

I N D I A N A

AGRICULTURAL LITERACY

Lesson Plan Library

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CHOOSE A UNIT



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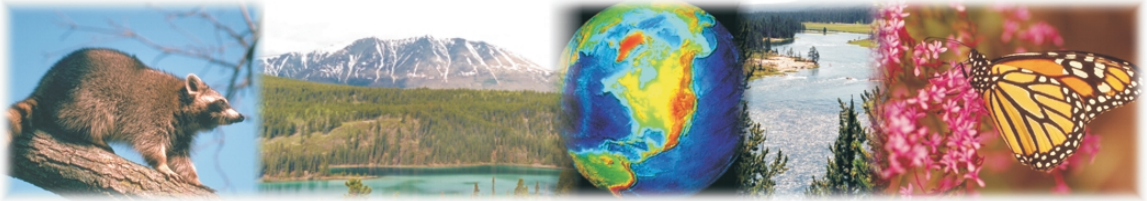
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PREVIOUS



HOME



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INTRODUCTION

The accompanying set of lesson plans is being made available to provide Indiana's elementary education teachers with a tool for incorporating an awareness for agriculture into their classrooms. There are 40 lessons plans on the CD-ROM organized into eight major units that present major segments of the agricultural industry. Each lesson is crosswalked with an Indiana Academic Standard appropriate for the fourth grade level. The CD-ROM format and accompanying matrixes allows teachers to easily document the academic standards being met by each lesson.

The accompanying set of lesson plans were designed in a user-friendly and instructionally-sound format. Teachers may easily pick and choose among them in order to customize instruction. Major components of each lesson are:

- Correlations to Indiana's Fourth Grade Standards
- Student Learning Objectives
- List of Student Learning Resources
- List of Equipment, Tools, and Supplies
- Vocabulary Terms
- Sample Interest Approach
- Summary of Lesson Content Followed by Teaching Strategies
- Review/Summary
- Reproducible Test and Answers
- Reproducible Transparency Masters
- Reproducible Student Worksheets

The Summary of Content component contains the detailed information that is important to students in understanding the lesson's Student Learning Objectives. The other components assist in teaching and reinforcing the lesson's content. There is also an index that contains links to the over 250 vocabulary terms presented in the lesson plans.

The CD-ROM format features numerous links that allow teachers to quickly jump from one component to another. The lessons may also be copied into a word processing or presentation program. This allows for even further customization at the local level.

MATRIX INTRODUCTION

Each of the lessons on the Indiana Agricultural Literacy Lesson Plan Library have been correlated to the Indiana's Fourth Grade Academic Standards. The matrixes below list these correlations in two formats. The first matrix is in lesson plan order. The second matrix lists the correlations in academic standards order. Used together, the two matrixes provide teachers with a great deal of flexibility in documenting the academic standards being met when they use the lessons in the classroom.

The academic standards listed below are only a portion of the state's comprehensive list of learning standards for students enrolled in Indiana's schools. For more information on the state's academic standards, click on the following link: <http://www.indianastandards.org/>

MATRIX 1 — ARRANGED BY LESSON PLAN

Lesson Number and Title	Indiana's Academic Standard
UNIT A. GENERAL AGRICULTURAL SCIENCE	
Lesson A-1: Defining Agriculture	Science: 4.1.7 — Discuss and give examples of how technology, such as computers and medicines have improved the lives of many people, although the benefits are not equally available to all.
Lesson A-2: History of Production Agriculture	Science: 4.5.5 — Give examples of the impacts of science and technology on the migration and settlement patterns of various groups.
Lesson A-3: Careers in Agriculture	Social Studies: 4.4.10 — Explain how money helps people to save and develop a savings plan in order to make a future purchase.
Lesson A-4: Scientific Method	Science: 4.1.7 — Discuss and give examples of how technology, such as computers and medicines, have improved the lives of many people, although the benefits are not equally available to all.
Lesson A-5: Agricultural Applications of Biotechnology	Science: 4.1.8 — Recognize and explain that any new invention may lead to other inventions.

Lesson Number and Title	Indiana's Academic Standard
UNIT B. ANIMAL SCIENCE	
Lesson B-1: Classifying Animals	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson B-2: Exploring the Livestock Industry	Social Studies: 4.4.2 — Define productivity and provide examples of how productivity has changed in Indiana during the past 100 years.
Lesson B-3: Exploring Poultry and Poultry Products	Social Studies: 4.4.2 — Define productivity and provide examples of how productivity has changed in Indiana during the past 100 years.
Lesson B-4: Exploring Dairy Animals and Dairy Products	Science: 4.4.4 — Observe and describe that some source of energy is needed for all organisms to stay alive and grow.
Lesson B-5: Exploring Companion Animals	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
UNIT C. PLANT SCIENCE	
Lesson C-1: Parts of a Plant	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson C-2: Grain Crops	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson C-3: Sugar and Oil Crops	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson C-4: Fiber Crops	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson C-5: Forests and Wood Products	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
UNIT D. HORTICULTURE SCIENCE	
Lesson D-1: How Plants Grow	Science: 4.4.4 — Observe and describe that some source of energy is needed for all organisms to stay alive and grow.
Lesson D-2: Plant Propagation	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson D-3: Ornamental Crops	Science: 4.4.4 — Observe and describe that some source of energy is needed for all organisms to stay alive and grow.
Lesson D-4: Vegetable Crops	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson D-5: Fruit and Nut Crops	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.

Lesson Number and Title	Indiana's Academic Standard
UNIT E. AGRIBUSINESS	
Lesson E-1: Personal Finances	Social Studies: 4.4.6 — List the functions of money and compare and contrast things that have been used as money in the past in Indiana, the United States, and the world. 4.4.10 — Explain how money helps people to save and develop a savings plan in order to make a future purchase.
Lesson E-2: Accounting: Record Keeping	Social Studies: 4.4.10 — Explain how money helps people to save and develop a savings plan in order to make a future purchase.
Lesson E-3: Economics	Social Studies: 4.4.4 — Explain that prices change as a result of changes in supply and demand for specific products.
Lesson E-4: Marketing Agricultural Products	Social Studies: 4.4.3 — Explain why both parties benefit from voluntary trade, and give examples of how people in Indiana engaged in trade in different time periods.
Lesson E-5: World Trade: Imports and Exports	Social Studies: 4.4.3 — Explain why both parties benefit from voluntary trade, and give examples of how people in Indiana engaged in trade in different time periods.
UNIT F. ENVIRONMENTAL SCIENCE	
Lesson F-1: Soils	Science: 4.3.7 — Explain that smaller rocks come from the breakage and weathering of bedrock and larger rocks and that soil is made partly from weathered rock, partly from plant remains, and also contains many living organisms.
Lesson F-2: Water Resources	Science: 4.3.5 — Describe how waves, wind, water, and glacial ice shape and reshape the Earth's land surface by the erosion of rock and soil in some areas and depositing them in other areas.
Lesson F-3: Wildlife	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson F-4: Renewable Resources	Science: 4.3.14 — Explain that energy in fossil fuels comes from plants that grew long ago.
Lesson F-5: Recycling	Science: 4.3.13 — Observe and describe the things that give off heat, such as people, animals, and the sun.
UNIT G. AGRICULTURAL MECHANICS	
Lesson G-1: Safety	Science: 4.1.3 — Explain that clear communication is an essential part of doing science since it enables scientists to inform others about their work, to expose their ideas to evaluation by other scientists, and to allow scientists to stay informed about scientific discoveries around the world.
Lesson G-2: Basic Carpentry	Science: 4.1.5 — Demonstrate how measuring instruments, such as microscopes, telescopes, and cameras, can be used to gather accurate information for making scientific comparisons of objects and events. Note that measuring instruments, such as rulers, can also be used for designing and constructing things that will work properly.
Lesson G-3: Basic Electricity	Science: 4.3.11 — Investigate, observe, and explain that things that give off light often also give off heat.

Lesson Number and Title	Indiana's Academic Standard
Lesson G-4: Machinery and Equipment	Science: 4.1.7 — Discuss and give examples of how technology, such as computers and medicines, has improved the lives of many people, although the benefits are not equally available to all.
Lesson G-5: Precision Farming	Science: 4.1.8 — Recognize and explain that any invention may lead to other inventions.
UNIT H. FOOD SCIENCE	
Lesson H-1: Sanitation, Spoilage, and Storage	Science: 4.4.10 — Explain that if germs are able to get inside the body, they may keep it from working properly. Understand that for defense against germs, the human body has tears, saliva, skin, some blood cells, and stomach secretions. Also note that a healthy body can fight most germs that invade it. Recognize, however, that there are some germs that interfere with the body's defenses.
Lesson H-2: Nutritional Balance	Science: 4.4.9 — Explain that food provides energy and materials for growth and repair of body parts. Recognize that vitamins and minerals, present in small amounts in foods, are essential to keep everything working well. Further understand that as people grow up, the amounts and kinds of food and exercise needed by the body may change.
Lesson H-3: Food Ingredients	Science: 4.4.9 — Explain that food provides energy and materials for growth and repair of body parts. Recognize that vitamins and minerals, present in small amounts in foods, are essential to keep everything working well. Further understand that as people grow up, the amounts and kinds of food and exercise needed by the body may change.
Lesson H-4: Food Preparation	Math: 4.5.8 — Use volume and capacity as different ways of measuring the space inside a shape.
Lesson H-5: Buying Food	Math: 4.2.4 — Demonstrate mastery of the multiplication tables for numbers between 1 and 10 and of the corresponding division facts.

MATRIX 2 — ARRANGED BY INDIANA'S ACADEMIC STANDARD

Lesson Number and Title	Indiana's Academic Standard
SCIENCE	
Standard 1: The Nature of Science and Technology	
Lesson G-1: Safety	Science: 4.1.3 — Explain that clear communication is an essential part of doing science since it enables scientists to inform others about their work, to expose their ideas to evaluation by other scientists, and to allow scientists to stay informed about scientific discoveries around the world.
Lesson G-2: Basic Carpentry	Science: 4.1.5 — Demonstrate how measuring instruments, such as microscopes, telescopes, and cameras, can be used to gather accurate information for making scientific comparisons of objects and events. Note that measuring instruments, such as rulers, can also be used for designing and constructing things that will work properly.
Lesson A-1: Defining Agriculture	Science: 4.1.7 — Discuss and give examples of how technology, such as computers and medicines have improved the lives of many people, although the benefits are not equally available to all.
Lesson A-4: Scientific Method	Science: 4.1.7 — Discuss and give examples of how technology, such as computers and medicines, have improved the lives of many people, although the benefits are not equally available to all.
Lesson G-4: Machinery and Equipment	Science: 4.1.7 — Discuss and give examples of how technology, such as computers and medicines, has improved the lives of many people, although the benefits are not equally available to all.
Lesson A-5: Agricultural Applications of Biotechnology	Science: 4.1.8 — Recognize and explain that any new invention may lead to other inventions.
Lesson G-5: Precision Farming	Science: 4.1.8 — Recognize and explain that any invention may lead to other inventions.
Standard 3: The Physical Setting	
Lesson F-2: Water Resources	Science: 4.3.5 — Describe how waves, wind, water, and glacial ice shape and reshape the Earth's land surface by the erosion of rock and soil in some areas and depositing them in other areas.
Lesson F-1: Soils	Science: 4.3.7 — Explain that smaller rocks come from the breakage and weathering of bedrock and larger rocks and that soil is made partly from weathered rock, partly from plant remains, and also contains many living organisms.
Lesson G-3: Basic Electricity	Science: 4.3.11 — Investigate, observe, and explain that things that give off light often also give off heat.

Lesson Number and Title	Indiana's Academic Standard
Lesson F-5: Recycling	Science: 4.3.13 — Observe and describe the things that give off heat, such as people, animals, and the sun.
Lesson F-4: Renewable Resources	Science: 4.3.14 — Explain that energy in fossil fuels comes from plants that grew long ago.
Standard 4: The Living Environment	
Lesson B-1: Classifying Animals	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson B-5: Exploring Companion Animals	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson C-1: Parts of a Plant	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson C-2: Grain Crops	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson C-3: Sugar and Oil Crops	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson C-4: Fiber Crops	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson C-5: Forests and Wood Products	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson D-2: Plant Propagation	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson D-4: Vegetable Crops	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson D-5: Fruit and Nut Crops	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson F-3: Wildlife	Science: 4.4.3 — Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
Lesson B-4: Exploring Dairy Animals and Dairy Products	Science: 4.4.4 — Observe and describe that some source of energy is needed for all organisms to stay alive and grow.
Lesson D-1: How Plants Grow	Science: 4.4.4 — Observe and describe that some source of energy is needed for all organisms to stay alive and grow.
Lesson D-3: Ornamental Crops	Science: 4.4.4 — Observe and describe that some source of energy is needed for all organisms to stay alive and grow.

Lesson Number and Title	Indiana's Academic Standard
Lesson H-2: Nutritional Balance	Science: 4.4.9 — Explain that food provides energy and materials for growth and repair of body parts. Recognize that vitamins and minerals, present in small amounts in foods, are essential to keep everything working well. Further understand that as people grow up, the amounts and kinds of food and exercise needed by the body may change.
Lesson H-3: Food Ingredients	Science: 4.4.9 — Explain that food provides energy and materials for growth and repair of body parts. Recognize that vitamins and minerals, present in small amounts in foods, are essential to keep everything working well. Further understand that as people grow up, the amounts and kinds of food and exercise needed by the body may change.
Lesson H-1: Sanitation, Spoilage, and Storage	Science: 4.4.10 — Explain that if germs are able to get inside the body, they may keep it from working properly. Understand that for defense against germs, the human body has tears, saliva, skin, some blood cells, and stomach secretions. Also note that a healthy body can fight most germs that invade it. Recognize, however, that there are some germs that interfere with the body's defenses.
Standard 5: The Mathematical World	
Lesson A-2: History of Production Agriculture	Science: 4.5.5 — Give examples of the impacts of science and technology on the migration and settlement patterns of various groups.
SOCIAL STUDIES	
Standard 4: Economics	
Lesson B-2: Exploring the Livestock Industry	Social Studies: 4.4.2 — Define productivity and provide examples of how productivity has changed in Indiana during the past 100 years.
Lesson B-3: Exploring Poultry and Poultry Products	Social Studies: 4.4.2 — Define productivity and provide examples of how productivity has changed in Indiana during the past 100 years.
Lesson E-4: Marketing Agricultural Products	Social Studies: 4.4.3 — Explain why both parties benefit from voluntary trade, and give examples of how people in Indiana engaged in trade in different time periods.
Lesson E-5: World Trade: Imports and Exports	Social Studies: 4.4.3 — Explain why both parties benefit from voluntary trade, and give examples of how people in Indiana engaged in trade in different time periods.
Lesson E-3: Economics	Social Studies: 4.4.4 — Explain that prices change as a result of changes in supply and demand for specific products.
Lesson E-1: Personal Finances	Social Studies: 4.4.6 — List the functions of money and compare and contrast things that have been used as money in the past in Indiana, the United States, and the world. 4.4.10 — Explain how money helps people to save and develop a savings plan in order to make a future purchase.
Lesson A-3: Careers in Agriculture	Social Studies: 4.4.10 — Explain how money helps people to save and develop a savings plan in order to make a future purchase.
Lesson E-2: Accounting: Record Keeping	Social Studies: 4.4.10 — Explain how money helps people to save and develop a savings plan in order to make a future purchase.

Lesson Number and Title	Indiana's Academic Standard
MATHEMATICS	
Standard 2: Computation	
Lesson H-5: Buying Food	Math: 4.2.4 — Demonstrate mastery of the multiplication tables for numbers between 1 and 10 and of the corresponding division facts.
Standard 5: Measurement	
Lesson H-4: Food Preparation	Math: 4.5.8 — Use volume and capacity as different ways of measuring the space inside a shape.

OUTLINE OF LESSON PLANS

Unit A General Agricultural Science



- Lesson A-1 Defining Agriculture
- Lesson A-2 History of Production Agriculture
- Lesson A-3 Careers in Agriculture
- Lesson A-4 Scientific Method
- Lesson A-5 Agricultural Applications of Biotechnology

Unit B Animal Science



- Lesson B-1 Classifying Animals
- Lesson B-2 Exploring the Livestock Industry
- Lesson B-3 Exploring Poultry and Poultry Products
- Lesson B-4 Exploring Dairy Animals and Dairy Products
- Lesson B-5 Exploring Companion Animals

Unit C Plant Science



- Lesson C-1 Parts of a Plant
- Lesson C-2 Grain Crops
- Lesson C-3 Sugar and Oil Crops
- Lesson C-4 Fiber Crops
- Lesson C-5 Forests and Wood Products

Unit D Horticulture Science



- Lesson D-1 How Plants Grow
- Lesson D-2 Plant Propagation
- Lesson D-3 Ornamental Crops
- Lesson D-4 Vegetable Crops
- Lesson D-5 Fruit and Nut Crops

Unit E Agribusiness



- Lesson E-1 Personal Finances
- Lesson E-2 Accounting: Record Keeping
- Lesson E-3 Economics
- Lesson E-4 Marketing Agricultural Products
- Lesson E-5 World Trade: Imports and Exports

Unit F Environmental Science



- Lesson F-1 Soils
- Lesson F-2 Water Resources
- Lesson F-3 Wildlife
- Lesson F-4 Renewable Resources
- Lesson F-5 Recycling

Unit G Agricultural Mechanics



- Lesson G-1 Safety
- Lesson G-2 Basic Carpentry
- Lesson G-3 Basic Electricity
- Lesson G-4 Machinery and Equipment
- Lesson G-5 Precision Farming

Unit H Food Science



- Lesson H-1 Sanitation, Spoilage, and Storage
- Lesson H-2 Nutritional Balance
- Lesson H-3 Food Ingredients
- Lesson H-4 Food Preparation
- Lesson H-5 Buying Food