

# Scrambled Eggs

(Derived from Hickman's Family Farms)



**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.

**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.NBT.3, 3.MP.2, 3.MP.7, 3.MP.8

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

1. Students will use grade appropriate operations to solve mathematical equations.

## Materials needed:

- ✓ Egg Cartons
- ✓ Beans

## Terms:

No terms were identified with this lesson

**Teaching Strategies:** Have students get in groups of 2 or 3. For first grade classes have students put two beans in the egg carton and close the lid. Have the student shake the carton for 5 seconds and then open the lid. Have the students add and subtract the 2 numbers that the beans are on. Rotate around the group. For 2<sup>nd</sup> and 3<sup>rd</sup> graders have the students add a 3<sup>rd</sup> bean and repeat steps above. You can take this activity to your student's math level by doing addition, subtraction, multiplication and division. Students can also use this activity to practice probability by figuring out the probability that they will get an odd number or an even number.

**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.

**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.

# 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.

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

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

1. Students will use mathematical strategies to solve word problems.

## Materials needed:

- ✓ Math Lesson 1 Student Worksheet – Word Problems

## Terms:

**Flock** – several birds attended to as one unit

**Incubator-** an apparatus or chamber that provides favorable environmental conditions for developing embryos and hatching chicks.

**Laying Hens-** chickens raised primarily for egg production purposes

**Laying House-** building where the cages of chickens are kept

**Manure-** the poop of an animal that can be used for compost or fertilizer

**Teaching Strategies:** Instruct the students to apply grade appropriate mathematical strategies to complete the word problems. Have the students complete **Math Lesson 2 Student Worksheet- Word Problems.**

**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.

**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.

# Incubation Period (adapted from the Illinois Poultry mAGic Kit)



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

**1. 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.

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

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

**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:

1. Locate information from both charts and graphs.
2. Demonstrate computation skills to answer questions.
3. Decide which type of graph would be best to use for information given.

## Materials needed:

- ✓ Math Lesson 3 Student Worksheet – Graphing
- ✓ Graph Paper
- ✓ Graph and Chart of incubation periods

## Terms:

**Fowl** – domestic bird eaten for food

**Gram**- metric unit for weight

**Incubation-** the time it takes for a chicken to hatch from the shell

**Teaching Strategies:** Have the students use the chart and graph on incubation to solve the math problems on **Math Lesson 3 Student Worksheet- Graphing**. Have students graph their results on graph paper.

**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.

# Eggs of a Different Size



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

**1. 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.

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

**3. 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.

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

**Fourth Grade:** 4.MD.1, 4.MP.2, 4.MP.3, 4.MP.4, 4.MP.5, 4.MP.7, 4.MP.8

**Fifth Grade:** 5.MD.1, 5.MP.1, 5.MP.2, 5.MP.5, 5.MP.6, 5.MP.7, 4.MP.8

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

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

1. Locate information from a chart.
2. Demonstrate computation skills to answer questions.

## Materials needed:

- ✓ Math Lesson 4 Student Worksheet # 1
- ✓ Math Lesson 4 Student Worksheet # 2

- ✓ Pencil
- ✓ Different size eggs (provided by teacher)

**Terms:**

No terms were identified for this lesson.

**Teaching Strategies:** Have students use the chart on egg sizes to solve the math problems on **Math Lesson 4 Student Worksheet #1 and #2**.

**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.

**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.

# Historical Egg Prices



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

**1. 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.

**2. 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.2, 4.MP.3, 4.MP.4, 4.MP.5, 4.MP.7, 4.MP.8

**Fifth Grade:** 5.MP.1, 5.MP.2, 5.MP.4, 5.MP.5, 5.MP.6, 5.MP.7, 5.MP.8

**Sixth Grade:** 6.MP.1, 6.MP.2, 6.MP.4, 6.MP.5, 6.MP.7, 6.MP.8

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

1. Interpret a chart to make a graph
2. Determine what type of graph will work best to display information.
3. Locate trends and determine historical events that might influence those trends.

## Materials needed:

1. Student Worksheet
2. Chart of Historical Egg Prices
3. Graph Paper
4. Internet or Encyclopedias

## Terms:

No terms were identified for this lesson.

**Teaching Strategies:** Launch a discussion with your students about how events can influence the prices of goods. Have students complete student worksheet.

**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.

# If I were a Chick

(Taken from Illinois 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.

**First Grade:** 1.L.2, 1.W.3

**Second Grade:** 2.L.2, 2.W.3

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

**Fourth Grade:** 4.L.2, 4.W.3

**Fifth Grade:** 5.L.2, 5.W.3

**Sixth Grade:** 6.L.2, 6.W.3

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

1. Identify poultry terms.
2. Write with fluency at a grade appropriate level.

## Materials needed:

- ✓ Paper
- ✓ Student Writing Template

## Terms:

No terms were identified for this lesson

**Teaching Strategies:** Have the students use the steps of the writing process to create a story. Have students imagine that they are a chick inside an egg and they are about to hatch. Have them write about what they see, feel, and hear. Students may use the writing template if age appropriate, otherwise use journal paper.

**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.

# Which Came First



**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.

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

**Second Grade:** 2.L.2, 2.W.1

**Third Grade:** 3.L.2, 3.W.1

**Fourth Grade:** 4.L.2, 4.W.1

**Fifth Grade:** 5.L.2, 5.W.1

**Sixth Grade:** 6.L.2, 6.W.1

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

1. Identify poultry terms.
2. Write with fluency at a grade appropriate level.

## Materials needed:

- ✓ Paper
- ✓ Student Writing Templates

## Terms:

No terms were identified for this lesson

**Teaching Strategies:** Have your students determine if they think the chicken or the egg came first. Depending upon their answer, have them choose the egg or chicken writing template. For older students you can have them use regular writing paper. Have the students use the steps of the writing process to create a story. Their story should be why they believe the chicken or the egg came first. You may have students do some research before beginning their story so that they can include facts or supporting information in their story/paper. Some ideas may be religion or evolution based.

**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- Eggs 101



**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.

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

**Fourth Grade:** 4.L.2, 4.W.2

**Fifth Grade:** 5.L.2, 5.W.2

**Sixth Grade:** 6.L.2, 6.W.2

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

1. Identify poultry terms.
2. Write with fluency at a grade appropriate level.
3. Identify interesting facts about the poultry industry and paraphrase in a essay or journal entry.

## Materials needed:

- ✓ Paper
- ✓ Eggs 101: A Video Project DVD

## Terms:

No terms were identified for this lesson

**Teaching Strategies:** Have the students watch Eggs 101: A Video Project. Have them take notes throughout the video. Once the video is completed have the students write a paragraph, journal entry, or review from the movie. Have the students use the steps of the writing process to create their text.

**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- Americas Heartland



**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.

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

**Fourth Grade:** 4.L.2, 4.W.2

**Fifth Grade:** 5.L.2, 5.W.2

**Sixth Grade:** 6.L.2, 6.W.2

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

1. Identify poultry terms.
2. Write with fluency at a grade appropriate level.
3. Identify interesting facts about the poultry industry and paraphrase in a essay or journal entry.

## Materials needed:

- ✓ Paper
- ✓ Americas Heartland Hickman's DVD Episode 220

## Terms:

No terms were identified for this lesson

**Teaching Strategies:** Have the students watch Americas Heartland Hickman's DVD. Have them take notes throughout the video. Once the video is completed have the students write a paragraph, journal entry, or review from the movie. Have the students use the steps of the writing process to create their text.

**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- Poultry Ag Mag

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**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 Literature (RL):** Students gain adequate exposure to a range of texts and tasks.
2. **Reading Standards: Foundational Skills (RF):** Students will demonstrate an understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system.

**Third Grade:** 3.RL.1, 3.RF.1

**Fourth Grade:** 4.RL.1, 4.RF.1

**Fifth Grade:** 5.RL.1, 5.RF.1

**Sixth Grade:** 6.RL.1, 6.RF.1

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

## Materials needed:

- ✓ Poultry Ag Mag
- ✓ English Language Arts Student Worksheet

## Terms:

No terms were identified for this lesson

**Teaching Strategies:** Have the students work individually, in pairs or groups. Have the students answer the questions from the Student Worksheet. Once they are finished have them read the Poultry Ag Mag and answer the remaining questions. Do NOT have the students write on the magazines, they must be returned to the Farm Bureau.

**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.

**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.

# Egg Production Methods

(Derived from Illinois Poultry Magic kit)



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

1. **American History:** understand events, trends, individuals and movements shaping the history of the United States and other nations.
2. **Economics:** explains historical developments and patterns, the results of trade, and the distribution of income and wealth in local, regional, national and world economies.

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

<b>Second Grade:</b>	5.1.3
<b>Third Grade:</b>	1.1.3, 5.1.2, 5.1.4
<b>Fourth Grade:</b>	1.1.1, 1.7.1, 1.7.1, 1.10.2
<b>Fifth Grade:</b>	5.2.2, 5.2.4
<b>Sixth Grade:</b>	5.1.2

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

1. Create a chart and Venn diagram from information that was read.
2. Create a KWL chart to show what they have learned.
3. Explain how technology has changed egg production

## Materials needed:

- ✓ Student Worksheet KWL Egg Production Methods
- ✓ Student Worksheet Venn Diagram Egg Production Methods
- ✓ Student Worksheet History of Egg Production Methods
- ✓ Student Information Sheet History of Egg Production Methods
- ✓ *Cage-Free Egg Farms Peck Away At Consumer Reality* Article

## Terms:

**Aviary-** a building with two or more floors that laying hens can fly about freely

**Barn Method-** a building where laying hens stay during their laying cycle

**Battery System** a large system of egg production involving cages

**Flock-** several birds tended to as one unit

**Free Range-** chickens that are allowed to roam the farm area or yard

**Teaching Strategies:** Prior to having students read Student Information Sheet History of Hickman's, initiate a discussion with students to complete the *Student Worksheet KWL Egg Production Method Sheet*. After discussion, students will read *Student Information Sheet History of Egg Production Methods* and the *Cage-Free Egg Farms Peck Away At Consumer Reality* article and complete the *Student Worksheet History of Egg Production Methods*, which creates a chart explaining the different types of production. The *Student Worksheet Venn Diagram* can be completed as individual, small groups, or as a class activity. Students may also look online at [hickmanseggs.com](http://hickmanseggs.com) or [aeb.org](http://aeb.org) to find more information.

**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.

**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.

# Arizona's *Egg-straordinary* Places

(Taken from the American Egg Board)



**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 the environment.

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

<b>First Grade:</b>	4.1.4, 4.1.5
<b>Second Grade:</b>	4.1.5, 4.1.6
<b>Third Grade:</b>	4.1.6, 4.1.7
<b>Fourth Grade:</b>	4.1.1, 4.1.2, 4.1.3, 4.1.5, 4.1.6, 4.1.7, 4.2.3, 4.2.4
<b>Fifth Grade:</b>	4.1.3, 4.1.4, 4.2.2
<b>Sixth Grade:</b>	4.1.3

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

1. Locate landmarks or towns in Arizona on a map.
2. Research facts about historical landmarks or towns in Arizona.

## Materials needed:

- ✓ Photos of different egg dishes
- ✓ Different maps of Arizona

## Terms:

**Deviled Eggs-** are hard-boiled eggs cut in half and filled with the hard-boiled egg's yolk mixed with different ingredients.

**Fried-** refers to eggs that are fried, typically in a frying pan or on a griddle.

**Hard Boiled-** are eggs (typically chicken's eggs) cooked by immersion in boiling water with their shells unbroken.

**Omelet-** Beaten eggs that are cooked in butter, then rolled or folded into an oval. They may be filled with any variety of ingredients before folding.

**Over Easy-** fried egg that has been turned but the yolk is still soft.

**Poached-** A chicken egg that has been cooked by gently breaking it into simmering water

**Scrambled-** is a dish made from beaten whites and yolks of eggs.

**Soft boiled-** egg that is boiled, but the yolk is still soft. Usually less than 5 minutes.

**Sunny Side Up-** fried egg that has not been turned

**Teaching Strategies:** Take a survey of the class: How do you like your eggs? After the class has submitted their answers, have them describe all of the different egg dishes. Use the egg dish photo cards to have them describe the egg. Next have the students identify their favorite places in Arizona. Have the students identify which of those are historical land marks. If a student has been to that location have them describe the geography of the location and find it on a map. Have the students work as individuals or in a group to rename Arizona's Historical Sites or town to names that include an egg dish. Be sure the name reflects that geography of the landmark.

**Example:** A hard boiled egg is tough and rubbery. The name might be a good place for someplace that is really rocky or rugged. When you boil an egg the water bubbles and breaks at the top of the water, thus it might be a good name for someplace that has waves crashing on a shore like **Hard-Boiled Harbor**.

When you fry eggs too long or on too high a heat, the edges of the egg turn brown and crinkly and dry up. A place where it is so hot and there is little rain that ordinary plants could dry up could be the **Fried Forest**.

**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.

**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.

# Anatomy of an Egg

(Taken from Illinois Ag in the Classroom)



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

1. **History and Nature of Science:** focuses on the human aspects of science and the role that scientists play in the development of various cultures.
2. **Life Science:** expands students' biological understanding of life by focusing on the characteristics of living things, the diversity of life, and how organisms in populations change over time in terms of biological adaptation and genetics.

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

**Second Grade:** 2.2.1, 2.2.2, 2.2.3

**Fourth Grade:** 4.1.1

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

1. Identify the part of an egg.
2. Identify the functions of the parts of an egg.

## Materials needed:

- ✓ Student Worksheet
- ✓ Saran wrap
- ✓ Tape
- ✓ Yellow construction paper
- ✓ Brown construction paper
- ✓ Black marker
- ✓ Unfertilized eggs (1 for every 4 students)

## Terms:

**Air Cell-** located at the large end where there are more pores. Allows easy air exchange. Chick pops cell before hatching to fill lungs with fresh air.

**Chalaza-** Holds yolk in center of albumen. Acts like a shock absorber to protect the embryo.

**Germ Spot-** All eggs have this spot. In a fertilized egg, the spot contains a tiny microscopic embryo. When the egg is incubated the embryo starts to grow rapidly.

**Shell-** Provides protection and has pores for air exchange.

**Shell Membrane-** Provides protection from germs and serves as a breathing surface for the embryo.

**White or Albumen-** Provides water and protein for embryo. Has germ killing properties.

**Yolk-** Provides a rich source of food for the developing embryo.

**Teaching Strategies:** Have students work individually or in pairs. Have students look at the outside of the egg. Talk about what the purpose of the shell is. Have students crack open the egg and place the contents in a cup. Talk about the different parts of the egg and have students identify those parts. Have students complete the student egg anatomy project by following the student instructions.

**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.

# Life Cycle of a Chicken



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

1. **Life Science:** expands students' biological understanding of life by focusing on the characteristics of living things, the diversity of life, and how organisms in populations change over time in terms of biological adaptation and genetics.

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

<b>Kindergarten:</b>	4.2.1
<b>First Grade:</b>	4.1.1, 4.1.3, 4.2.2
<b>Second Grade:</b>	4.2

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

1. Identify the life stages of a chicken.
2. Describe that most animals will grow to physically resemble their parents.

## Materials needed:

- ✓ Student Worksheet – Life Cycle of a Chicken
- ✓ 2 paper plates per student
- ✓ 1 brad per student
- ✓ Scissors
- ✓ crayons

## Terms:

**Chick-** a newly hatched chicken, can be either male or female

**Egg-** hard-shelled reproductive body produced by a bird and especially domestic poultry

**Pipping-** the process the chick goes through to peck a hole and eventually break out of the egg

**Teaching Strategies:** Read to students the life cycle of a chicken and Chicks and Chickens by Gail Gibbons. Talk with the students about where chickens come from and the stages of development they go through. Have students complete the Life Cycle of a Chicken Spinner.

**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.

# Embryo Tracking



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

1. **Life Science:** expands students' biological understanding of life by focusing on the characteristics of living things, the diversity of life, and how organisms in populations change over time in terms of biological adaptation and genetics.

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

<b>Kindergarten:</b>	4.2.1
<b>First Grade:</b>	4.1.1, 4.1.3, 4.2.2
<b>Second Grade:</b>	4.2

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

1. Identify the life stages of a chicken.
2. Describe that most animals will grow to physically resemble their parents.

## Materials needed:

- ✓ Student Worksheet- Tracking Embryology
- ✓ Crayons
- ✓ Incubator and fertilized eggs
- ✓ Egg candling light

## Terms:

**Embryo-** an animal in the early stages of development prior to hatching

**Candling-** is a term used to describe a method by which bird breeders check to see if eggs are fertile or not

**Fertilized Eggs-** an egg that has been made fertile by a rooster (male); these eggs are not eaten or used in food products; produces chicks

**Teaching Strategies:** Pass out Student Worksheet- Embryo Tracking to each student to keep for the time that the eggs are in the incubator. Have students color or mark off each day as they pass. If you candle the eggs have students compare what they see to their embryo sheet.

**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.

# Breaking Eggs: The Shell

(Adapted from Oklahoma and Michigan Ag in the Classroom)



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

- 1. Inquiry Process:** Students understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.

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

<b>First Grade:</b>	1.1.2, 1.2.1, 1.2.4, 1.3.1, 1.4.1
<b>Second Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.4, 1.3.1, 1.3.3, 1.4.1
<b>Third Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.5, 1.3.1, 1.4.3
<b>Fourth Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.5, 1.3.3, 1.4.1, 1.4.2
<b>Fifth Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.5, 1.3.3, 1.4.1, 1.4.2
<b>Sixth Grade:</b>	1.1.1, 1.1.2, 1.2.1, 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. Observe the movement of liquid through pores of an eggshell.
2. Understand and describe that pores on an egg allow for the movement of air and water to the embryo.
3. Students will test the strength of the dome shaped egg.

## Materials needed:

- ✓ Student Worksheet
- ✓ 3-4 fresh unfertilized eggs
- ✓ Bathroom scale
- ✓ Paper towels
- ✓ Books or blocks
- ✓ Food coloring

## Terms:

**Albumen-** the clear liquid part of the egg also called the white. It provides water and protein to the growing embryo (chick), as well as provides it cushioning

**Calcium Carbonate-** a compound which gives strength and shape commonly found in eggshells and chalk

**Dome Construction-** construction built with a hemispherical roof or vault

**Embryo-** an animal in the early stages of development prior to hatching

**Incubation-** the time it takes for a fertilized egg to hatch

**Protein-** One of three major classes of food or source of food energy

**Pullet-** an immature female chicken

**Yolk-** yellow portion of the egg; provides a major sources of vitamins, minerals and fats; the food source for the developing chick

**Teaching Strategies:** Go over the background information with your students. Talk about something in your area that is dome construction (NAU Football Dome, etc). Talk about how the dome shape provides added strength.

*Shell Strength-* Follow the steps on Teacher Instruction #1 to have students experiment with how strong an eggshell is. Repeat the experiment several times and have students graph the results.

*Shell Porosity-* Follow the steps on Teacher Instruction #2 to help students discover that eggs have pores that allow for the movement of water and air.

**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.

# Making the Grade



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

- 1. Inquiry Process:** Students understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.

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

<b>First Grade:</b>	1.1.2, 1.2.1, 1.2.4, 1.3.1, 1.4.1
<b>Second Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.4, 1.3.1, 1.3.3, 1.4.1
<b>Third Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.5, 1.3.1, 1.4.3
<b>Fourth Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.5, 1.3.3, 1.4.1, 1.4.2
<b>Fifth Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.5, 1.3.3, 1.4.1, 1.4.2
<b>Sixth Grade:</b>	1.1.1, 1.1.2, 1.2.1, 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 the different grades of eggs.

## Materials needed:

- ✓ Student Worksheet
- ✓ Different Grade Eggs

## Terms:

**Grade AA:** will stand up tall, yolk is firm and area covered by white is small, more thick white than thin white

**Grade A:** egg covers a relatively small area. Yolk is round. Thick and thin white are even in size

**Grade B:** egg spreads out more. Yolk is flattened. More thin white than thick white

**Teaching Strategies:** Go over the background information on egg grading with your students. Have students grade the eggs on the Student Worksheet- Making the Grade by using the egg grading key. You may also use real eggs of different grades to have your students practice what they have learned.

**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.

# Egg in a Bottle



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

1. **Inquiry Process:** Students understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.

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

<b>First Grade:</b>	1.1.2, 1.2.1, 1.2.4, 1.3.1, 1.4.1
<b>Second Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.4, 1.3.1, 1.3.3, 1.4.1
<b>Third Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.5, 1.3.1, 1.4.3
<b>Fourth Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.5, 1.3.3, 1.4.1, 1.4.2
<b>Fifth Grade:</b>	1.1.1, 1.1.2, 1.2.1, 1.2.5, 1.3.3, 1.4.1, 1.4.2
<b>Sixth Grade:</b>	1.1.1, 1.1.2, 1.2.1, 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. Students learn how molecules move in different temperatures.
2. Students will understand the concept of pressure.

## Materials needed:

- ✓ Student Worksheet
- ✓ Glass bottle
- ✓ Peeled, hard-boiled egg (medium egg)
- ✓ Matches and paper

## Terms:

**Expansion:** the act of increasing (something) in size or volume or quantity or scope

**Pressure:** the force applied to a unit area of surface

**Teaching Strategies:** Discuss the background information with your students. Have your students hypothesize what will happen to the egg. Complete the experiment. Have students complete the Student Worksheet- Egg in a Bottle.

**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.