as the Kuder Career Interests Assessment.
- High school courses and postsecondary majors can be classified in the same 16 clusters and pathways so that students can identify courses or majors that can help with further exploration of the occupational cluster or for preparation for occupations included in it.

References

ACT, Inc. (2001). World-of-Work Map. Iowa City, IA: Author.

Holland, J.L. (1997). Making Vocational Choices: A Theory of Vocational Personalities and Work Environments (3rd ed.). Odessa, FL: Psychological Assessment Resources.

Holland, J.L., Whitney, D.R., Cole, N.S., & Richards, J.M. Jr. (1969). An Empirical Occupational Classification Derived from a Theory of Personality Intended for Practice and Research. ACT Research Report 29, Iowa City, IA: American College Testing Program.

Prediger, D.P. (1981). Aid for Mapping Occupations and Interests: A Graphic for Vocational Guidance and Research. Vocational Guidance Quarterly, 30, 21-36.

Roe, A. (1956). The Psychology of Occupations. New York: Wiley.

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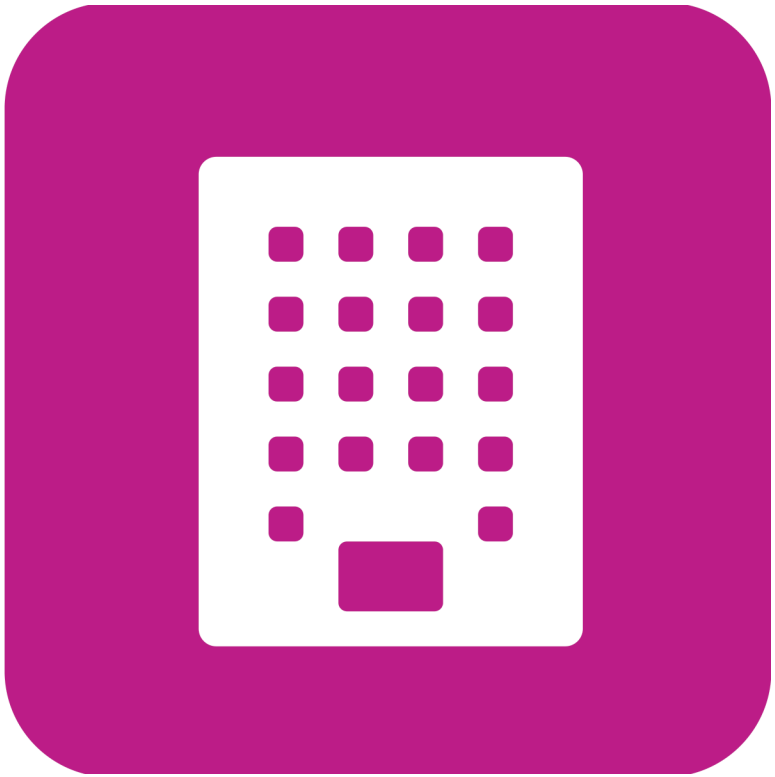
Handout 3: Take the Kuder Career Interests Assessment and Kuder Skills Confidence Assessment

- Log on to http://navigator.kuder.com (or other custom URL, if applicable).
- If you are a new user, register by selecting ***I need to create an account***. Then complete each step of the process. You may need an activation code that your teacher has given you.
    - Be sure to remember the username and password you create, because you will need them every time you return.
- Select ***Take an Assessment***.
- To begin the interests assessment, select Kuder Career Interests Assessment and click on ***Begin*** or ***Re-Take*** (if you have taken it previously).
- When you finish the interests assessment, look at all tabs including assessment results, related occupations, sample ed plans, and person matches. Then, click on ***Print Report***.
- Go back to ***Take an Assessment*** in the navigation menu to begin the Kuder Skills Confidence Assessment. Click on ***Begin*** or ***Re-Take*** (if you have taken it previously).
- When you have completed the skills assessment, look at all tabs including assessment results, related occupations, and sample ed plans. Then, click on ***Print Report***.
- You may review the results of these two assessments at any time from the My Portfolio Items area. Select ***My Assessments*** and then click on the ***My Assessment Results*** to view all results. You can also click on ***Interests and Skills Composite Report*** to see the results of the two assessments combined. Print out this report, as well.
- Bring both of these reports to your next class session.

Agriculture, Food, & Natural Resources



Architecture & Construction

Arts, A/V Technology, & Communications

Business Management & Administration

Education & Training

Finance

Government & Public Administration

Health Science

Hospitality & Tourism

Human Services

Information Technology

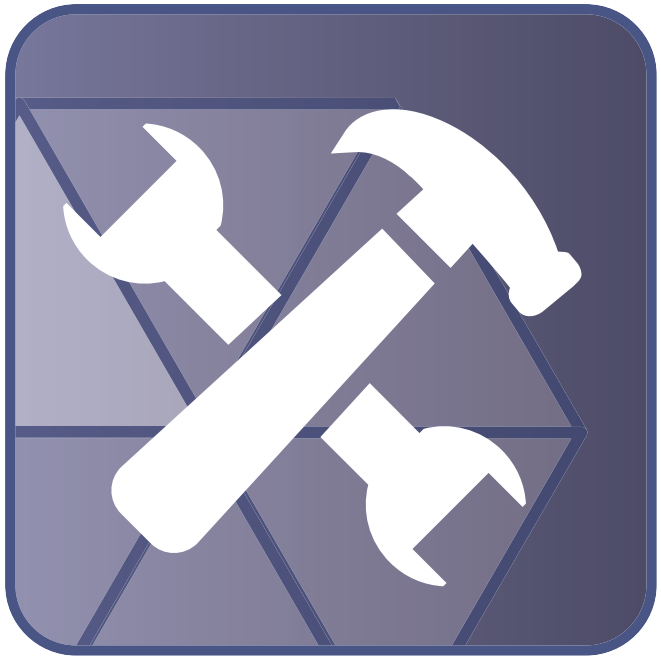
Law, Public Safety, Corrections, & Security

Manufacturing

Marketing

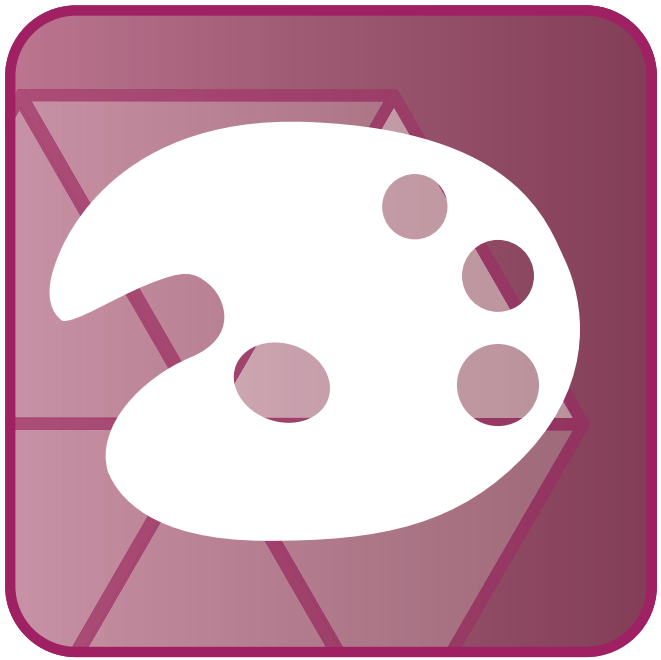
Science, Technology, Engineering, & Mathematics

Transportation, Distribution, & Logistics



Realistic

Investigative



Artistic

Social

Enterprising

Conventional