2025 Lake County Fair
Poultry Skillathon Study Guide

Juniors (age 8-10 as of September 1, 2024)
Intermediates (age 11-13 as of September 1, 2024)
Seniors (age 14 and over as of September 1, 2024)

Skill-a-thon tests will be administered on March 17, 2025 between 5:00 and 8:00pm at the Lake County Fairgrounds Main Exhibit Hall located at: 2101 County Rd 452 Eustis, Fl. 32726.

All registered Lake County 4H and FFA members showing in the Lake County Fair are eligible to compete in the Skill-a-thon except for Cloverbuds (ages 5-7) who are not eligible to compete.

Exhibitors have two options:

Option one - Exhibitors can take the test for any of the divisions that they are registered in.

Option two- Exhibitors can take the test for all divisions to compete in the Overall Skill-a-thon.

Awards:

Individual area Skill-a-thon - Banners will be awarded to the top 3 scores in each age division for each animal division - only exhibitors that are showing animals in that division will be eligible to place for the banners.

Poultry Divisions:
1st Place Junior - Award
2nd Place Junior - Award
3rd Place Junior - Award

1st Place Intermediate - Award
2nd Place Intermediate - Award
3rd Place Intermediate - Award

1st Place Senior - Award
2nd Place Senior - Award
3rd Place Senior - Award

Overall Skill-a-thon - Buckles will be awarded to the top score in each age division.

Overall Skill-a-thon:
Junior: Belt Buckle
Intermediate: Belt Buckle
Senior: Belt Buckle

Skillathon Areas are as follows:

- Beef Breeding
- Steer
- Poultry
- Dairy Goat
- Breeding and Market Goat
- Market Lamb
- Rabbit
- Swine

*** Each age division will have a record book question as a tiebreaker.****

Non Market Record Book

https://cdn.saffire.com/files.ashx?t=fg&rid=LakeCoFair&f=2025_Non_Market_Record_Book_FINAL(3).pdf

** The following pages are from Florida State Fair Skillathon Book***

INTRODUCTION

This manual has been developed as a study guide for the Florida State Fair Poultry Skillathon which is part of the Champion Youth Program. The topic for this year's Skilathon is **Products and Marketing**.

The Florida State Fair recognizes that agricultural education instructors, 4-H agents, parents, and leaders provide the traditional and logical instructional link between youth, their livestock projects and current trends in the animal agriculture industry. **PLEASE NOTE:** This manual is provided as a ***study guide*** for the skillathon competition and should be used as an additional aid to ongoing educational programs.

Sections are labeled **Junior, Intermediate & Senior, Intermediate & Senior, or Senior** to help exhibitors and educators identify which materials are required for each age level.

****** Denotes additional information in the study manual for preparing for the Champion of Champions competition.

The knowledge and skills vary by age group and may include:

Juniors (age 8-10 as of September 1, 2024)
Parts of the Egg,
Poultry Production
Exterior Egg Quality

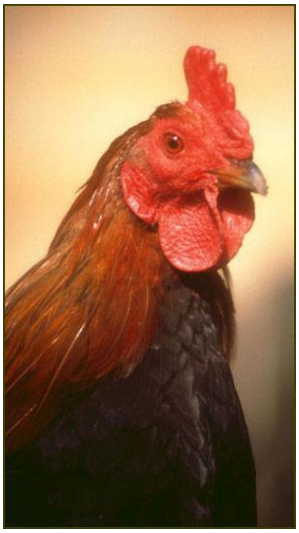
Intermediates (age 11-13 as of September 1, 2024)
all of the above plus...
Retail Parts,
Interior Egg Quality (Breakout & Candling)
Cookery

Seniors (age 14 and over as of September 1, 2024)
all of the above plus....
Carcass Grading
Skeletal Anatomy
Vertical Integration

GOOD LUCK!

Poultry Products and Marketing***

Youth poultry projects focus on the selection, raising, showing and often selling of purebred or commercial birds and/or eggs. By virtue of their participation in poultry projects, youth become part of an industry that provides food for the world. The steps involved in the movement of poultry and poultry products from producer to consumer are known as *processing and marketing*. Tremendous changes have occurred over the years in the ways poultry products are harvested and marketed but the fundamentals remain the same. Price is dependent on *supply and demand*. We can impact supply through increased or decreased breeding, but demand is more difficult to affect. To maintain a stable market for poultry products, consumers must have confidence in the ***wholesomeness and quality*** of what they are buying. That means products must be safe, nutritious, and tasty.



In 2024 the poultry industry was the fourth largest money-generating commodity in modern agriculture (corn ranks #1). About 45% of the cash receipts from U.S. agriculture each year are generated from **animal agriculture** and 10% of animal agriculture's share is from poultry with reported annual revenue of over $62 billion. http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics.aspx#27415

The *U.S. Poultry and Egg Association* (https://www.uspoultry.org) is a non- profit organization made up of producers and processor of broilers, turkeys, ducks, eggs, and breeding stock as well as companies that provide goods and services. They channel funds into programs focused on promotion, education, communication, and research related to the poultry industry in America. They partner with state affiliates and other national organizations to work on common problems. They conduct the International Poultry Expo, the world's premier poultry exposition. Their mission is to increase the quality and safety of poultry products while promoting responsible practices in animal care and environmental stewardship.

The American Poultry Association (http://www.amerpoultryassn.com/) is made up of purebred producers. The APA strives to promote and protect the standard-bred poultry industry. It is responsible for the publication of the *American Standard of Perfection*, sanctions poultry shows, and certifies poultry judges. Their youth affiliate is known as the APA/ABA Youth Poultry Club.

TYPES OF POULTRY OPERATIONS

J,I,S

Most large poultry operations specialize in producing either eggs, broilers/meat chickens, or turkeys. Other types of poultry producers raise ducks, quail, game birds, show birds, and other poultry species.

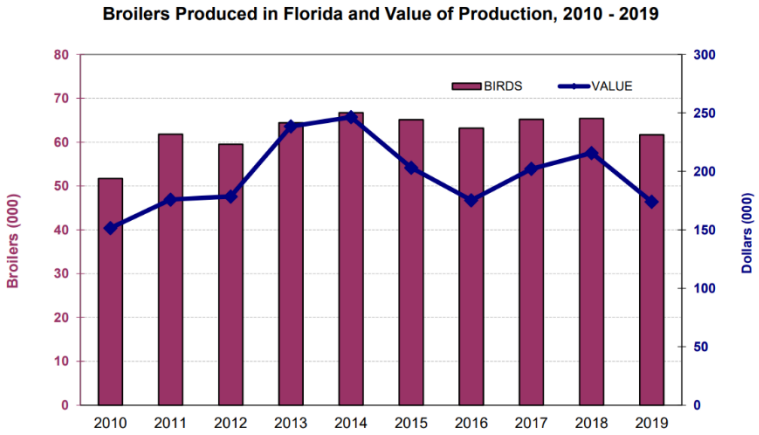
Though youth projects are centered on purebred breeds and showing, the poultry industry as a whole consists of three major types of production enterprises.

1. Broiler production - Meat-type chickens, sometimes called fryers, comprise 71% of the total value of poultry production. Commercial broilers are crossbreds, primarily produced by crossing White Cornish males with White Plymouth Rock females. Both the male and female broilers are raised to produce meat.
    a. Cornish Game Hens - harvested about 4 weeks of age; 2 lbs. or less.
    b. Broiler/Fryer – young chickens 6-10 weeks of age; over 2 lbs.
        i. Chicken for fast food restaurants – 6 weeks of age; 4.1 lbs.
        ii. Chicken for grocery stores – 7.5 weeks of age; 6.0 lbs.
        iii. Deboned chicken for sandwiches, nuggets, etc. – 8.5 weeks of age; 7.5 lbs.
    c. Roasters – 7-12 weeks of age; over 5 lbs (10.5 lbs. average)
    d. Heavy Fowl – culled breeding hens or roosters, also called 'baking hens', usually over 10 months of age and over 4 lbs.
    e. Light fowl – culled laying hens, usually over 10 months of age and usually about 2.5 lbs. Sometimes called 'stewing hens'.
    f. Capon – neutered male chickens, typically less than 4 months old.
    g. Rooster – adult males typically 10 months or older and over 6 lbs.
2. Egg production - for human consumption (not for incubation), about 20% of total production value. Commercial laying hens lay around 300 eggs/year beginning at 19 weeks of age. Older hens produce larger eggs.
3. Turkey production – About 8.5% of the total value of poultry production

POULTRY INDUSTRY IN FLORIDA

Florida has both commercial broiler and egg operations. Florida currently ranks 17th in egg production in 2018. Florida egg farmers reported having 7.34 billion laying hens. These hens laid an average of 276 eggs each per year, producing over 2 billion eggs in 2018 on Florida farms valued at $154 million.

Florida ranked 18th in the number of broilers and 17th in the pounds of chicken meat produced in 2023. In that year Florida farmers grew over 61 billion broiler chickens that produced 366,600,000 pounds of chicken meat, valued at $173,939,000.00.



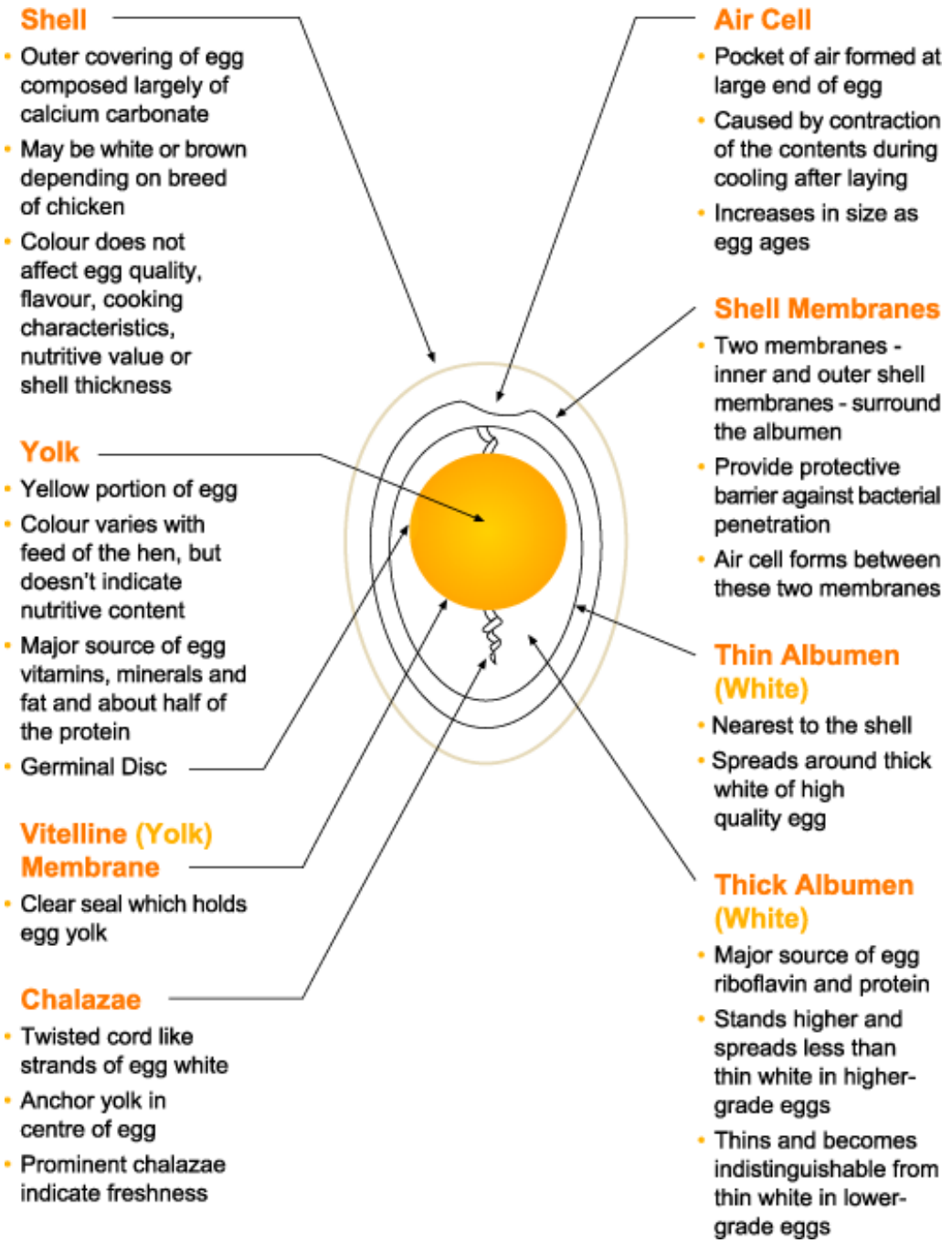
U.S. EGG INDUSTRY

The U.S. is second to China in egg production (109 billion vs. 450 billion in 2018). Most eggs are considered “table eggs” but about 25% of the eggs produced in the U.S. are taken to an egg products plant instead of being sold in the shell. The eggs are mechanically broken, the yolk can be separated from the whites if desired, the liquid egg is pasteurized and then it can be made into a variety of products such as whole egg, egg yolks, egg whites, scrambled egg mixes, etc. which can be dried, frozen or used fresh. These products are marketed to bakeries and to companies that make items like egg noodles, mayonnaise, cake mixes and items for military personnel.

PARTS OF AN EGG

J,I,S

The *American Egg Board* is the producer's link to consumers in communicating the value of the egg to increase demand for eggs and egg products (http://www.aeb.org/). Even though we eat eggs regularly, we don't often think about the parts of the egg. Study the illustration and web sites below to learn more about the *"incredible, edible, egg™".* http://www.incredibleegg.org/ Another good source for the parts and function of an egg is the Virginia Tech 4-H Virtual Farm website: https://www.sites.ext.vt.edu/virtualfarm/poultry/poultry_eggparts.html



EGG QUALITY

J,I,S

In commercial egg-processing plants, eggs are graded simultaneously for interior and exterior quality while they are inspected for wholesomeness. However, in the Skill-a-thon, all participants will grade eggs for exterior quality while only intermediates and seniors will grade eggs for interior quality.

Exterior Egg Quality

USDA Grades for exterior egg quality are A, B and Dirty (Grades AA and A have identical exterior quality standards). They are evaluated on the basis of texture, color, shape, soundness and cleanliness (see Table 1). The shell of each egg should be smooth, clean, and free of cracks. Some of the common defects in exterior egg quality include: stains, adhering material (yolk, manure, etc.), odd-shaped eggs, and rough shells.

Table 1. Summary of USDA grades for exterior egg quality.

Factor	Grade AA or A	Grade B	Dirty
Stain	Clean but may show small specks, stains or cage marks that do not detract from general clean appearance of the egg and may show traces of processing oil	Slight or moderate localized stains less than 1/32 of shell or scattered stains less than 1/16 of shell	Prominent stains; or slight or moderate stains covering greater than 1/32 if localized and 1/16 of the shell if scattered
Adhering dirt or foreign material	None	None	Adhering dirt or foreign material (1.0 mm in area or greater)
Egg shape	Approximately the usual shape	Unusual or decidedly misshapen (e.g., very long or distorted)	
Shell texture	May have rough areas and small calcium deposits that do not materially affect shape or strength	Extremely rough areas that may be faulty in soundness or strength; may have large calcium deposits	
Ridges	Slight ridges that do not materially affect shape or strength	May have pronounced ridges	
Shell thickness	Free from thin spots	May show pronounced thin spots	
Body checks	Free from body checks[1]	May show pronounced body checks[1]	

[1] A body check is an egg which looks like the shell was cracked, but the shell is in fact still intact. Body checks result when the egg is cracked when the shell is being formed in the hen's body and then partially calcified before being laid. Body checks may appear as fracture lines which are visible to the naked eye or as ridges or bulges associated with the area of shell which was fractured.

You can watch a video explaining the exterior quality of eggs by visiting the following web site:

https://www.youtube.com/watch?v=NzCaKdPHgPI

Interior Egg Quality

The USDA grades for interior egg quality are AA, A, B and Inedible. (see Table 2). Interior quality can be evaluated by candling eggs or by breaking them out.

Table 2. Summary of USDA grades of interior egg quality.

Factor	Grade AA	Grade A	Grade B	Inedible/Loss
Air cell	1/8 inch or less in depth	3/16 inch or less in depth	more than 3/16 inch in depth	Doesn't apply
Egg white	clear, firm	clear, may be reasonably firm	clear, may be weak and watery	Doesn't apply
Yolk	outline slightly defined	outline may be fairly well defined	outline clearly visible	Doesn't apply
Blood/meat Spots	none	none	blood or meat spots aggregating not more than 1/8 inch in diameter	blood or meat spots aggregating more than 1/8 inch in diameter

Candling Eggs

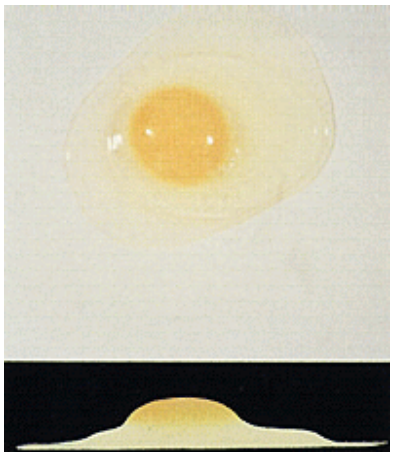
The interior quality of an egg can be evaluated without breaking it open. The egg is held up to a light in a process called candling. To candle an egg, hold the large end up to the candling light in a slanting position. The air cell is nearly always in the large end of the egg. Hold the egg between your thumb and first two fingers. Then, by twisting your wrist quickly, you can cause the inside of the egg to whirl. This will tell you a great deal about the yolk and white. Older eggs, or eggs that are of poor quality will have a large air cell and the yolk will be more visible and mobile. A meat or blood spot will show up as a dark or red foreign substance in the egg.

In the Skill-a-thon, air cell size and the presence of blood or meat spots are the only two factors used to determine interior quality egg grade. If a blood or meat spot is present, and greater than 1/8 inch, the egg is Inedible. If a blood or meat spot is less than 1/8 inch, or if there is no blood or meat spot, then the grade is determined on the basis of air cell depth. The depth of the air cell is the distance from its top to its bottom when the egg is held with the air cell up. In a newly laid egg, the air cell is small, not more than 1/8 inch deep. As the egg ages, especially if not refrigerated, evaporation takes place, the air cell becomes larger and the egg is downgraded. You can practice judging interior egg quality by candling by visiting: https://www.youtube.com/watch?v=Jz8w76s57Po

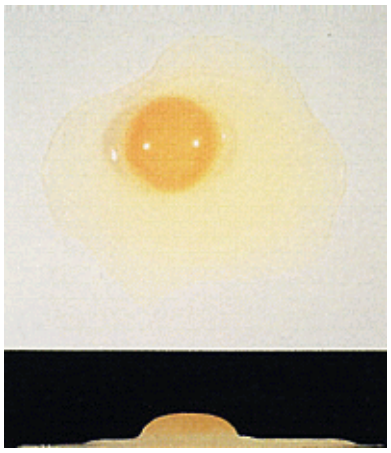
Broken-Out Eggs

Commercially, eggs are candled to remove any inedible eggs, and to ensure that the egg has an acceptable appearance when broken out, especially when fried (e.g., you don't want the egg white spread out all over the frying pan). As an egg ages and becomes poorer in interior quality, the egg white (albumen) becomes thin and will spread or flatten when the egg is broken out. The yolk will be flat and very easily broken. Eggs of good quality will have firm albumen (egg white) that is compact and upstanding. The yolk will stand up and be round in appearance. The main criteria that should be used to grade broken-out eggs that do not have blood or meat spots is the height of the thick albumen relative to the size of the egg.

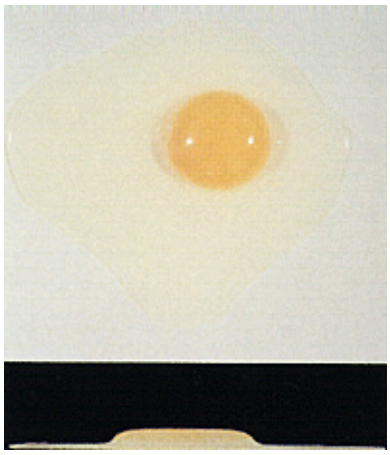
Eggs with very small spots less than 1/8 inch in diameter (Grade B) will not be intentionally used. If the albumen is tinted with blood, then the egg is classified as inedible, because there is blood in the albumen, although it does not appear as a blood spot. Practice judging interior egg quality by broken-out quality at the website:
https://www.youtube.com/watch?v=bE0qDjd_XAA



GRADE AA



GRADE A



GRADE B

RETAIL PARTS

I,S

Chicken carcasses are marketed whole or cut up into parts. These parts are somewhat similar to retail cuts of beef and pork. It is important to learn to identify the retail parts of chicken. Learn more by visiting: https://extension.uga.edu/content/dam/extension-county-offices/dawson-county/4h/PartsID.pdf
The typical parts are:

Whole breast
Breast quarter
Breast with ribs (whole breast with ribs)
Split breast (split breast with ribs)
Boneless breast (boneless, skinless, whole breast)
Breast tenderloin (tenderloin)
Back
Neck
Giblets: (liver, heart, gizzard)

Leg quarter
Whole leg (leg)
Boneless thigh (boneless, skinless thigh)
Drumstick
Thigh
Wing
Drummette
Flat (Wing portion)

Note: Names used by FFA are in parentheses

I,S

Poultry Preparation

Chicken from Farm to Table Like all fresh meats, chicken is perishable and should be handled with care. Proper handling and cooking of chicken completely eliminates the risk of bacterial infection. The Food Safety Inspection Service has a large number of fact sheets on all aspects of safe handling, cooking and storage. https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/poultry/chicken-farm-table

Poultry Facts
Fresh or Frozen – poultry stored at or below 0°F MUST be labeled frozen.

Dating – voluntary statement such as use by or sell by is for quality assurance.

Hormones & Antibiotics – no hormones are used in the raising of chickens; antibiotics used to prevent disease or improve feed efficiency must follow withdrawal period.

Additives – are not allowed on fresh chicken.

Foodborne organisms – bacteria grow rapidly on raw or undercooked chicken between 40 & 140 °F. Freezing does not kill bacteria but thorough cooking does. Never let raw product or juices contact already cooked food or food that will be eaten raw. Salmonella, E. coli, listeria and campylobacter are the more common bacteria associated with chicken.

Four food safety steps are: Clean, Separate, Cook (165 °F), Chill (promptly)

Rinsing or soaking chicken before cooking is not recommended.

Fresh chicken must be kept cold. Pick up chicken last before checkout, put in bag to prevent leakage, immediately refrigerate, use within 1-2 days or freeze.

Prepared chicken should be hot when purchased and used within 2 hours or covered in refrigerator and used within 3-4 days or frozen.

To thaw safely, place in the refrigerator, in cold water or in the microwave. Chicken thawed in

the refrigerator can be refrozen, but cold water or microwave thawed chicken should be cooked immediately after thawing.

Chicken Cooking Methods

Chicken can be cooked by dry heat or moist heat. Dry heat cookery methods improve flavor of meat through crust formation and caramelization but increase chewiness and decrease tenderness because of protein hardening. Cookery under moist conditions for long periods at relatively low temperatures generates steam that then converts the collagen in connective tissue into gelatin. Methods should be selected based on desired quality characteristics of the resulting product, available cooking facilities/equipment, and the amount of time available for preparation. Test chicken for doneness by using a meat thermometer or insert the point of knife into the thickest part of the thigh. If the chicken is cooked, the juice will run clear with no track of pink.

Roasting - recommended for whole birds. Meat is seasoned and placed in an open roasting pan with a cooking thermometer placed in the center to determine degree of doneness.

Broiling - Meat is directly exposed to the source of heat from above or from both sides at the same time. It involves high heat and produces a distinct caramelized flavor. The intense heat of the broiler quickly seals the succulent flesh beneath a crisp, golden exterior. Breast meat, if cooked in one piece, can be rather dry, so it is best to cut it into chunks. Chicken wings are best for speedy broiling.

Grilling - actually a method of broiling. Chicken is terrific grilled over coals, heated ceramic briquettes or an open fire. If using barbecue sauce, put it on at the very end and turn the temperature down to prevent burning.

Pan-Broiling - faster and more convenient than oven broiling and good for cooking smaller pieces It involves conduction of heat by direct contact of the meat with hot metal. Fat drippings are poured off as they accumulate.

Sautéing - ideal for small pieces or small birds, such as baby chickens. Heat a little oil or a mixture of oil and butter in a heavy-based skillet. Add the chicken and fry over moderate heat until golden brown, turning frequently. Add stock or other liquid, bring to a boil, then cover and reduce the heat. Cooking gently until the chicken is cooked through.

Stir-Frying - similar to pan-frying except that the food is stirred almost continuously. Skin-less, boneless chicken is cut into small pieces of equal size to ensure that the meat cooks evenly and stays succulent Cooking is done with high heat.

Deep-Fat Frying - cooking meat immersed in fat. Who doesn't love fried chicken?

Microwave Cookery - High frequency electrical energy causes molecules inside the meat to vibrate creating friction and heat without heating the surrounding air. Though you can microwave chicken frozen or thawed, it is better to thaw the chicken first.

Braising - In some regions of the country the term "fricassee" is used interchangeably with braising. The surface of the meat is seasoned, covered with flour and browned. Afterward the meat is placed in a covered pan with a small amount of liquid and cooked at low temperatures.

Poaching is a gentle cooking method that produces tender chicken and a stock that can be used to make a sauce to serve with the chicken. Cook in a liquid that is not actually bubbling at 165 to 180 degrees. It is also used to cook eggs. It takes one third less time than roasting. Poaching helps keep shrinkage of the meat to a minimum.

Meat Facts ***

100g Roasted	Calories (g)	Fat (g)	Sat'd Fatty Acids (g)	Protein (g)	Iron (mg)
Beef	216	9.9	3.79	29.58	2.9
Chicken	190	7.41	2.04	28.93	1.21
Goat	108	2.58	.79	29	3.3
Lamb	206	9.52	3.4	28.22	2.05
Pork	212	9.66	3.41	29.27	1.1
Rabbit (stewed)	206	8.41	2.51	30.38	2.37

S

READY-TO-COOK POULTRY

The USDA sets standards for 7 classes of ready-to-cook chickens:

1) Cornish game hen
2) Broiler or fryer
3) Roaster
4) Capon
5) Hen or baking or stewing chicken (heavy fowl or light fowl)
6) Cock or rooster.

Grading is an optional service offered by USDA;s Ag Marketing Service. The USDA grades for ready to cook chickens are A, B and C. In addition to grading poultry, all poultry is inspected during the slaughter process. USDA Inspectors are in the slaughter plants and inspect each chicken for wholesomeness, that is, to determine whether or not it is fit for human consumption.