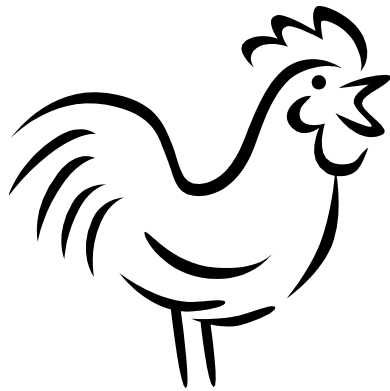


Poultry Skill-a-thon

Study Guide



2024

OBJECTIVES of the Poultry Skill-a-thon:

1. Develop a love for animals and a humane attitude toward them while experiencing the pride and responsibility of ownership of an animal.
2. Help 4-H members apply their knowledge in a fun and educational contest.
3. Encourage integrity, sportsmanship, cooperation and ability to communicate through related activities such as demonstrations, talks, judging events, and the fair.
4. No time limit will be imposed on exhibitors.
5. Exhibitors must take the skill-a-thon on their own; a reader can be requested for anyone needing one.
6. No parents or other adults not on the Poultry Committee are allowed in the skill-a-thon area.
7. Skill-a-thon handbooks will be given out at the Poultry Workshop.

What do I need to know for the contest?

Topics for the Knowledge and Skills will include the following: poultry terminology, poultry body parts, parts of a feather, types of combs, classification, general health, injection & medications, feed tag, nutrition, and general tools.

What are given?

There will be a Junior (8-10), Intermediate (11-13), Senior (14 – graduate from High School) division. Within each division, a 1st, 2nd, and 3rd place will receive rosette ribbons. Your score will then be applied towards the “Master Exhibitor Award”.

Where and when is the contest?

The contest will be held on:

Wednesday, January 24, 2023 from 2:00 pm – 6:00 pm in the KVLS Arena for the Auction Hens

Saturday, February 17, 2023 at 9:00AM, in the Poultry/Rabbit arena for the Youth Poultry

The focus this year is on the **reproduction** of your bird(s). Most of the information is given out during the Poultry Workshop as well as some hands-on experience. I look forward to seeing you at the fair.

Annette Nation

Poultry Committee Chair

A young chicken from hatch to five weeks of age is called a chick. A male chicken less than one year of age is a cockerel; a female through her first laying year may be referred to as a pullet. A mature male chicken greater than one year of age is referred to as a cock or rooster; a mature female greater than one year old may be called a hen.

The turkey has nomenclature similar to the chicken but with a few notable differences. It has no comb on its head, but does have a fleshy growth from the base of its beak that is known as a snood, which is very long on males and hangs down over the beak. It has a wattle, but also bumpy, red, fleshy tissue covering the head and neck called caruncles. Male turkeys have a tuft of long, bristly, black, coarse fibers attached to the breast, known as the beard.

A young turkey is called poult. A male turkey of any age may be referred to as tom; female turkey, a hen.

Ducks have nomenclature similar to that of the chicken, with the following notable differences. There is no comb or other head covering. The duck's bill is flatter than the chicken's beak and has a protrusion on the upper tip known as a bean. The duck has webbed toes used for swimming. Male ducks have curled feathers at the base of the tail distinguishing them from females. Male ducks emit only a hiss, whereas the female will also emit a squawk when handled.

A young duck is called a duckling. An adult male is a drake; and an adult female, a duck.

Geese have a few additional distinguishing features. Some breeds will have a horny knob at the base of the bill. Some geese also have dewlap, which is a loosely suspended growth of skin extending from the base of the lower bill along the upper throat.

A young goose is called a gosling. An adult male is a gander; and an adult female, a goose.

Pigeons, guineas, and various ornamental and game birds are frequently raised for pleasure. Also, a limited number of producers raise them for profit, on a full-time or part-time basis. Game birds are raised for sale to game preserves or for shooting preserves. Also, there is a limited market for the sale of ornamental birds.

The domestic guinea fowl is descended from one of the wild species of Africa. Guineas might be more popular were it not for their harsh and seemingly never-ending cry, and their bad disposition.

Guinea chicks are known as baby keets. Usually, sex can be distinguished by the cry and by the larger helmet and wattles and coarser head of the male.

Swans are an ornamental bird. Swan chicks are properly called cygnets. Males are called "cobs" and females are called "pens." A swan can have up to 25000 feathers. Swans respond to the same care as geese. Swans live to be very old; the males have been known to live for more than 60 years.

ADDITIONAL MISCELLANEOUS DATA – CHICKENS

Body temperature: 103° F

Respiration rate: 12-30 BPM

Incubation period: 20-22 days

Sexual maturity: 18-24 weeks

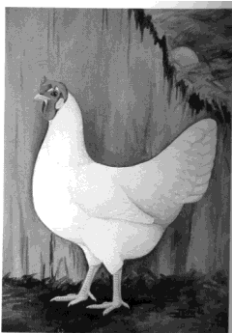
Life span: 3-5 years

Breeding life: 1-2 years

Breed Identification

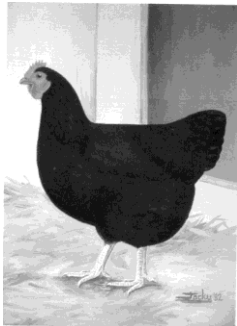
Animals are selected for traits or characteristics that are considered economically important. Though most of our livestock industries use crossbreeding systems, it is still important to consider the purebred animals that contributed the genetics to the composite breeds we see today. A purebred animal is one that has the characteristics defined by the breed registry and purebreds are expected to pass those traits on to their offspring with a high degree of predictability. When animals of different breeds are mated, we call it crossbreeding. Some crossbred animals are now listed as purebreds because they have a set of traits that they consistently pass on and they have established a breed registry. Some breeds of poultry and their descriptions are listed below.

BREEDS:



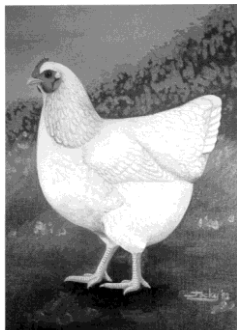
White Leghorn:

This breed is known for their excellent production of white eggs. Originally, the breed's ancestors came from Italy, however, over the years many sub-varieties have developed throughout Britain, Europe, and America. This breed has the smallest body size of those listed here. Commercially, it is the major breed used to produce white eggs.



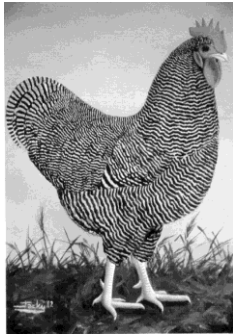
Rhode Island Red:

This dual purpose breed has origins in New England where breeders developed the breed by crossing Red Malay Game, Leghorns and Asiatic native stock. This breed is characterized by a long, broad body; a deep, well-rounded breast; color described as a lustrous, rich red throughout; and brown to dark brown eggs. Commercially, this breed has been selected for egg production and is the major breed used by itself or in crosses with other breeds, to produce brown eggs.



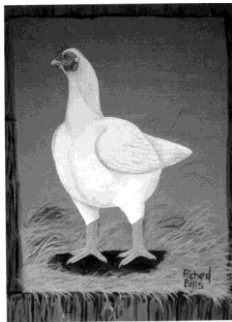
White Plymouth Rock:

Although this is a white breed, the birds of this variety are known for the brown eggs they produce. This breed is also considered a dual purpose breed and is the basis for the modern strains of female parent stock for broiler chicks. Commercially, this breed has been selected for meat production and is the major breed used as the "mother" of meat-type chickens.



Barred Plymouth Rock:

Similar in type to the white variety, this breed is characterized by their unique plumage coloration. Each feather is patterned with sharply defined, regular, parallel bars of alternating light and dark color, ending with a narrow, dark tip. A 60% black, 40% white ratio is recommended in females.



White Cornish:

This fowl is uniquely characterized by the texture of their feathers, being short, hard and quite narrow, and by the exceptionally large breast muscles. This breed was produced from White Malay. The shells of their eggs are brown. Commercially, this breed has been selected for meat production and is the major breed used as the “father” of meat-type chickens.

Adapted from American Poultry Association Standard of Perfection, Mendon, MA 1998.

Selection: Visual Evaluation

Many traits of economic importance can be evaluated by simply looking at the animal. In purebreds or registered animals, the “ideal” is usually described or illustrated by the breed registry. Most poultry show judges rely totally on the way the animal looks, moves, or feels to make their decisions on class placings.

Criteria for Selection Using Visual Appraisal

The intended use of the animal will determine which traits are most desirable. For instance, meat breeds would need to have muscle indicators while layers are evaluated on indicators of egg production. The American Poultry Standard of Perfection has detailed descriptions and pictures of the ideal type for each breed and is the official reference for show judges.

Broilers (meat-type) chickens:

- A wide, deep frame (skeleton) is needed for large breast and leg muscle
- development. Strong, straight legs and toes are needed to support the large body.
- The chickens should be alert and have lots of vigor.

Layers (egg-type) chickens:

- Although mature hens are about half the size of mature meat-type chickens, the frame (skeleton) needs to be of a balanced width and depth to contain the active reproductive system and other internal structures.
- Strong, straight legs and toes are needed to support the hens for about two years of egg production.
- The chickens should be alert and have lots of vigor.

Be prepared to evaluate the head, body conformation, feathering, feet and toes, sexual maturity, combs, wings and overall appearance of birds of meat type and egg type breeds.

Reproduction Overview

Reproductive Process in Poultry

The reproductive process in poultry is similar to that in mammals, except the young do not develop inside the body of the female but develop in a fertilized egg outside the body. Poultry do not have a gestation period and there is no parturition. Instead, there are *incubation* times for the different species and *hatching* is the term used for the process of the young getting out of the shell. Poultry refers to about 12 species of birds but this information will focus mainly on the chicken.

Birds differ from mammals in the genetic mechanism by which sex of the offspring is determined. In mammals, sex of offspring is determined by the male gametes (*sperm*), whereas in birds it is determined by the female gametes (*ova*). This situation results from male birds having two complete sex chromosomes while female birds have only one. The situation is opposite in mammals.

Reproductive Anatomy

The unique way birds reproduce determines the type of reproductive tract.

Understanding reproductive anatomy is basic to managing reproduction.

Reproductive Functions

Once you know the names of all of the reproductive structures, the next step is understanding the role of each part. Understanding normal functional anatomy allows the manager to apply reproductive management tools.

Rooster Functional Anatomy

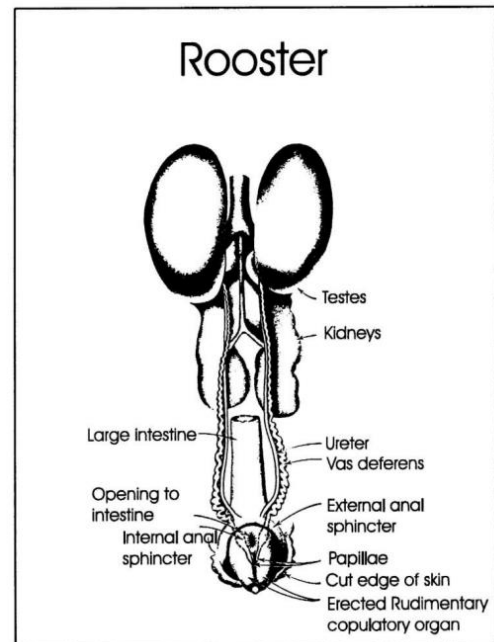
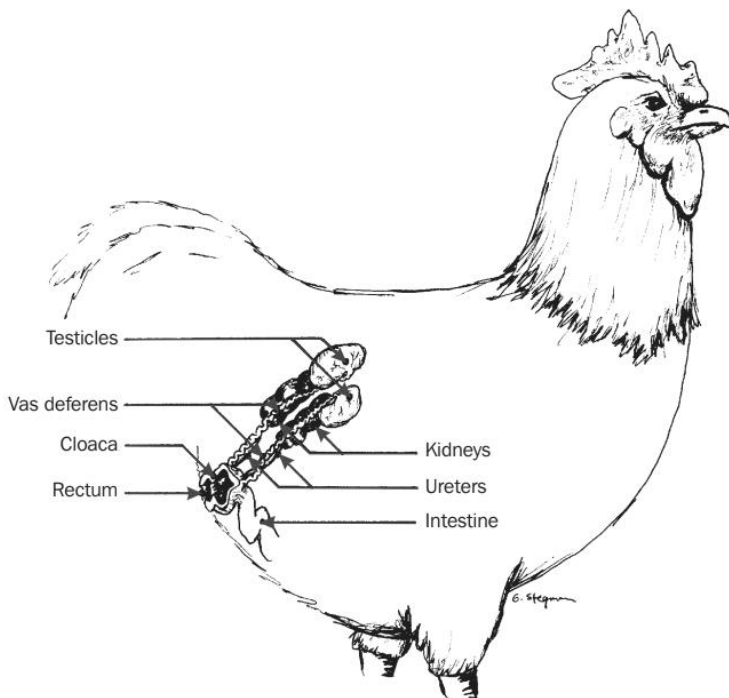
Testicles or testes	Paired male gonads that produce sperm and the male sex hormone, testosterone. Birds differ from mammals in that the testicles are located inside the body cavity. They are attached near the kidneys.
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Epididymis The epididymis in birds is very small and does not have a known function as compared to mammals.

Vas deferens Long tube connecting epididymis of each testicle to the rudimentary copulatory organ, and transports sperm.

Rudimentary Copulatory Organ Organ used for copulation, in birds, that deposits sperm on the hen's everted vagina. The sperm are enclosed in the vagina as it returns to its normal position.

Male birds do not have a prostate, seminal vesicles, nor bulbourethral gland (Cowper's gland) as are present in mammals.



Hen Functional Anatomy

Ordinarily, only the left ovary and oviduct fully develop in the hen. During embryonic development, a right ovary and oviduct begin to develop but then degenerate.

Ovary The female gonad produces ova (commonly called yolks) and hormones. The ova develop inside ovarian follicles. When an ovum (yolk) is mature, ovulation occurs. The ovum is released when the follicle ruptures along the stigma; an area of the follicle with very few blood vessels. The hormones estrogen and progesterone are produced by the ovary.

Oviduct The oviduct has five segments:
Infundibulum: engulfs the yolk after ovulation so it enters the oviduct. It is the site of fertilization if sperm are present in the oviduct as a result of a natural mating or AI (artificial insemination). Sperm are stored here in specialized areas.* Magnum: secretes egg white (albumen).

Isthmus: secretes the inner and outer shell membranes.

Shell gland (uterus): forms the shell and secretes the cuticle.

Vagina: the passageway for the egg during oviposition; the act of laying an egg as the vagina everts through the cloaca and vent and deposits the egg to the outside. Sperm are stored here in specialized areas near the shell gland.*

* Sperm storage: sperm can survive in the oviduct to provide a high rate of fertility for about 1 week, and decreasing fertility rates for about three weeks.

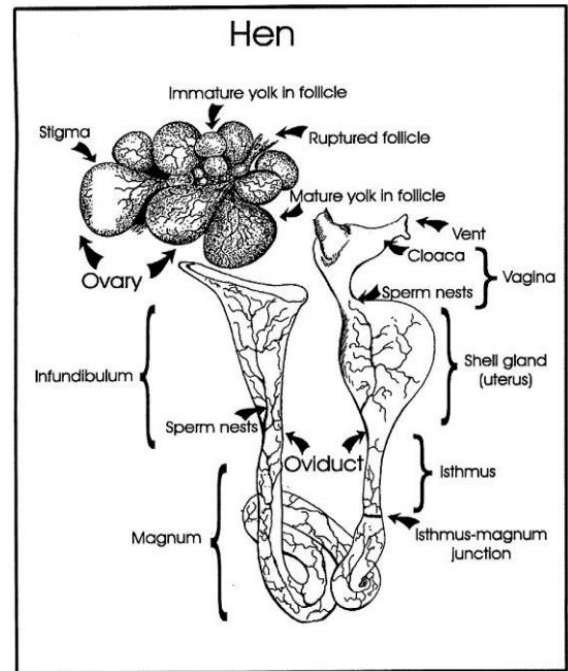
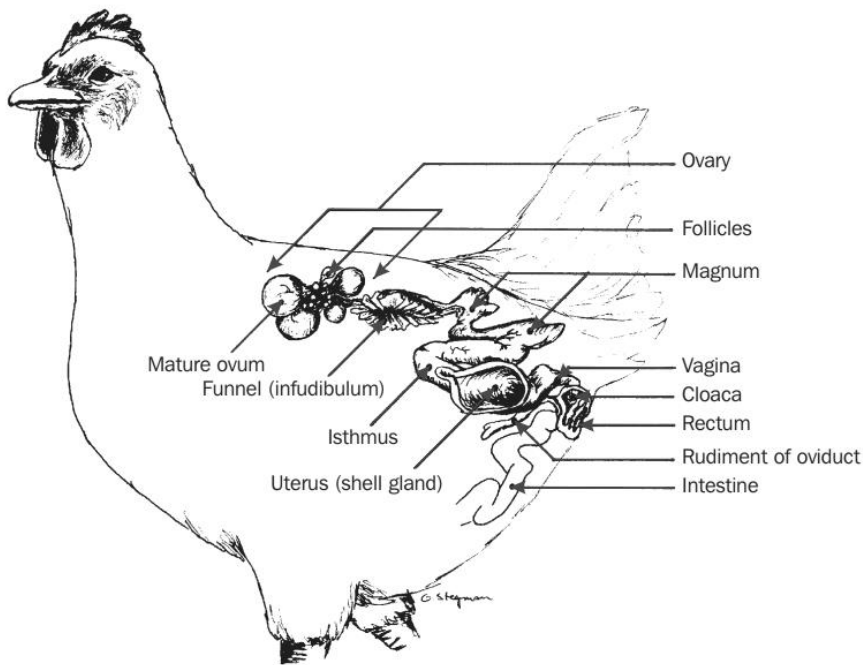
<u>Segment</u>	<u>Approx. length, inches</u>	<u>Approx. time spent in egg formation</u>
Infundibulum	3	15 min.
Magnum	13	2 hr. 45 min.
Isthmus	4	1 hr. 15 min.
Shell gland	4	20 hr. 45 min.
Vagina	2	5 min.
Total	26	25 hr. 5 min.

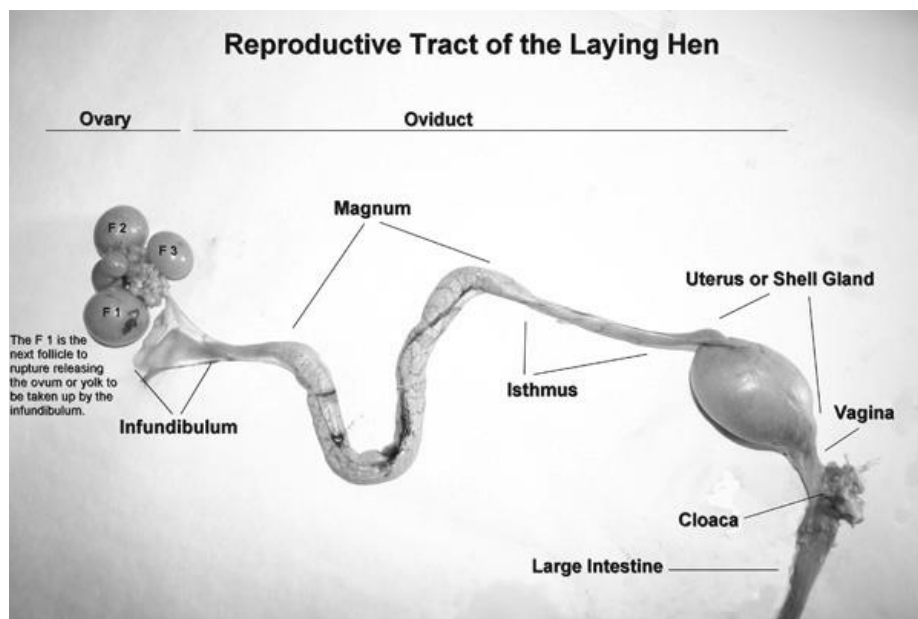
Cloaca

Located just inside the vent. The digestive, urinary and reproductive systems connect to the cloaca.

Vent

Common exterior opening for three systems: digestive, urinary and reproductive.





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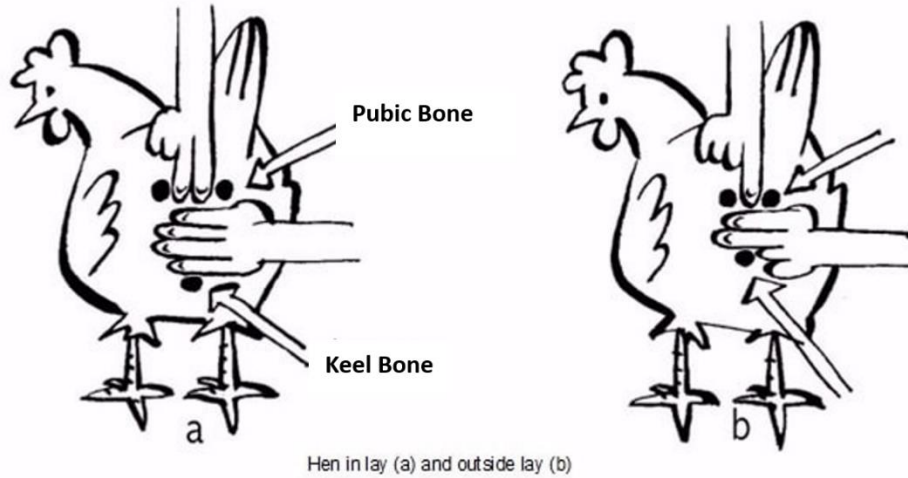
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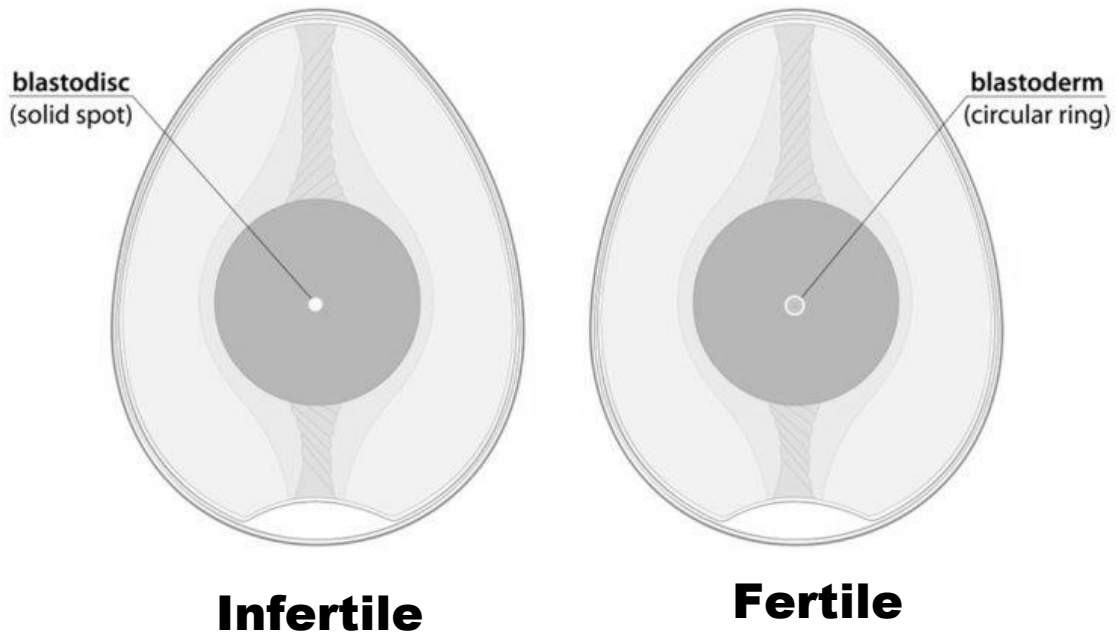
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Evaluating egg production capability:



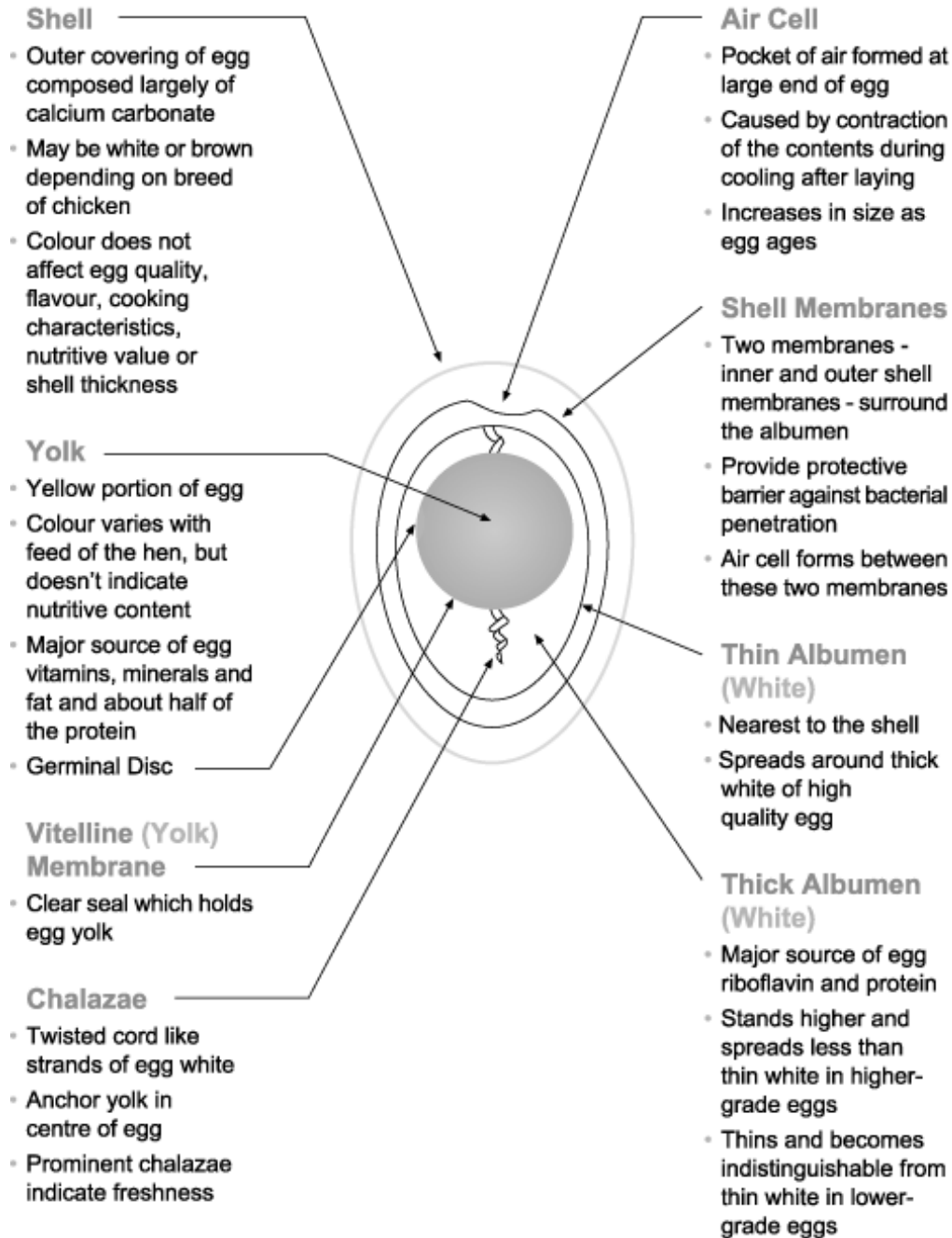
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Germinal Disk – Fertile or Unfertile



PARTS OF AN EGG

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. Even though we eat eggs all the time, 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/>

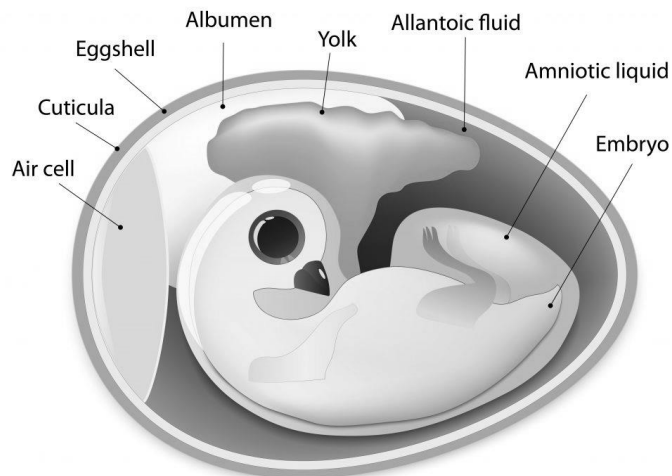


The amount of time required for incubation and hatching of poultry eggs depends on the species and are shown in table below.

SPECIES	INCUBATION PERIOD (Days)
Chicken	21
Duck (except Muscovy)	28
Muscovy duck	35
Goose (except Canada and Egyptian)	28-32
Canada and Egyptian Geese	35
Turkey	28
Quail - Bobwhite	24
Quail - Japanese (Cortunix)	16-18
Guinea fowl	28
Chukar partridge	24
Pheasant	24
Peafowl	28
Pigeon (For comparison)	17

During embryo several ‘extra-embryonic’ membranes are developed. These include the yolk sac, amnion, chorion and allantois. The yolk sac is the membrane that spreads over the yolk and transports nutrients from the yolk to the embryo. The amnion is the fluid-filled sac that covers the embryo to protect it from physical shocks and injury. The chorion and allantois membranes combine to form the chorion-allantoic membrane that performs four functions. It is a respiratory organ that provides oxygen to the embryo. It is a storage area for the waste products that the embryo develops. It provides nutrients from the albumen to the embryo. It also brings calcium from the eggshell to the embryo.

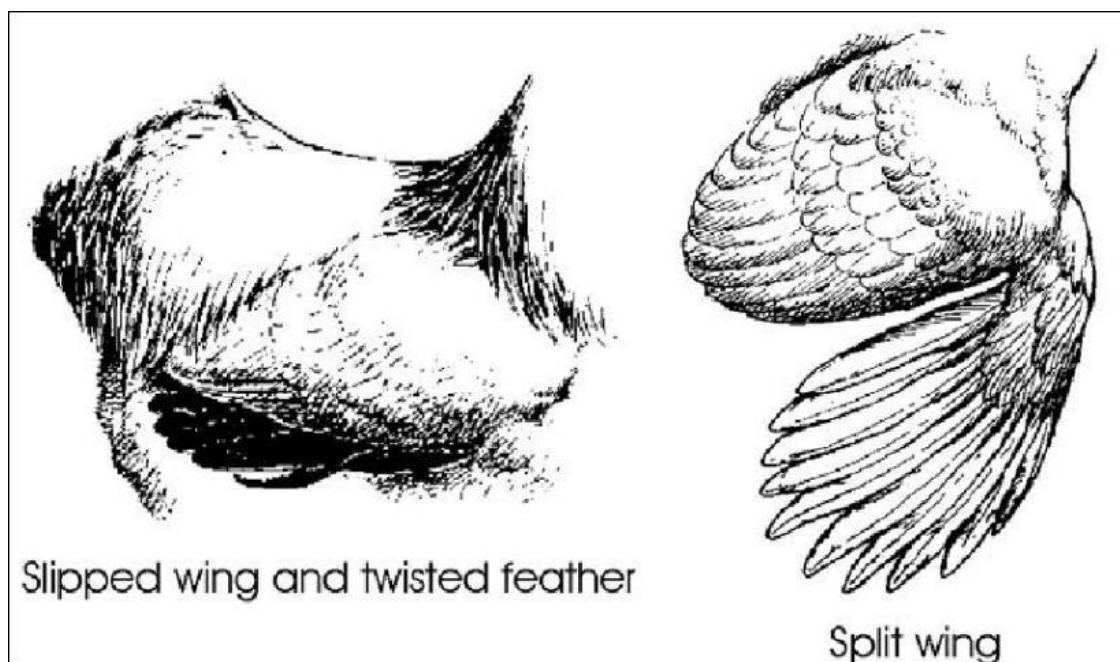
BIRD EMBRYO

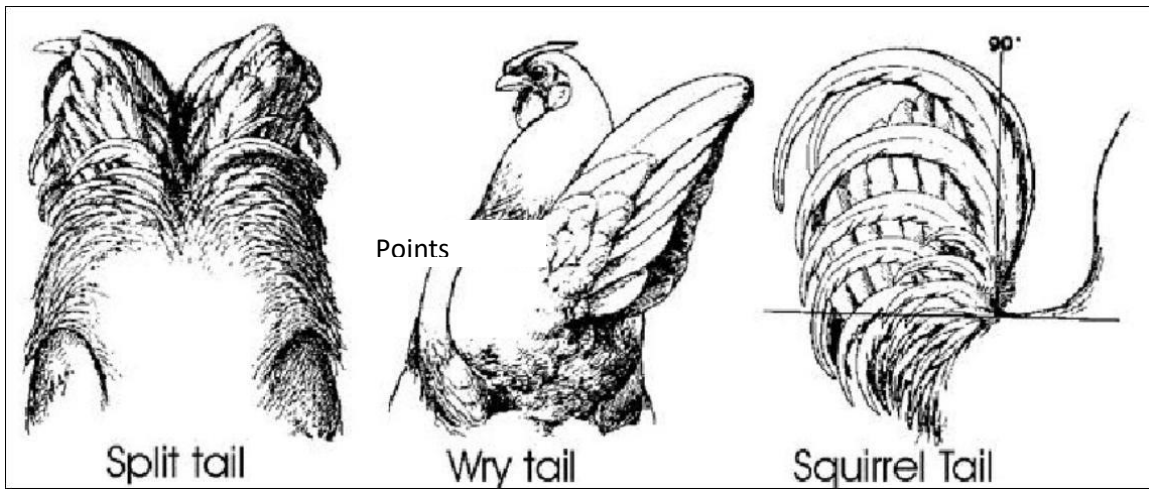


Incubating eggs should be turned regularly from day 2 to 18. If not using an automatic turner, a minimum number of turns is recommended. For chicken eggs, the minimum is three times per day. Typically, an X and O are marked on either side of each egg and the eggs rotated back and forth three times daily.

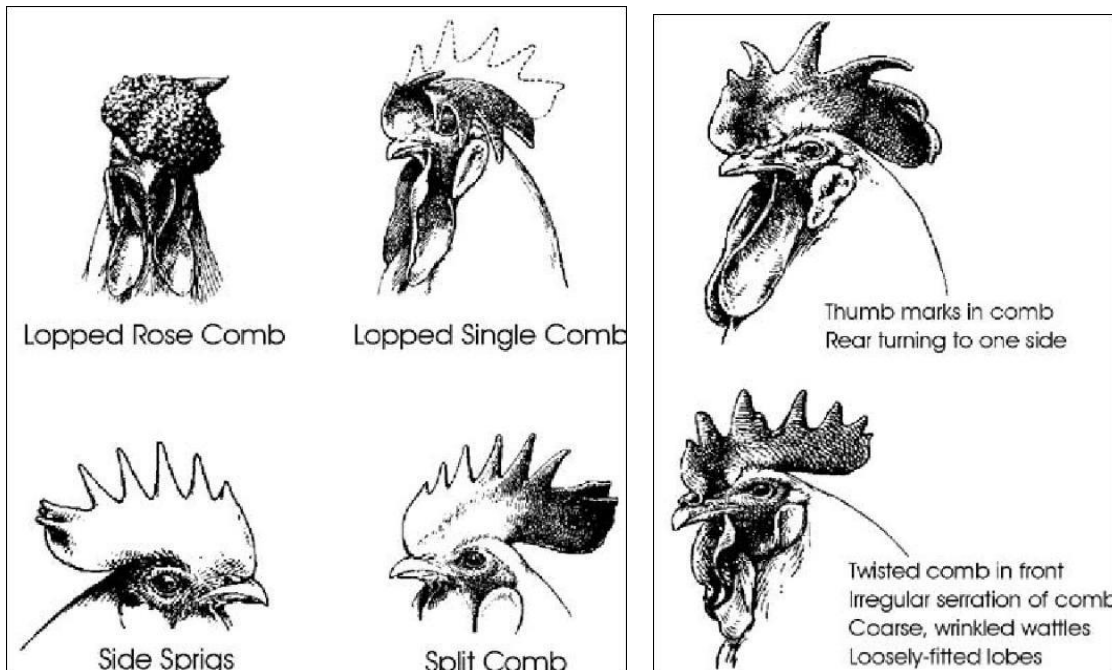
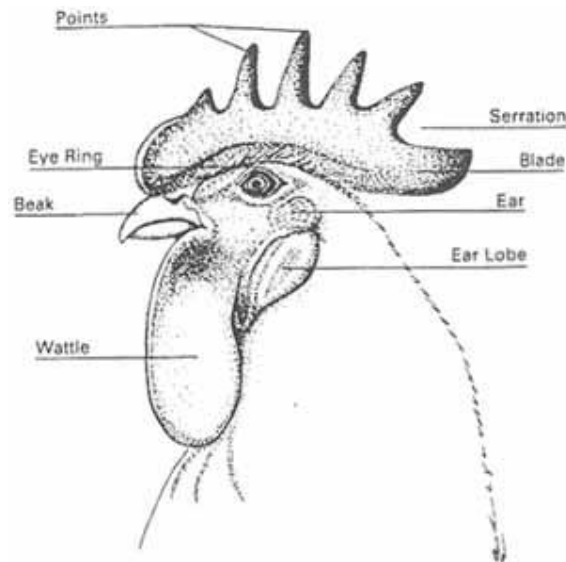
Turning the eggs is stopped at 18 days of age. This is the time when the eggs are transferred from the incubator to the hatcher. During this time the embryo is getting into position to break out of the shell. It must be in the correct position to hatch. Its beak is under its right wing with the beak pointing towards the air space. To break out of the shell, the embryo breaks through the shell membrane and enters the air space. This is referred to as internal pipping. At this time the chick goes from embryo to chick as it starts to breathe with its lungs. The level of carbon dioxide in the air space builds up as the chick continues breathing. This stimulates the chick to break out of the shell. It breaks through the shell (called pipping) using its 'egg tooth' (a hardened material on the tip of the chicks beak and lost shortly after the chick hatches) and cuts around the surface of the shell. It then pushes itself out of the shell. Of course, this is hard work and the first thing the newly hatched chick wants to do is rest. They soon dry and are able to move about.

Some DQ's on Tail and Wing





The head of the chicken has some unique features distinguishing it from other poultry.



Types of Combs



The **Buttercup** consists of a single leader from base of beak to a cup-shaped crown set firmly on the center of the skull and completely surmounted by a circle of regular points. The cavity within the circle of points should be deep; the texture of the comb should be fine.



The **Cushion** is a solid low, moderately small comb; smooth on top, the front, rear and sides are nearly straight with rounded corners. It has no spikes.



The **Pea** is a medium length, low comb, the top of which is marked with three low lengthwise ridges, the center one is slightly higher than the outer ones. The outer ones are either undulated or marked with small rounded serrations. This is a breed characteristic that is found in Brahmas, Buckeyes, Cornish, Cubalayas and Sumatras.



The **Rose** is a solid, broad, nearly flat on top, low, fleshy comb that terminates in a well-developed tapering spike. It may turn upward as in Hamburgs, be nearly horizontal as in Rose Comb Leghorns, or follow the contour of the head as in Wyandottes. The top surface of the main part should be slightly convex and studded with small rounded protuberances. The general shape varies in the different breeds.



The **Walnut** is an almost round, somewhat lumpy comb, inclined to be greater in width than length; covered with small corrugations on top and crossed with a narrow transverse indentation slightly to the front of the comb. Sometimes two or three small rear points are hidden by a crest, others are without points. Generally they are considered to be genetically a rose comb changed by a rose comb plus crest. Typically found on Silkies.



The **Single** comb is a moderately thin, fleshy formation of smooth soft surface texture, firmly attached from the beak along the top of the skull with a strong base. The top portion shows five or six rather deep serrations or distinct points, the middle points being higher than the anterior or posterior, forming a semi-oval when viewed from the side. The comb is always erect and much larger and thicker in males than in females; may be lopped or erect in the female. This depends on the breed. The comb is divided into three sections: the front or anterior, the middle and that extending past the rear base of the skull, the posterior or blade.

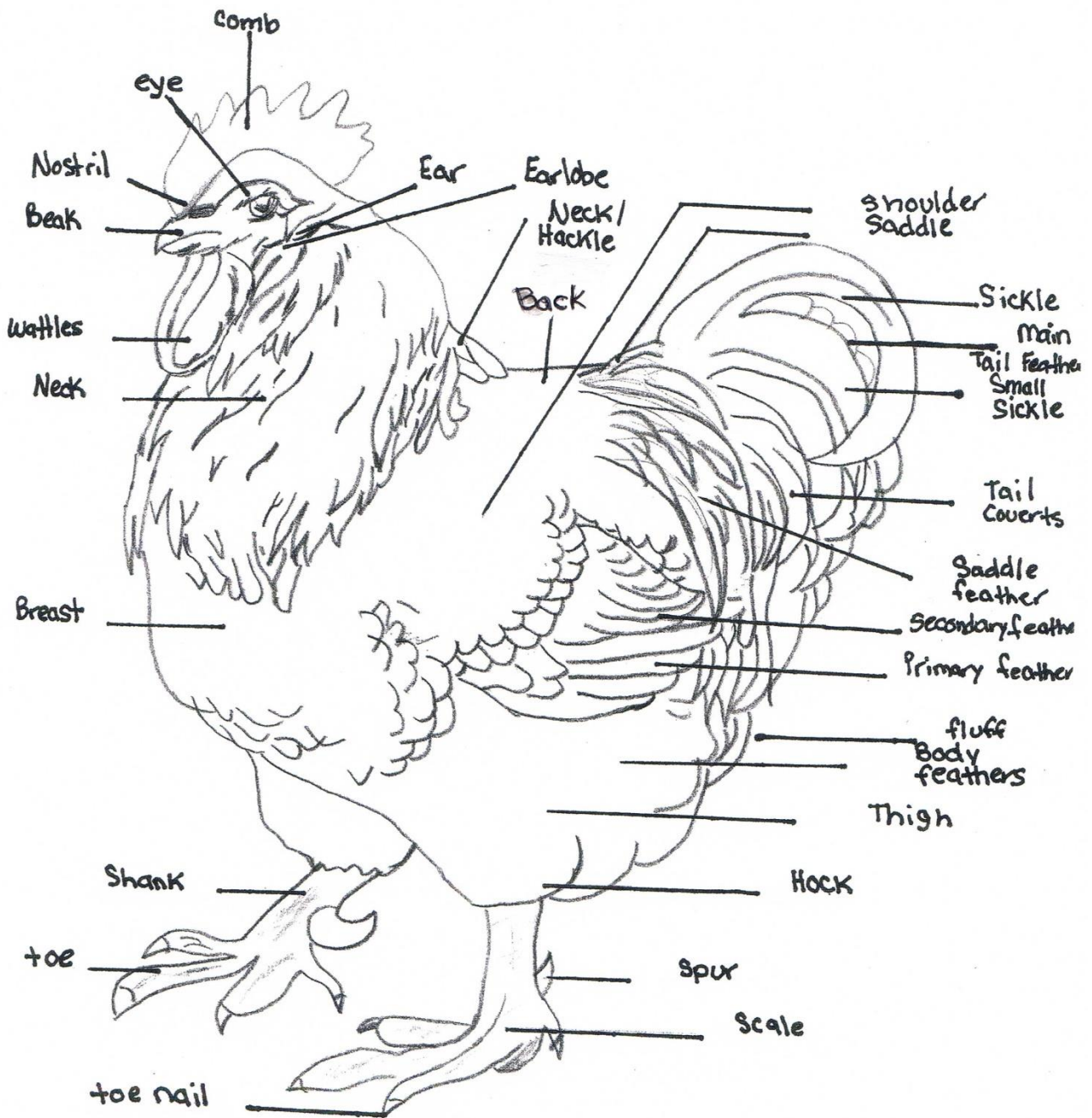


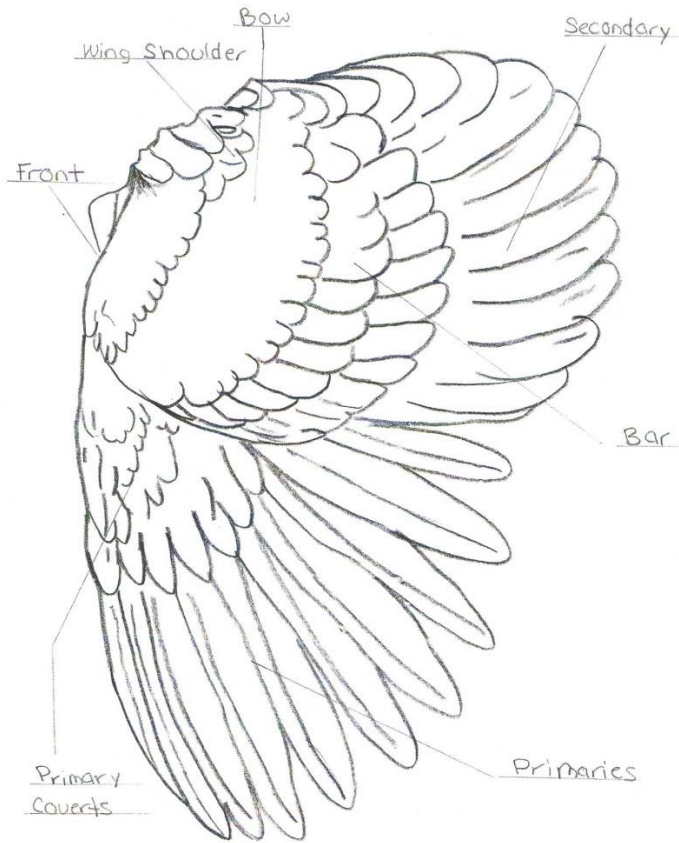
The **Strawberry** is a low comb that is set well-forward. The shape and surface resemble the outer part of half a strawberry with a large end nearest the beak of the chicken.



The **V-Shaped** comb is formed of two well defined horn like sections that are joined at their base, as in Houdans, Polish, Crevecoeurs, LeFleche and Sultans.

Parts of a chicken





Parts of a Wing

parts of a Feather

