

## FUN FACES OF WISCONSIN AGRICULTURE

### MOLLY MACINTOSH'S APPLE FAST FACTS



#### **Production Information**

Apples grow on trees in orchards. Trees are pruned in the winter when they are dormant. Pruning is the removal of branches to maximize sunlight to the fruit and to remove dead and diseased limbs.

New trees are planted in the spring. They are usually a desired fruit variety grafted onto a desirable root stock. The average tree will bear fruit in three years with full production in 8-10 years. Most trees today are dwarf stock or a smaller size. They are easier to work with and more efficient in land use.

Buds will begin to swell and trees will blossom in early May. Grass around the trees is mowed to reduce competition from weeds and other plants. Growers will use IPM (Integrated Pest Management) to watch for insects and develop a program to reduce or prevent them. When the center of the blossom (the King Blossom) opens, then bees will help pollinate the trees. Cross-pollination will help assure a good fruit crop. Fertilizing and training the trees (working with the limbs) will help grow and to attain a better shape. If it is dry, irrigation may be needed in July as the fruit size and firmness are affected by moisture. August is the last growing month before apples ripen. Apples like cool August evenings to trigger an enzyme which increases the color or blush of the ripened apples. Harvest is done by hand as apples bruise easily.

#### **Wisconsin Production**

Commercial orchards are found in 46 of Wisconsin's 72 counties, comprising about 7,400 acres and producing about 56 million pounds of fruit worth over \$9 million per year. The average yield is 9,500 pounds per acre. Most of the commercial acreage is found in four locations in the state. The most concentrated areas are Gays Mills in Crawford County (1,500 acres), Door County area (2,000 acres), Bayfield County, and in the greater Milwaukee area.

#### **Career Information**

Seasonal labor may be needed for harvesting apples. Entomologists work with growers to control insects. Food processors make apples into various products for consumers to buy. Pruners will help trim branches and limbs. Food crop specialists are scientists that work in new food uses, better production methods and food safety. Retail and sales clerks sell the final product to the consumers. Beekeepers provide bees for pollination in orchards.

#### **Trivia**

- If you grew 100 apples trees from the seeds of one tree, they would all be different. Each has its own genetic material.
- The pilgrims brought apples to North America in 1620.
- Apples have five seed pockets with a seed in each pocket.
- The biggest apple pie weighed 30,116 pounds!

#### **Other Information**

Apples are members of the pome family- a fruit whose seeds are embedded in the core of the fruit. Roses are also members of this family.

Apples are grown in all 50 states and over 2500 varieties are grown nationwide. Apples are fat, sodium and cholesterol free so they make a healthy snack. They are also a great source of fiber pectin. An average apple has five grams of fiber and about 80 calories. Americans eat about 19.6 pounds or 65 fresh apples every year. In addition, Americans eat processed apples (i.e. applesauce, dried apples) to raise the total consumption to 42.2 total pounds per year.

Why do they float? 25% of an apple's volume is air.

**FUN FACES OF WISCONSIN AGRICULTURE**  
**MATH - APPLE LESSON PLAN**



**STUDENT'S NAME:**

Answer the questions below. Show your work.

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1. You have 20 trees in your orchard. Half are red and the other half are green. How many red trees are there? How many green trees?
  
  
  
  
  
  
  
  
  
  
2. To make an apple pie, it takes 6 apples. If you need to make 3 pies for a bake sale, how many apples do you need?
  
  
  
  
  
  
  
  
  
  
3. You need 10 apples for one jar of apple sauce. If you have thirty five apples, how many jars of apple sauce can you make?
  
  
  
  
  
  
  
  
  
  
4. It takes fifteen minutes to press enough apples for one gallon of apple cider. If you have half an hour, how many gallons of cider can you make?
  
  
  
  
  
  
  
  
  
  
5. If there are 6,000 acres of apples in Wisconsin and there are 11,300 pounds per acre, how many pounds are there in the state?

6. You have 22 people in your class. If you have two apples, how many pieces does each apple need to be cut into for everyone to get one piece?

7. Your grandparents asked you to help pick their apples. You picked 27 apples and now you get to make caramel apples. If you, your grandma and grandpa each make the same number of apples, how many will each of you make?

8. If an apple is cut into five pieces and you take two, are there more or less than half of the pieces left?

9. The Happy Apple Orchard has 150 trees. Half of the trees are large, red apples. The other half has equal numbers of yellow, green, and small red apples. How many of each kind are in the orchard?

10. At the Happy Apple Orchard, you are in charge of hiring pickers. One person can pick five trees each day. How many people do you need to hire to pick the whole orchard in one day?

11. If you pay each apple picker \$50 per day, how much will it cost to hire the pickers?

12. If you hire twice as many pickers, and only pay them \$30 per day will it be more or less expensive to hire more pickers?

<b>ANSWER KEY</b>
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1. You have 20 trees in your orchard. Half are red and the other half are green. How many red trees are there? How many green trees?

*20 trees/2 varieties=10 red trees and 10 green trees*

2. To make an apple pie, it takes 6 apples. If you need to make 3 pies for a bake sale, how many apples do you need?

*6 apples per pie X 3 pies = 18 apples*

3. You need 10 apples for one jar of apple sauce. If you have thirty five apples, how many jars of apple sauce can you make?

*35 apples/10 apples = 3 complete jars of sauce*

4. It takes fifteen minutes to press enough apples for one gallon of apple cider. If you have half an hour, how many gallons of cider can you make?

*30 minutes/15 minutes = 2 gallons of cider*

5. If there are 6,000 acres of apples in Wisconsin and there are 11,300 pounds per acre, how many pounds are there in the state?

*11,300 pounds per acre X 6,000 acres = 67,800,000 total pounds*

6. You have 22 people in your class. If you have two apples, how many pieces does each apple need to be cut into for everyone to get one piece?

*22 people/ 2 apples = 11 pieces per apple*

7. Your grandparents asked you to help pick their apples. You picked 27 apples and now you get to make caramel apples. If you, your grandma and grandpa each make the same number of apples, how many will each of you make?

*27 apples/ 3 people = 9 apples each*

8. If an apple is cut into five pieces and you take two, are there more or less than half of the pieces left?

*5 pieces- 2 pieces = 3 pieces, more than half*

9. The Happy Apple Orchard has 150 trees. Half of the trees are large, red apples. The other half has equal numbers of yellow, green, and small red apples. How many of each kind are in the orchard?

*150 trees/2=75 large, red apples  
75 trees/3=25 each of yellow, green, and small red apples.*

10. At the Happy Apple Orchard, you are in charge of hiring pickers. One person can pick five trees each day. How many people do you need to hire to pick the whole orchard in one day?

*150 trees/5 trees=30 pickers*

11. If you pay each apple picker \$50 per day, how much will it cost to hire the pickers?

*30 pickers X \$50 each = \$1500*

12. If you hire twice as many pickers, and only pay them \$30 per day will it be more or less expensive to hire more pickers?

*30 pickers X 2=60 pickers*

*60 pickers X \$30 each = \$1800, more expensive to hire the additional pickers*

**FUN FACES OF WISCONSIN AGRICULTURE  
APPLE TRIVIA**



**STUDENT'S NAME:**

1. Apples can only be found fresh in the United States:
  - a. In the Spring
  - b. In the Summer
  - c. Never
  - d. All year
  
2. Apples grow on what type of plant?
  - a. on a tree
  - b. on a vine
  - c. underground
  - d. on a bush
  
3. Apple trees can live to be how old and still produce apples?
  - a. 20 years
  - b. 30 years
  - c. 100 years
  - d. over 200 years
  
4. Apple trees begin to bear fruit at what age?
  - a. right away
  - b. 2 years
  - c. 3 years
  - d. ten years
  
5. The average person eats how many apples each year?
  - a. 2 apples
  - b. 22 apples
  - c. 65 apples
  - d. 650 apples
  
6. Apples come in which colors?
  - a. red
  - b. yellow
  - c. green
  - d. all of the above
  
7. Apples should be stored where to keep them freshest?
  - a. in the freezer
  - b. in the refrigerator
  - c. on the table
  - d. in the oven
  
8. Apples should be kept in plastic bags for what reason?
  - a. to help them retain their moisture
  - b. keep from absorbing smells from other foods
  - c. neither of these
  - d. both of these

9. How many calories are in one apple?
- a. none                      b. 80 calories                      c. 120 calories                      d. 240 calories
10. In Wisconsin, there are commercial apple orchards in how many of the 72 counties?
- a. 10                      b. 27                      c. 34                      d. 46
11. How many acres of Wisconsin are apple orchards?
- a. 46 acres                      b. 1,500 acres                      c. 5000 acres                      d. 7,400 acres
12. How many pounds of apples are produced in Wisconsin each year?
- a. 56 million pounds    b. 700 pounds    c. 100 million pounds                      d. 376 pounds
13. Integrated Pest Management is a way for apple growers to:
- a. keep people out of their orchards  
b. keep harmful bugs and insects from hurting the fruit  
c. reduce the amount of sprays and chemicals they use in their orchards  
d. b and c
14. The liquid made from freshly pressed apples is called:
- a. apple juice                      b. apple cider                      c. apple water                      d. apple sap
15. John Chapman became famous for planting apple trees throughout the Midwest. He was also known as whom:
- a. Johnny Appleseed                      b. John Williams  
c. John Michael Montgomery                      d. John Boy
16. How many apple varieties are known around the world?
- a. 100                      b. 7000                      c. 10,000                      d. 80,000
17. United States apple orchards produce how many bushels of apples each year?
- a. 220,000,000    b. 220,000    c. 2,200                      d. 220

## APPLE TRIVIA ANSWER KEY

1. D- all year
2. A- on a tree
3. D- over 200 years
4. C- 3 years
5. C- 65 apples
6. D- all of the above
7. B- in the refrigerator
8. D- both of these
9. B- 80 calories
10. D- 46
11. D- 7,400 acres
12. A- 56 million pounds
13. D- both B and C
14. B- apple cider
15. A- Johnny Appleseed
16. B- 7,000
17. A- 220,000,000 bushels



## FUN FACES OF WISCONSIN AGRICULTURE APPLE ORCHARD OF INFORMATION



### **Activity Length:**

Apple Health Bites – 20 minutes

Apple Orchard of Information – 60 minutes

Apple Math Worksheet- 30 minutes

### **Student Objectives:**

1. Students will become familiar with the health benefits of apples
2. Students will create a display stating the health benefits of apples and apple facts

### **Wisconsin Model Academic Standards:**

English	B.4.3	C.4.3	D.4.1			
Math	A.4.3	A.4.4	B.4.3	B.4.5	B.4.7	F.4.2

### **Introduction:** Molly Macintosh Fast Facts

### **Additional Information available at:**

U.S. Apple Association – ([www.usapple.org](http://www.usapple.org))

Wisconsin Apple Growers Association – ([www.waga.org](http://www.waga.org))

### **Important Terms:**

- **Cholesterol:** A sterol (waxy steroid substance) present in all animal tissues. Free cholesterol is a component of cell membranes and serves as a precursor for steroid hormones, including estrogen, testosterone, aldosterone, and bile acids. Humans are able to synthesize sufficient cholesterol to meet biologic requirements, and there is no evidence for a dietary requirement for cholesterol.
- **Sodium:** Keeps our blood in our veins clean. Helps to maintain osmotic pressure and maintain proper water balance in the body
- **Fiber:** Carbohydrates that cannot be digested. Fiber is present in all plants that are eaten for food, including fruits, vegetables, grains, and legumes. Keeps our muscles (especially the heart) strong and functioning. One apple has five grams of fiber. Fiber also regulates the blood sugar.
- **Calories:** A calorie is the amount of energy, or heat, it takes to raise the temperature of 1 gram of water 1 degree Celsius. We prefer that calories produce muscles instead of fat.
- **Pectin:** Helps to lower cholesterol levels.

### **Materials for this activity:**

- Apple Matching Cards
- Apple Trivia Quiz
- Poster board or large paper
- Apple die-cuts, card stock or colored paper cut into apple shapes

## **Lesson Outline:**

### **Apple Health Bites**

*Students will discover the health benefits provided by apples through finding the health information and the results in their body on the card held by another student. Define important terms before beginning this activity.*

1. Define important terms listed above and from Apple Matching Cards.
2. Photocopy sets of Apple Matching Cards. Cut the cards apart so that some students have terms and some have definitions.
3. Distribute the cards to the students and direct them to find the student that has either the term or the definition that matches their card.
4. As students find their partners, students should return to their seats.
5. As a class, review and discuss why apples are important for a healthy diet, how the apple gets its structure and how they are grown.

### **Apple Orchard of Information**

*In the form of an apple tree, students will create a display (apple orchard) showing the health bites and apple facts. Use apple die-cuts, or have the students cut out apple shaped cards to write the facts on.*

1. Before beginning this activity, review important terms, Apple Matching Cards and information on the Apple Trivia Quiz.
2. Each student will write a health fact or apple fact on their apple die-cut and then place it on a tree shape on the wall or a poster.
3. Create a display in the hall or on a bulletin board to share information with other students.

### **Apple Math Worksheet**

1. Distribute Apple Math Worksheet for classroom exercise or for homework

## **Suggested Reading Materials:**

- *Life on an Apple Orchard*. By Judy Wolfman, Lerner Publishing
- *The Giving Tree*. By Shel Silverstein, HarperCollins Publishing
- *Hooray for Orchards*. By Bobbie Kalman, Crabtree Publishing

## **Additional Worksheets:**

Careers Guide

Ag Statistics Lesson Plan

**Related activities:**

- Obtain Wisconsin Apple Grower's Association Orchard Map ([www.waga.org](http://www.waga.org)). Highlight orchards near your school. Contact orchard about a field trip or classroom presentation.
- Use an apple to complete A Slice of Soil activity. Download worksheet from ([www.wisagclassroom.org](http://www.wisagclassroom.org)) Click on activities.
- Develop a careers unit and encourage students to explore careers related to the apple industry.
- Obtain copies of *Enjoying the Harvest- Journey to Wisconsin's Harvest* from the Wisconsin Apple Grower's Association ([www.waga.org](http://www.waga.org)) and complete pages 2, 7, 12, 14 and 15.
- Visit Wisconsin Apple Grower's Association ([www.waga.org](http://www.waga.org)) website and complete activity sheets listed under Education Station and A Bushel of Facts about Wisconsin Agriculture.
- Complete page 17 (Wisconsin Crops) of This Business Called Agriculture available from the Wisconsin Agribusiness Foundation ([www.wisagri.com](http://www.wisagri.com))

FUN FACES OF WISCONSIN AGRICULTURE  
APPLE MATCHING CARDS



Apples have  
No *Fat*

Help keep our bodies staying trim

Apples have  
No *Sodium*

Keeps the blood in our veins at a clean and healthy level and keeps our blood pressure healthy

Good source  
of *fiber*

Keeps the muscles in our body (especially the heart) strong and functioning well all through out lives. Apples have as much of this as a bowl of cereal does.

Only 80  
*Calories*

Helps our body to stay healthy by producing good muscles instead of fat

Convenient

Easy to take with you and eat—no need to worry about spoiling after a few hours

**Pectin**

Helps to lower cholesterol levels.  
Apples are rich in this nutrient.

**Air**

25% of an apples volume is made of this. That's why apples can float!

**Apple Seeds**

Holds the genetic materials and nutrients to grow another generation of apples. Apples contain five seed pockets – usually with one seed per pocket.

**Stem**

Keeps the apple hanging on the tree and provides it with a 'life link' to get it's nutrients from the tree while it's growing

**Apple Core**

Contains the firmer fibers in the apple to keep it sturdy and also houses the seeds of the apple

**Apple Flesh**

Where the nutrients are kept and stored while the apple is growing and the part that gives the apple a crunch when we eat it

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## Apple Skin

Protects the apple from contaminants from the outside and comes in shades of red, yellow, and green

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## Apple Blossoms

Can be white or pale pink. They appear on the apple trees in the spring.

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## Apple Tree

It takes 8-10 years for an apple tree to achieve full production. In the winter, this needs about 900 – 1,000 hours below 45 degrees Fahrenheit in order to flower and fruit properly.

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## Apple Varieties

There are more than 7,000 grown in the world. If you grew 100 apples trees from the seeds of one tree, all of these would be different.

**FUN FACES OF WISCONSIN AGRICULTURE  
APPLE WRITING LESSON PLAN**



**Activity Length:**

Fast Apple Facts – 10 minutes  
Apple Similes and Metaphors – 15 minutes  
Apple Poets – 15 minutes  
Apple Math Lesson – 30 minutes

**Student Objectives:**

1. Students will answer introductory apple fact trivia to introduce the unit
2. Students will use their senses to create similes and metaphors about apples
3. Students will learn about poetry while writing a poem about apples

**Wisconsin Model Academic Standards:**

English	B.4.1	B.4.2	B.4.3	C.4.1	C.4.2	C.4.3		
Math	A.4.2	A.4.3	A.4.4	A.4.5	B.4.3	B.4.5	B.4.7	F.4.2
Social Studies	A.4.7	D.4.3						

**Introduction:** Molly Macintosh Fast Facts

**Additional Information available at:**

U.S. Apple Association – ([www.usapple.org](http://www.usapple.org))  
Wisconsin Apple Growers Association – ([www.waga.org](http://www.waga.org))

**Important Terms:**

- Simile: Similes are comparisons that show how two things that are not alike in most ways are similar in one important way. Similes are a way to describe something. Authors use them to make their writing more interesting or entertaining. Similes use the words “as” or “like” to make the connection between the two things that are being compared.
- Metaphor: a comparison between two things, based on resemblance or similarity, without using “like” or “as”

**Materials for this activity:**

- Apples
- Writing materials

## **Lesson Outline:**

### **Fast Apple Facts**

*As a class, compete in a fast round of Apple Trivia to introduce the apple unit.*

1. Divide the class into teams and instruct each team to choose a spokesperson.
2. Take turns asking each team Apple Trivia Quiz.
3. If the team gets an answer wrong, the other team then gets an opportunity to answer the question for a point.

### **Apple Similes and Metaphors**

*Students will work with partners to come up with similes and metaphors to describe their apples.*

1. Ask students to find a partner.
2. Each pair is given an apple or students could bring in their own apples to have more variety.
3. Instruct students to look, smell, listen (to it roll, when you tap it with a pencil, when you bite it...) and taste their apples. Encourage each group to come up with as many similes and metaphors as they can for their apple.
4. Share similes and metaphors with the class.

### **Apple Poets**

*Students will use the similes and metaphors to create a poem about apples.*

1. Still working with their partners, instruct students to create a poem telling about apples and using at least 5 of their similes or metaphors.
2. Discuss rhymes and what makes poems unique. Do all poems rhyme? How long does a poem need to be? What's the difference between a poem and a story?

### **Math Apple Lesson**

1. Distribute apple math worksheet for classroom exercise or for homework

### **Suggested Reading Materials:**

- *Johnny Appleseed*. By Stephen Kellogg, HarperCollins Publishing



**Additional Worksheets:**

- Careers Guide
- Ag Statistics Lesson Plan

**Related activities:**

- Visit Wisconsin Apple Grower's website ([www.waga.org](http://www.waga.org)). Click on Education Location. Have students complete the various activities under A Bushel of Facts about Wisconsin about Wisconsin Apples.
- Visit Wisconsin Apple Grower's website ([www.waga.org](http://www.waga.org)). Click on Education Location and find the Seasons of Apple Growing link. Have the students develop a timeline for the calendar year describing what happens in apple production. If there are apple growers in your school district, have the students contact the growers and compare the student's timeline to that grower's yearly schedule.
- Hold a contest for the student to develop the best slogan for Eating an Apple a Day. Have them use the slogan in designing a bumper sticker.