

Cotton Logic Puzzle



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

1. Mathematical Practices (MP): Problem solving, reasoning and proof, communication, representation, and connections; adaptive reasoning, strategic competence, conceptual understanding, procedural fluency, and productive disposition.

First Grade:	1.MP.1
Second Grade:	2.MP.1
Third Grade:	3.MP.1
Fourth Grade:	4.MP.1
Fifth Grade:	5.MP.1
Sixth Grade:	6.MP.1

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Locate information from a chart.
2. Use logical thinking to answer questions.

Materials needed:

- ✓ Math Lesson 1 Student Worksheet – Cotton Logic Puzzle

Terms:

No terms were identified in this lesson.

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and students situations. Possible interest approaches are listed in the interests approach section of this guide.

Teaching Strategies: Instruct the students to apply logical thinking to solve a puzzle. Have the students complete **Math Lesson 1 Student Worksheet- Cotton Logic Puzzle**.

Cotton Riddle



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

1. Mathematical Practices (MP): Problem solving, reasoning and proof, communication, representation, and connections; adaptive reasoning, strategic competence, conceptual understanding, procedural fluency, and productive disposition.

2. Operations and Algebraic Thinking (OA): Understand and apply properties of operations and the relationship between addition and subtraction; represent and solve problems involving multiplication and division; solve problems involving the four operations, and identify and explain patterns in arithmetic; gain familiarity with factors and multiples; generate and analyze patterns; write and interpret numerical expressions; and understand ratio concepts and use ratio reasoning to solve problems.

3. Number and Operations in Base Ten (NBT): Understand place value; extend counting sequences; use place value understanding and properties of operations to perform multi-digit arithmetic; and perform operations with multi-digit whole numbers and with decimals to hundredths.

4. Number System (NS): Apply and extend previous understandings of multiplication and division to divide fractions by fractions; compute fluently with multi-digit numbers and find common factors and multiples; and apply and extend previous understandings of numbers to the system of rational numbers.

First Grade: 1.OA.6, 1.MP.2, 1.MP.6, 1.MP.7, 1.MP.8

Second Grade: 2.OA.2, 2.MP.2, 2.MP.7, 2.MP.8

Third Grade: 3.OA.7, 3.NBT.2, 3.NBT.3, 3.MP.2, 3.MP.7, 3.MP.8

Fourth Grade: 4.NBT.4, 4.NBT.6, 4.MP.2, 4.MP.3, 4.MP.4, 4.MP.5,
4.MP.7, 4.MP.8

Fifth Grade: 5.NBT.5, 5.NBT.6, 5.MP.2, 5.MP.7, 5.MP.8

Sixth Grade: 6.NS.2, 6.MP.2, 6.MP.7, 6.MP.8

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

- Demonstrate computation skills to answer problems

Materials needed:

- ✓ Math Lesson 2 Student Worksheet – Cotton Riddle

Terms:

- *Harvested* - — the gathering of ripened crops.

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have the students complete *Math Lesson #2 Student Worksheet – Cotton Riddle*.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess student achievement of the objectives.

Cotton Word Problems



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

1. Mathematical Practices (MP): Problem solving, reasoning and proof, communication, representation, and connections; adaptive reasoning, strategic competence, conceptual understanding, procedural fluency, and productive disposition.

2. Operations and Algebraic Thinking (OA): Understand and apply properties of operations and the relationship between addition and subtraction; represent and solve problems involving multiplication and division; solve problems involving the four operations, and identify and explain patterns in arithmetic; gain familiarity with factors and multiples; generate and analyze patterns; write and interpret numerical expressions; and understand ratio concepts and use ratio reasoning to solve problems.

First Grade:	1.OA.1, 1.MP.1, 1.MP.2, 1.MP.3, 1.MP.4, 1.MP.5, 1.MP.8
Second Grade:	2.OA.1, 2.MP.1, 2.MP.2, 2.MP.3, 2.MP.4, 2.MP.5, 2.MP.8
Third Grade:	3.OA.3, 3.MP.1, 3.MP.4, 3.MP.7
Fourth Grade:	4.OA.4, 4.MP.2, 4.MP.7
Fifth Grade:	5.MP.1
Sixth Grade:	6.MP.1

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

- Students will use grade appropriate operations to solve word problems.

Materials needed:

- ✓ Math Lesson 3 Student Worksheet – Cotton Word Problems

Terms:

- **Harvested** - the gathering of ripened crops.
- **Module**- a huge compacted square of unprocessed cotton about the size of a school bus
- **Bale**- weighs approximately 500 pounds
- **Gin**- a machine that separates the fiber of cotton to remove the cottonseed, invented by Eli Whitney

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have the students complete *Math Lesson #3 Student Worksheet – Cotton Word Problems* appropriate for their grade level.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess student achievement of the objectives.

Cotton Code



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

1. Operations and Algebraic Thinking (OA): Understand and apply properties of operations and the relationship between addition and subtraction; represent and solve problems involving multiplication and division; solve problems involving the four operations, and identify and explain patterns in arithmetic; gain familiarity with factors and multiples; generate and analyze patterns; write and interpret numerical expressions; and understand ratio concepts and use ratio reasoning to solve problems.

2. Number and Operations in Base Ten (NBT): Understand place value; extend counting sequences; use place value understanding and properties of operations to perform multi-digit arithmetic; and perform operations with multi-digit whole numbers and with decimals to hundredths.

3. Number System (NS): Apply and extend previous understandings of multiplication and division to divide fractions by fractions; compute fluently with multi-digit numbers and find common factors and multiples; and apply and extend previous understandings of numbers to the system of rational numbers.

4. Mathematical Practices (MP): Problem solving, reasoning and proof, communication, representation, and connections; adaptive reasoning, strategic competence, conceptual understanding, procedural fluency, and productive disposition.

First Grade: 1.OA.6, 1.MP.2, 1.MP.7, 1.MP.8

Second Grade: 2.OA.2, 2.MP.2, 2.MP.7, 2.MP.8

Third Grade: 3.OA.7, 3.NBT.2, 3.MP.2, 3.MP.7, 3.MP.8

Fourth Grade: 4.NBT.4, 4.NBT.6, 4.MP.2, 4.MP.3, 4.MP.4, 4.MP.5,
4.MP.7, 4.MP.8

Fifth Grade: 5.NBT.5, 5.NBT.6, 5.MP.2, 5.MP.6, 5.MP.7, 5.MP.8

Sixth Grade: 6.NS.2, 6.MP.2, 6.MP.7, 6.MP.8

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

- Demonstrate computation skills to find cotton products.

Materials needed:

- ✓ Math Lesson 4 Student Worksheet – Cotton Code

Terms: No terms were identified for this lesson

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have the students complete *Math Lesson #4 Student Worksheet – Cotton Code* appropriate for their grade level.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess student achievement of the objectives.

How Many Seeds?



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

- 1. Mathematical Practices (MP):** Problem solving, reasoning and proof, communication, representation, and connections; adaptive reasoning, strategic competence, conceptual understanding, procedural fluency, and productive disposition.
- 2. Measurement and Data (MD):** Describe and compare measurable attributes; classify objects and count the number of objects in categories; measure and estimate lengths indirectly and by iterating length units; tell and write time; represent and interpret data; work with money; Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects; understand concepts of area and relate area to multiplication and to addition; recognize perimeter as an attribute of plane figures and distinguish between linear and area measures; solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit; and understand concepts of angle and measure angles.

First Grade: 1.MD.4, 1.MP.2, 1.MP.3, 1.MP.4, 1.MP.5, 1.MP.6

Second Grade: 2.MD.10, 2.MP.1, 2.MP.2, 2.MP.4, 2.MP.5, 2.MP.6,
2.MP.8

Third Grade: 3.MD.3, 3.MP.1, 3.MP.1, 3.MP.4, 3.MP.6, 3.MP.7

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

- Demonstrate computation skills to find cotton products.

Materials needed:

- ✓ Math Lesson 4 Student Worksheet – Cotton Code

Terms:

Cotton Boll- the rounded seed or pod or capsule of the cotton plant

Cotton Gin- a machine that separates the fiber of cotton to remove the cottonseed,
invented by Eli Whitney

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have the students complete *Math Lesson #5 Student Worksheet – How Many Seeds*. Have students gin cotton by hand and count the actual number of seeds. Have students create a classroom graph with number of seeds in each bole. Have students count their seeds in groups of five, tens, etc.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess student achievement of the objectives.

Cotton King

- Taken from Texas Ag in the Classroom



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

1. Mathematical Practices (MP): Problem solving, reasoning and proof, communication, representation, and connections; adaptive reasoning, strategic competence, conceptual understanding, procedural fluency, and productive disposition

Fourth Grade: 4.MP.1, 4.MP.4, 4.MP.5

Fifth Grade: 5.MP.1, 5.MP.4, 5.MP.5

Sixth Grade: 6.MP.1, 6.MP.4, 6.MP.5

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

- Demonstrate computation skills to find cotton products.

Materials needed:

- ✓ Math Lesson 6 Student Worksheet – Cotton King

Terms:

Acre: a unit of measurement for land; approximately the size of a football field

Cotton Bale: weighs approx 500 pounds

Harvested: the gathering of ripened crops

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have the students complete *Math Lesson #6 Student Worksheet – Cotton King*. Have students use the chart to make a bar graph. Use map colors for your bar graph. Then answer questions about Cotton King.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess student achievement of the objectives.

Show What You Know- *Cotton's Journey*



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

1. **Reading Standards for Informational Text (RI):** Students will gain adequate exposure to a range of texts and tasks and demonstrate an understanding in: key ideas and detail, craft and structure, integration of knowledge and ideas, range of reading and level to text complexity.
2. **Reading Standards for Literature (RL):** Students gain adequate exposure to a range of texts and tasks.

First Grade: 1.RI.1, 1.RL.1

Second Grade: 2.RI.1, 2.RL.1

Third Grade: 3.RI.1, 3.RL.1

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Identify cotton terms.
2. Students will use reading strategies to identify information found in text to answer questions.

Materials needed:

- ✓ Cotton's Journey From Seed To You book.
- ✓ English Language Arts Lesson 1 Student Worksheet.

Terms:

Cotton Belt: one of the belt regions in the southern states of the US where cotton was the predominate crop in the 19th Century

Cotton Boll- the rounded seed pod or capsule of the cotton plant

Cotton Gin- a machine that separates the fiber of cotton to remove the cottonseed;
invented by Eli Whitney

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have the students complete ELA Lesson 1 Student Worksheet to ascertain their knowledge of cotton after reading Cotton's Journey.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Show What You Know- America's Heartland



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

Speaking and Listening Standards (SL): Students will demonstrate an understanding in; comprehension and collaboration, and presentation of knowledge and ideas

First Grade: 1.SL.2

Second Grade: 2.SL.2

Third Grade: 3.SL.2

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Identify cotton terms.
2. Students will use listening strategies to identify information found in a story to answer questions.

Materials needed:

- ✓ America's Heartland – Episode 118
- ✓ English Language Arts Lesson #2 Student Worksheet.

Terms:

Cotton Gin: a machine that separates the fiber of cotton to remove the cottonseed,
invented by Eli Whitney

Cotton Picker: a machine that automates cotton harvesting

Profitable: yielding material gain or profit

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have students watch America's Heartland Episode 118 and complete ELA Lesson #2 Student Worksheet to ascertain their knowledge of cotton.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Countdown to Cotton

Adapted from Texas Ag in the Classroom



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

Speaking and Listening Standards (SL): Students will demonstrate an understanding in; comprehension and collaboration, and presentation of knowledge and ideas

First Grade: 1.SL.2

Second Grade: 2.SL.2

Third Grade: 3.SL.2

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Identify cotton terms.
2. Students will use listening strategies to identify information found in a story to answer questions.

Materials needed:

- ✓ Countdown to Cotton Scramble
- ✓ Countdown to Cotton Storybook paper

Terms:

Cotton Bale: weighs approximately 500 pounds

Cotton Bolls: the rounded seed pod or capsule of the cotton plant

Cotton Gin: a machine that separates the fiber of cotton to remove the cottonseed, invented by Eli Whitney

Loom: a machine or device for weaving thread or yarn into textiles

Module: a huge compact square of unprocessed cotton about the size of a school bus

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have students watch the Cotton Video. Have students place the statements on Cotton Countdown Student Worksheet in the correct order. Then have students complete their “Countdown to Cotton” Booklet. Students should then place statements by the correct picture in their book.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Piece by Piece

Taken from Oklahoma Ag in the Classroom



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

1. **Language (L):** Student will demonstrate an understanding in; conventions of Standard English, knowledge of language, and vocabulary acquisition and use.
2. **Writing (W):** Students should demonstrate an understanding in all aspects of language use; text types and purpose, production and distribution of writing, research to build and present knowledge, and range of writing.

Kindergarten: K.L.2, K.W.2

First Grade: 1.L.2, 1.W.2

Second Grade: 2.L.2, 2.W.2

Third Grade: 3.L.2, 3.W.2

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Use geometric shapes made from paper to create an original quilt block.
2. Students will write a brief history of their creation.

Materials needed:

- ✓ Student Worksheet A- Quilt Block
- ✓ Student Worksheet B- Quilt Shapes

Terms:

No terms were identified in this lesson

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have students create their own quilt block out of different geometric shapes. Have students color shapes, cut out and glue on quilt block. Have students write a paragraph or more regarding the history of their quilt.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Clothesline Sleuth

Adapted from Oklahoma Ag in the Classroom



Common Core State Standards: This lesson is correlated to the following CCSS, as well as the Arizona Additions to the CCSS.

- 1. Reading Standards for Informational Text (RI):** Students will gain adequate exposure to a range of texts and tasks and demonstrate an understanding in: key ideas and detail, craft and structure, integration of knowledge and ideas, range of reading and level to text complexity.
- 2. Reading Standards for Literature (RL):** Students gain adequate exposure to a range of texts and tasks.

Third Grade: 3.RI.1, 3.RL.1

Fourth Grade: 4.RI.1, 4.RL.1

Fifth Grade: 5.RI.1, 5.RL.1

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Students will trace the origins of various clothing items to their agricultural sources.

Materials needed:

- ✓ Student Worksheet A
- ✓ Student Worksheet B
- ✓ Student Worksheet C

Terms:

Cotton Gin: a machine that separates the fibers of cotton to remove the cottonseed, invented by Eli Whitney

Llamas: cud chewing animals, used for wool and as a packing animal

Nylon: a family of strong resilient synthetic fibers

Rayon: a synthetic silk like fabric

Synthetic Fibers: fibers that are regenerated from cellulose such as cotton waste

Textiles: fiber or yarn for weaving or knitting into fabric

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Read the Background information. Have students read or you're your students *Student Worksheet A* and then complete *Student Worksheets B and C*.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Cotton in the Americas

Taken from Alabama Ag in the Classroom



Arizona State Learning Standards. This lesson is correlated to the following State Learning Standard.

1. **American History-** students recognize the relationships of events and people and interpret significant patterns, themes, ideas, beliefs, and turning points in Arizona and American History.

Arizona State Objectives: This lesson addresses the following objectives: (Strand, Concept, Performance objective)

First Grade: 1.1.2

Second Grade: 1.1.2

Third Grade: 1.1.2

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Read and interpret a time line.
2. Gain knowledge of cotton.

Materials needed:

- ✓ Student Worksheet
- ✓ Answer Sheet
- ✓ Book:

Terms:

Cotton- a soft fiber that grows around the seeds of the cotton plant

Cotton Mill- a factory housing spinning and weaving machinery

Cotton Gin- a machine that separates the fiber of cotton to remove the cottonseed, invented by Eli Whitney

Cotton Picker- a machine that automates cotton harvesting

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have student use the timeline on the student worksheet to answer questions about the history of cotton.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Cotton Pickin

Taken from Alabama Ag in the Classroom



Arizona State Learning Standards. This lesson is correlated to the following State Learning Standard.

1. **American History-** students recognize the relationships of events and people and interpret significant patterns, themes, ideas, beliefs, and turning points in Arizona and American History.

Arizona State Objectives: This lesson addresses the following objectives: (Strand, Concept, Performance objective)

First Grade: 1.1.2

Second Grade: 1.1.2

Third Grade: 1.1.1

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Examine the importance of cotton to the economy of the South before and after the Civil War.

Materials needed:

- ✓ Cotton Pickin Background
- ✓ US Map
- ✓ Internet, Encyclopedia, etc

Terms:

Boll Weevil- a usually grayish or brown weevil that feeds on the squares and bolls of the cotton plant

Commodity- a product of agriculture

Cotton- a soft fiber that grows around the seeds of the cotton plant

Cotton Gin- a machine that quickly and easily separates the cotton fibers from the seed pods and the sometimes sticky seeds

Cottonseed Oil- a brown-yellow oil with a nutlike odor obtained from the seed of the cotton plant

Export-a commodity conveyed from one country or region to another for purposes of trade

Fiber a slender and very long natural or synthetic unit of materials (as wool or cotton) usually able to be spun into yarn

Labor-intensive- having high labor costs per unit of output

Lint- the mass of soft fibers surrounding the seeds of unginned cotton

Lucrative- producing wealth

Plantation- a large farm or estate on which cotton, tobacco, coffee or sugar cane is cultivated, usually by resident laborers

Sharecropper- a farmer who works land for the owner in return for a share of the value of the crop

Textile- cloth, especially a woven knit cloth

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Read and discuss the background and vocabulary with your students.

1. Hand out US Map and have students develop map legends to show the seven cotton states that seceded in 1860-61 (South Carolina, Mississippi, Florida, Alabama, Georgia, Louisiana and Texas) and the top seven cotton producing states in the US in 2006 (Texas, Arkansas, Georgia, Mississippi, California, Tennessee, and North Carolina.
 - a. Which of the seven cotton producing states that seceded are among the top US cotton-producing states today?
2. Have students color in the cotton belt on the US Map.
3. Use the internet or an encyclopedia to discover the differences of how cotton was produced before and after the Civil War.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Just Lookin' for a Home

Taken from Oklahoma Ag in the Classroom



Arizona State Learning Standards. This lesson is correlated to the following State Learning Standard.

1. **Geography-** Provides an understanding of the human and physical characteristics of the Earth's places and regions and how people of different cultural backgrounds interact with their environment.

Arizona State Objectives: This lesson addresses the following objectives: (Strand, Concept, Performance objective)

Second Grade: 4.4.3

Third Grade: 4.4.6

Fourth Grade: 4.6.3

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Students will use a US Map to trace the route of the boll weevil

Materials needed:

- ✓ US Map
- ✓ "The Boll Weevil" article
- ✓ Internet or Encyclopedia

Terms:

Alternative- something different from the usual

Beneficial Insects- insects that contribute to a positive environment for plant growth by preying on destructive insects or helping with pollination

Catastrophe- a great, often sudden calamity

Dominant- Most prominent

Dormant- in a condition of biological rest or inactivity

Infestation- inhabiting or overrunning in number large enough to be harmful,

threatening, or obnoxious

Larvae- The newly hatched, wingless, often wormlike form of many insects before undergoing metamorphosis

Metamorphosis- change in the form and often habits of an animal during normal development after the embryonic stage

Migrate- to move from one region and settle in another

Monocropping- growing only one crop

Parasitic- an organism that grows, feeds, and is sheltered on or in a different organism while contributing nothing to the survival of its host

Pheromone- a chemical secreted by an animal, especially an insect, that influences the behavior or development of other of the same species

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Read the article to your students or have students read the articles in groups or as individuals. Talk about the significance of the boll weevil to farming. Have students research on the internet or with an Encyclopedia the route of the boll weevil from Mexico through the southern states.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Life Cycle of Cotton



Arizona State Learning Standards. This lesson is correlated to the following State Learning Standard.

1. **Life Science-** understand the fundamental concepts of principles and interconnections of the life, physical and earth/space sciences..

Arizona State Objectives: This lesson addresses the following objectives: (Strand, Concept, Performance objective)

Kindergarten:	4.2
First Grade:	4.2
Second Grade:	4.2
Third Grade:	4.2.2

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Identify cotton terms.
2. Students will discover and understand the life cycle of cotton.

Materials needed:

- ✓ Construction Paper (white, brown, green, and pink)
- ✓ Paper Plates
- ✓ Yarn (5 pieces for each)
- ✓ Scissors
- ✓ Stapler
- ✓ Patterns
- ✓ Hole punch
- ✓ Cotton balls
- ✓ Tape

Terms:

No terms were identified for this lesson

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have students watch the Cotton Video. Have students place the statements on Cotton Countdown Student Worksheet in the correct order. Then have students complete their “Countdown to Cotton” Booklet. Students should then place statements by the correct picture in their book.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Great Balls of Fire

Taken from Oklahoma Ag in the Classroom



Arizona State Learning Standards. This lesson is correlated to the following State Learning Standard.

1. **Inquiry Process-** the basis for student's learning in science. Student's use scientific processes.

Arizona State Objectives: This lesson addresses the following objectives: (Strand, Concept, Performance objective)

Fifth Grade: 1.1.2, 1.2.1, 1.2.4, 1.2.5, 1.3.1, 1.4.2

Sixth Grade: 1.1.2, 1.2.1, 1.2.2, 1.2.3, 1.2.5, 1.3.1, 1.4.1

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Identify cotton terms.
2. Students will demonstrate lab safety.
3. Understand the flammability of different fabrics.
4. Create and test hypothesis

Materials needed:

- ✓ Lab table or table covered in aluminum foil.
- ✓ 2 deep glass dishes
- ✓ Long fireplace matches
- ✓ 1 flat glass or metal pie pan
- ✓ Metal tongs
- ✓ Leather glove
- ✓ 3" swatches wool, cotton, linen and silk
- ✓ 3" swatches of polyester, acrylic, and nylon
- ✓ Pitcher of water
- ✓ Fire extinguisher
- ✓ Stop watch
- ✓ New infant sleepwear
- ✓ Used infant sleepwear
- ✓ Wool, cotton bolls, wood, and other materials used in fabric
- ✓ Magnifying glass

Terms:

Absorb- to soak up a liquid or take in nutrients or chemicals gradually

Bale- a large bundle or package of a raw material such as hay or cotton, tightly bound with string or wire to keep its shape during transportation or storage

Cotton Boll- rounded seed-pod of the cotton plant

Evaporate- to change a liquid into a vapor

Flammable- readily capable of catching fire

Fleece- the coat of wool on a sheep or similar animal

Shear- to cut hair, fleece, or foliage from the surface of something using a sharp tool

Textile- raw material used for making fabrics, e.g. fiber or yarn

Texture- the feel and appearance of a surface, especially how rough/smooth or soft/hard it is

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: *Check with your school's safety officer, principal or appropriate school administrator before conducting this activity.*

1. Read and discuss background and vocabulary
2. The demonstration should be performed over a lab table or a table covered in aluminum foil. Clear the area of loose paper or debris
3. Review lab safety rules
4. Show students fabric swatches
 - a. Student will identify the swatches according to their fiber content
 - b. Students will use online sources to find the source of each fiber identified
 - c. Students will record information on Worksheet A
5. Students will predict the rate (fast or slow) of flammability and burn for each fiber on the worksheet
6. Assign one person as a timekeeper and provide him/her with a stop watch
7. Hold one fabric swatch at a time with the tongs, and light the edge
 - a. The timekeeper will record how long it takes each sample to burn
 - b. Hold each sample above the glass dish so the class can observe the burning pattern.
 - c. As the remains fall into the glass dish, students will observe the characteristics of the ash (color, texture, etc)
 - d. Students will discuss the effect each material might have on a burn victim
8. Transfer the ashes or residue to the pie plate
 - a. Students will inspect the materials with a magnifying glass
 - b. When students are finished examining the ashes, place the ashes in water
9. After all fabrics have been burned, students will answer the questions on Worksheet B.
10. Students will compare and contrast the properties of the different kinds of fabrics.
 - a. What differences did students see between the natural and synthetic fabrics?
11. After the class discussion each student will write a short summary of the results of the fiber test by reviewing the information gathered on Worksheets A and B.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Classroom Cotton

Taken from Texas Farm Bureau



Arizona State Learning Standards. This lesson is correlated to the following State Learning Standard.

1. **Inquiry Process:** understand the process of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.
2. **Life Science:** understand the fundamental concepts, principles and interconnections of the life sciences.

Arizona State Objectives: This lesson addresses the following objectives: (Strand, Concept, Performance objective)

First Grade:	1.2.2, 1.2.4
Second Grade:	1.2.2
Third Grade:	1.2.3, 1.3.1, 4.4.1
Fourth Grade:	1.2.3, 1.4.2, 4.4.2
Fifth Grade:	1.2.3, 1.4.2, 4.4
Sixth Grade:	1.2.3, 1.4.1, 4.4

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Understand the germination of seeds.
2. Understand what growing mediums produce the greatest results.

Materials needed:

- ✓ Potting soil
- ✓ Clear cups
- ✓ Cotton seeds
- ✓ Water
- ✓ Science journals

Terms: No terms were identified for this lesson.

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Have half of the students grow in soil and the other half grow on paper towels in the Ziploc bags

Soil Cups

1. Fill container with soil to within 1" of the top
2. Place 3-4 seeds in the container and cover with soil. Place in direct sunlight if possible.
3. Check moisture daily and add water as necessary. Keep soil moist but not wet. Seeds will emerge in 7-10 days.
4. To transplant: cut the top off a one-gallon milk carton and fill with moist potting soil 4-5 inches deep. Gently remove the young plants from their container and place in the large carton. Fill the area around the plant with potting soil.
5. Place the carton in sunlight and rotate a quarter of a turn daily.
6. Measure plant growth twice a week and record all data in science journals. Be certain to include illustrations of the young cotton plants.

Ziploc Bags

1. Fold a paper towel 4 times so that it make s a square
2. Dampen paper towel
3. Place in Ziploc bag
4. Place 3 seeds on the paper towel
5. Seal Ziploc bag
6. Place in sunlight

Extending The Activity

1. Experiment with growing conditions. Try different soil types, vary the amount of moisture received, or expose the plants to differing amounts of sunlight.
2. Research pests that can harm the developing cotton plants.
3. Start a bulletin board with cotton products. Encourage students' participation by asking them to add to the display (photographs from a magazine are a good source).

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.

Be a Bug Scout

Taken from Oklahoma Farm Bureau



Arizona State Learning Standards. This lesson is correlated to the following State Learning Standard.

1. **Inquiry Process:** understand the process of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.
2. **Life Science:** understand the fundamental concepts, principles and interconnections of the life sciences.

Arizona State Objectives: This lesson addresses the following objectives: (Strand, Concept, Performance objective)

First Grade:	1.1.3, 1.2.4, 1.4.1, 4.1.2, 4.3.1
Second Grade:	1.1.2, 1.2.4, 1.4.1
Third Grade:	1.1.2, 1.2.5, 1.3.1, 1.4.3
Fourth Grade:	1.2.5, 1.4.2
Fifth Grade:	1.2.5, 1.4.2

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Students will count insects or specified weeds in a given area to experience how farmers decide whether or not to use pesticides.

Materials needed:

- ✓ Rulers
- ✓ Craft sticks

Terms:

Pesticides- a substance used to control insects, plant or animal pests

Integrated Pest Management (IPM)- Ecological approach to pest management,

incorporating all available techniques in a plan to manage the pest in such a manner that economic damage is reduced and adverse side effects are minimized.

Crop Rotation- a method of maintaining and renewing the fertility of the soil by

alternating the crops grown on one piece of land from one year to the next

Beneficial Insect- insects considered helpful to the farmer or Gardner because they aid

pollination (bees, butterflies) or help control harmful insects (lady bugs, beetles, and dragonflies)

Predators- animals that live by preying on others

Interest Approach: Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. Possible interest approaches are listed in the interest approach section of this guide.

Teaching Strategies: Use strategies that are appropriate for your grade level

1. Take the class outdoors
 - a. Divide your class into groups of three or four
 - b. Provide each group with popsicle sticks for marking off a specific area in a grassy part of the schoolyard.
 - c. Instruct students to count all insects they can find within the area marked off by their group and record the data on the student worksheet. As an alternative, have students count dandelions, henbit or other common weeds within the staked area.
2. Have groups graph the results of their observations and share them with the class.
3. Combine the findings of all the groups and graph them as a class.
4. Have students use insect books to identify the bugs they have found and classify them as harmful or beneficial to the farmer.
5. Have students create bar graphs, showing how many of each kind of insect they found.
6. Have each group write its findings on the board and total the number of bugs and the total area measured by the class.
7. Have students hypothesize why their estimates did or did not come close to actual number of insects.
 - a. Was the school grounds sprayed to control weeds or insects?
 - b. Has a cold front moved through the area recently?
 - c. Was your plot in a high traffic area?
8. Have your students create survey questions about insects. (Which is prettier, a lady bug or a butterfly? What is your favorite insect or spider?)
 - a. Have students use the questions to survey students in other classrooms.
 - b. Then have students create bar graphs, pie graph, or line graphs and develop evaluation statements. (More than half the students surveyed preferred ladybugs to butterflies).
 - c.

Review/Summary: Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Use observations as the basis for reteaching areas where student mastery may need improvement.

Application: Use the student worksheet to reinforce the concepts of the lesson. Classroom discussion of the objectives and student questions will also assist in applying concepts.

Evaluation: Focus the evaluation of student achievement on mastery of the objectives as stated in the lesson. A written test can also be used to assess the student achievement of the objectives.