

From Chicken Little to Chicken Big – 2nd Grade

Purpose

Students will identify different breeds of chickens, examine physical characteristics, and determine the stages of a chicken's life cycle.

Subject Area(s)

English Language Arts, Math, Science, and Social Studies

Common Core/Essential Standards

ELA

- **CCSS.ELA- LITERACY.CCRA.R.1** Read closely to determine what the text says explicitly and to make logical inferences to it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
- **CCSS.ELA- LITERACY.CCRA.R.10** Read and comprehend complex literary and informational texts independently and proficiently.
- **CCSS.ELA- LITERACY.CCRA.W.2** Write informative/explanatory texts to examine and convey complex ideas and information and accurately through the effective selection organization, and analysis of content.
- **CCSS.ELA- LITERACY.CCRA.L.1** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- **CCSS.ELA- LITERACY.CCRA.L.2** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- **CCSS.ELA- LITERACY.CCRA.L.3** Apply knowledge of language to understand how language functions in different contexts to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Agricultural Literacy Outcomes

Culture, Society, Economy & Geography

- Identify plants and animals grown or raised locally that are used for food, clothing, shelter, and landscapes

Plants and Animals for Food, Fiber & Energy

- Explain how farmers work with the lifecycle of plants and animals (planting/breeding) to harvest a crop

- Identify animals involved in agricultural production and their uses (i.e., work, meat, dairy, eggs)
- Identify examples of feed/food products eaten by animals and people

Essential Questions

1. What do you know about chickens?
2. What kinds of sounds do chickens make?
3. Where do chickens live?
4. How are baby chicks born?
5. How long does it take for an egg to hatch?
6. Would you like to watch a baby chick being hatched?

Vocabulary

breed: group of animals that share many of the same physical features. In chickens it can be combs, skin, colors, feather colors and patterns

incubation: process of warming the chick eggs before they hatch for about 3 weeks

brood: a group of newly hatched chicks

chick: a young chicken, newly hatched

hen: an adult female chicken of breeding age

rooster: an adult male chicken of breeding age

poultry: domesticated fowl such as chickens, turkeys, ducks, and geese

Student Motivator

Begin a discussion with the students about chickens and baby chicks to create interest. Ask the questions listed in the **Essential Questions** section of the lesson plan.

Show the short [video](#) of baby chicks hatching.

Background Knowledge

All About Chickens

Chickens are thought to have come from wild fowl found in Southeast Asia; however, today chickens are raised on farms for their meat and eggs. There are over 113 different breeds, each with different genetic strengths and characteristics. *Layer* is a term used for a breed of chicken that is a very good egg producer. A laying hen can produce 1 egg per day after she reaches maturity. *Broiler* is a term used for a breed of chicken that is raised for their meat. Broilers grow quickly and are heavy with a lot of muscle. Some breeds of chickens are not particularly good egg or meat producers, but are raised as pets, as a

hobby, or for shows. These are known as *ornamental* breeds. Raising chickens for eggs, meat, or as a hobby is not new, it has been acknowledged that chickens were raised by people beginning over 4,000 years ago.

Refer to the book, *Chicks and Chickens* by Gail Gibbons to learn some of the terminology used in the poultry industry. *Chicks and Chickens* is a childrens' non-fiction text that describes the different breeds of chickens, their physical traits, and depicts the life cycle of chickens from an embryo to an adult. The text also looks at how their bodies function, how they live, and their domestication by humans. Students will be exposed to how quickly a young chick grows into a rooster or hen for producing the 8 billion chickens consumed in the United States per year and the 250 eggs eaten yearly per person. Each stage of the life cycle is explained and identified with different physical features for all three; the rooster, the hen, and the chick. Descriptive pictures of the chickens' digestive and reproductive systems, drawings of eggs in different stages of development, and many interesting facts make this text a colorful and clear account of the domesticated chicken.

Chickens in the Agricultural Industry

Chickens are essential to the agriculture industry in that Americans consume its meat more than any other meat-producing animal. Whether chickens are raised on large farms inside of chicken houses or small farms as free range chickens their history with humans has been one of a large food source priced less expensive to produce and purchase compared to pork and beef. Chickens ability to produce both meat and eggs make them more diversified than other farm animals.

Chicken Genetics

As you learn more about and compare breeds of chickens, you will notice many different characteristics which are a result of genetic variation within the domestic chicken species. Skin color, feather color, feather patterns and textures, body size, and egg shell color are all characteristics you can see. These are known as *phenotypes*. Some genetic characteristics you cannot see by simply looking at a chicken, but you can measure these traits by keeping good records. Examples include rate of growth and egg production. These characteristics are particularly important to poultry farmers. Farmers research the genetic characteristics of chicken breeds and select the best breed or breeds for their farm. For a more in-depth lesson on genetics and Punnet Squares, see [Peas in a Pod](#).

Life Cycle of the Chicken

The life cycle of a chick begins in an egg. Eggs that are produced for eating are not fertilized and will never form into a chick. Eggs that have been fertilized have the potential of developing into a chick if

the environment is correct. Eggs can be hatched in an incubator or by a hen. If the process takes place naturally, the hen will lay a clutch of 8 – 13 eggs, by laying one per day for 1 – 2 weeks. Once she starts laying on the eggs or *brooding* it takes 21 days for the chick to develop and prepare to hatch. The mother hen keeps the eggs warm and only leaves the nest briefly to feed. The hen also turns the eggs several times per day to keep the embryo from sticking to one side of the shell. For a detailed lesson plan on egg development, see [Eggology](#). The same process can take place in an incubator. The eggs are maintained at the proper heat and humidity levels and turned every few hours for the duration of the 21 days until they hatch.

Once the chick has hatched and dried, it will be covered in soft, fuzzy down feathers. Within a few weeks as the chick grows, it will develop adult feathers. In 4 – 6 months the chicken will be fully grown. Hens will begin producing eggs around 5 – 6 months of age and the cycle can begin again. Common breeds of chickens used for meat in the broiler industry grow very quickly. They can grow from hatch to harvest in as little as 8 – 12 weeks!

Materials

Activity 1

- *Chicks and Chickens* written by Gail Gibbons
- Chicken Vocabulary List

Activity 2

- *Genetic Characteristics of Chickens* PowerPoint
- 1 set of *Chicken Pictures* per group of students
- 1 set of *Description Cards* for each group of students
- 1 blank *Chicken Characteristics Worksheet* per group of students

Activity 3

- Hen Picture and Life Cycle Stages Cards
- Life Cycle wheel text
- White paper plates
- Brass fastener
- Yarn
- Scissors
- Glue
- Hole punch
- Pen

Optional Activity

- The Hen Dance

Procedures

Activity 1: All About Chickens

1. Show the students the front cover of *Chicks and Chickens* by Gail Gibbons. Begin a discussion about the physical differences and similarities from the picture which displays a rooster, hen, and a chick. Point out the size, color, and shape of each animal example. Tell the students, *they will be learning about the similarities and differences in chicken breeds, the body parts of a chicken, and their life cycle.*
2. Read pages 1-17 of *Chicks and Chickens* which will take you through the differences of roosters, hens, and chicks. These pages also display and label their body parts and identify certain breeds. Be sure to point out that roosters can be more colorful than hens within the same breed.
3. Separate the students into groups with three to four children. Give each group a vocabulary list and have them brainstorm what they think the vocabulary words represent. Each group can be given a different list of vocabulary words. Have students define what they think the words mean and record the meaning in the space provided on the lists. If time permits they can also draw a picture to represent the meaning for each word.
4. Once all of the groups are done have each group report the words with their definitions. As they define a word that was labeled as a body part on the chicken seen in *Chicks and Chickens*, point this out in the book. The lists of vocabulary terms are grouped together focusing on certain topics. Point out that list #1 are types of chickens, list #2 are physical features found in chickens, list #3 are parts of the digestive system, list #4 are chicken behaviors, and list #5 are chicken housing needs.
5. Next, have each group write three sentences using a vocabulary word from their list in a sentence. These sentences can be assessed for definition accuracy as well as conventions.

Activity 2: Chicken Genetics

1. Use the *Genetic Characteristics of Chickens* PowerPoint to teach students about the basic genetic characteristics found in various breeds of chickens. Explain that each breed of chicken has specific genes which indicate what it will look like, how many eggs it will produce, how large it's body will be, etc.
2. As you go through the PowerPoint, explain that some genetic characteristics can be seen simply by looking at a chicken. For example, feather color, feather texture, type of comb,

- etc. However, other characteristics cannot be seen simply by looking at a chicken. These characteristics can be measured by farmers as they keep records. For example, a farmer can record how many eggs a hen lays or how much a chicken weighs.
3. With a basic introduction to chicken characteristics, your students are ready to learn about a few chicken breeds. Divide your class into groups and give each group a set of eight *Chicken Pictures* and a blank *Chicken Characteristic* worksheet. Have the students look at the pictures and identify the characteristics of the chicken that are associated with its appearance. They will record these characteristics in the box. Once they are finished have the groups share their characteristics for each chicken. Compare each group's characteristics to each other. Are they similar or different? Were they able to identify feather color, egg color, feather texture, etc? Were they able to determine if the picture represented a rooster, hen, or chick?
 4. Next, give each group one set of *Description Cards*. The students will match the *Description Cards* to the pictures. They should also be asked to compare their own, written descriptions from step 3.
 5. Review and summarize with students that an animal's genetics determine its' physical characteristics (feather color, comb type, etc) as well as it's performance (egg or meat production). Ask your students to apply what they have learned by choosing the breed of chicken that would be best for each scenario below:
 - a. Imagine you are a chicken farmer and you are raising chickens for their meat. Which breed would you choose?
 - i. The Cornish chicken (#3) is the best meat producing chicken
 - b. Imagine you are the manager of a layer farm. Your goal is to produce quality, white-shelled eggs. Which breed of chicken will likely be best for your farm to produce the most eggs?
 - i. The White Leghorn (#2) is the best choice. White Leghorn's are the most widely used breed in white-shelled egg production in the United States.
 - c. Imagine you are raising chickens in your backyard for a hobby and you'd like to learn how to show them. Which breed would you choose?
 - i. Students can choose any breed they'd like. Ornamental breeds such as the Cochin, Silkie, and Polish Crested are raised mostly for their novel feathering patterns. Hens of these breeds do produce eggs, but not as efficiently as other breeds.
 - d. Imagine you are raising chickens for eggs and you'd like brown shells. Which chicken would you pick?

- i. The Sussex, Rhode Island Red, and Plymouth Rock all produce brown eggs. Be sure your students know that there is not a nutritional difference between white-shelled eggs and brown-shelled eggs. It is simply a consumer preference.
6. Ask the students questions that refer to the genetics of a chicken. *If both parents are the same breed what would you expect the offspring to look like? If the parents are different breeds, what would you expect the offspring to look like?* Compare the genetics of the chicken to humans. Ask the students, *what characteristics do you have that are similar or different from your parent?* You can use the chicken pictures as a visual when asking these questions. Be sure to point out once again the similarities and differences found in the breeds.

Activity 3: Chicken Life Cycle

1. Finish reading the book, *Chicks and Chickens*. The last half of the book talks about the chicken life cycle. Ask the students *if they can name or describe other living things that experience a cycle of life. Do humans experience a life cycle? If so, what are the stages? If a chick takes 4-6 months to become an adult, how long does it take a child to become an adult?*
2. Tell the students that chickens and other birds have a unique life cycle that they will illustrate with their next class activity.
3. Using instructions for *Assembling Life Cycle Wheel, Hen Picture, and Life Cycle Cards*, assist students in assembling individual life cycle wheels.
 - a. Using one plate facing down, punch the brad through the center of the plate. Cut out *Hen Picture* and glue onto the center front of the plate over the brad.
 - b. Cut out each life cycle card and punch a hole on the opposite end from the numbered tab approximately $\frac{1}{2}$ inch from the edge of the card.
 - c. Tie each length of yarn to the brad knotting securely. Each yarn piece will attach to the brad in the center of the plate, radiate outward, and attach to an individual life cycle card.
 - d. Have students write the correct text on the back of each life cycle card. Use the attached document, *Chicken Life Cycle Wheel Text*.
 - e. Using the previously punched holes, tie one life cycle card to the end of each length of yarn.
 - f. Stretch each length of yarn with card attached out past the edge of the paper plate. Space these equally apart around the circle of the plate. Make sure that the cards are numerically sequenced.

- g. Place the second plate on top of the first plate, face down. The plates should “nest” one inside the other.
 - h. Using five staples, secure the plates together. Ensure staples are evenly spaced around the plate making sure there is room between the staples for one card to be pulled through each space in sequence.
 4. Have students form pairs and demonstrate their life cycle wheels to one another.
 5. For homework, have students demonstrate and discuss their life cycle wheels with family, friends, or neighbors. Upon their return to school, have students discuss their sharing experience.

Suggested Companion Resources

- Chicks & Chickens (Book/Booklet)
<http://www.agclassroom.org/teacher/matrix/resources.cfm?rid=237>
- Virtual Chicken (Multimedia)
<http://www.agclassroom.org/teacher/matrix/resources.cfm?rid=236>

Essential Files (maps, charts, pictures, or documents)

- [Genetic Characteristics of Chickens PowerPoint](#)
- [Hen Picture and Life Cycle Cards](#)
- [Chicken Life Cycle Wheel Text](#)
- Chicken Characteristics Worksheet
- [Chicken Description Cards, Chicken Pictures, and Answer Key](#)
- Chicken Vocabulary List
- The Hen Dance

Essential Links

- AAAS Science Net Link – Baby Chicks Hatching
<http://www.msichicago.org/online-science/videos/video-detail/activities/the-hatchery/>
- 4-H Embryology Project
<http://extension.psu.edu/4-h/projects/poultry/embryology>
- YouTube – The Hen Dance
<https://www.youtube.com/watch?v=1cIY484I3P4>

Ag Facts

- The average American consumes 90 pounds of chicken, 17 pounds of turkey and 20 dozen eggs per year.

- Poultry is the #1 agricultural industry in North Carolina.
- Chicken eggs are a good source of lutein which promotes eye health in humans.
- A hen turns her eggs approximately 50 times a day to keep the embryo from sticking to the side of the shell.
- The yolk and white of the egg is made up of 74 percent water, 11 percent fat and 12 percent protein.
- The shell of an egg is extremely strong and can support up to 9 pounds without breaking with the pointed end up.
- A female chicken can lay its first eggs at 5 months of age.
- Hens and roosters can live to be 12 years old.
- The color of a chicken egg is determined by the breed of chicken and in some cases can be the same color as their earlobes.

Extension Activities

- Visit <http://extension.psu.edu/4-h/projects/poultry/embryology> for information about the 4-H Embryology Project. To provide hands-on, experiential learning activities related to life cycles, contact the Cooperative Extension Service/4H in your county. This community agency may be able to provide materials, instruction, and expertise that will allow students to hatch chicken eggs at school. Once the chicks hatch, farmers in your area may take them to live on their farm or call your county Farm Bureau office and they may find someone for you.
- Visit the Interactive Map Project website and view the map representing [Egg Production](#) in the United States. Identify the state that produces the most eggs, then find where your state ranks for egg production.
- Have the students watch and learn to perform “The Hen Dance” as a class. The video can be found on YouTube at <https://www.youtube.com/watch?v=1c1Y48413P4>

Sources & Credits

- <http://www.ncpoultry.org/>
- <http://ffanewhorizons.org>
- <https://images.google.com/>