

River-created and River-related Careers



SUGGESTED GRADE LEVELS: MS

SUBJECTS: Social Science

SKILLS: graphing, analysis, evaluation, writing, research

Objectives

Students will: 1) discover careers related to the Mississippi River region; 2) investigate their career aptitudes; and 3) realize the importance of education in obtaining a career.

Method

Students will take a career aptitude test and research an area of interest. Students will graph the level of education necessary for certain careers and fill out a job application questionnaire for their job choice.

Background

Many careers exist related to Illinois' major rivers and their surrounding natural and historical areas. They can be grouped into four major categories.

Many scientists study a particular area, ecosystem, organism or plant. Scientists may work in a lab, in the field or in a museum or research facility.

A lower-level scientist needs a bachelor's degree for technical jobs like testing and producing data (four years), but in order to do your own research, you need a master's degree (bachelor's degree plus one to two years of additional training). To hold a position of authority or do more important research, a Doctor of Philosophy (PhD) degree is necessary (another four years after a master's degree). Depending on the specific subfield entered and level of education and experience, you can earn from \$35,000 to \$100,000 dollars a year.

Scientist	Field of Study
biologist	life and living organisms
chemist	matter and changes it undergoes
ecologist	ecosystems and interactions of organisms in the environment
botanist	plants
zoologist	animals
fisheries scientist	fisheries management
aquatic biologist	ecology and behavior of freshwater plants, animals, and microbes
environmental biologist	regional plants and animals
conservation biologist	biodiversity status with regard to protecting species, habitats and ecosystems from extinction
molecular biologist	macromolecules and their mechanisms
microbiologist	unicellular microorganisms
wildlife biologist	wild animals and their habitats
limnologist	life of inland fresh waters
ornithologist	birds
mammalogist	mammals
herpetologist	reptiles and amphibians
ichthyologist	fishes
entomologist	insects
hydrologist	movement, distribution and quality of water

Another group of careers related to the river includes boat-, barge- or lock-and-dam-related jobs. These careers can vary from working on a barge or boat to operating/informing the public about a lock and dam system. To work on a barge as a deckhand, there is no education requirement further than a high school degree, but you must complete on-the-job training to learn the necessary skills and safety procedures. In order to move up to a mate, pilot or captain, you must take and pass an exam given by the U.S. Coast Guard and pass a complete physical examination. Deckhands usually earn between \$19,000 and \$45,000 a year, and captains can earn from \$40,000 to \$100,000 a year depending on the ship and crew size. This job requires the ability to work with people for months at a time in tight quarters up and down the river. A fisherman or mussel harvester could also be a career choice if you enjoy constantly moving on a boat or barge. They can earn between \$16,000 and \$46,000 per year.

The third cluster of jobs created by the rivers is natural resource management. These jobs can include being a conservation officer, park ranger, recreation guide, nature interpreter or a career in a federal or state agency. They do a variety of tasks from enforcing permits to working in an office to guiding visitors through recreational activities or places. Many of these jobs require a bachelor's degree in an environmental area. On-the-job training is also part of the career path to progress in both title and payroll. The pay can vary anywhere between \$24,000 to \$70,000 yearly depending on the experience, education and employer.

Another category of jobs is tourism-related careers. These can include tour guide, visitor center worker, exhibit designer, curator/historian, hotel or attraction jobs and reception jobs. There is no formal education requirement to work in the tourism industry, but employers often prefer high school graduates or people who have higher education degrees. Also, the more education you have, often the more you are paid. On-the-job training is usually completed with the company where you are hired, but prior language skills and training are recommended. The usual salary is \$15,000 to \$27,000, but experienced workers can make \$22,000 to \$35,000 depending on education level and employer.

There are many different agencies that hire people for careers related to the rivers. These agencies include: U.S. Fish and Wildlife Service; U.S. Army Corps of Engineers; U.S. Environmental Protection Agency; National Park Service; Illinois Department of Natural Resources; Illinois Environmental Protection Agency; Illinois Department of Agriculture; local Soil and Water Conservation Districts; nature centers; park districts; land use planning or surveying firms; nursery or landscape companies; power companies; barge companies; colleges or universities; pharmaceutical or other research companies; laboratories; mussel or fishing companies; museums or visitor centers; and hotels.

Literature Cited

Anaca Technologies Ltd. 2010. "Career Cruising"
<http://www.careercruising.com/Default.aspx>.

Materials

paper; pencils; copies of the "Career Aptitude Test," the "Graphing Template," the "Student Fact Sheet," the "Career Sorting Chart" and the "Job Application"

Procedure

1. Have students use the information given in the "Student Fact Sheet" to fill out the information on the "Career Sorting Chart." Then have the students take the "Career Aptitude Test" to determine what area they might want to have a career in. Discuss how their responses could relate to different career choices. For example, if they enjoy science as a school subject, relate better to a few people, like to work by themselves, prefer different kinds of tasks and new situations, then they might be suited for a career as a scientist in the field. Use the list in the "Background" section to guide them toward a job selection.
2. Have students research a career in an area that they may be interested in for their future job. What specific jobs are available? What do you do in that line of work? How much education is needed? How much is the salary? Does it sound like the job for you?
3. Have students research the level of education needed for five other jobs that interest them. They do not have to be related to the career that they picked in step 2 or related to the rivers. Using the "Graphing Template," have students graph the level of education needed to obtain these careers.
4. When the students have discovered their favorite job prospect, have them fill out the "Job Application."

Evaluations

1. Have students write an essay about which career they want to pursue and why they chose that particular field. Also, have them write what they need to do to achieve this goal.
2. Have students create a drawing/mural of people doing river-related careers.

Extensions

1. Have the students research how the jobs created and sustained by the river have changed over time.
2. Invite people with river-related careers to talk to your class about their job. Give the class time to ask questions of the presenter. Then, ask a guidance counselor to speak to the class about how to begin planning for their education and future career now.

3. Read about people with a variety of careers that make a difference in the environment. This book is recommended: *Environmental Portraits* by Kim Sakamoto Steidl (1993, published by Good Apple, 1204 Buchanan St., Box 299, Carthage, IL 62321-0299. 106 pp.).
4. Make a list of people in your community who better the environment while doing their jobs. Interview these people and prepare a “Local Environmental Heroes” book with interviews, illustrations and photographs.

This work was supported in part through an internship to Danae Boesdorfer provided by the National Great Rivers Research and Education Center.



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DNR 56 – 12/15 • IOCI 16-0306 



Group 1 Careers

These careers are in a scientific field, like a biologist, fisheries scientist or researcher, so they often require many years of science and math studies in both high school and college, including a minimum of a bachelor's degree. To work in this field, you must be able to hypothesize, collect data and analyze your results to understand the meaning behind the data as well as plan future actions. You will often work alone but must be able to present the information you discover to your supervisors and peers and publish the information for other scientists to repeat or critique. You must also like to do a variety of tasks and enjoy working in many different places.

Group 2 Careers

Careers, like deckhand, mussel harvester or lock operator, usually require a high school diploma and on-the-job training. You must be able to take direction and criticism well, learn quickly and live in cramped spaces with many other people for a period of months at a time. You must be able to tolerate and cooperate with people. You will usually be required to do many different physically demanding tasks.

Group 3 Careers

These careers include jobs in resource management, like a conservation officer or park ranger. They are required to do a large variety of tasks from informing the public to enforcing laws relating to the natural resources in their area. Many of these jobs require a bachelor's degree in an environmental study, so science and conservation biology/ecology classes are necessary. You must be willing to do a variety of tasks and often work alone. People and communication skills are needed to relate to and effectively educate people.

Group 4 Careers

Careers in the tourism industry include tour guides, museum curators or receptionists. There is no formal education requirement for this field, but a high school diploma is usually preferred. You must be able to learn quickly and follow directions, and you often will be required to do tasks that are physically demanding or require labor. You may have a set routine to follow.

STUDENT ACTIVITY PAGE | Procedure #1 – Career Sorting Chart

	Group 1 Scientific	Group 2 Boat/barge- and lock-and- dam-related	Group 3 Natural resources management	Group 4 Tourism-related
School Subjects Needed				
Skills Needed				
Solitary or Crowd?				
Different Tasks or Established Routine?				

JOB APPLICATION

Full Name

Address

City

State

Zip Code

Phone Number

Position You are Applying for

Education Needed

Salary Wanted

Position Salary

Why do you think you would be good at this job?

What skills do you have that would qualify you for this job?

What skills do you need to work on to obtain this job in the future?