

A Rafter of Turkeys

Objective

Students will read about domesticated and wild turkeys and compare and contrast the two groups. Students will discuss consumer preference and its impact on the development of agricultural products. Students will research heirloom turkeys and other heirloom breeds of plants and farm animals.

Background

The birds we know as turkeys are native to Mexico and the eastern United States. They were first domesticated by the Aztecs in Mexico. Early European explorers called them “turkey” after the country in Asia that has that name. The explorers had not yet figured out that they were in the New World and not Asia. Since turkeys looked a little like the peacocks that other explorers had brought to Europe from Asia, they assumed that’s what they were. At that time anything from the exotic East was given the name “turkey.”

In the 16th Century, explorers took turkeys from Mexico back to Europe. There the species soon became established as a common farmstead fowl. Turkeys provided excellent meat and eggs and helped control pests by eating large numbers of insects. In the 17th Century, English colonists brought turkeys back to the New World, introducing European-bred types to the native turkeys in eastern North America. The result was the Standard Bronze, the turkey we often see pictured in Thanksgiving advertisements. It had brown features with buff-colored feathers on the tips of the wing and the tail.

The turkeys most of us eat today have very little in common with the Standard Bronze turkey. The turkey we buy in the supermarket is from a breed with white feathers, called “White Breasted Tom.” Commercial producers prefer turkeys with white feathers because white feathers don’t leave pigment spots under the skin when they are plucked. The White Breasted Tom was the result of many years of selective breeding. Besides white feathers, the breed also has more breast meat and meatier thighs than early turkeys. Today the White Breasted Tom is the only turkey in large-scale production in the US.

White Breasted Toms are usually raised indoors so they will be protected from airborne bacteria, viruses and diseases carried by migratory birds. Inside, the flock is also protected from predators. The turkeys are fed a diet of corn and soybean meal mixed with a supplement of vitamins and minerals.

Turkeys are not a major agricultural commodity in Oklahoma, but wild turkeys are abundant in our state. Some of the first records of Oklahoma turkeys are found in the writing of Washington Irving. In his 1832 book, *A Tour on the Prairies*, he describes large turkey populations

Oklahoma Academic Standards

GRADE 3

Speaking and Listening: R.1,2,3;
W.1,2. Reading and Writing
Process: R.1,2,3. Critical Reading
and Writing: R.7. Research:
R.1,2,3,4; W.1,2,3
Economics: 1,2,3; Geography:
2.A,B; OK History: 4
Life Science: 1-1; 2-1; 3-1,2;
4-2,3,4
Data & Probability: 1.1,2
Visual Art: 1.2,4; 3.2; 4.4

GRADE 4

Speaking and Listening: R.1,2,3;
W.1,2. Reading and Writing
Process: R.1,2,3,4. Critical Reading
and Writing: R.7. Research:
R.1,2,3,4; W.1,3
Geography: 3,4,5
Life Science: 1-1
Data & Probability: 1.2
Visual Art: 1.2,4; 3.1; 4.4

GRADE 5

Speaking and Listening: R.1,2,3;
W.1,2. Reading and Writing
Process: R.1,2,3. Research:
R.1,2,3,4; W.2,4
Life Science: 2-2
Data & Probability: 1.2
Visual Art: 1.3,4; 3.1; 4.4

More Turkey Facts

A group of turkeys is called a “rafter.” The red fleshy thing that hangs from a turkey’s neck is called a “wattle.” The part hanging from the beak is a “snood.” A nest full of turkey eggs is called a “clutch.” The male turkey is called a “tom.” The female is called a “hen.” Only tom turkeys gobble. Hens make a clucking sound.

What Makes Dark Meat Dark?

Dark meat, which avian myologists (bird muscle scientists) refer to as “red muscle,” is used for sustained activity—chiefly walking, in the case of a turkey. The dark color comes from a chemical compound called “myoglobin,” which plays a key role in oxygen transport. White muscle, in contrast, is suitable only for short bursts of activity such as, for turkeys, flying. Turkeys don’t fly much, so their breast meat (which makes up the primary flight muscles) is white, and their leg and thigh meat is dark. Other birds more capable in the flight department, such as ducks and geese, have red muscle (and dark meat) throughout.

A 3-ounce serving of skinless white turkey meat contains 25 grams of fat and less than 1 gram of saturated fat. Dark meat has more saturated fat than white meat, and eating the skin adds even more saturated fat. Turkey is also a good source of arginine, an amino acid the body uses to make new protein, and nitric oxide, the substance that relaxes and opens arteries. (Source: Harvard Health Publications)

near what is now Oklahoma City and Norman. Wild turkeys nearly became extinct in Oklahoma in the early days of statehood. They had been hunted excessively for food by settlers, and much of their habitat was destroyed to make room for all the newcomers. In the late 1940s the Oklahoma Department of Wildlife Conservation reintroduced wild turkeys to their former range. This program was so successful that today we have huntable populations in every county. In 1990 the wild turkey was named Oklahoma’s official game bird.

A few growers in Oklahoma raise heritage breeds of turkey. A heritage turkey, sometimes called an heirloom turkey, is a variety of domestic turkey raised specifically to help conserve some of the historic characteristics that have been bred out of turkeys raised for commercial purposes. Some of those characteristics include their diverse colors and their size. Heritage turkeys are raised in a manner that more closely matches the way turkeys live in the wild. In the wild turkeys roam free and eat grass, seeds and large numbers of insects. Heritage turkeys are fed grains, like commercial turkeys, but they are also put on pasture to eat grass and insects. They have longer lifespans and slower growth rates than commercially-grown turkeys. While White Breasted Toms grow to an average of 20 pounds in four months. Heritage birds take seven months to reach their market weight of 18 pounds.

English Language Arts/Social Studies

1. Read and discuss background and vocabulary.
2. Divide students into four groups, and provide each group with one of the reading passages included with this lesson.
—Students will work in groups to answer the questions.
—Each group will present its section of the passage to the class, using posters, skits, Power Point presentations, etc.
3. Students will discuss how consumer preference determines choices made by producers. (White Breasted Tom was developed in response to consumer demand for white meat.)
—Students will list other examples in which consumer demand for one thing can lead to the limitation of choices. For example, if few people purchase a kind of fruit you like, the store may stop carrying it.
4. Students will use online and library references to research one of the following topics: heritage livestock breeds, heirloom seeds, genetic diversity.
—Students will present the results of their research in writing.

Science

1. Discuss the difference between wild and domesticated animals.
—Students will use a Venn diagram to compare and contrast supermarket turkeys, wild turkeys and heritage turkeys. Is a heritage turkey wild or domesticated?

Math

1. Students conduct a school wide poll to determine which kind of turkey meat is preferred, white or dark.
 - Students collect additional data to determine if girls or boys are more likely to like one or the other kind of meat, if younger students prefer one kind over the other, if students like one kind of meat for sandwiches and another from a turkey dinner, etc.
 - Students determine appropriate graph and graph the information.

Visual Art

1. Students will draw a picture of a turkey, using the following polygons:
 - 10 triangles
 - 10 quadrilaterals
 - 5 irregular pentagons 2 regular pentagons 3 hexagons
 - 1 regular octagonThese are the minimum requirements. Students may use more, but must include all of the above.

Extra Reading

- Arnosky, Jim, *All About Turkeys*, Scholastic, 2008.
- Arnosky, Jim, *I'm a Turkey!*, Scholastic, 2009.
- Strauss, Rochelle, and Margot Thompson, *The Tree of Life: The Incredible Biodiversity of Life on Earth*, Kids Can, 2004.
- White, Linda, and Megan Lloyd, *Too Many Turkeys*, Holiday House, 2011.

Vocabulary

breed—a group of animals or plants usually found only under human care and different from related kinds

commercial—designed mainly for profit

conservation—the act of keeping in a safe or sound state

consumer—a person who buys and uses up goods

diverse—differing from one another

domesticated—living with or under the care of human beings

extinct—no longer existing

genetics—a branch of biology that deals with the inherited traits and variation of organisms

heritage—something acquired from the past

pigment—a natural coloring matter in animals and plants

predator—an animal that lives by killing and eating other animals

producer—a person who grows agricultural products or manufactures articles

selective breeding—the process of breeding plants and animals for particular genetic traits

wild—living in a state of nature and not under human control and care

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GROUP ONE: TURKEY HISTORY

The birds we know as turkeys are native to Mexico and the eastern United States. They were first domesticated by the Aztecs in Mexico. Early European explorers called them “turkey” after the country in Asia that has that name. The explorers had not yet figured out that they were in the New World and not Asia. Since turkeys looked a little like the peacocks that other explorers had brought to Europe from Asia, they assumed that’s what they were. At that time anything from the exotic East was given the name “turkey.”

In the 16th Century, explorers took turkeys from Mexico back to Europe. There the species soon became established as a common farmstead fowl. Turkeys provided excellent meat and eggs and helped control pests by eating large numbers of insects. In the 17th Century, English colonists brought turkeys back to the New World, introducing European-bred types to the native turkeys in eastern North America. The result was the Standard Bronze, the turkey we often see pictured in Thanksgiving advertisements. It had brown features with buff-colored feathers on the tips of the wing and the tail.

1. Find the eastern United States, Mexico and Europe on a world map.
2. What does it mean that the Aztecs were the first to domesticate turkeys? Look up “domesticate” in a dictionary.
3. Where did the turkey get its name?
4. Why did turkeys become popular on farms in Europe after explorers took them back there?
5. How was the Standard Bronze breed of turkeys developed?



GROUP TWO: SUPERMARKET TURKEYS

The turkey we buy in the supermarket is from a breed with white feathers, called “White Breasted Tom.” Commercial producers prefer turkeys with white feathers because white feathers don’t leave pigment spots under the skin when they are plucked. The White Breasted Tom was the result of many years of selective breeding. Besides white feathers, the breed also has more breast meat and meatier thighs than early turkeys. Today the White Breasted Tom is the only turkey in large-scale production in the US.

Supermarket turkeys are usually raised indoors so they will be protected from airborne bacteria, viruses and diseases carried by migratory birds. Inside, the flock is also protected from predators. The turkeys are fed a diet of corn and soybean meal mixed with a supplement of vitamins and minerals.

1. What does the word “commercial” mean in the second sentence?
2. Why do commercial producers prefer turkeys with white feathers?
3. Why would commercial producers prefer turkeys with more breast meat and meatier thighs?
4. Look up the phrase “selective breeding” in an encyclopedia. What characteristics were developed in the White Breasted Tom through many years of selective breeding?
5. Why are supermarket turkeys raised indoors?
6. What do supermarket turkeys eat?



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GROUP THREE: WILD TURKEYS

Turkeys are not a major agricultural commodity in Oklahoma, but wild turkeys are abundant in our state. Some of the first records of Oklahoma turkeys are found in the writing of Washington Irving. In his 1832 book, *A Tour on the Prairies*, he describes large turkey populations near what is now Oklahoma City and Norman. Wild turkeys nearly became extinct in Oklahoma in the early days of statehood. They had been hunted excessively for food by settlers, and much of their habitat was destroyed to make room for all the newcomers. In the late 1940s the Oklahoma Department of Wildlife Conservation reintroduced wild turkeys to their former range. This program was so successful that today we have huntable populations in every county. In 1990 the wild turkey was named Oklahoma's official game bird.

1. Where did Washington Irving see turkeys in Oklahoma in 1832?
2. How did turkeys nearly become extinct in Oklahoma?
3. How were turkey populations reintroduced in Oklahoma?
4. What is the wild turkey population like in Oklahoma today?
5. What honor was given the wild turkey given in Oklahoma in 1990?



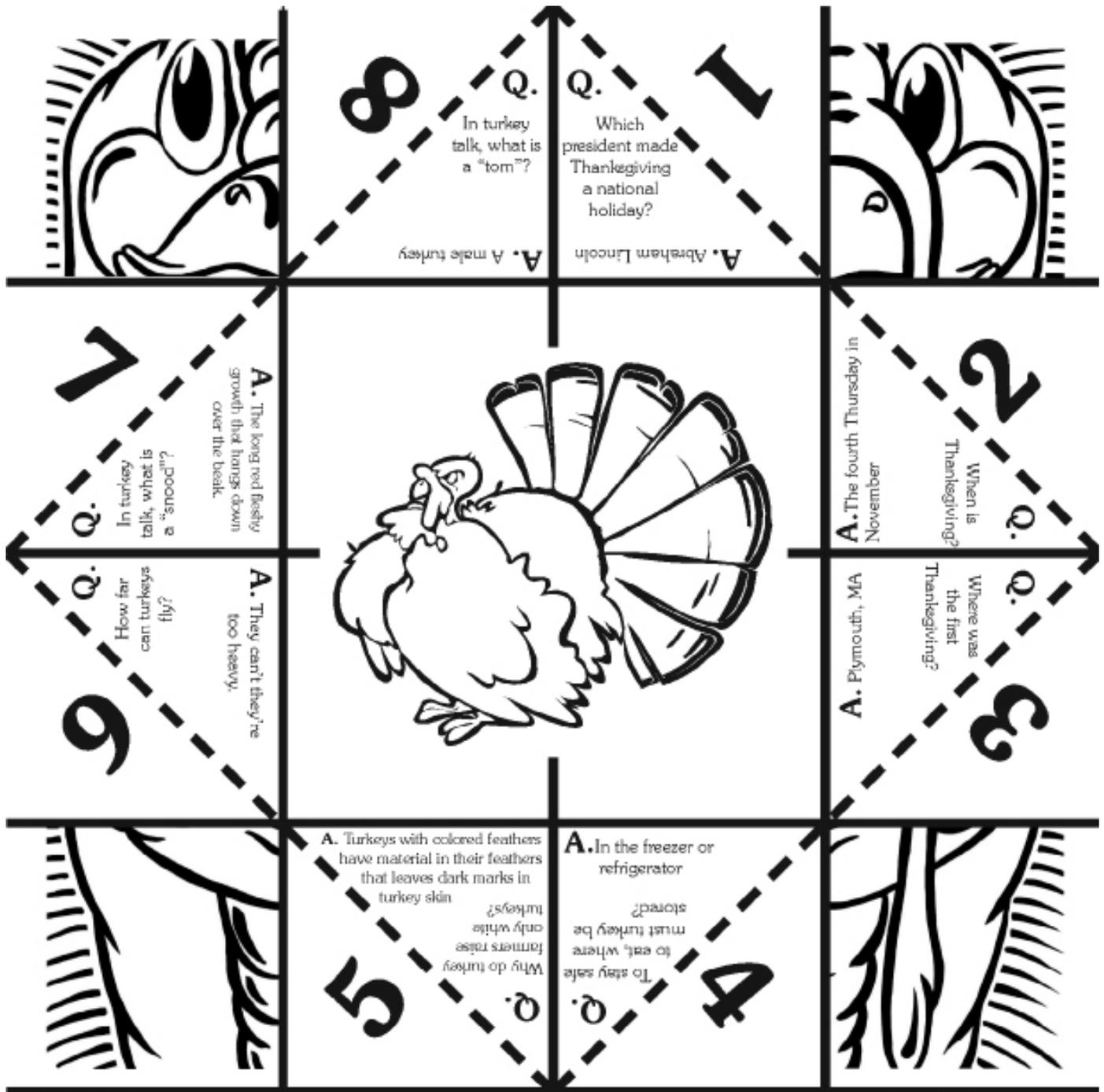
GROUP FOUR: HERITAGE TURKEYS

A few growers in Oklahoma raise heritage breeds of turkey. A heritage turkey is a variety of domestic turkey raised to help conserve historic characteristics that have been bred out of the turkeys we normally find in the supermarket. Some of those characteristics include the variety of feather color, their smaller size and their growth rate. Heritage turkeys are raised in a manner that more closely matches the way turkeys live in the wild. In the wild turkeys roam free and eat grass, seeds and large numbers of insects. Heritage turkeys are fed grains, like commercial turkeys, but they are also put on pasture to eat grass and insects. They have longer lifespans and slower growth rates than commercially-grown turkeys. While White Breasted Toms grow to an average of 20 pounds in four months, heritage birds take seven months to reach their market weight of 18 pounds.

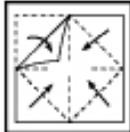
1. Name some historic characteristics of heritage turkeys that are different from supermarket turkeys.
2. How are heritage turkeys raised?
3. How is the diet of heritage turkeys different from the diet of wild turkeys? How is it similar?
4. How are the lifespans of heritage turkeys different from the lifespans of White Breasted Toms?



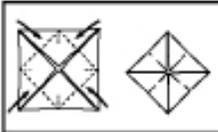
Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.



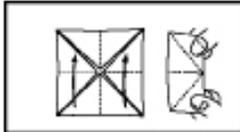
Cut here to make your paper squares.



Start on plain side. Fold outside corners in to the middle.



Turn square over. Fold new outside corners in to the middle.



Fold top edge to bottom edge. Crease along middle. Open back up. Fold one side to other side. Crease along middle. Open back up.



Turn square over. Put your thumbs and pointer fingers into the four pockets on back. Write numbers on the outside of the question flaps. Color, then play the game!

How to play:

1. Pick a friend to play. Ask his or her age. Open and close the pop-up that number of times.
2. Have the player pick another number. Then open and close the pop-up that number of times. Open the number chosen and give the quiz!