



STEMsational Ag: The Virtual Farm

MIDDLE TENNESSEE STATE UNIVERSITY



Module 4: Chicken Coop, Chicken Soup

UNIT 1: BIRDS LOVE BUGS

Grades 6 – 8



National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE

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Fermentation Science

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Module 4: Chicken Coop, Chicken Soup

UNIT 1: BIRDS LOVE BUGS

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6th – 8th Grade:

Introduction to the Unit:

Have you ever thought about what chickens eat? Due to all of the grocery store labels, many of us have the misconception that chickens are vegetarians. However, in this lesson you will learn they are not.

Pre-assessment:

On a piece of paper, do a three-minute quick write of everything you know about chickens and their diet.

Purpose:

Students will explore the true diet of a chicken.

Student Learning Outcomes for the Unit:

Student will demonstrate an understanding of the diet of a chicken



National Agricultural Literacy Outcomes

Plants and Animals for Food, Fiber & Energy, Theme 2

T2.6-8

Identify strategies for housing for animal welfare and the safety of animal products (e.g., meat, milk, eggs)

Vocabulary Words:

- ▶ **Vegetarian:** a person or animal who eats no meat or fish but only eats vegetables, fruits, nuts, and grains
- ▶ **Chicken:** a bird that people all over the world raise for its meat, eggs, and feathers. It belongs to the group of domesticated, or tame, birds called poultry
- ▶ **Natural environment:** the place where an animal or plant normally lives
- ▶ **Insects:** a small animal whose body is divided into three parts
- ▶ **Omnivore:** an animal that feeds on plants and other animals
- ▶ **Poultry:** birds that people raise for meat, eggs, and feathers
- ▶ **Rural:** areas that are not towns or cities; rural areas are often farming or agriculture areas
- ▶ **Flocks:** a group of animals like birds or sheep that have congregated together

Materials Needed:

- ▶ Paper
- ▶ Writing utensil

Activity 1: Discuss Background Knowledge

Use the "The Open Word Sort" table to complete this activity on page 4

- ▶ For this activity, cut the words out of the table to sort them
- ▶ Options:
 - You can cut the words out of this lesson
 - Or you can make a copy of table on your own paper and cut out the words from that paper
- ▶ Sort the words and have a discussion of your background knowledge of chickens and what foods they eat
- ▶ Discuss with your classmates or an adult or family member at home



poultry

chicken

vegetarian

natural
environment

insects

omnivore

rural

flocks



herbivore

diet



Activity 2: Review What Chickens Eat

We are learning about chickens and what foods they eat. View the video screenshots and follow the narration from the video, "Chickens are (Meat Eating) Dinosaurs".

Chickens are Meat-eating Dinosaurs!

Starring Justin Rhodes

Also available online at: <https://youtu.be/ejGVKzjl70>



There's something that weirds me out. It's a particular egg label you've seen it.



You know the one that boldly declares vegetarian fed.



It makes me want to throw the egg carton away!



So why are vegetarian-fed labels so crazy?



Well, I'll tell you in just a second, but first, a quick introduction. I'm Justin Rhodes. A friend calls me the Birdman. It kinda stuck. I like that.

I've taught thousands of people to grow their own eggs and chickens. Right now I'm going to explain why veggie labels for eggs are so strange and what you can do about it.



This video was inspired by an article a friend of mine, Jill Winger, wrote. It's from one of my favorite blogs, *The Prairie Homestead*.



Why is this so disturbing? Well, I'll tell you why. Chickens eat meat, lots of it!



If chickens are put in a natural environment, they will automatically eat all kinds of bugs, worms, even small mice or small frogs.



Here they're scratching for bugs below the surface.



You see, chickens, by nature, are not vegetarian. They're dinosaurs!



No, they're not the boring slow kind like the Stegosaurus.



No, they're the closest living relative to the Tyrannosaurus Rex!



So my friend, chickens ain't no joke.



I tried feeding my chickens one-third of their diet in animal proteins—stuff like worms...



...meat scraps from the kitchen,



...maggots, soldier grubs,



... eggs, and...



...milk.



Hey look, real quick introduction to my number one assistant, Mr. Brown. He woke up bright and early and is going to help us finish up this video.



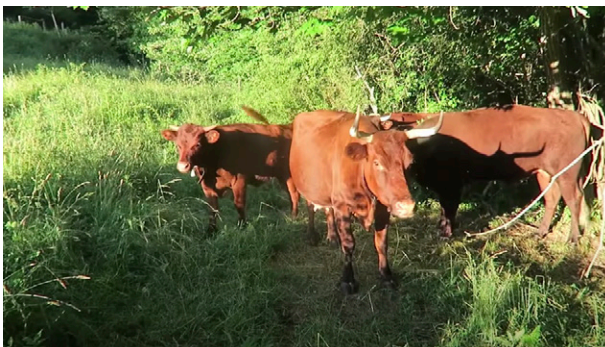
So where did this crazy label come from? Two places—Place number one: commercial feed operations got caught feeding some socially-unacceptable animal products...



... like Bella the dog or Coco the cat after being euthanized of course.



The second place we got these things are from cows, right behind me. Not cows specifically, but commercial operations feeding cows to cows. That's a problem because cows are naturally herbivores and what we got from doing that was Mad Cow disease.



Ok, there's a cow.



Now look. Does this look like a cow to you?



Quick recap: "Vegetarian Fed equals not good!"



Thumbs down.



Labels can be deceiving. Another one is "Cage Free." You have to look out for that. Just because they're cage-free and that real definition doesn't mean they're not crowded together inside a building.



So what's the solution? Well, I think the number one solution is to raise your own.



Give them access to the outdoors, to the grass, or to a garden area. Let them get those bugs naturally on their own.



Probably the next best solution is getting your eggs from a farmer who lets the chickens outside to naturally get some of that food they really want to eat.



And the third solution, if neither of those other two work, try buying eggs at the store that are labeled "Pasture Fed."



Look at the label. Read it carefully and if the chickens are "Pasture Fed" that company is going to brag about how many square feet that bird gets outside.



Now to recap. Cows are herbivores, chickens are dinosaurs (the wild and crazy meat-eating kind).



You're going to have a happier, healthier chicken, which equals a happier and healthier YOU!



Activity 3: Discuss Recent Articles Regarding Chickens

Read both articles provided in this activity, starting below.

Why Keep Backyard Chickens?

If you don't already have a small flock of chickens, you are reading this article because you want to. Christine Heinrichs discusses the history and popularity of keeping backyard birds.

Chickens have always been part of rural and farm life. The past decade has brought them back to small-holders, hobby farmers and small, sustainability poultry producers. Although most of us live in cities, we still feel the attraction of the bucolic countryside.



Chickens are the easiest livestock to keep. They are remarkably adaptable. Through natural selection and selective breeding, distinctive breeds have emerged. Virtually every human culture has had some kind of domestic chickens. Our human fascination with chickens runs deep and primal. No wonder so many families are bringing chickens home.

Domestication of chickens probably began 8,000 years or more ago, when people in Asia noticed that it was easier to weave a cage and put some baby birds in it than try

to catch them or search for their nests.

The Red Junglefowl of India is the ancestor of our modern chickens. They're quick on the ground, clever about hiding their nests, and light enough to fly. Catching them or knocking them out of the trees with a slingshot must have taken exacting skills and a sharp eye.

Keeping chickens provided these early enthusiasts the opportunity to observe them. Roosters are natural fighters. Cockfighting became entertainment in some societies and took on more serious religious meaning in others.

Chickens are naturally social. They form flocks and organise themselves according to a dominance hierarchy, the pecking order. Hens develop alliances and loyalties between individuals, but social life is rarely without incident. An extra worm to a low-ranking hen can set off a squabble, or can improve her standing. Life is never boring in the chicken yard.

A particularly unassertive hen who was last at everything in our yard one day discovered a large, juicy Jerusalem cricket for herself. She snatched it up in an unaccustomed gesture of self-assertion and took off, with half a dozen hens in pursuit. They were outraged that she would presume to usurp this tasty delight for herself. Escaping, but unwilling to release her prize, she flapped and ran until she had sufficient leeway behind a bush to gobble her treat in hasty triumph.



After seeing her outwit her betters, I felt that perhaps her place at the bottom of the pecking order was not without its comforts.

Farm chickens

Chances are, you remember visiting a grandparent who kept chickens in the yard. You may have been frightened by a protective hen or an aggressive rooster, or you may recall the surprise of finding eggs. Until the middle of the 20th century, keeping a few chickens was common. Since everyone kept them, everyone knew about them: what they ate, when to expect eggs, what made them sick. The chickens lived in the yard and provided egg money for family support.



Traditional lore developed, some of it accurate and some more hopeful than useful. If you didn't know the answer to a question about your chickens, you could ask your neighbour or your mother or someone at church. Chickens were an integral part of the culture.

As people moved to cities and suburban developments, people lost those poultry handling and management skills. That knowledge slipped away, although it's invaluable to those keeping small flocks.

Owners have different expectations for their

flocks. Raising birds for meat is different from raising chickens for eggs or to show. They are all chickens, though, and many of the management practices are the same.

Small flock owners rarely see their birds as narrowly as simply food or only show. Utility values, egg laying and meat, are integral parts of traditional breeds. After all, that was why they were kept.

Small flock keepers naturally appreciate their chickens' beauty. They learn about breeds and the differences between a Leghorn and an English Game. They may start by raising birds for meat and then want to show the birds they are proud of. Showing is more than an opportunity to be recognised as the best. It is a chance to meet others of like interest and find new birds, new bloodlines, and share ideas.

People become farmers because of their desire to grow their own food, be self-sufficient, contribute to the local food economy and feed the spiritual needs that rural life can assuage. Sustainable, integrated systems include poultry as working contributors to farm ecology and production. They consume weed seeds, insects and green waste and produce high-nitrogen manure for fertiliser. Chickens are part of that life.

Backyard chickens

As chickens have become more popular, communities have found ways to make it legal to keep chickens. A certain prejudice against chickens, a whiff of class division, can trigger opposition. Most communities find some way to allow chickens in urban and suburban settings.

Scientific studies compared eggs from hens on pasture to those of battery cage



industrial hens. They established that eggs from chickens fed varied diets and allowed to range outdoors are more nutritious, with twice the vitamin E and better omega-3 fats. Nutritional value reflects what the hens are eating, something you can choose if you raise your own.



Having truly fresh eggs from chickens of your personal acquaintance is one of the reasons people want to keep their own chickens today. Like so many other home-raised products, the flavour really can't be compared to store-bought.

Gathering eggs can feel like Found Treasure. Every child I've ever seen delights in searching egg boxes and gathering eggs.

One friend's daughter was going through a particularly picky-eater stage. She refused to eat nearly everything. I gave her mother some eggs, and they passed her exacting demands. That kid made those fresh eggs her mainstay for some months, while she outgrew whatever it is that makes kids funny about food.

A dozen or fewer hens will provide any family and most of your neighbours with plenty of eggs. Sharing them with neighbours generates enormous good will. A sense of humour helps, too.

Small groups do better than one or two. Chickens are highly social and need each

other's companionship, although some singletons make do by making friends with the cat. Remember that chickens are subject to predation and even the most careful caretaker loses some chickens.

With a few more, you can have fresh meat as well. The accepted wisdom is that if you consider your birds meat, you will not want to name them. You will likely develop some favourites who will have names and be around for a long time anyway, perhaps even stay on as retirees after they aren't laying many eggs any more. If you are serious about breeding, however, you will be culling your flock and filling your freezer and pot with chicken tasty enough to spoil your palate for fast-food fried chicken.

Having your own flock of chickens gives you a strong foundation of self-reliance. You have your own steady supply of eggs and meat. They are Everyman's Livestock, a lot easier to keep than cattle or pigs.

Poultry is a more accessible agricultural project than beef or swine for youngsters. Parents without farm backgrounds are less intimidated by chickens. Many disabilities or physical limitations are no barrier to keeping chickens.

Quality of life

People like chickens. When I first started keeping a few in my suburban backyard in San Jose, California, heartland of Silicon Valley, the first thing many visitors said was a wistful, "I always wanted to have chickens." When one chick unexpectedly grew up to crow, neighbours mentioned how charming it was to hear the sounds of the countryside.

Chickens attract the eye as well as the



palate. Chickens are naturally pleasant to see. Some breeds are especially beautiful and have been bred specifically as ornamental birds. Poultry can decorate your estate, whether palatial or rustic.

They are excellent interpretive birds. Historically accurate flocks are kept at farm museums.

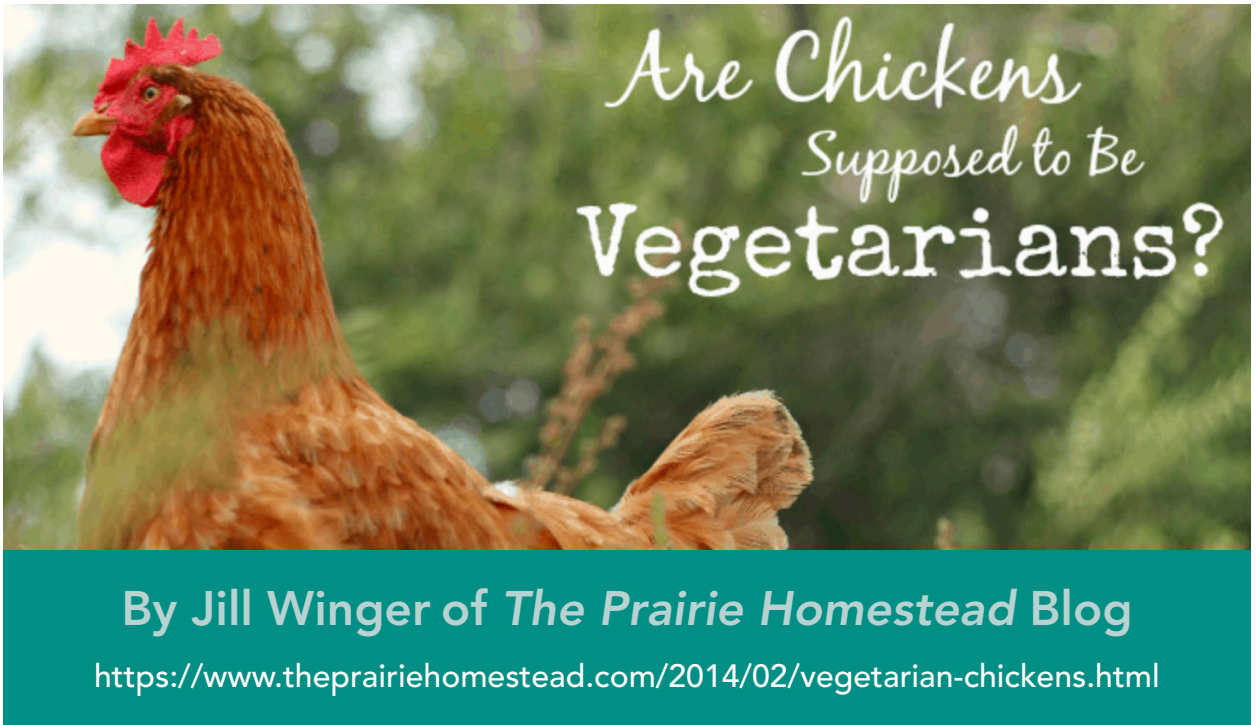
Chickens can be good therapy birds. Poultry advocate Pat Foreman brings her Buff Orpington Oprah Henfry to nursing homes, where she sits with the residents.

They enjoy her peaceful company and soft feathers.

Chicken flock owners are widely diverse. Some keep a few and make pets of them. They aren't cats or dogs, but can be delightfully personable. Their individuality adds the same sparkle to our lives that other animal companions do.

Those with more businesslike reasons for keeping chickens nevertheless enjoy their company and take pride in raising healthy, vigorous, beautiful chickens. They contribute to local economies and offer alternatives to industrialised agriculture.

The diversity of chickens speaks to the diversity of people. They touch us in profound ways.



The labels always seem so proud...

You know, the ones that boldly declare that the eggs sitting cozily inside their carton are from chickens fed an “all-natural vegetarian” diet.

At first glance, that sounds pretty good, right? I mean, it’s always good to pay attention to labels—especially with all the “iffy” stuff that takes place in food production these days.

But when I stroll down the egg aisle at my local health food store, those particular labels always make me shake my head...

‘Cause if you’ve ever watched a chicken scratch and peck around your yard, then you know that chickens are most definitely NOT vegetarians by nature...

A free-range chicken generally makes a sport

of out hunting down and happily devouring any sort of moving object it can find—including moths, grasshoppers, grubs, larvae, worms, and even the occasional mouse or frog. It’s a great way to pass time and an important source of protein for their diet.

I have a special admiration for people such as Harvey Ussery, who raise insects as protein sources for their flock. I read about his method of raising soldier grubs for his flock’s main protein source in his book, *The Small Scale Poultry Flock*.(affiliate link). I’m still not sure if I have a strong enough stomach to do it myself, but I do think it’s an awesome idea.

So if chickens are most assuredly omnivores by nature, when did all this buzz over “vegetarian chickens” start?

The Story Behind the Label

It all began when folks became aware that many animals raised in commercial



operations were being fed processed feeds containing animal-byproducts as a source of protein.

Now at first glance, that doesn't sound too bad. But when you understand just what those animal by-products are, that's when things get gross.

The "animal by-products" that pop up in ingredient lists in various animal feeds can include blood, same-species meat, feathers, rendered road kill, and euthanized dogs and cats¹.

Not only does that seriously offend my common sense, but it was also discovered that feeding certain parts of cows back to cows can result in bovine spongiform encephalopathy, aka "Mad Cow Disease²." And that's a very big problem. Cows weren't made to eat other cows. Or dogs and cats for that matter. Cows were made to eat grass.

So laws started to change and producers and consumers alike started watching more closely what animals were eating. And if most people had to choose, eggs from chickens fed a vegetarian diet sound much better than eggs from chickens fed slaughterhouse waste (or worse).

And I don't blame them. But...

What's Really "Natural"?

A carton of eggs labeled "vegetarian" means that the chicken was fed a diet free of animal by-products. In addition, all USDA Certified Organic eggs must come from chickens fed a completely vegetarian diet consisting of certified organic grains³.

That sounds fine and dandy until you realize that a chicken in its natural environment is NOT going to be vegetarian and that "vegetarian" eggs probably come from

chickens that are not allowed to free-range. By default, the diet of a honest-to-goodness "free-range" chicken will most definitely include creepy-crawlies of all kinds.



So while it's nice to know that commercially-raised chickens fed a vegetarian diet aren't eating rendered dogs and cats for lunch, that label doesn't necessarily mean that they are a whole lot better off than their other commercially-raised buddies. And I personally think that chickens need meat bits and insects in their diet if we are sticking with the "natural" way of doing things.

And eggs from chickens raised in a pastured set-up are a whole lot healthier for you anyway.

The world of egg labeling is pretty sketchy and not always what it seems... For example, the label "cage-free" sounds pretty good, until you realize that, by law, all that has to mean is that they can wander around in a crowded chicken house. It doesn't mean they necessarily have access to the outside or are running around in lush green pastures eating grasshoppers.

If you want to dig deeper into the confusing world of egg labels, check out this post from *The Rising Spoon* (<https://www.therisingspoon.com/2013/05/why-you-should-only-eat-pastured-eggs.html>).



So What's an Egg-Lover to Do?

Don't spend the extra \$\$ for those "vegetarian" eggs—try these options instead:

1. Raise Your Own Chickens

Of course, this is my favorite solution—and backyard chicken keeping is exploding all over the country. I feed my chickens a custom mixed ration that is GMO-free (get the recipe in my Natural Homestead ebook!) and allow them to run around and eat grass, weeds, bugs, worms, and whatever else to their heart's content. They also get occasional meat scraps and fat bits, which they definitely enjoy. (However, I don't feed them chicken meat—only beef, pork, or fish.)

2. Buy Eggs from a Friend or Farmer

If you can't have your own chickens, there's a good chance you have a friend who does keep a flock of happy hens. If your friends haven't jumped onto the chicken bandwagon yet, seek out families or farmers selling eggs at your local farmer's markets. And reputable farmers will be more than happy to chat with you about how their chickens are raised and what they are fed.

3. Look for Pastured Eggs

If you aren't having any luck finding local chicken producers, look for eggs that say "pastured" on the label. Now as we know, labels don't always mean what they say and they aren't any governing regulations for the term "pastured" yet. But if the the company is reputable, pastured eggs usually come from birds allowed to graze on grass and whatever bugs might be hanging out in that grass. And that's a good thing.

In summary? Cows are herbivores and should be vegetarians, but chickens are omnivores and greatly delight in crunchy bugs. So let 'em.



SOURCES

1. http://www.ucsusa.org/food_and_agriculture/our-failing-food-system/industrial-agriculture/they-eat-what-the-reality-of.html
2. <http://animalwelfareapproved.org/standards/animal-byproducts/>
3. <http://nofavt.org/assets/files/pdf/VOF/Guidelines%20for%20Certification%20of%20Organic%20Poultry.pdf>



As you read the articles from Activity 3, complete the Fact, Question, and Response (F, Q, R) chart below. This chart allows you to record facts as you read, write your responses and any wonderings you are still having to stimulate conversation.

[illegible]



Activity 5: Topic Discussion

- ▶ **If you are a teacher or facilitating group learning:** use the information from the video and readings to have a class discussion of what chickens eat
 - ▶ **If you are an individual learner:** use the information from the video and readings to have a discussion of what chickens eat with a group of friends or family members (at least 3 other people)
-

Post-Assessment

- ▶ Using your fact, question, response chart (or FQR chart) write a summary about the diet of a chicken based on what you learned in this lesson
- ▶ Include at least three things that are in a chicken's diet
- ▶ Be sure to include that they are meat eaters!