2017 POULTRY SKILLATHON STUDY GUIDE

The Union County Fair Poultry Skillathon will be held Thursday, July 27, 2017, and will begin at 9:00 am. The Skillathon at the Richwood Fair will be held Thursday, August 31 at 9:00 am.

This study guide describes the stations that will be included in the Poultry Skillathon. Be sure to bring your completed 2017 Union County Livestock Project Record Book and a pencil with you to the Skillathon. Age groups for Skillathon (your age as of January 1, 2017): Juniors age 8-10, Intermediates age 11-13, Seniors age 14-18.

Station #1 Project Record
Present your completed 2017 Union County Livestock Project Record Book to the judge. The judge will review your records and award points for competition. Follow directions in your Record Book completely; for example: Write “none” if you have no entry in a section. Be sure to record any and all treatments in your treatment record. The record book can be found online at the following address: http://go.osu.edu/2017LRB

Station #2 Interview Station
You will have an interview for each project you are exhibiting in the Poultry Department. You will be asked 5 questions by an interview judge based on your project book. It will be up to you to properly state which project(s) you are taking when you arrive at the interview station. You will have a 5 question interview for each project. For example: If you are taking a Broiler Project and a Turkey Project, you will have 2 interviews with a total of 10 questions. You will earn 6 points for each correct question. Possible sample questions for each project are included in this Study Guide.

Station #3 Junior Exterior Parts Identification
At this station, Juniors will identify 10 parts of an animal for the project you are taking (if you are taking more than one poultry project, you can choose one to identify). Refer to the diagrams that are included in the Union County 4-H Poultry Handbooks, available at the Union County Extension Office.

Station #3 Intermediate Parts of an Egg
At this station, Intermediates will be asked questions about various parts of an egg and their functions.

- **Yolk** carrying the ovum - produced by the ovary
- **Albumen** or **egg white** - produced mainly in the magnum
- **Shell membranes** - produced in the isthmus
- **Shell** - produced in the uterus or shell gland

The avian egg contains a mixture of nutrients that can be described as a complete food. The yolk, egg white, and shell contain all the proteins, carbohydrates, fats, minerals, and vitamins necessary to support the growth of the embryo during the 21-day incubation period. The albumen (egg white) and yolk of the egg serve as food for the growing embryo during the incubation period.

The yolk occupies the center of the egg. There are two types of yolk, white yolk and yellow yolk. Yellow yolk is produced during the day by the hen and contains more fat. White yolk is produced at night and
contains more protein. In the center of the yolk there is a spherical mass of white yolk called the latebra. A column of white yolk connects the latebra to the Nucleus of Pander, which is also made of white yolk. The Nucleus of Pander provides the place where the embryo develops. The blastoderm is an early stage of the embryo, present when the egg is laid. The blastoderm is attached to the Nucleus of Pander. The blastoderm grows during the incubation period to ultimately become the chick.

The vitelline membrane surrounds and protects the yolk. The chalaziferous layer is a fibrous layer of albumen and directly covers the entire egg yolk, just outside the vitelline membrane. In the long axis of the egg, the chalaziferous layer is twisted at both sides of the yolk, forming a thick rope-like structure named the chalazae (chalaza is the singular term). The chalazae function to suspend the egg yolk in the center of the egg. They prevent the yolk from rising and touching the shell. The chalazae allow the yolk to rotate and they function to keep the blastoderm on the top side of the yolk, close to the heat of the hen's body.

The egg white or albumen consists of several layers that surround and protect the blastoderm and yolk. The semisolid albumen serves as a shock absorber due to its semi-elastic properties. The albumen also contains a large amount of water which is needed by the developing embryo.

The yolk and albumen work together to protect and sustain the life of the growing embryo.

The shell membrane and shell surround and protect the albumen and yolk. Gases (for example oxygen and carbon dioxide) can pass through the shell because it is gas-permeable. Oxygen passes into the egg and carbon dioxide passes out through the shell. As the embryo grows, carbon dioxide is produced and oxygen is consumed. If the shell were not gas-permeable, the embryo would die due to a lack of oxygen and the presence of too much carbon dioxide. Water vapor can also pass through the shell, but the shell does act to slow the loss of water, so that enough is retained inside the egg for the growing embryo. The shell and shell membrane also function to keep the nutrients inside the egg.

The inside of the shell is lined by the double-layered shell membrane. One of the functions of the shell membrane is to provide a barrier to disease organisms (for example bacteria).

After the egg is laid it cools and the contents inside contract (shrink). The shell cannot contract, at least not as much as the contents inside. As a result, air is drawn into the egg to form an air space between the inner and outer layers of the membrane. The air space normally develops at the large end of the egg because the shell is more porous there (in other words the air can move into the egg at a faster rate at the large end). As the egg incubates, carbon dioxide and water escape from the egg through the shell. The air space increases in size to compensate for carbon dioxide and water loss. Close to the end of the incubation period, the chick breaks through the membrane of the air space and takes its first breath of air.
Station #3 Seniors Reproductive Tract of a Hen

At this station, seniors will be asked to identify reproductive organs of a hen and answer questions about the functions of these organs. Information on this topic can be found as an attachment to this study guide. Additional information can also be found on the following website: [http://go.osu.edu/HenReproduction](http://go.osu.edu/HenReproduction)

Looking at the photo, we begin at the **ovary**. The ovary is a cluster of various sizes of developing **follicles**. The follicle is a sack that contains the developing **yolk**. It takes about 10 days for a yolk to grow from a very small size to the normal size found in eggs. The **oviduct** is a long tube containing many blood vessels and glands. The function of the oviduct is to produce the **albumen, shell membranes** and the **shell** around the yolk to complete the egg. Normally, a yolk is released when the follicle ruptures (breaks). Then the yolk enters a thin-walled **infundibulum**, the first part of the reproductive tract (oviduct). It is in the infundibulum where the egg can become fertilized if sperm are present. The egg then passes to the **magnum** where albumen (egg white) is placed around the yolk. The egg then passes to the **isthmus** where the shell membranes are placed around the egg. The egg then moves to the **shell gland (uterus)** where a hard calcified shell is placed around the developing egg. The egg passes quickly through the **vagina** just before it is laid.

See back page of this study guide for diagrams.
Station #4  Breeds of Chickens, Ducks and Turkeys

This station will consist of identifying breeds of Chickens, Ducks and Turkeys. A notebook to help review breeds is available for loan from the Extension Office. Seniors will identify 20 breeds; Intermediates 15 breeds; Juniors 10 breeds.

Station #5  Feed Ingredient Identification and Feed Tag Information

You will be asked to identify feed ingredients typically found in prepared commercial poultry feeds. Juniors will be asked to identify 10 ingredients; Intermediates 10 ingredients; and Seniors-15 ingredients. A feed ingredient study kit is available for 1 day loan from the Extension Office. You will also be asked 5 questions relating to information found on Feed Tags typical for poultry feeds. A sample feed tag activity is attached to this study guide.

Station #6  Poultry Terminology

You will be asked to match poultry terms with their definitions. Juniors will be asked to match basic terms such as tom, hen, drake, or molt with their meaning. Intermediates and Seniors will be asked to match terms related to poultry gender, production, practices, and nutrition. Examples: gander, cockerel, incubation, crop, pullet, etc. These are only examples of possible terms that will be included. It is not an inclusive list.

Tie Breaker- Optional  Meat Cuts and Poultry Classification

For the Meat Cuts Section: Exhibitors will be asked to identify various meat cuts from a chicken, a duck and a turkey.

For the Poultry Classification Section: Exhibitors will be given a list of Poultry Breeds (chickens, ducks, geese and turkeys). The exhibitor will identify what class each breed belongs to, according to the Standard of Perfection.

Additional information for skillathon and showmanship can be found at the following website:

http://www.ohio4h.org/statewide-programs/animal-sciences/poultry/poultry-resources
Station #2  Interview Questions

Possible Questions for:

#150 CEP  4-H CHICKENS, EGG PRODUCTION (PULLETS)

1. Name the breed of chickens which produces over 90% of all commercial eggs.
2. At what brooder temperature should baby chicks be started?
3. Do protein percent needs of your chickens increase or decrease as they grow from chicks to mature layers?
4. Name 3 nutrients needed in a hen’s laying ration.
5. Name 2 ingredients in a good laying ration.
6. Name 3 breeds of chickens which lay brown eggs.
7. What is the best material for bedding or litter for brooding chicks?
8. Name 3 pieces of equipment needed during the brooding period.
9. Name 3 parts of a hen’s head.
10. What does the term “dual –purpose” mean when discussing breeds of chickens?
11. What mineral is necessary in hen’s rations for producing strong egg shells?
12. Name 3 market sizes of eggs, determined by weight?
13. Name one internal parasite common to poultry.
14. Name one external parasite common to poultry.
15. N.P.I.P. approved hatcheries certify that their hens are free of what disease?

Additional Questions for Seniors:

1. How long does it take a hen to lay an egg?
2. If you find external parasites, how should you treat them?
3. What breed of chicken(s) lay(s) blue-green eggs?
4. To keep a flock of laying hens producing eggs year round, what key environmental factor needs to be controlled and altered to meet the needs of the bird?

#150 CM  4-H CHICKENS, MARKET (BROILERS)

1. Name 3 pieces of equipment needed to brood broiler chicks.
2. What is the best material for bedding or litter for broiler chicks?
3. What does N.P.I.P. stand for?
4. Do protein percent needs of your broilers increase or decrease as they get older?
5. Name 3 nutrients needed in a good broiler ration.
6. Name 2 ingredients in a typical broiler ration.
7. Name the 3 most valuable cuts from your broiler.
8. What temperature should be maintained in the brooding area for 2 day old chicks?
9. Name 3 parts of a chicken’s head.
10. How should your birds be removed from their cage?
11. Name 3 parts of a chicken’s leg.
12. Name 3 types of defects looked for in judging broilers.
13. N.P.I.P. approved hatcheries certify that their hens are free of what disease?
14. Name 3 nutrients needed in a good broiler chick starter.
Additional Questions for Seniors:

1. What is a chicken’s normal body temperature?
2. What does the term “finish” refer to when raising a turkey for market?
3. What is the most common cause of a breast blister on a broiler?
4. What is cannibalism and how can it be prevented or reduced in a turkey flock?

#150 CE  4-H  CHICKENS, EXHIBITION (Fancy Poultry)

1. What is the difference between “Bantam” and “Large Fowl”?
2. Name 3 pieces of equipment needed to brood baby chicks.
3. Name one internal parasite common to poultry.
4. Name two external parasites common to poultry.
5. Name 3 different types of combs found on different breeds of poultry.
6. Does the percent protein requirement in your poultry ration increase or decrease as your chickens mature?
7. Name 4 parts of a chicken’s head.
8. What is the most important nutrient for your bird?
9. Describe how to remove a bird from its cage.
10. Name 3 parts of a chicken’s foot.
11. What bird is the ancestor of all modern chickens?
12. What is the book which lists all recognized poultry breeds and their characteristics?
13. Large fowl breeds are divided into classes based on their area of origin. Name 3 classes.
15. Ground oyster shell provides what mineral for hens?

Additional Questions for Seniors:

1. Where are the scales found on a chicken?
2. What is frizzling?
3. What are the longest feathers in a rooster’s tail?
4. What are 3 forms of feed?

#150 TM  4-H  TURKEYS, MARKET

1. Name 4 parts of a turkey’s head.
2. What is a baby turkey called?
3. At what temperature should turkey poults be brooded during the 1st week after hatching?
4. What is meant by the term “brooding”?
5. Name 2 diseases common to turkeys.
6. Name 3 pieces of equipment needed during the brooding period for turkeys.
7. Does the percent protein requirement in your turkey’s diet increase or decrease as he matures?
8. Name 3 general defects in judging turkeys.
9. Name 2 external parasites that commonly affect turkeys.
10. Where are turkey’s caruncles located?
11. What is the most common variety of commercial turkey?
12. Name 3 nutrients required in a good turkey ration.
13. Name 2 common ingredients found in a typical turkey ration.
14. What is another name for the breast bone?
15. What is the difference between an ingredient and a nutrient in a ration?
16. Name 3 cuts of meat sold from a turkey.

Additional Questions for Seniors:
1. How can you tell an adult male turkey from a female?
2. Name 2 breeds of Heritage Turkeys.
3. How many days incubation is required to hatch a turkey egg?
4. What is the primary reason turkeys and chickens should not be raised together?

#150 DE 4-H DUCKS, EXHIBITION

1. Name the 4 classes for ducks.
2. Name 2 external parasites that commonly affect ducks.
3. Name 3 pieces of equipment needed to brood baby ducks.
4. What is a baby duck called?
5. Name 3 parts of a duck’s head.
6. At what temperature should a duckling be brooded during the 1 st week after hatching?
7. Name 2 breeds of ducks in the “Bantam” class.
8. Does the percent protein requirement in a duck’s ration increase or decrease as the duck matures?
9. What does “molting” mean?
10. Name 2 parts of a duck’s foot.
11. What duck is thought to be the close relative of most breeds of domestic ducks?

Additional Questions for Seniors:
1. What is the little bump on the tip of a duck’s bill called?
2. What are 2 common waterfowl diseases?
3. What are 3 different ways to tell the difference between a male and female duck?
4. Name one breed of duck that is better known as an egg layer?

#150 DM 4-H DUCKS, MARKET

1. Name 3 parts of a duck’s head.
2. Name 3 breeds of ducks in the heavy class.
3. What is the major breed of duck raised primarily for meat in the US?
4. Name 3 pieces of equipment needed to brood baby ducks.
5. What is the best type of bedding to brood baby ducks?
6. What is the most valuable meat cut of a market duck?
7. What is the most important nutrient for raising market ducks?
8. At what temperature should a duckling be brooded during the 1 st week after hatching?
9. Does the percent protein requirement in a duck’s ration increase or decrease as the duck matures?
10. What does “molting” mean?
11. What is the incubation period for a Pekin duck?
Additional Questions for Seniors:

1. What is the most common meat duck in Europe?
2. What part of a duck is the most valuable?
3. What is the incubation period for call ducks?
4. What additional steps, if any, need to be taken to properly process a duck?

#150 GE 4-H GEESE EXHIBITION

1. Name the breed of goose that has frizzled feathers.
2. Name 3 breeds of geese raised in the United States.
3. Name 2 external parasites that commonly affect geese.
4. Name 3 pieces of equipment needed to brood baby geese.
5. What is a baby goose called?
6. Name 3 parts of a goose’s head.
8. At what temperature should a gosling be brooded during the 1st week after hatching?
9. Name three classifications of geese.
10. Does the percent protein requirement in a goose’s ration increase or decrease as the goose matures?
11. What does “molting” mean?
12. Name 2 parts of a goose’s foot.
13. Name 2 breeds of geese that are classified in the “Heavy” class.

Additional Questions for Seniors

1. How much does an average goose egg weigh?
2. What is meant by the term crossbred?
3. What is the dewlap on a goose?
4. What is the shaft and where is it located?
Sample Questions:

What is the main ingredient in this feed?

What is the active drug ingredient?

What is the crude protein level?

What disease does the medication prevent?

What is the crude fat level?

Is ground limestone included in this feed?

What type of poultry is this feed designed for?

What age poultry should be fed this feed?
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Poult</td>
<td>Young Turkey</td>
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<tr>
<td>Brooding period</td>
<td>Time young chicks require outside heat source</td>
</tr>
<tr>
<td>Dual purpose</td>
<td>Can produce both meat &amp; eggs</td>
</tr>
<tr>
<td>Gosling</td>
<td>Baby goose</td>
</tr>
<tr>
<td>Tom</td>
<td>Adult male turkey</td>
</tr>
<tr>
<td>Hen</td>
<td>Adult female chicken or turkey</td>
</tr>
<tr>
<td>Duck</td>
<td>Female duck</td>
</tr>
<tr>
<td>Drake</td>
<td>Male duck</td>
</tr>
<tr>
<td>Molt</td>
<td>Annual loss &amp; regrowth of feathers</td>
</tr>
<tr>
<td>Goose</td>
<td>Female goose</td>
</tr>
<tr>
<td>Gander</td>
<td>Male goose</td>
</tr>
<tr>
<td>Duckling</td>
<td>Baby duck</td>
</tr>
<tr>
<td>Rate of gain</td>
<td>Amount of weight gained per day</td>
</tr>
<tr>
<td>Incubation period</td>
<td>Time from when eggs are set until hatch date</td>
</tr>
<tr>
<td>Cockerel</td>
<td>Young male chicken</td>
</tr>
<tr>
<td>Pullet</td>
<td>Young female chicken</td>
</tr>
<tr>
<td>Gizzard</td>
<td>Organ in which feed is physically broken down</td>
</tr>
<tr>
<td>Cloaca</td>
<td>Organ where reproductive tract and digestive tract join in hen</td>
</tr>
<tr>
<td>Crop</td>
<td>Organ which stores food before digestion</td>
</tr>
<tr>
<td>Proventriculus</td>
<td>True stomach</td>
</tr>
<tr>
<td>Capon</td>
<td>Castrated male bird</td>
</tr>
<tr>
<td>Aircell</td>
<td>Air space in an egg, usually the large end</td>
</tr>
<tr>
<td>Grit</td>
<td>Very small stones in a chicken's gizzard to help grind up feed</td>
</tr>
<tr>
<td>Sickles</td>
<td>Long cured rooster tail feathers</td>
</tr>
<tr>
<td>Stub</td>
<td>Feathers located on the shank or toe of a clean legged chicken</td>
</tr>
<tr>
<td>Oyster shell</td>
<td>A source of extra calcium for a laying hen</td>
</tr>
<tr>
<td>Side sprig</td>
<td>A point or projection from the side of a single comb</td>
</tr>
</tbody>
</table>

Note: Additional terms may be asked of Senior age exhibitors
Diagrams of the Reproductive Tract of a Hen