Pasco County Fair



Poultry Skillathon Study Guide



Dear 4-H and FFA youth participant,

Welcome to the Pasco County Fair Skill-a-thon study guide. This manual is provided as a study guide and should be used as an aid to help youth prepare for the skill-a-thon which will be held at the Pasco County Fair.

A Skill-a-thon is a method of involving 4-H and FFA youth in challenging activities to increase knowledge of their animal project. The skill-a-thon is designed to take youth through a series of mini learning stations and the activities involve hands on learning. Participants will rotate from station to station attempting to perform a given task.

Junior participants will have fewer stations than Intermediate and Senior youth. It is recommended that youth study the entire booklet to prepare them for this challenge.

Curriculum in this package was developed by Extension Services. If you have questions, please contact your 4-H or FFA leader to assist you with your preparation.

Study hard and you will be successful with this skill-a-thon.

Sincerely,

Shayle 1

Shayla Reighter Pasco County 4-H Agent

Breeds





LANGSHAN

BLACK Asiatic - Large Fowl

This breed originated in China and is one of the oldest breeds. Comb, wattles, and earlobes are bright red. Cock's comb is single, medium size, straight, and upright. Wattles are medium length and well rounded. Beak is stout, well curved, and colored dark horn with a pink tint at the end. Eyes are dark brown, moderately large, and round. Cock's tail is long, large, full, and carried 75 degrees above the horizon. Body is broad and deep. Shanks and toes are bluish black with a black feather covering. Skin is white. Plumage is greenish black. These birds are active, quick, broody, and make good mothers. They are general-purpose birds: used for meat (about 7 to 9 pounds) and egg production (dark brown eggs).

SUSSEX

SPECKLED English - Large Fowl

This breed originated in England. Comb, wattles, and earlobes are bright red. Cock's comb is single, medium size, straight, and upright. Wattles are medium size and well rounded. Beak is horn colored, stout, short, and slightly curved. Eyes are reddish bay, large, round, and prominent. Cock's tail is medium length, well spread, and carried 45 degrees above the horizon. Body is long, broad, and deep. Shanks and toes are pinkish white. Skin is white. Plumage is mahogany-bay, and each feather is tipped in white with a black bar. Main tail feathers are black tipped in white. These are a good all-around farm fowl: alert, attractive, good foragers, broody, and good mothers. They are one of the best dual-purpose birds: used for meat production (about 7 to 9 pounds) and egg production (brown eggs).

SILKIE

BEARDED WHITE Feather Legged - Bantam

This breed originated in the Far East. Comb and wattles are deep mulberry, and earlobes are light blue turquoise. Cock's comb is walnut shaped, moderately small, lumpy, and almost round. Crest is medium size, soft, and full. Wattles are very small; natural absence is preferred. Beak is leaden blue, short, stout, and curves to a point. Eyes are black, large, round, and prominent. Tail is short, broad, well rounded, and filled underneath with soft, fluffy plumage. Body is moderately long, deep, broad, and well rounded. Shanks and toes (five toes) are leaden blue and well covered with feathers. Skin is black. Plumage is white, downy or silky, and hairlike (feathers are without webs). Beard is thick and well feathered. (weight 32 to 36 ounces).

LEGHORN

SINGLE COMB WHITE Mediterranean - Large Fowl

This breed originated in Italy and is the most numerous breed in America today. Comb and wattles are bright red, and the earlobes are white. Comb can be rose or single. Wattles are moderately long, well rounded, and smooth. Beak is yellow, medium length, strong, and nicely curved. Eyes are reddish bay, large, full, and prominent. Cock's tail is large, well spread, and carried 40 degrees above the horizon. Body is long, deep, and carried nearly horizontal. Shanks and toes are yellow. Skin is yellow. Plumage is white with a large tail. These birds are small, sprightly, noisy, good foragers, capable of considerable flight, and like to move around. They are noted mostly for egg production (about 4 to 6 pounds, white eggs).









COCHIN

BUFF Asiatic - Large Fowl

This breed originated in Asia. Comb, wattles, and earlobes are bright red. Cock's comb is single, medium size, upright, and firm. Wattles are long, well rounded, and thin. Beak is yellow, short, stout, and curves to a point. Eyes are reddish bay and moderately large. Cock's tail is short, well spread at the base, and filled underneath with soft, profuse feathers. Body is moderately long, broad, deep, and well rounded from the breast to the abdomen. Shanks and toes are yellow with a golden, buff feather covering. Skin is yellow. Plumage is a profuse, rich, golden buff color. These birds are broody, well-suited to confinement, and good mothers (often used as foster mothers). They are bred mostly for exhibition, but are capable of meat production (about 8 to 11 pounds, brown eggs).

OLD ENGLISH GAME

BLACK BREASTED RED Game - Bantam

This breed originated in England. Comb, wattles, and earlobes are bright red. Cock's comb and wattles are neatly and smoothly dubbed. Beak is dark horn, large, strong, and well curved. Eyes are brown, large, round, and prominent. Cock's tail is well spread and carried 45 degrees above the horizon. Body is small and compact with a straight keel. Shanks and toes are black. Skin is white. Plumage is black. These birds are small, hardy, extremely active, very noisy, broody, aggressive, and capable of considerable flight. They are bred for show (22 to 24 ounces, white or lightly tinted eggs).

NEW HAMPSHIRE

Single Comb Clean Legged - Bantam

This breed originated in New England. Comb, wattles, and earlobes are bright red. Cock's comb is single, firm, medium length, and upright. Wattles are medium length, uniform, and free from folds. Beak is reddish horn, strong, medium length, and regularly curved. Eyes are reddish bay, large, full, and prominent.

Cock's tail is medium length, well spread, and carried 45 degrees above the horizon. Body is medium length, well rounded, broad, and deep. Shanks and toes are rich yellow tinted with reddish horn. Skin is yellow. Plumage is chestnut red with a reddish bay head, golden bay neck, and black tail. (hen is chestnut red with a black tail edged in chestnut red and lower neck feathers tipped with black). These birds are competitive and aggressive. Hens go broody and make good mothers. They are meat chickens with fair laying ability (30 to 34 ounces, brown eggs).

ORPINGTON

BUFF English - Large Fowl

This breed originated in England. Comb, wattles, and earlobes are bright red. Cock's comb is single, medium size, straight and upright. Wattles are medium size and well rounded. Beak is pinkish white, short, stout, and regularly curved. Eyes are reddish bay, large, round, and prominent. Cock's tail is moderately long, well spread, and carried 25 degrees above the horizon. Body is moderately long, broad, deep, straight, and extends forward. Shanks and toes are pinkish white. Skin is white. Plumage is a rich, golden buff. These birds are docile, good mothers, broody, and able to withstand cold temperatures. They are general-purpose birds: used for heavy meat production (8 to 10 pounds) and egg production (brown eggs).









SEBRIGHT

SILVER Rose Comb Clean Legged - Bantam

This breed originated in England. Comb and earlobes are purplish red, and wattles are bright red. Cock's comb is rose shaped, firm, and square in front. Wattles are broad and well rounded. Beak is dark horn, short, and slightly curved. Eyes are brown, large, round, and prominent. Cock's tail is full, well spread, and carried 70 degrees above the horizon. Body is compact, deep, and short. Shanks and toes are slate blue. Plumage is silver-white edged with black. Tail does not have sickles. Birds are bred for show and make good layers (22 to 26 ounces).

RHODE ISLAND RED

SINGLE COMB American - Large Fowl

This breed originated in Rhode Island. Comb, wattles, and earlobes are bright red. Cock's comb is medium length, straight, and upright. Wattles are medium length, uniform, and free of folds and wrinkles. Beak is reddish horn, medium length, and slightly curved. Eyes are reddish bay, large, full, and prominent. Cock's tail is medium length, well-spread, and carried 20 degrees above the horizon. Body is long, broad, moderately deep, and appears oblong. Shanks and toes are yellow with a reddish horn tint. Skin is yellow. Plumage is rich, dark red with greenish black sickles in the tail. They are hardy, dual-purpose birds, the best layers in this group, and good for the small flock owner. Used for meat (about 6 to 8 pounds) and egg production (brown eggs).

MODERN GAME

BROWN RED Game - Bantam

This breed originated in England. Comb, wattles, and earlobes are dark purple. Cock's comb and wattles are neatly and smoothly dubbed. Beak is black, long, tapering, and slightly curved. Eyes are black, large, round, and prominent. Tail is a small whip. Body is slender and close up on the underpart. Shanks and toes are black. Skin is white. Plumage is black with a white head and bows. Back and neck are white with narrow black lines down the center of each feather. Breast is black with white lace on each feather. (hen does not have white bows or back). These birds need plenty of exercise to maintain muscle tone and can not withstand cold weather. They are bred for showing (20 to 22 ounces, white or lightly tinted eggs).

WYANDOTTE

WHITE

American - Large Fowl

This breed originated in New York State. Comb, wattles, and earlobes are bright red. Cock's comb is rose shaped, low, and firm on the head. Wattles are medium length, rounded, and uniform. Beak is yellow, short, and well curved. Eyes are reddish bay, full, round, and prominent. Cock's tail is short, well-spread, and carried 40 degrees above the horizon. Body is medium length, round, and deep. Shanks and toes are yellow. Skin is yellow. Plumage is white. These birds are good for the small family farm: tolerate rugged conditions, are good mothers, and have a good disposition. They are dual-purpose birds: used for meat (about 6 to 8 pounds) and egg production (brown eggs).







PLYMOUTH ROCK

WHITE

American - Large Fowl

This breed originated in the eastern United States. Comb, wattles, and earlobes are bright red. Cock's comb is single, medium size, and upright. Wattles are medium size, round, and soft. Beak is yellow, short, stout, and curved. Eyes are reddish bay, large, round, and prominent. Cock's tail is medium length, moderately spread, and carried 30 degrees above the horizon. Body is long and deep. Shanks and toes are yellow. Skin is yellow. Plumage is white and fluffy. They are excellent dual-purpose birds: used for meat (weight about 7 to 9 pounds) and egg production (brown eggs).



LIGHT Asiatic - Large Fowl

This breed originated in Shanghai, China. Comb, wattles, and earlobes are bright red. Cock's comb is pea shaped, small, and firm. Wattles are medium length and wel rounded. Beak is stout, well curved, and yellow with a dark stripe down the upper mandible. Eyes are reddish bay, large, round, and deep set. Cock's tail is medium size, full, and well spread. Shanks and toes are yellow with a black and white feather covering. Skin is yellow. Body is long, deep, and well rounded at the sides. Plumage is silvery white with a black and white cape. Main tail is solid

black with increasing white lace towards the base of the tail. These birds are a favorite among fanciers and for show. They go broody, are good mothers, and are able to withstand cold temperatures. They are general-purpose birds: used for heavy meat production (about 9 to 12 pounds) and are fair layers (brown eggs).

CORNISH

WHITE English - Large Fowl

This breed originated in Cornwall, England. Comb, wattles, and earlobes are bright red. Cock's comb is pea shaped, moderately small, and firm. Wattles are small, even, and smooth. Beak is short, very stout, and well curved. Eyes are pearl, large, round, and prominent. Cock's tail is short, closely folded, and carried slightly below the horizon. Body is compact, broad, well muscled, deep, and carried higher in front and back. Shanks and toes are rich yellow. Skin is yellow. Plumage is white, short, scant, and hard. These birds are movers (need space to develop muscles), pugnacious, and broody. They are super-heavy meat producers (about 8 to 10 pounds, brown eggs).

Bird Combs





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Neat Cuts























Digestive Anatomy



The physical and chemical changes of feed within the gastrointestinal tract that allow nutrients to be released and absorbed into the body are called digestion. There are significant differences in the digestive processes between species. The type of digestive system an animal has determines what the animal can successfully use as feed. Complicated feed (forage) requires a complicated digestive tract (ruminant). The steps in digestion include: prehension (gathering), mastication (chewing), salivation, deglutition (swallowing), microbial, enzymatic and chemical breakdown, absorption of nutrients, defecation, and micturition (urination)

Mouth/Beak- Rapidly picks up feed without the aid of teeth.

Esophagus- Hollow muscular tube with enlarged area called the crop. The function is to transport ingesta from the mouth to the proventriculus. Some of the ingesta may be stored in the crop for a few minutes to a few hours before it is moved on to the proventriculus. The ingesta is moistened as it is moved through the esophagus. (14 inches long, crop 2 inches)

Proventriculus- Also called the glandular stomach because it secretes gastric juices. Ingesta passes through rapidly. (3 inches long)

Gizzard- Also called the muscular stomach. Thick, muscular wall area acting to physically reduce particle size of ingesta and mix it with the gastric juices. (2 inches long)

Small Intestine- Digestion and absorption of nutrients similar to mammals (pancreas & liver) (55 inches long). The first portion is the duodenal loop.

Large Intestine- Two *ceca* and short large intestine (4 inches) reabsorb water and the fecal material is voided through the *cloaca* and out the *vent*.

Liver- Bile formation to digest fats, stores glycogen and fat, and detoxifies.

Gall bladder- Stores bile.

Pancreas- Digestive enzymes and hormones insulin and glucagon

Poisonous Plants

Certain chemicals in plants are very toxic to poultry such as alkaloids, resinoids, phytotoxins, and oxalic acid. Some substances in plants become toxic after digestion such as glucoside and amygdalin. A list of plants toxic to poultry can be found at: Plants Poisonous to Livestock - Animal Science - Cornell University.



Daffodils



Foxglove



Morning Glory



Yew



Jimson Weed



Tulips



Lily of the Valley



Azaleas



Rhododendron



Mountain Laurel



Monkshood



Amaryllis



Trumpet Vine



Nightshade



Nicotiana



Tansy

Parts of the Egg



Looking at the egg from the outside we see the shell, which is a hard, protective covering made of calcium carbonate. The shell is porous. (There are about 7,000 pores in a chicken eggshell.) This allows the transfer of gases through the shell. Carbon dioxide and moisture are given off through the pores and are replaced by atmospheric gases, including oxygen.

Immediately beneath the shell are two membranes, the outer and inner shell membranes. These membranes protect the contents of the egg from bacteria and prevent moisture from leaving the egg too quickly.

Because the body temperature of a hen is approximately 106° F, eggs are very warm at the time they are laid. The temperature of the air is usually much lower than 106° F, and the egg cools to the temperature of its surroundings. As cooling takes place, the contents of the egg contract more than does the shell of the egg. This creates a vacuum and air is drawn through the pores of the egg.

As a result, an air cell forms at the large end of the egg. While the embryo is growing, the shell membranes surround and contain the white or albumen of the egg. The albumen provides the liquid medium in which the embryo develops, and it also contains a large amount of the protein necessary for proper development.

In a fresh egg, we can see white cords attached to the yolk sac. These two cords, called chalazae, are made of twisted strands of mucin fibers that are a special form of protein. The chalazae hold the yolk in the center of the egg.

The yolk is the source of food for the embryo and contains all the fat in the egg. The small white spot on the yolk is call the <u>germinal disc</u>. The germinal disc is where the female's genetic material is found.

Grades of



When grading eggs, both the interior and exterior quality is measured. This process does not take into account weight or shell color. According to USDA guidelines, eggs are graded and labeled as AA, A, and B. U.S. Grade AA eggs are nearly perfect. The whites are thick and firm and the yolks are free from any defects. The shells are clean and without cracks. U.S. Grade A eggs appear to be the same as Grade AA, but the difference is a slightly lower interior *quality*. U.S. Grade B eggs are noticeably different. They may have slight stains and be irregular in shape and size. The quality of the interior is further reduced. Grade B eggs are not sold in supermarkets, but are used commercially in powdered egg products or liquid eggs.

Exterior Grading

Begin the egg grading process by checking the quality of the shell. The ideal eggshell is clean, smooth and oval in shape with one end slightly bigger than the other. Eggs with cracked or broken shells should be discarded. If you are selling the eggs, remove any with unusual shapes, textures or thin spots on the shell. While they are edible, they break easily and will be unacceptable because of their appearance.

Interior Grading

Grading the interior of the egg is performed by a method called candling. Using an <u>egg candler</u> will allow you to examine the air cell, the egg white (called albumen) and the yolk. Candling also lets you check for spots and cracks. Listed below are the different components to observe when candling an egg:

Air Cell Depth - The air cell is the empty space between the shell and the white usually found at the bigger end of the egg. As the egg ages, the air cell depth grows and the quality of the egg diminishes.

White or Albumen - The white of the egg is called the albumen. The quality is based on its clarity and thickness. Look for a clear color without discolorations or floating foreign matter. Thick albumen allows limited movement of the yolk and indicates a higher quality egg.

Yolk - The quality of the yolk is determined by the distinctness of its outline and other features like size, shape and absence of any blemishes or blood spots. It should be surrounded by a dense layer of albumen.

Spots - Candling can help reveal foreign matter like blood spots or meat spots. Eggs with interior spots should not be sold.

USDA Grade Standard Chart: This table is a quick reference for determining the grade of an egg by candling. (From the article: <u>Proper Handling of Eggs: From Hen to Consumption</u> by the Virginia Cooperative Extension)

Quality Factor	AA Quality	A Quality	B Quality	Inedible
Air Cell	1/8 inch or less in depth	3/16 inch or less in depth	More than 3/16 inch	Doesn't apply
White	Clear, Firm	Clean, May be reasonably firm	Clean, May be weak and watery	Doesn't apply
Yolk	Outline slightly defined	Outline may be fairly well- defined	Outline clearly visible	Doesn't apply
Spots (blood or meat)	None	None	Blood or meat spots aggregating not more than 1/8" in diameter	Blood or meat spots aggregating more than 1/8" in diameter

Sizing Eggs

If you plan on selling your eggs, you need to sort and size them. Large and extra large eggs are the best sellers. You might be surprised to learn that eggs are not sized individually, but rather sized by the combined weight of one dozen eggs. A size breakdown by weight can be found in the chart on the right.

Size Category	Minimum Weight
Small	18 oz.
Medium	21 oz.
Large	24 oz.
X-Large	27 oz.
Jumbo	30 oz.

Interior Grading

Grade AA	Grade A	Grade B
Egg content covers a	Egg content covers a	Egg content covers a
small area. White is firm,	moderate area. White is	very wide area. White
has much thick white	reasonably firm and has a	is weak and watery, has
surrounding the yolk	considerable amount of	no thick white and the
and a small amount of	thick white and a	large amount of thin
thin white. The yolk is	medium amount of thin	white is thinly spread.
round and upstanding.	white. The yolk is round	The yolk is enlarged
	and upstanding.	and flattened.

Interior Grading – Candling (a method used in embryology to study the growth and development of an embryo inside an egg. The method uses a bright light source behind the egg to show details through the shell, and is so called because the original sources of light used were candles)



Exterior Grading

Stains

O Grade A eggs must be clean. These eggs can show traces of processing oil (used to preserve freshness). This processing oil may give a shiny or opaque appearance.

O Eggs with slight stains, or moderate stains covering less than 1/32 of the shell, if the stain occurs in one localized area, or 1/1 6 of the shell surface, if the stains are scattered, are assigned Grade B.

O Eggs with adhering dirt or foreign material are also classified as dirty.

Adhering Dirt or Foreign Material

O Grade A and B eggs cannot have any adhering dirt or foreign material. Eggs with adhering material larger than a speck should be classified as Dirty. Small specks of dust or lint that may have settled out of the air should not be considered.

Egg Shape

O There is a considerable range of egg shapes that could be considered "approximately the usual shape" or Grade A. Eggs that are perfectly spherical (round) or too long to fit in the egg carton should be graded B quality. B quality grade for egg shape will include eggs that are clearly misshapen or that have definite flat areas.

Shell Texture

O Eggs with faulty texture are much weaker in shell strength and may be broken during distribution. Eggs with many small calcium deposits (sand paper texture) or with very large calcium deposits should be assigned Grade B.

O A good rule of thumb is that if you were to pull your fingernail across a calcium deposit, and there would be a good size hole if it came off, it would be classified as Grade B.

Ridges

O Ridges can result in weakened shells. Many eggs show small ridges and most of these should be classified as Grade A. Those eggs with large ridges are Grade B.

Shell Thickness

O The shell should appear thick enough to withstand reasonable handling without breaking. Grade A eggs must have thick shells with no thin spots. Thin shells or thin spots would be a Grade B. In all cases the shell must not be broken.

Body Checks

O A body check is an egg which looks like the shell is cracked, but is actually still intact. Body checks are eggs which are cracked when the shell is being formed in the hen's body and then partially calcified over before being laid. A body check is classified as Grade B.





Grade B (Irregular Shape)



Grade B (Irregular Shape)





Grade A (No Defects)



Grade B (Large, Localized Calcium Deposits)



Dirty (Adhering Foreign Material/ Stain)

