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This cluster includes the production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture and other plant and animal products/resources.

North Dakota Products

Introduction

North Dakota has long been known as a state that produces a number of outstanding agricultural products. These activities will give the student an opportunity to learn about these agricultural products and some issues surrounding them. Students will also learn of the employment opportunities available in the cluster of Agriculture, Food & Natural Resources.

Warm-Up Activity

Allow the students to brainstorm about various North Dakota products. Have students review brochures on ND agriculture that can be downloaded at www.agdepartment.com/statistics.html. Select three kinds of agricultural, food or natural resource products grown or produced in North Dakota. The students will be developing a poster for each of these three products tracing the products as they are produced, marketed and consumed. The students will also be developing a plan for the production and marketing of this product. The poster will include North Dakota company information. Have students visit www.northdakotahasjobs.com and click on “For Job Seekers” and then click on “Find Jobs In North Dakota by Employer” to copy company logos and gather information about employment opportunities in North Dakota. There are additional resources at www.imaginend.com under Employment.

Procedure

Divide the students into two large groups and decide upon the three products within their group for which they will research and report. Reviewing the seven pathways, discuss the impact of the production of the products upon the various pathways.

The following is a listing of questions to help students evaluate and prepare a presentation about their findings:

- What three products are you going to develop for your posters?
- Where will you look for this kind of information?
- Are there any people in your classroom who are already involved in agriculture?
- What would it take to become a producer yourself?
- How much does land suitable for agricultural production cost?
- What North Dakota companies are involved in the production of this product?
- What North Dakota employment opportunities are currently available in the production & marketing of these products?

Students could survey school and/or the community at large to discover the impact that the Agriculture, Food & Natural Resource cluster has upon the community.

Perhaps students could invite a representative from the pathways to explain the various components of this cluster.

The students will report on the findings of their research.

Assessment

Students will be assessed on the level of research used to develop the report given to the class. Clarity and organization of materials may be included in the rubric for assessment. Visit the TeAch-nology website for additional information.

Standards

These activities address the following North Dakota Social Studies Standards:

Standard 3: Economic Systems

- 8.3.1 Understand the principles governing economic decision making at the state, national and international levels; and

Standard 6: Geography

- 8.6.4 Understand how human activity affects the physical environment.

Time Frame

Approximately 2 class periods. More time may be needed if a speaker is to be included.

Resources

North Dakota Department of Agriculture — www.agdepartment.com/statistics.html

North Dakota Department of Commerce – www.northdakotahasjobs.com

TeAch-nology -- www.teach-nology.com

The Cluster/Pathway Model for Agriculture, Food and Natural Resources outlines the pathways and occupations as well as the related cluster knowledge and skills. This model can be located by clicking on Career Clusters at www.imaginend.com.

Career Cluster: Agriculture, Food & Natural Resources

The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.

Sample Career Specialties / Occupations	<p>Agricultural Sales • Agricultural Communications Specialists • Business-Educators • Food Scientists • Meat Processors-Toxicologists • Biochemists-Nutritionists-Dieticians • Food Brokers-Food Inspectors • Meat Cutters-Meat Graders • Meat Science Researchers • Food Meal Supervisors • Cheese Makers • Microbiologists • Produce Buyers • Bacteriologists • Food & Drug Inspectors • Bioengineers • Biochemists • Food & Fiber Engineers • Food Processors • Storage Supervisors • Fieldman • Quality Control Specialists</p>	<p>Bioinformatics Specialists • Plant Breeders and Geneticists • Biotechnology Lab Technician • Soil & Water Specialists • Crop Farm Managers • Agricultural Educators • Plant Pathologists • Aquaculturalists • Sales Representatives • Botanists • Tree Surgeons • Education & Extension Specialists • Agricultural Journalists • Commodity Marketing Specialists • Grain Operations Superintendents • Custom Hay/Silage Operators • Forest Geneticists • Golf Course Superintendents • Greenhouse Mangers • Growers • Farmers • Ranchers</p>	<p>Agricultural Educators • Livestock producers • AI Technicians-Aquaculturalists • Animal Caretakers-Poultry Managers • Equine Managers-Veterinarians • Veterinary Assistants-Feedlot Specialists • Animal Scientists • Embryo Technologists • Livestock Buyers • Feed Sales Representatives • Vivarian Technicians • Wildlife Biologists • Livestock Geneticists • Animal Nutritionists • Dairy Producers • Livestock Inspectors • Feed Sales Specialists • Animal Health Salespersons • Meat Science Researcher • Reproductive Physiologists • Embryo Transfer Technicians • Pet Shop Operators • USDA Inspectors</p>	<p>Machine Operators • Electronics Systems Technicians • Agricultural Engineers • Agricultural Extension Engineering Specialists • Heavy Equipment Maintenance Technicians • Recycling Technicians • Waste Water Treatment Plant Operators • Equipment/Parts Mangers • Welders • Machinists • Communication Technicians • Agricultural Applications Software Developers/Programmers • Database Administrators • Computer Service Technical Support Technicians • Information Lab Specialists • GPS Technicians • Remote Sensing Specialists</p>	<p>Cartographers • Wildlife Managers • Range Technicians • Ecologists • Park Mangers • Environmental Interpreters • Fish and Game Officers Loggers • Forest Technicians • Log Graders • Pulp and Paper Manager Soil Geology Technician • Geologists • Mining Engineers Fisheries Technicians • Water Monitoring Technician • Hydrologists • Fish Hatchery Manager Commercial Fishermen • Fishing Vessel Operators • Vessel Crew</p>	<p>Pollution Prevention and Control Managers • Pollution Prevention and Control Technicians • Environmental Sampling and Analysis Scientists/Technicians • Health and Safety Sanitarians • Environmental Compliance Assurance Managers • Hazardous Materials Handlers • Hazardous Materials Technicians / Managers • Water Environment Managers • Water Quality Managers • Waste Water Managers • Toxicologists • Solid Waste Disposers / Recyclers • Solid Waste Technician • Solid Waste Managers • Solid Waste Specialists</p>	<p>Salesperson • Sales Manager • Banker/Loan Officer • Field Representative for Bank, Insurance Company or Government Program • Farm Investment Manager • Agricultural Commodity Broker • Agricultural Economist • Farmer /Rancher/Feedlot Operator • Farm Manager • Livestock Rancher / Breeder • Dairy Herd Supervisor (DHIA) • Agricultural Products Buyer • Animal Health Products Distributor • Livestock Seller • Feed and Supply Store Manager • Produce Commission Agent • Ag Lenders • Agricultural Chemical Dealer • Field Service Representative • Chemical Sales Representative</p>
Pathways	<p>Food Products and Processing Systems (Food Processing and preserving, Packaging, Distribution, Government monitoring & regulation)</p>	<p>Plant Systems (Agronomic, Horticulture, Forestry, Turf, Viticulture, Soils, etc.)</p>	<p>Animal Systems (Large animals, small animals, wildlife animals, and research animals)</p>	<p>Power, Structural & Technical Systems (Power, Structures, Controls, Geospatial Technology, Computer Systems, Electronics, Hydraulics, Pneumatics, etc.)</p>	<p>Natural Resources Systems (Habitat Conservation, Forest Products, Parks and Recreation, Mining, Environmental Services, Fisheries, Soil Conservation, etc.)</p>	<p>Environmental Service Systems (Pollution Prevention, Water & Air Quality, Hazardous Materials, Solid Waste Management, Health & Safety Sanitation, etc.)</p>	<p>Agribusiness Systems (Sales, Service, Farm and Ranch Management, Entrepreneurship, Economics, etc.)</p>
Cluster K&S	<p>Cluster knowledge and skills ♦ Academic Foundations ♦ Communications ♦ Problem Solving and Critical Thinking ♦ Information Technology ♦ Systems ♦ Safety, Health and Environment ♦ Leadership and Teamwork ♦ Ethics and Legal Responsibilities ♦ Employability and Career Development ♦ Technical Skills</p>						