



Lesson Plan

1 of 4

Introduction to Sustainability

Created: 09/2023 by the National FFA Organization

Sustainability is a HUGE buzzword these days. But what does it actually mean? Through this lesson series, students will consider that question as they discover the core principles of sustainability, engage with global sustainable development goals, examine sustainable practices at work in the field of agriculture and commit to actions they can take to live and work more sustainably in their own lives.

Thank you to our current partners in sustainability:



Student Learning Objectives:

After completing these activities, students will ...

1. Explain the core principles of sustainability.
2. Define key terms related to sustainability.
3. Explore actions that individuals and companies are taking to live and work more sustainably.

Suggested Grade Level:

Grades 9 and 10 (This lesson is written so instructors can scale up or down based on class needs.)

Suggested Time: 75-80 minutes (*Time requirements may vary based upon student understanding and class schedule.)

Resources/References:

1. Video: UCLA, "What Is Sustainability?" <https://youtu.be/zx04Kl8y4dE>
2. Video: Argos, "The Three Dimensions of Sustainability," <https://youtu.be/V6wCP0iMWtI>
3. Website: Sustainable Business Network Glossary of Sustainability, <https://sustainable.org.nz/learn/tools-resources/glossary-of-sustainability/>
4. Website: Sustainable Review: 35 Terms and Definitions You Need to Know, <https://sustainablereview.com/sustainability-101-terms-and-definitions/>
5. Website: Bayer, <https://www.bayer.com/en/sustainability>
6. Website: Caterpillar, <https://www.caterpillar.com/en/company/sustainability/sustainability-report.html>
7. Website: Cargill, <https://www.cargill.com/sustainability>
8. Website: Corteva, <https://www.corteva.com/sustainability.html>

9. Website: Ford, <https://corporate.ford.com/social-impact/sustainability.html>
10. Website: John Deere, <https://www.deere.com/en/our-company/sustainability/>
11. Website: Syngenta, <https://www.syngenta.com/en/sustainability>
12. Website: Tractor Supply, https://corporate.tractorsupply.com/Stewardship/stewardship/default.aspx?cm_sp=footer-_-navigation-_-environmental+sustainability
13. Website: Walmart, <https://corporate.walmart.com/purpose/sustainability>
14. Website: Zoetis, <https://www.zoetis.com/our-company/corporate-sustainability/our-journey-toward-a-better-world>

Related Resources:

1. AgExplorer Sustainability Systems Focus Area, AgExplorer.FFA.org/focus/sustainability-systems/
2. Darling Ingredients Educational Resources, <https://FFA.box.com/s/3ko8e9w6zygohvlewfsnc8byobjzeuxa>
3. Valent — Sustainability in Agriculture Lesson Series, <https://FFA.box.com/v/sustainabilityinagriculture>

Equipment and Supplies Needed:

1. A copy of the “What Is Sustainability?” worksheet for each student
2. A copy of the “Sustainability One-Shots” worksheet for each student
3. A copy of the “Real-Life Sustainability” worksheet for each student
4. Internet access to play the videos in real time or embed them in a PowerPoint ahead of time
5. Student devices with internet access

Vocabulary:

1. Biomass
2. Byproduct
3. Carbon Footprint
4. Circular Economy
5. Climate Change
6. Conservation
7. Corporate Social Responsibility (CSR)
8. Economy
9. Ecosystem
10. Environment
11. Equity
12. Greenwashing
13. Natural Resources
14. Net Zero
15. Preservation
16. Recycle
17. Supply Chain
18. Sustainability
19. Zero Waste

Cross-Curricular Connections:

Social Studies	English/Language Arts
Students will evaluate how personal and business practices fit into the framework of sustainability.	Students will define key terms related to sustainability in their own words and create a visual representation for some of the terms.

Virtual Instruction Ideas:

- Students can be grouped virtually to complete these activities, or this could be individually assigned as a brief introduction to sustainability by posting the activity sheets to your school's learning management system.
- For Activity 2, use the Storyboard That (<https://www.storyboardthat.com/storyboard-creator>) or Make Beliefs Comics (<https://makebeliefscomix.com/Comix/>) websites for students to create their comics online and paste them into the worksheet document.

Student Activity Sheets:

Direct access to student activity sheets without lesson plan or answer key for easy upload to a learning management system or printing for classwork.

<https://ffa.box.com/s/5sxlV0761q4uzbs6voktpuwf4lq5xy33> (Word)

<https://ffa.box.com/s/8eprdynb5i0d58bxb88lgxbh2ml8iaz> (Non Designed Word)

<https://ffa.box.com/s/chonluqb7hthcj5v7qoua265i2auigr> (PDF)

https://docs.google.com/document/d/1T3mDdQy6oxURCg_Ta4oT_SL8rR9bUPKJ8TFP5pwwVcM/copy (Google)

https://docs.google.com/document/d/16rhkQ7wpf3CWuf8_eelzQ0bi547b9OM8LM--R_1HMBI/copy (Non Designed Google)

These Activities Are Aligned to the Following Standards:

AFNR Performance Element

- CS.03. Examine and summarize the importance of health, safety and environmental management systems in AFNR workplaces.
- CS.04. Demonstrate stewardship of natural resources in AFNR activities.
- CS.06. Analyze the interaction among AFNR systems in the production, processing and management of food, fiber and fuel and the sustainable use of natural resources.

FFA Precept

- FFA.PL-A.Action: Assume responsibility and take the necessary steps to achieve the desired results, no matter what the goal or task at hand.
- FFA.CS-M.Communication: Effectively interact with others in personal and professional settings.

Common Career Technical Core

- AG3 Examine and summarize the importance of health, safety, and environmental management systems in AFNR businesses.
- AG6 Analyze the interaction among AFNR systems in the production, processing, and management of food, fiber, and fuel and the sustainable use of natural resources.

Common Core – Reading: Informational Text

- CCSS.ELA-Literacy.RI.9-10.2 Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

Common Core – Speaking and Listening

- CCSS.ELA-Literacy.SL.9-10.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

Common Core – Science & Technical Subjects

- CCSS.ELA-Literacy.RST.9.10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics.

Next Generation Science

- HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

Green/Sustainability Knowledge and Skill Statements

- AFNR Career Cluster, Statement 2 Analyze community practice or policy development related to sustainability in AFNR.
- AFNR Career Cluster, Statement 3 Communicate the impact of green and sustainability principles on agriculture, food and natural resource systems.
- AFNR Career Cluster, Statement 6 Use green technologies and sustainability practices to maintain safe and healthful working environments that sustain the natural environment and promote wellbeing in the AFNR workplaces.
- AFNR Career Cluster, Statement 7 Demonstrate an understanding of green and sustainability trends that are impacting processes and markets in AFNR.

AFNR Career Ready Practices

- CRP.02. Apply appropriate academic and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive.

- CRP.04. Communicate clearly, effectively, and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.
- CRP.05. Consider the environmental, social and economic impact of decisions. Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organizations and the environment.

Partnership for 21st Century Skills

- Communication
- Environmental Literacy
- Global Awareness
- Information, Communications, and Technology Literacy
- Think Creatively

Lesson Plan:

1. **Bell Ringer:** What do you think of when you hear the word “sustainability”?
2. **Introduction:** Have students share their responses to the bell ringer question. Then say: *Sustainability is a HUGE buzzword these days. But what does it actually mean? Is it recycling? Is it driving an electric car? Is it drinking out of reusable straws instead of plastic ones? Today, we are going to tackle that question and explore what exactly is meant by the term “sustainability.” So, let’s dive right in.*
3. **Activity 1: (10 Minutes)** Each student needs a copy of the worksheet “What Is Sustainability?”
 - a. **Part 1:** Show the video “What Is Sustainability” from UCLA (<https://youtu.be/zx04KI8y4dE>) or have students watch the video on their own devices. As students watch the video, they will be answering the questions on the front side of the “What Is Sustainability?” worksheet.
 - i. **Teacher Note:** The video goes through the content quickly. You may want to pause the video at key points as it plays or play it twice to give students ample time to record their answers.
 - b. **Part 2:** Show the video “The Three Dimensions of Sustainability” from Argos (<https://youtu.be/V6wCP0iMWtl>) or have students watch the video on their own devices. As students are watching the video, they will fill out the Venn diagram with examples from Henry’s construction business. Then they will answer the questions at the bottom of the worksheet.
 - c. Say: *Now that we know a little bit about sustainability and we’ve learned about the three E’s, before we go any further, we should get familiar with a few more terms.*
4. **Activity 2: (30-35 minutes)** Each student needs a copy of the worksheet “Sustainability One-Shots.”
 - a. **Part 1:** Divide students into groups of four for this activity. (If groups of four won’t work for your class, just ensure each group covers the entire vocabulary list and give them enough copies of the worksheet to do so). Within their groups, students will decide which sustainability terms from the list on the worksheet they will be responsible for defining and sharing with their groups (in groups of four, each student should have four terms). For each of the terms they have self-assigned, they will record the term and a definition and then design a short “one-shot” comic that depicts the meaning of the term. The comics can be one frame or multiple frames so long as they depict the term’s meaning in some way.
 - i. Some examples of what these could look like that you could share with your students can be found here: <https://myvocabulary.com/election>.
 - ii. **Teacher Note:** Doing this activity digitally? Consider using a site such as Storyboard That (<https://www.storyboardthat.com/storyboard-creator>) or Make Beliefs Comics (<https://makebeliefscomix.com/Comix/>) for students to create their comics online and paste them into the worksheet document.
 - b. **Part 2:** After students have defined their terms and created their comics, they will share those comics and definitions with the other students in their groups. As each student shares, the other students will record the definitions of the terms in the table on their worksheets.
 - c. Say: *Now, to bring sustainability a little closer to home, let’s identify sustainable practices in real life.*
5. **Activity 3: (20 minutes)** Each student needs a copy of the worksheet “Real-Life Sustainability.”
 - a. Students will record five different sustainability practices used in each of the following categories:
 - i. two different companies
 - ii. their school
 - iii. their own life
 - b. Students will need access to an internet device to access one of the websites below for their research. You may either assign students to certain companies or provide them with the following list of links to select two companies for themselves.
 - i. Bayer: <https://www.bayer.com/en/sustainability>
 - ii. Caterpillar: <https://www.caterpillar.com/en/company/sustainability/sustainability-report.html>
 - iii. Cargill: <https://www.cargill.com/sustainability>
 - iv. Corteva: <https://www.corteva.com/sustainability.html>
 - v. Ford: <https://corporate.ford.com/social-impact/sustainability.html>
 - vi. John Deere: <https://www.deere.com/en/our-company/sustainability/>
 - vii. Syngenta: <https://www.syngenta.com/en/sustainability>

- viii. Tractor Supply:
https://corporate.tractorsupply.com/Stewardship/stewardship/default.aspx?cm_sp=footer--navigation--environmental+sustainability
 - ix. Walmart: <https://corporate.walmart.com/purpose/sustainability>
 - x. Zoetis: <https://www.zoetis.com/our-company/corporate-sustainability/our-journey-toward-a-better-world>
- c. Additionally, students can either take a walk around the school (or their homes, if virtual) to look for sustainable practices or just think through different practices they have seen around the campus or their homes.
- i. **Teacher Note:** Remind students that they are just beginning their sustainability journey. They are not expected to have detailed answers/plans about what the school or they individually are doing to be sustainable. They are merely looking at what is going on around them that aligns with the simple definition of sustainability that they have already learned: “meeting the needs of the present, without compromising the ability of future generations to meet their own needs.”
6. **Follow-up:** (5-10 minutes) Hold a class discussion about the different sustainability practices the students found in their research from the companies, their school and their homes.
7. **Exit Ticket:** What sustainable practice or action are you most excited to put into action? Why?

Name: _____

Aligned to the following standards:

CS.03; CS.04; CS.06; FFA.PL-A; FFA.CS-M; AG3; AG6; CCSS.ELA.RI.9-10.2;
CCSS.ELA.SL.9-10.1; CCSS.ELA.RST.9-10.4; HS.ETS 1-3; AFNR Career Cluster,
Statement 2; AFNR Career Cluster, Statement 3; AFNR Career Cluster,
Statement 6; AFNR Career Cluster, Statement 7; CRP.02; CRP.04; CRP.05

What Is Sustainability?

Part 1

Directions:

Complete the following questions while watching the “What Is Sustainability?” video from UCLA, available at <https://youtu.be/zx04KI8y4dE>.

1. How does the United Nations’ Brundtland Commission define “sustainable development” (sustainability)?

What does that mean in your own words?



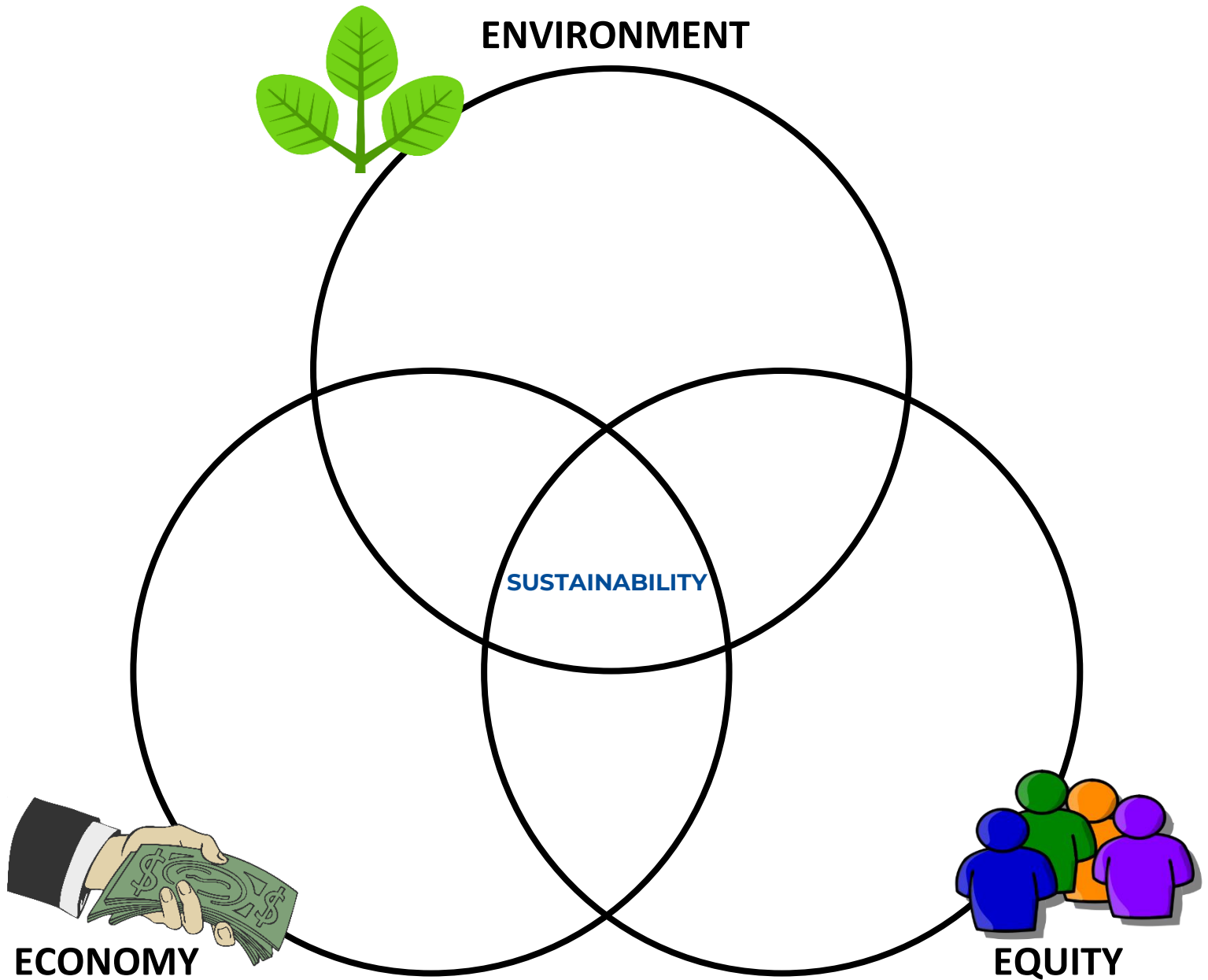
2. The video mentioned a few replenishable resources such as trees and fish. List five other replenishable resources:
 - 1.
 - 2.
 - 3.
 - 4.
 - 5.
3. What are the impacts of excessive consumption (using resources faster than their replacement rate)?
4. “_____ is about understanding how all of this is _____.
Sustainability is about _____.”
5. What are the “Three E’s of Sustainability”?
 - 1.
 - 2.
 - 3.
6. In no more than two sentences, explain what sustainability is and why it’s important in your life.

Name: _____

Part 2

Directions:

Watch the video "The Three Dimensions of Sustainability." The video is available at <https://youtu.be/V6wCP0iMWtI>. While watching the video, fill out the Venn diagram with examples of sustainable practices from Henry's construction business. Then answer the questions at the bottom of the worksheet. *Note: The video exchanges "Equity" for "Social" in its explanation of the three dimensions.*



1. How are each of the three E's (environment, economy, equity (or social)) interconnected?
2. Why is it important to consider all three E's in business and in our society?

Name: _____

Aligned to the following standards:

CS.03; CS.04; CS.06; FFA.PL-A; FFA.CS-M; AG3; AG6; CCSS.ELA.RI.9-10.2;
CCSS.ELA.SL.9-10.1; CCSS.ELA.RST.9-10.4; HS.ETS 1-3; AFNR Career Cluster,
Statement 2; AFNR Career Cluster, Statement 3; AFNR Career Cluster,
Statement 6; AFNR Career Cluster, Statement 7; CRP.02; CRP.04; CRP.05

Sustainability One-Shots

Part 1

Directions:

Within your group, decide who will be responsible for each term listed on the following page. For your sustainability terms, record a simple definition below and design a “one-shot” comic (can be one frame or multiple), that illustrates the meaning of the term. Once all members of your group are finished, share your comics with each other and record the definitions for the other terms in the table on the following sheet.

Sustainability Term:	Definition:
Comic:	

Sustainability Term:	Definition:
Comic:	

Name: _____

Sustainability Term:	Definition:
Comic:	

Sustainability Term:	Definition:
Comic:	

Name: _____

Part 2

Directions:

As your group mates share their terms and “one-shot” comics, record the definitions for their terms in the table below.

Sustainability Terms:	Definitions:
Biomass	
Byproduct	
Carbon Footprint	
Circular Economy	
Climate Change	
Conservation	
Corporate Social Responsibility (CSR)	
Ecosystem	
Greenwashing	
Natural Resources	
Net Zero	
Preservation	
Recycle	
Supply Chain	
Sustainability	
Zero Waste	

Name: _____

Real-Life Sustainability

Aligned to the following standards:
CS.03; CS.04; CS.06; FFA.PL-A; FFA.CS-M; AG3; AG6; CCSS.ELA.RI.9-10.2;
CCSS.ELA.SL.9-10.1; CCSS.ELA.RST.9-10.4; HS.ETS 1-3; AFNR Career Cluster,
Statement 2; AFNR Career Cluster, Statement 3; AFNR Career Cluster,
Statement 6; AFNR Career Cluster, Statement 7; CRP.02; CRP.04; CRP.05

Directions:

It's time to look at what sustainability looks like in real life. In the table below, record at least five sustainable practices that you can find for each of the following:

- Two companies (either assigned by your teacher or chosen from the provided list)
- Your school
- Your personal life, home and family

Company 1:
1. 2. 3. 4. 5.
Company 2:
1. 2. 3. 4. 5.
School:
1. 2. 3. 4. 5.
Personal:
1. 2. 3. 4. 5.

Name: _____

Aligned to the following standards:

CS.03; CS.04; CS.06; FFA.PL-A; FFA.CS-M; AG3; AG6; CCSS.ELA.RI.9-10.2; CCSS.ELA.SL.9-10.1; CCSS.ELA.RST.9-10.4; HS.ETS 1-3; AFNR Career Cluster, Statement 2; AFNR Career Cluster, Statement 3; AFNR Career Cluster, Statement 6; AFNR Career Cluster, Statement 7; CRP.02; CRP.04; CRP.05

KEY: What Is Sustainability?

Part 1

Directions:

Complete the following questions while watching the "What Is Sustainability?" video from UCLA, available at <https://youtu.be/zx04KI8y4dE>.

1. How does the United Nations' Brundtland Commission define "sustainable development" (sustainability)?

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

What does that mean in your own words?

Answers will vary.



2. The video mentioned a few replenishable resources such as trees and fish. List five other replenishable resources:

1. Answers will vary but could include solar power, hydroelectric power, plants, wind energy, etc.
2. Answers will vary.
3. Answers will vary.
4. Answers will vary.
5. Answers will vary.

3. What are the impacts of excessive consumption (using resources faster than their replacement rate)?

The levels of our resources are diminishing, fisheries and ocean life disappearing, forests disappearing, climate change, air pollution, plastic pollution, declining ecosystem health

4. "_____ Sustainability _____ is about understanding how all of this is _____ connected _____.
Sustainability is about _____ systems _____ thinking _____."

5. What are the "Three E's of Sustainability"?

1. Environment
2. Economy
3. Equity

6. In no more than two sentences, explain what sustainability is and why it's important in your life.

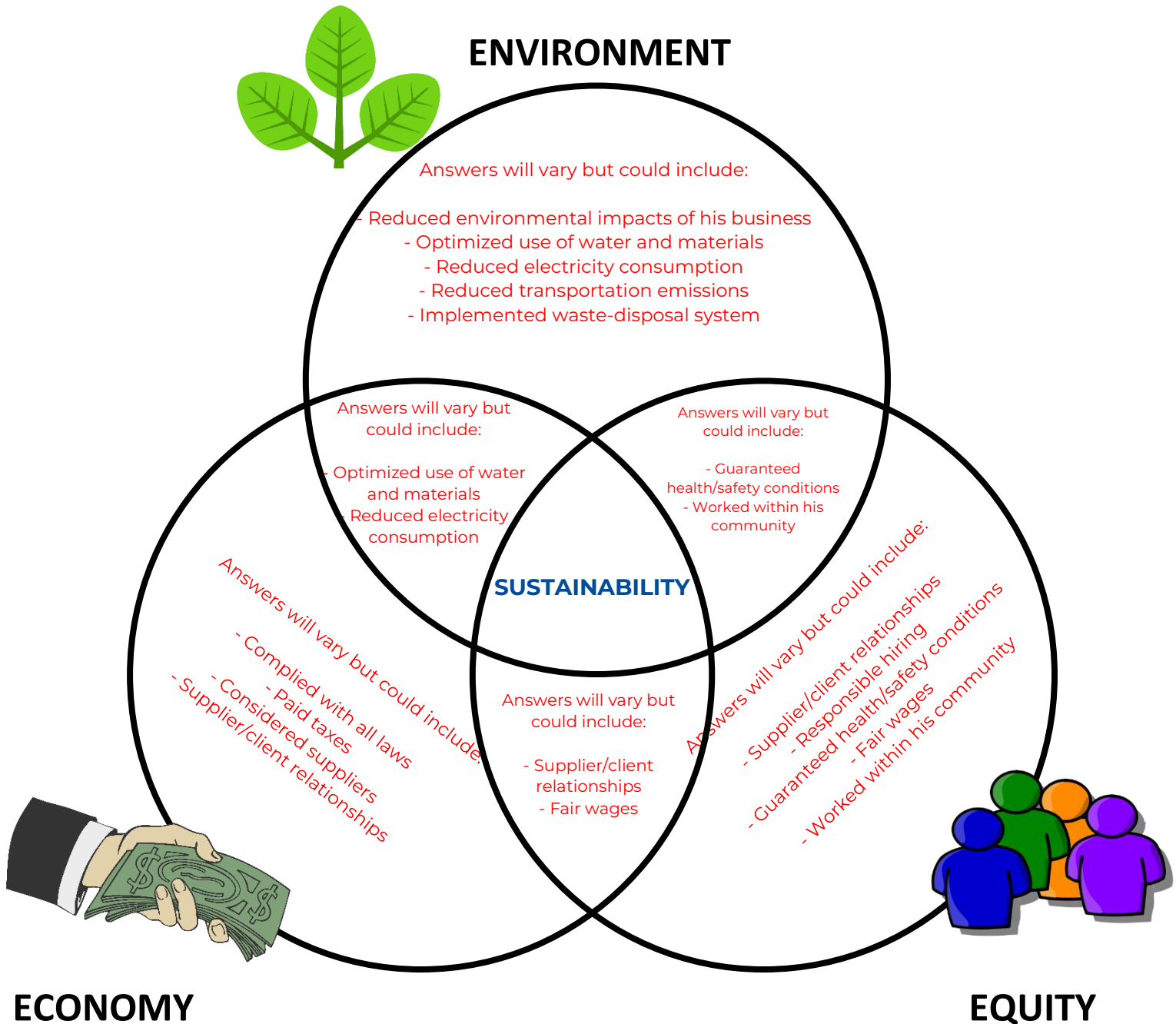
Answers will vary.

Name: _____

Part 2

Directions:

Watch the video "The Three Dimensions of Sustainability." The video is available at <https://youtu.be/V6wCP0iMWtI>. While watching the video, fill out the Venn diagram with examples of sustainable practices from Henry's construction business. Then answer the questions at the bottom of the worksheet. *Note: The video exchanges "Equity" for "Social" in its explanation of the three dimensions.*



1. How are each of the three E's (environment, economy, equity (or social)) interconnected?

Answers will vary.

2. Why is it important to consider all three E's in business and in our society?

Answers will vary.

Name: _____

Aligned to the following standards:

CS.03; CS.04; CS.06; FFA.PL-A; FFA.CS-M; AG3; AG6; CCSS.ELA.RI.9-10.2; CCSS.ELA.SL.9-10.1; CCSS.ELA.RST.9-10.4; HS.ETS 1-3; AFNR Career Cluster, Statement 2; AFNR Career Cluster, Statement 3; AFNR Career Cluster, Statement 6; AFNR Career Cluster, Statement 7; CRP.02; CRP.04; CRP.05

Key: Sustainability One-Shots

Part 1

Directions:

Within your group, decide who will be responsible for each term on the following page. For your sustainability terms, record a simple definition below and design a “one-shot” comic (can be one frame or multiple), that illustrates the meaning of the term. Once all members of your group are finished, share your comics with each other and record the definitions for the other terms in the table on the following sheet.

Sustainability Term: Answers will vary.	Definition: Answers will vary.
Comic: Answers will vary.	

Sustainability Term: Answers will vary.	Definition: Answers will vary.
Comic: Answers will vary.	

Name: _____

Sustainability Term: Answers will vary.	Definition: Answers will vary.
Comic: Answers will vary.	

Sustainability Term: Answers will vary.	Definition: Answers will vary.
Comic: Answers will vary.	

Name: _____

Part 2

Directions:

As your group mates share their terms and one-shot comics, record the definitions for their terms in the table below.

Sustainability Terms:

Definitions:

Biomass	Plant or animal (biological) materials harnessed to create energy
Byproduct	A secondary product that is produced in the manufacturing or synthesis of something else
Carbon Footprint	A measurement of the amount of carbon dioxide produced by an individual or company
Circular Economy	A system of eliminating waste by reusing, sharing, repairing and recycling resources
Climate Change	Significant change in climate including temperature, precipitation or wind that lasts for an extended period of time
Conservation	The prevention of wasteful use of a resource
Corporate Social Responsibility (CSR)	A management concept in which companies consider the social and environmental concerns of their business operations
Ecosystem	A biological community of interacting organisms and their physical environment
Greenwashing	Activities, usually marketing, intended to make people believe a company is more "green" or "eco-friendly" than it actually is
Natural Resources	Materials or substances such as minerals, plants, water and fertile land that occur in nature and can be used for economic gain
Net Zero	Achieving a balance between emissions produced and emissions removed from the atmosphere
Preservation	The activity or process of keeping something valued alive, intact or free from damage or decay
Recycle	Collecting and reprocessing a material to be used again
Supply Chain	A network between a company and its suppliers to produce and distribute a specific product to the final buyer
Sustainability	Ensuring the needs of the present without compromising the ability of future generations to meet their own needs
Zero Waste	A target of recovering resources and sending no waste for disposal via landfill or incineration

Name: _____

Key: Real-Life Sustainability

Aligned to the following standards:

CS.03; CS.04; CS.06; FFA.PL-A; FFA.CS-M; AG3; AG6; CCSS.ELA.RI.9-10.2;
CCSS.ELA.SL.9-10.1; CCSS.ELA.RST.9-10.4; HS.ETS 1-3; AFNR Career Cluster,
Statement 2; AFNR Career Cluster, Statement 3; AFNR Career Cluster,
Statement 6; AFNR Career Cluster, Statement 7; CRP.02; CRP.04; CRP.05

Directions:

It's time to look at what sustainability looks like in real life. In the table below, record at least five sustainable practices that you can find for each of the following:

- Two companies (either assigned by your teacher or chosen from the provided list)
- Your school
- Your personal life, home and family

Company 1:

1. Answers will vary.
2. Answers will vary.
3. Answers will vary.
4. Answers will vary.
5. Answers will vary.

Company 2:

1. Answers will vary.
2. Answers will vary.
3. Answers will vary.
4. Answers will vary.
5. Answers will vary.

School:

1. Answers will vary.
2. Answers will vary.
3. Answers will vary.
4. Answers will vary.
5. Answers will vary.

Personal:

1. Answers will vary.
2. Answers will vary.
3. Answers will vary.
4. Answers will vary.
5. Answers will vary.