

NAME: _____

Aligned to the following standards:
CS.02; CS.05; FFA.PL-A; FFA.PG-I; FFA.PG-J; FFA.CS-N; AG-PL2; AG2; AG5; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; MP1; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.08

Appendix 1: Sweet Success

Created: Winter 2019 by the National FFA Organization
Part 1

DIRECTIONS:

Read the "Sweet Success" article in the Winter 2019 issue of *FFA New Horizons* and complete the following activities.

Where is Henry's family farm located?

- a. Worcester, MA
- b. Chesterfield, MA
- c. Framingham, MA
- d. Paradise, MA



How many trees does the Wamogo FFA Chapter tap for sap on campus?

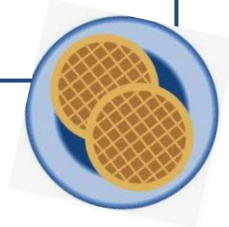
- a. 20
- b. 60
- c. 80
- d. 100

Which of the following is not listed as part of Henry's coursework?

- a. Sales and marketing
- b. Syrup production
- c. Fermentation science
- d. Forest management



According to the United States Department of Agriculture, American _____ collected sap from _____ million taps and produced more than _____ million gallons of maple syrup last year.



What is one of the biggest challenges Paradise FFA faces in its syrup production?



Why is syrup primarily produced in the Northeastern United States??

NAME: _____

Aligned to the following standards:
CS.02; CS.05; FFA.PL-A; FFA.PG-I; FFA.PG-J; FFA.CS-N; AG-PL2; AG2; AG5; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; MP1; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.08

Part 2

DIRECTIONS:

Maple syrup production plays a large role within the economy. Using the information below, explore the production process for syrup in the United States.

The following table from the USDA depicts the state syrup production in the U.S. Use this table to complete the following:

- (1) In green, underline the top five syrup-producing states in 2018.
- (2) In red, circle the total amount of syrup produced by the United States in 2018.
- (3) On the map below, locate, label and color the top five syrup-producing states in 2018.
- (4) Using the outline below, create a bar graph that depicts the amount of maple syrup produced by the top five producing states. Include labels and a title.

Maple Syrup Taps, Yield, and Production – States and United States: 2016-2018

State	Number of taps			Yield per tap			Production		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
	(1,000 taps)	(1,000 taps)	(1,000 taps)	(gallons)	(gallons)	(gallons)	(1,000 gallons)	(1,000 gallons)	(1,000 gallons)
Connecticut	85	86	73	0.224	0.233	0.247	19	20	18
Indiana	60	62	70	0.200	0.194	0.257	12	12	18
Maine	1,860	1,890	1,870	0.363	0.375	0.288	675	709	539
Massachusetts	315	320	320	0.244	0.263	0.225	77	84	72
Michigan	400	440	455	0.225	0.250	0.275	90	110	125
Minnesota	76	77	65	0.184	0.182	0.200	14	14	13
New Hampshire	545	550	560	0.310	0.280	0.291	169	154	163
New York	2,515	2,650	2,730	0.281	0.287	0.295	707	760	806
Ohio	370	400	400	0.189	0.200	0.225	70	80	90
Pennsylvania	660	660	670	0.217	0.211	0.212	143	139	142
Vermont	4,850	5,410	5,670	0.410	0.366	0.342	1,990	1,980	1,940
West Virginia	51	61	66	0.118	0.148	0.121	6	9	8
Wisconsin	765	735	750	0.307	0.272	0.300	235	200	225
United States	12,552	13,341	13,699	0.335	0.320	0.304	4,207	4,271	4,159

(3)



NAME: _____

Aligned to the following standards:
CS.02; CS.05; FFA.PL-A; FFA.PG-I; FFA.PG-J; FFA.CS-N; AG-PL2; AG2; AG5; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; MP1; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.08

(4)

Table Title: _____

*Don't forget to label the axes and create a legend/key!



What surprises you about syrup production in the United States?

Using [AgExplorer.ffa.org](https://www.agexplorer.ffa.org), identify three careers you could have within the maple syrup production industry and the education required to acquire that career.

1. _____
a. Education: _____

2. _____
b. Education: _____

3. _____
a. Education: _____

What do you predict will be the future of maple syrup production?



NAME: _____

Aligned to the following standards:

CS.02; CS.05; FFA.PL-A; FFA.PG-I; FFA.PG-J; FFA.CS-N; AG-PL2; AG2; AG5; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; MP1; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.08

Part 3

You cannot collect sap for syrup from just any tree. You must select the correct tree. Here are three different types of trees that can be used for sap collection. In this box, identify the similarities and differences between the three trees. Consider the leaves, buds and tree bark.

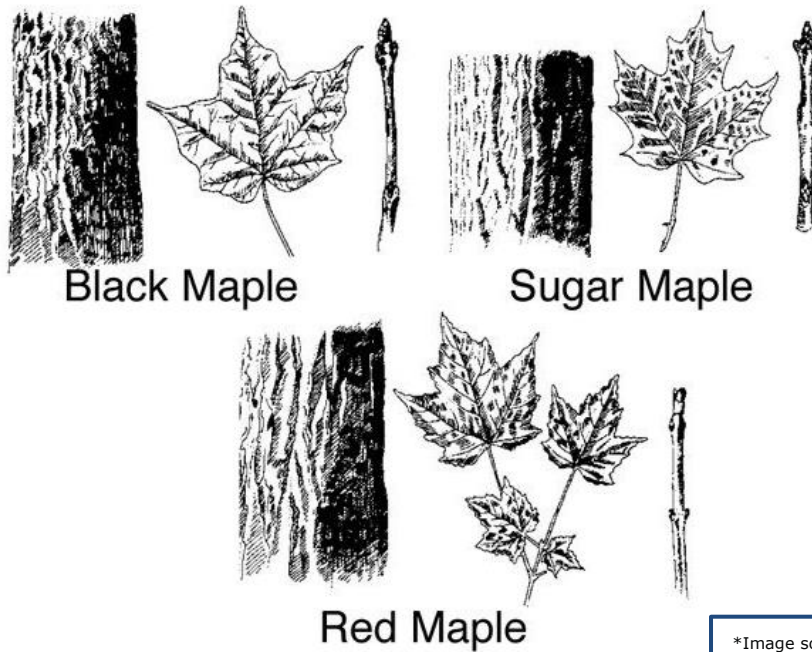


*Image sourced from [Penn State Extension](#).

Go outside and select a tree that grows in your area. Take a picture or draw a picture of the leaves (if it's not winter), buds and bark and place it here. What are the differences and similarities between the tree that grows near you and the three above used for sap?

What impact would a plant disease moving through the trees used for syrup production have on the industry?



NAME: _____

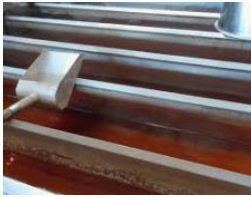
Aligned to the following standards:

CS.02; CS.05; FFA.PL-A; FFA.PG-I; FFA.PG-J; FFA.CS-N; AG-PL2; AG2; AG5; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; MP1; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.08

Part 4

Maple syrup production is an important commodity in the United States. Surprisingly, few tools are needed in order to produce syrup at home. Using the [Tractor Supply Company](http://www.tractorsupply.com) website, create a list of supplies you would need if you wanted to make syrup. Research the cost for each needed supply to determine your startup cost.

1. _____ \$ _____
2. _____ \$ _____
3. _____ \$ _____
4. _____ \$ _____
5. _____ \$ _____
6. _____ \$ _____



What are the steps in the syrup production process? List each step and draw a picture to depict the step. HINT: Use the side column in your *FFA New Horizons* article to find the steps with a description.

1. _____

2. _____

3. _____

4. _____

6. _____

5. _____

What safety equipment or personal protective equipment (PPE) should be utilized during the syrup production process?

NAME: _____

DIRECTIONS:

Compose a detailed summary of the syrup production industry using 10 key words and terminology that you have learned through this lesson. Underline each of the terms in your summary.

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

NAME: _____

Aligned to the following standards:
CS.02; CS.05; FFA.PL-A; FFA.PG-I; FFA.PG-J; FFA.CS-N; AG-PL2; AG2; AG5; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; MP1; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.08

KEY — Appendix 1: Sweet Success

Created: Winter 2019 by the National FFA Organization
Part 1

DIRECTIONS:

Read the "Sweet Success" article in the Winter 2019 issue of *FFA New Horizons* and complete the following activities.

Where is Henry's family farm located?

- a. Worcester, MA
- ☒ b. Chesterfield, MA
- c. Framingham, MA
- d. Paradise, MA

How many trees does the Wimago FFA Chapter tap for sap on campus?

- a. 20
- b. 60
- ☒ c. 80
- d. 100

Which of the following is not listed as part of Henry's coursework?

- a. Sales and marketing
- b. Syrup production
- ☒ c. Fermentation science
- d. Forest management



According to the United States Department of Agriculture, American sugar-makers collected sap from 13.3 million taps and produced more than 4.24 million gallons of maple syrup last year.

What is one of the biggest challenges Paradise FFA faces in its syrup production? The season is short, making it a rush to gather the sap. The chapter also lacks its own sugarhouse so they have to boil the sap over an open fire or transport the sap to a local sugarhouse.



Why do you think syrup is primarily produced in the Northeastern United States?
Answers will vary. Examples could include climate, soil type, tree variety availability, etc.

NAME: _____

Aligned to the following standards:

CS.02; CS.05; FFA.PL-A; FFA.PG-I; FFA.PG-J; FFA.CS-N; AG-PL2; AG2; AG5; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; MP1; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.08

Part 2

DIRECTIONS:

Maple syrup production plays a large role within the economy. Using the information below, explore the production process for syrup in the United States.

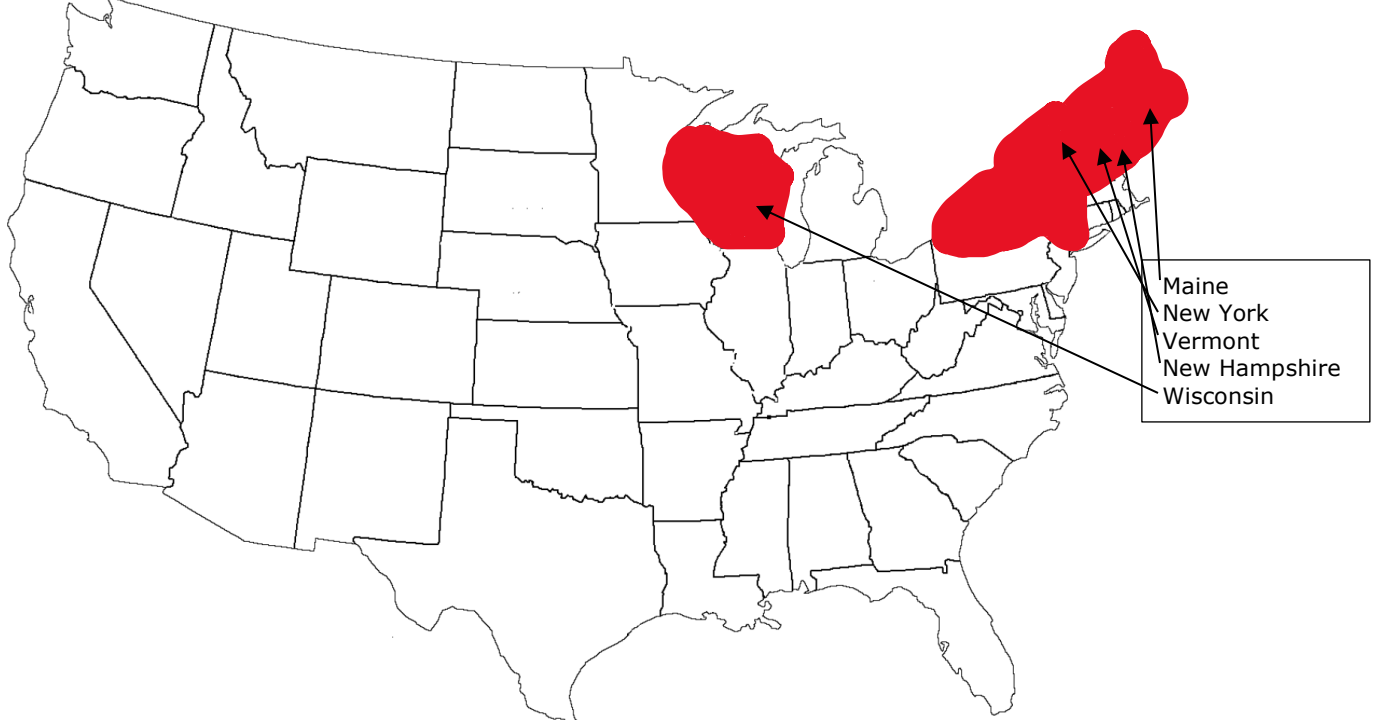
The following table from the USDA depicts the state syrup production in the U.S. Use this table to complete the following:

- (1) In green, underline the top five syrup-producing states in 2018.
- (2) In red, circle the total amount of syrup produced by the United States in 2018.
- (3) On the map below, locate, label and color the top five syrup-producing states in 2018.
- (4) Using the outline below, create a bar graph that depicts the amount of maple syrup produced by the top five producing states. Include labels and a title.

Maple Syrup Taps, Yield, and Production – States and United States: 2016-2018

State	Number of taps			Yield per tap			Production		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
	(1,000 taps)	(1,000 taps)	(1,000 taps)	(gallons)	(gallons)	(gallons)	(1,000 gallons)	(1,000 gallons)	(1,000 gallons)
Connecticut	85	86	73	0.224	0.233	0.247	19	20	18
Indiana	60	62	70	0.200	0.194	0.257	12	12	18
<u>Maine</u>	1,860	1,890	1,870	0.363	0.375	0.288	675	709	539
Massachusetts	315	320	320	0.244	0.263	0.225	77	84	72
Michigan	400	440	455	0.225	0.250	0.275	90	110	125
Minnesota	76	77	65	0.184	0.182	0.200	14	14	13
<u>New Hampshire</u>	545	550	560	0.310	0.280	0.291	169	154	163
<u>New York</u>	2,515	2,650	2,730	0.281	0.287	0.295	707	760	806
Ohio	370	400	400	0.189	0.200	0.225	70	80	90
Pennsylvania	660	660	670	0.217	0.211	0.212	143	139	142
<u>Vermont</u>	4,850	5,410	5,670	0.410	0.366	0.342	1,990	1,980	1,940
West Virginia	51	61	66	0.118	0.148	0.121	6	9	8
<u>Wisconsin</u>	765	735	750	0.307	0.272	0.300	235	200	225
United States	12,552	13,341	13,699	0.335	0.320	0.304	4,207	4,271	4,159

(3)

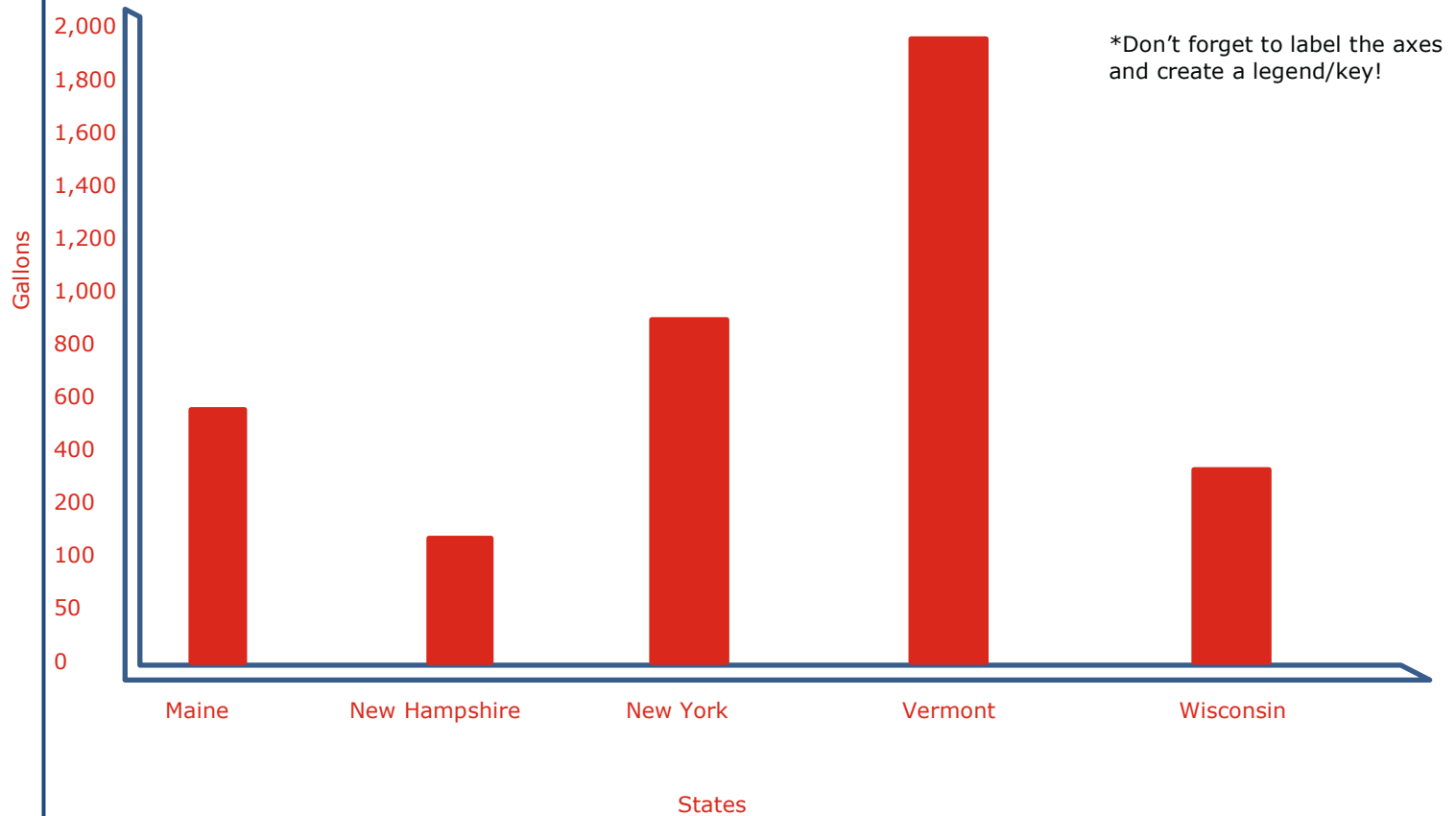


NAME: _____

Aligned to the following standards:
CS.02; CS.05; FFA.PL-A; FFA.PG-I; FFA.PG-J; FFA.CS-N; AG-PL2; AG2; AG5; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; MP1; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.08

(4) Example bar graph. Look and labels of graph may vary by student.

Table Title: United States Syrup Production



What surprises you about syrup production in the United States? *Answers will vary.*

What do you predict will be the future of maple syrup production? *Answers will vary.*



Using AgExplorer.ffa.org, identify three careers you could have within the maple syrup production industry and the education required to acquire that career. *Answers will vary.*

2. _____
a. Education: _____

3. _____
a. Education: _____

4. _____
a. Education: _____



NAME: _____

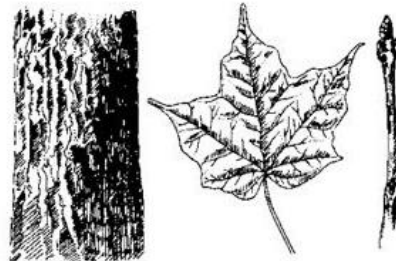
Aligned to the following standards:

CS.02; CS.05; FFA.PL-A; FFA.PG-I; FFA.PG-J; FFA.CS-N; AG-PL2; AG2; AG5; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; MP1; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.08

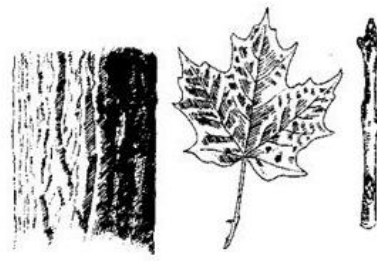
Part 3

You cannot collect sap for syrup from just any tree. You must select the correct tree. Here are three different types of trees that can be used for sap collection. In this box, identify the similarities and differences between the three trees. Consider the leaves, buds and tree bark.

Three lobed leaves,
dull rounded buds,
deeper bark grooves

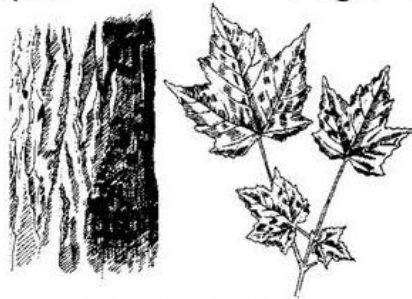


Black Maple



Sugar Maple

Five lobed leaves,
sharp buds, thick
long strips of bark



Red Maple

Three lobed leaves,
smooth bark that
can become scaly

*Image sourced from [Penn State Extension](http://PennStateExtension.org).

Go outside and select a tree that grows in your area. Take a picture or draw a picture of the leaves (if it's not winter), buds and bark and place it here. What are the differences and similarities between the tree that grows near you and the three above used for sap?

Answers will vary.



What impact would a plant disease moving through the trees used for syrup production have on the industry? Plant disease would decrease sap production, which would decrease the amount of syrup produced. A decrease in overall syrup production could cause an increase in price.

NAME: _____

Aligned to the following standards:

CS.02; CS.05; FFA.PL-A; FFA.PG-I; FFA.PG-J; FFA.CS-N; AG-PL2; AG2; AG5; CCSS.ELA.RI.9-10.2; CCSS.ELA.RI.9-10.4; MP1; MP5; MP6; CRP.02; CRP.04; CRP.06; CRP.08

Part 4

Maple syrup production is an important commodity in the United States. Surprisingly, few tools are needed in order to produce syrup at home. Using the [Tractor Supply Company](#) website, create a list of supplies you would need if you wanted to make syrup. Research the cost for each needed supply to determine your startup cost. **Cost will vary.**

1. Drill and 5/16 in. drill bit \$ _____
2. Stainless steel bucket spout \$ _____
3. Hammer \$ _____
4. Aluminum sap bucket with lid \$ _____
5. Candy thermometer \$ _____
6. 3-gallon stainless steel pot \$ _____

What are the steps in the syrup production process? List each step and draw a picture to depict the step. **HINT:** Use the side column in your *FFA New Horizons* article to find the steps with a description.

1. **Insert taps into sugar maple trees.**

Picture will vary.

2. **Collect sap.**

Picture will vary.

3. **Boil Sap.**

Picture will vary.

4. **Filter syrup.**

Picture will vary.

5. **Bottle syrup.**

Picture will vary.

6. **Pour over pancakes and enjoy!**

Picture will vary.



What safety equipment or personal protective equipment (PPE) should be utilized during the syrup production process?

Answers will vary. Examples may include safety glasses, gloves, closed toe shoes, etc.

