CHICKEN
From The Egg To Your Table

A teacher resource manual prepared by Delmarva Poultry Industry, Inc.
Chicken – From The Egg To Your Table was developed by Delmarva Poultry Industry, Inc. (DPI), the trade association representing the poultry industry on the Delmarva Peninsula.

The booklet is made available to elementary school educators for use in helping students become more aware of chicken and how it is produced. It contains a number of activities directed to varying skill levels so that educators can select those activities most appropriate for their students. All activities may be reproduced for educational purposes.

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C/c & c inside cover
CHICKEN – FROM THE EGG TO YOUR TABLE

Spanish explorers brought the first chickens to North and South America in the 1500s. English colonists also brought chickens with them when they sailed to the New World. Settlers at Jamestown raised small flocks as early as 1607. Later, almost every farmer had a small flock that helped feed his family.

The chicken business in America today is a technologically advanced food production system. No longer a casual backyard enterprise, modern day chicken production requires a knowledgeable, skilled team to bring the chicken from the egg to your table.

As you study about chickens, it is helpful to be familiar with some common terminology. A chicken, either male or female, that has just been hatched from the egg is called a chick. A Rock Cornish Game Hen is a young chicken four to five weeks old, weighing about two pounds when ready to cook. The broiler chicken is about six to seven weeks old with a ready-to-cook weight of three to five pounds. This is the type of chicken generally available in the supermarket. A roaster chicken is between seven and nine weeks of age and weighs five to seven pounds.

Chickens are raised for either meat or eggs. Chickens that are grown for meat are called “broiler” chickens. They are different from chickens known as “layers” that supply the eggs that we eat.

Growing meat-type chickens for the commercial market began in the 1920s. Mrs. Wilmer Steele of Ocean View, Delaware was one of the first to sell her entire flock of less than 500 birds to a local buyer. Within five years, Mrs. Steele was raising a flock of 25,000 birds. Neighbors began to follow Mrs. Steele’s lead. Soon hatcheries, feed mills, and processing plants moved into the Delmarva area to meet the needs of an increasing number of chicken growers. Thus began the commercial broiler chicken industry as we know it today.

Chickens are raised by farm families that own the poultry houses and equipment and provide the day-to-day management needed for the growth, welfare, and productivity of their flocks. Poultry companies supply growers with chicks, feed, bedding materials, propane gas to heat the houses, health care for the chicks, and technical assistance in raising the birds.

The production process begins on a breeder farm where breeder hens lay hatching eggs. The eggs are taken to a hatchery where they are placed in incubators and held at
ideal temperatures and humidity. Twenty-one days later the eggs hatch. The newly hatched chicks are placed in trays that are loaded onto buses known as “chick buses” and transported to a farm where they will spend the next six to seven weeks.

On the farm, chicks live in poultry houses that are generally longer than a football field and about one-fourth as wide. The house protects the chickens from disease and predators. Because chickens are not raised in cages, they are free to roam about the house. Heat and ventilation are carefully controlled in the poultry house. During summer months, large fans, water misting systems, or evaporative cooling systems cool the houses to a comfortable temperature.

The chicken’s diet consists of a mixture of corn and soybean meal with vitamin and mineral supplements. No hormones are used in commercial chicken production. Feed and water are dispensed automatically. The poultry producer and a flock supervisor from the poultry company monitor the birds throughout the grow-out period. Company veterinarians are available to provide health care if needed.

Just as a grower cares for the birds, he or she also conscientiously does his part to protect the water, the land, and the air.

When chickens have grown to market size, a catching crew comes to the farm to catch the birds and place them in cages designed to protect them from injury. The cages are transported by truck to the processing plant where the birds are processed, inspected for wholesomeness by trained government inspectors and the poultry company’s quality control personnel, and packaged for market. Each week thousands of truckloads of chicken are shipped from poultry processing plants to consumers throughout the United States and around the world.

Nutritionally aware consumers value the role of chicken in a healthful diet. Chicken has fewer calories than many meats; it is low in fat but high in protein, vitamins, and minerals. Chicken is easy to digest and is a versatile food that can be prepared in many ways. It is readily available at reasonable prices and in a variety of forms ranging from fresh whole birds to an ever-growing list of convenience products. Annual consumption of broiler chicken has risen from five pounds per person in 1945 to about 85 pounds per person today.

The leading broiler chicken producing areas in the United States are Georgia, Arkansas, Alabama, North Carolina, Mississippi, and the Delmarva Peninsula (the state of Delaware and Eastern Shore counties of Maryland and Virginia). Chickens also are grown in Texas, California, South Carolina, Missouri, Pennsylvania, Ohio, and Florida.
DELMARVA’S POULTRY INDUSTRY
FROM FARM TO YOU

People in the United States eat more chicken than any other meat. Chickens that are grown for meat are called “broiler” chickens. They are different from chickens that supply eggs and are referred to as “layers”.

The story of the broiler chicken begins on a farm where a special breed of hen lays the eggs that will hatch into the chickens that eventually go to the supermarket. From the breeder farm, the eggs are carried to a hatchery where they are placed in warm incubators. Twenty-one days later the eggs hatch into fluffy yellow baby chicks.

The baby chicks are checked for good health before they are carried by bus to a farm where they will grow for about seven weeks. On the farm, chicks live in chicken houses that are about 30,000 square feet in size. They are free to roam about the large house where heat and air supply are carefully controlled by a farmer who takes good care of the flock.

The farmer also makes sure the chickens have plenty to eat and clean fresh water to drink. A chicken’s feed and water are dispensed automatically. The chicken’s diet is a mixture of corn and soybean meal with added vitamins and minerals. If chickens get sick, veterinarians are available to provide health care.

When chickens weigh about 5-7 pounds each, they are moved from the farm to a large plant where they are prepared for the trip to the supermarket.

Each week about 1,000 refrigerated truckloads of chicken are shipped from the Delmarva Peninsula to markets throughout the United States and around the world. Every day, millions of hungry consumers enjoy chicken and chicken products produced by Delmarva’s chicken industry.
**GLOSSARY**

**Breeder Chickens** – specially bred mature males and females that produce hatching eggs.

**Broiler Chicken** – a young chicken, 6-7 weeks of age, bred for the production of meat.

**Brooder** – a heating unit used to provide warmth for baby chicks.

**Chick** – a newly hatched chicken of either sex.

**Comb** – the red, fleshy outgrowth on the top of the head of a chicken.

**Delmarva Peninsula** – geographical region including the state of Delaware, nine Maryland Eastern Shore counties, and two Virginia Eastern Shore counties. The peninsula is bordered on the east by the Atlantic Ocean and on the west by the Chesapeake Bay.

**Environment** – The land, water, and air making up our surroundings.

**Feed Mill** – place where feed ingredients are stored, processed, mixed, and distributed.

**Flock** – a group of chickens living together.

**Growers** – farm families who raise and provide daily care for chickens.

**Hatchery** – place where eggs are placed in incubators and hatch into chicks.

**Hen** – an adult female chicken.

**Incubator** – a machine with controlled moisture and heat used in hatching eggs.

**Inspection** – government required and regulated process by which all chickens are checked for safety and wholesomeness.

**Layer** – an adult female chicken that produces table eggs.

**Litter** – absorbent material (usually wood chips, shaving, or sawdust) used to cover the floor of the broiler house and serve as a bedding material.
Pelleted Feed – grain meal that has been compressed into small firm pellets that are easy for chickens to eat.

Poultry – Those species of birds raised for the purpose of providing eggs, meat, or recreation.

Plumage – the feather covering of the chicken.

Poultry Company – handles all segments of chicken production beginning with the production of hatching eggs and ending with the marketing of ready-to-cook chicken and chicken products.

Processing Plant – the place where chickens are taken from the farm to be prepared and packaged for market.

Ready-To-Cook – a processed chicken that is ready to be prepared.

Ready-To-Cook Weight – the weight of the chicken after feet, head, feathers and internal organs have been removed.

Roaster – a chicken about 7-9 weeks old weighing 5-7 pounds after processing.

Rooster – an adult male chicken.

Veterinarian – a doctor who specializes in the treatment of animals.
A broiler chicken is ready to market at 4 to 5 pounds, live weight. It takes 6 to 7 weeks for a chicken to reach this weight. A baby chick starts eating as soon as it reaches the farm. Crumbled feed is fed for 3 weeks. From the time the chicken is 3 weeks old until it is grown, it eats pelleted feed. Chicken feed is made up of 65% corn, 20% soybean meal, plus small amounts of animal protein, vitamins, and minerals.

Color the pictures below.
<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>MATCH AND SCRATCH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rooster</strong></td>
<td>A chicken raised as a source of eggs, not meat.</td>
</tr>
<tr>
<td><strong>Hen</strong></td>
<td>An adult male chicken</td>
</tr>
<tr>
<td><strong>Flock</strong></td>
<td>A group of chickens</td>
</tr>
<tr>
<td><strong>Layer</strong></td>
<td>A young chicken raised for meat.</td>
</tr>
<tr>
<td><strong>Chick</strong></td>
<td>An adult female chicken</td>
</tr>
<tr>
<td><strong>Broiler Chicken</strong></td>
<td>A baby chicken</td>
</tr>
</tbody>
</table>
ACTIVITY

I am a proud chicken, raised to supply you with a healthful, wholesome source of body-building protein. The following statements tell you more about me.

Mark T before each statement that is true. Mark F before each statement that is false.

_____ 1. I am born in a hatchery.

_____ 2. I weigh less than one pound when I am born.

_____ 3. I eat grass.

_____ 4. I am called a chick when I am little.

_____ 5. I drink milk every day.

_____ 6. My feed has lots of corn in it.

_____ 7. I like real cold weather.

_____ 8. I grow up in a large chicken house on a farm.

_____ 9. A veterinarian cares for me if I get sick.

_____ 10. After I hatch, I travel by bus to a farm.
Circle the word that does not belong in each group.

1. Chickens have –
   feathers, beaks, eyes, ears, brushes, combs.

2. Names that can refer to chickens are –
   hen, rooster, chick, piglet.

3. Parts of a chicken that can be bought in the supermarket are –
   thighs, drumsticks, chops, wings, breasts.

4. To raise chickens, a farmer needs –
   water, feed, a building, a bathtub, lights.

5. These are ways to cook chicken –
   fried, baked, grilled, frozen.

6. A chicken house contains –
   a watering system, stoves, refrigerators, fans.

7. Buildings used in producing and marketing chickens –
   hatchery, chicken house, kennel, processing plant, supermarket.

8. These people help with growing chickens –
   policeman, flock supervisor, farmer, veterinarian.

9. Chickens can –
   eat, drink, sleep, sing.

10. Chicken feed contains –
    corn, minerals, potatoes, soybeans.
ACTIVITY

WHAT’S THE WORD?

Fill in each blank with the correct term from the list at the bottom of the page.

1. Male chickens are called ____________________.

2. Female chickens are called ____________________.

3. Baby chickens of either sex are ____________________.

4. The chicken’s head is adorned with a ____________________.

5. Chicken feathers are called ____________________.

6. Hens lay ____________.

7. The protective covering of an egg is the ________________.

8. Eggs are hatched in ____________________.

________________________

comb   hens   shell
plumage   wattel   eggs
incubators   chicks   roosters

cue&cue what’s word
ACTIVITY

Corn and soybeans are the main ingredients in a chicken’s diet. Corn and soybeans are grains that are grown on farms.

Activity: Using one empty egg carton, place a small piece of paper with a number from 1 to 12 in each egg cup. Have one container of corn kernels and soybeans (mixed). Students, one at a time, will remove a number from an egg cup, select either corn or soybeans, sort and count the specified number, and place counted grain in the cup.

Materials Needed: one empty egg carton
12 small pieces of paper numbered 1 to 12
container to hold 2 cups of corn and soybeans
1 cup each corn and soybeans
Unscramble the scrambled eggs — all words relate to the development of a chicken.

Eggs include these words: beak, chicken, egg, embryo, hatch, hen, incubator, rooster, shell, temperature wings, yolk.

1. geg
2. nhe
3. koyl
4. htcah
5. lehls
6. oymrbe
7. aekb
8. iecckhn
9. orcuibtna
10. siwgn
11. pteamtreure
12. sororet
ACTIVITY

Each word has something to do with chicken. Put these words in alphabetical order.

<table>
<thead>
<tr>
<th>Egg</th>
<th>Chick</th>
<th>Chicken</th>
<th>Feed</th>
<th>Rooster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yolk</td>
<td>Hatch</td>
<td>Wings</td>
<td>Corn</td>
<td>Shell</td>
</tr>
<tr>
<td>Hen</td>
<td>Incubator</td>
<td>Comb</td>
<td>Soybeans</td>
<td>Beak</td>
</tr>
<tr>
<td>Temperature</td>
<td>Broiler</td>
<td>Feathers</td>
<td>Flock</td>
<td>Water</td>
</tr>
</tbody>
</table>

1. __________________________ 11. __________________________
2. __________________________ 12. __________________________
3. __________________________ 13. __________________________
4. __________________________ 14. __________________________
5. __________________________ 15. __________________________
6. __________________________ 16. __________________________
7. __________________________ 17. __________________________
8. __________________________ 18. __________________________
9. __________________________ 19. __________________________
10. __________________________ 20. __________________________

Choose five of the words above and use each in a complete sentence.

1. __________________________
2. __________________________
3. __________________________
4. __________________________
5. __________________________
ACTIVITY

WHERE THE BIRDS ARE

Chickens are grown commercially in a number of the United States. The leading chicken producing states are Georgia, Arkansas, Alabama, and North Carolina. Locate and label these states on the map of the United States. Identify four other states where chickens are grown.
ACTIVITY

DO COUNT YOUR CHICKENS

One of the hatching chicks provides the answer to each of the math problems below. Match each problem to the correct chick.

\[
\begin{align*}
10 &+ 17 \\
121 &- 18 \\
11 &\times 6 \\
97 &+ 63 \\
429 &- 104
\end{align*}
\]

\[
\begin{align*}
72 &- 13 \\
19 &+ 18 \\
6 &\sqrt{84} \\
14 &\times 7 \\
253 &+ 132
\end{align*}
\]

\[
\begin{align*}
\text{98} \\
\text{14} \\
\text{66} \\
\text{385} \\
\text{27} \\
\text{37} \\
\text{103} \\
\text{325} \\
\text{160} \\
\text{59}
\end{align*}
\]
Word Problems

1. Sue collected 2 eggs from the nest of one hen, 4 eggs from another nest, and 3 eggs from a third nest. How many eggs did Sue collect?

2. The incubator in a hatchery was opened and the temperature dropped to 95°F. If it takes 5 minutes for the incubator temperature to increase 1°F, how many minutes will it take for the incubator to reach 100°F?

3. Mary’s mom is going to prepare chicken drumsticks for their family of four people. If she plans for each person to eat 3 drumsticks, how many drumsticks will she need to buy?

4. The month of April has 30 days. If a hen lays one egg per day for 16 days, how many days did she lay no eggs?

5. If chicken drumsticks are 99¢ per pound, how many pounds can you buy with $10?

6. If an average portion of chicken is 4 ounces, how many pounds of boneless chicken breast are needed to make 4 servings?

GO FIGURE

The smart chicken says:
Check each kind of chicken you like to eat. In the blank space, name your favorite way to eat chicken.

__________________ Fried Chicken

__________________ Chicken Nuggets

__________________ Roast Chicken

__________________ Chicken Salad

__________________ Barbecued Chicken

__________________ Chicken Tacos

__________________ Stir-Fried Chicken

__________________ Chicken Soup

My favorite way to eat chicken is: ____________________________
ACTIVITY

Chicken is not just good to eat, its good for you, too. Chicken supplies plenty of protein to help your body grow. It also provides minerals such as iron that builds healthy blood, and vitamins, especially the B-vitamins. Chicken contains only limited amounts of fat (that’s good) and those amounts can be even lower if you don’t eat the skin of the chicken.

Look through magazines for pictures of chicken cooked in a variety of ways. Cut out the pictures and using poster paper and paste, make your own photo collection.
COW IT SAFEY

- Keep food safe from bacteria.
- You can’t see, smell, or taste bacteria, but they can be on and in your food and make you sick.
- Cooking your food destroys the bacteria.
- Bacteria grow rapidly in the “Danger Zone”, the temperatures between 40 °F and 140 °F.
- Take your food’s temperature by using a food thermometer.
- Make sure your thermometer is clean. Wash it after every time you take a temperature.
- A hamburger’s temperature should be 160 °F.
- Make sure your leftovers are safe. Reheat them to 165 °F.
- Be sure sauces, soups, and gravies come to a boil.
- Let food sit for a few minutes after cooking in a microwave.
- For food safety, keep hot foods hot.

DOWN
1. Keep food _____ from bacteria.
2. Keep hot foods _____.
3. _____ your food to destroy bacteria.
4. Use a food thermometer to take your food’s ________
5. Cook a ________ to 160 °F.
6. You can’t see, smell, or taste them.
7. Not cooking food thoroughly can make you ________
8. The temperatures between 40 °F and 140 °F are in the ________

ACROSS
5. Make sure you clean it after every time you use it.
9. Sauces and soups need to come to a ________ to be safe.
11. After being cooked in a ________, allow food to sit for several minutes.

Source: International Food Safety Council
1. At a party, picnic or family meal, it’s OK to leave food on the table for:
   a. no more than 2 hours.
   b. no more than 6 hours.
   c. no more than 3 hours

2. The best way to know that chicken is cooked until done is to:
   a. use a meat thermometer
   b. check for tenderness
   c. see if it looks done

3. If you handle raw meat or chicken, before you touch anything else you should:
   a. wipe your hands on a paper towel
   b. wash your hands with hot soapy water
   c. wipe your hands on your pants

4. The best way to thaw frozen chicken or meat is to:
   a. place it on a kitchen counter for a few hours
   b. place it in the refrigerator overnight
   c. place it on top of the clothes dryer

5. When packing food for lunch, refrigerated food will be safe for several hours if:
   a. the food is in a cooler
   b. a special ice pack is included
   c. the food is frozen when packed
   d. all of the above
ACTIVITY

DOT-TO-DOT

Connect the dots by number to make your own chicken. Color the Chicken. Can you tell a story about this chicken?
ACTIVITY

WORD SEARCH

The following words are hidden among the letters below. Find and circle each word.

Brooder  Corn  Incubator  Broiler
Farmer   Poultry  Chicks  Feathers
Hen      Chicken  Feed    
Rooster  Flock    Layer   

PSNFOINCUBATORERE
RLOLORDSEFNSBCM
NBUWSNTJLCHICKS
FGTLAYERHODBRTV
BFPRTLBINRGRHBAD
GLEBSRPGALNIFEED
COINFYERTAEAHO
HJCJBIFLOCKATAU
IKLMAEBFAJOTETB
COUPLEWAFAOHRCL
KBUEUXBROLERHE
ECFLDRZMUCDREEP
NGMLUKLELTUVSMRE
ANHENMBROODERYA
RDITEHNNETTERST
SVTBEBAROOSTERS
ACTIVITY

Use this secret code to solve the answer to each joke.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
2 3 1 12 4 5 14 7 6 9 16 24 18 22 8 15 20 17 26 19 10 21 13 11 23 25

What do you call a chicken that isn’t very smart?

2 12 10 18 3 1 24 10 1

Why does a chicken cross the road?

19 8 14 4 19 19 8 19 7 4 8 19 7 4 17 26 6 12 4

What do you call a chicken that doesn’t use sunscreen?

5 17 6 4 12 1 7 6 1 16 4 22

How do chickens dance?

1 7 6 1 16 19 8 1 7 6 1 16

Why won’t chickens fly in airplanes?

19 7 4 23 2 17 4 1 7 6 1 16 4 22
FOLLOW THE DOTS - 1

See who is in the barnyard!

[Image of a chicken, chicks, and eggs connected by dots]
FOLLOW THE DOTS - 2

See Mother Hen's two little favorites!
FIND AND COLOR

Find 10 little chicks and color them yellow.
DID YOU KNOW?

Grandma was right – chicken soup can help you feel better when you have a cold. Research from the Mayo Clinic and UCLA supports this view.

According to the Guinness Book of Records, a bird named Weirdo that in 1975 weighed in at 22 pounds in Calaveras County, California, holds the title of the world’s largest chicken.

To determine the effect of weightlessness on embryos, 32 fertile eggs were sent into space aboard a 1989 Discovery space shuttle mission. The results indicated that chicks hatched from “space eggs” were essentially the same as those hatched on earth.

More broiler chickens are raised in Sussex County, Delaware than in any other county in the United States.

Chicken feet (properly cleaned and inspected) are considered a food delicacy in the Far East where they are called “paws.”

A chicken, on average, has more than 8,000 feathers. However, the number of feathers will vary from one breed to another.

Americans eat about 80 pounds of chicken per person per year, an increase of more than 50 pounds per person since 1960.

About 18 percent of the chickens produced in the United States are exported to countries around the world including Russia, Japan, China, Korea, Mexico, and Canada.

A chicken can run at a speed of 25 miles per hour.

According to the Bible, the chicken came first. The Bible states that God created the fowl on the morning of the fifth day and later that same day He commanded the “birds to multiply upon the earth,” thus producing the first egg.

A new process allows chicken feathers to be transformed into strong, absorbent fibers with the potential for use in making air filters, oil filters, and disposable diapers.

History states that more than 4,000 years ago Egyptians invented incubators capable of hatching as many as 10,000 chicks at a time.

U.S. history records that chickens were on the Mayflower with the Pilgrims when they sailed to the “new world.”

Chicken is an international dish served in almost every nation of the world.
ANSWERS

Match & Scratch

Rooster
- A chicken raised as a source of eggs, not meat.

Hen
- An adult male chicken

Flock
- A group of chickens

Layer
- A young chicken raised for meat.

Chick
- An adult female chicken

Broiler Chicken
- A baby chicken

What's the Word

1. roosters 5. plumage
2. hens 6. eggs
3. chicks 7. shell
4. comb 8. incubators

Truth or Fiction

1. T 6. T
2. T 7. F
3. F 8. T
4. T 9. T
5. F 10. T

Out of Place

1. brushes 6. refrigerators
2. piglet 7. kennel
3. chops 8. policeman
4. bathtub 9. sing
5. frozen 10. potatoes

Scrambled Eggs

1. egg 7. beak
2. hen 8. chicken
3. yolk 9. incubator
4. hatch 10. wings
5. shell 11. temperature
6. embryo 12. rooster

About Chicken

1. beak 11. hatch
2. broiler 12. hen
3. chick 13. incubator
4. chicken 14. rooster
5. comb 15. shell
6. corn 16. soybeans
7. egg 17. temperature
8. feathers 18. water
9. feed 19. wings
10. flock 20. yolk

Do Count Your Chickens

1. 27 6. 59
2. 103 7. 37
3. 66 8. 14
4. 160 9. 98
5. 325 10. 385

Go Figure

1. 9 eggs 4. 14 days
2. 25 minutes 5. 10.1 pounds
3. 12 drumsticks 6. 1 pound

Cook It Safely

Down

1. Safe
2. Hot
3. Cook
4. Temperature
5. Hamburger
6. Bacteria
7. Sick
8. Danger

Across

1. Thermometer
2. Boil
3. Microwave
4. Temperature
5. Hamburger
6. Bacteria
7. Sick
8. Danger