

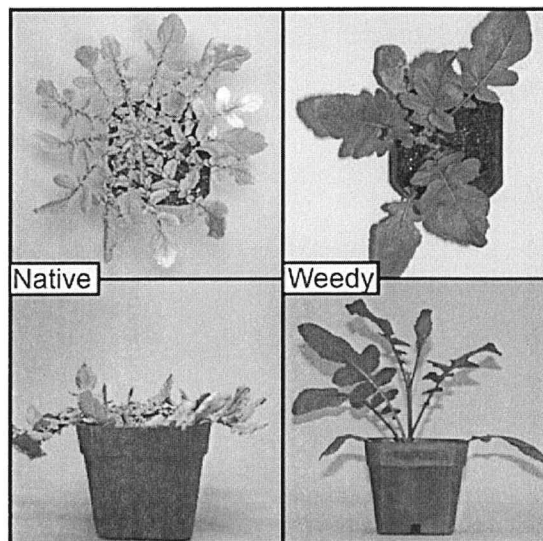
DAY 3

DATA *Nugget***Fast weeds in farmer's fields**

Featured scientists: Ashley Carroll from Gull Lake Middle School and Jeff Conner from the Kellogg Biological Station at Michigan State University

Research Background:

Weeds in agricultural fields cost farmers \$28 billion per year in just the United States alone. When fields are full of weeds the crops do not grow as well. Sometimes weeds even grow better than the crops in the same field. This may make you wonder, how do weeds grow so well compared to other types of plants? Scientists think that weeds may have evolved certain traits that allow them to do well in agricultural fields. These **adaptations** could allow them to grow better and pass on more of their genes to the next generation.



Native and weedy radish plants.

Weedy radish is considered one of the world's worst agricultural weeds. This plant has spread around the world and can now be found on every continent except Antarctica. Weedy radish commonly invades wheat and oat fields. It grows better than crops and lowers the amount of food produced in these fields. Weedy radish evolved from native radish only after humans started growing crops. Native radish only grows in natural habitats in the Mediterranean region.

Because weedy radish evolved from native radish recently, they are still very closely related. They are so closely related they are actually listed as the same species. However, some traits have evolved rapidly in weedy radish. For example, native radish grow much slower and take a few months to make flowers. However, weedy radish can make flowers only three weeks after sprouting! In a farmer's field, the crop might be harvested before a native radish would be able to make any seeds, while weedy radish had plenty of time to make seeds.

The differences between native versus weedy radish interested Ashley, a teacher in Michigan. To learn more she sought out a scientist studying this species. She found Jeff, a plant biologist at the Kellogg Biological Station and she joined his lab for a summer to work with him. That summer, Ashley ran an experiment where she tested



Ashley collecting data on the traits of weedy and native radish.

whether the rapid flowering and seed production of weedy radish was an adaptation to life in agricultural fields.

Ashley planted four populations of native radish and three populations of weedy radish into fields growing oat crops. Ashley made sure to plant multiple populations of radish to add replication to her experiment. Multiple populations allowed her to see if patterns were the same across populations or if each population grew differently. For each of these populations she measured **flowering frequency**. This trait is the total number of plants that produced flowers within the limited time between tilling and harvesting. Ashley also measured **fitness**, by counting the total number of seeds each plant produced over its lifetime. Whichever plant type produced a greater number of

seeds had higher fitness. Oats only grow for 12 weeks so if radish plants were going to flower and make seeds they would have to do it fast. Ashley predicted the weedy radish population would produce more flowers and seeds than native radish during the study. Ashley expected few native radish plants would flower before harvest.

Scientific Question: How does flower production differ between native and weedy radish? How does this affect fitness in an agricultural setting?

What is the hypothesis? Find the hypothesis in the Research Background and underline it. A hypothesis is a proposed explanation for an observation, which can then be tested with experimentation or other types of studies

Scientific Data:**Use the data below to answer the scientific question:**

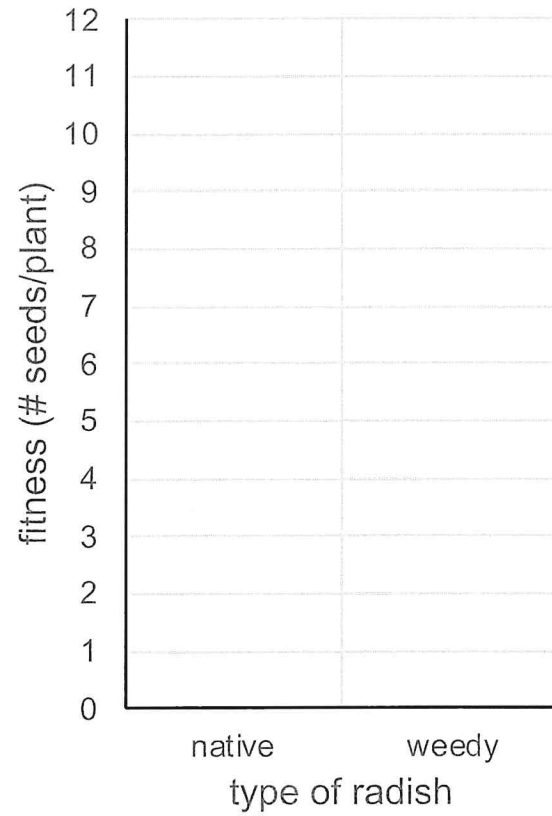
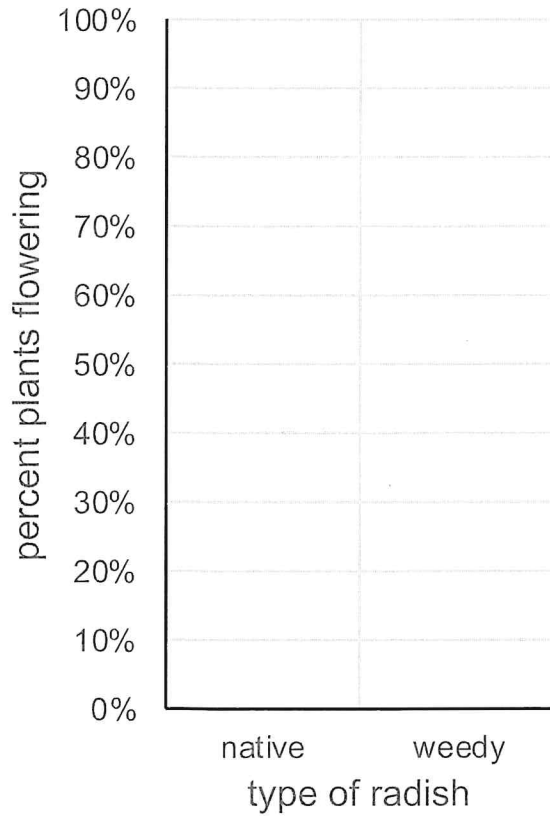
Type of Radish	Radish population	Number of plants	Percent (%) plants flowering	Fitness (number of seeds per plant)
Native	DAES	46	13%	0
	GHIL	33	64%	1
	MAES	44	9%	0
	ZYIL	45	60%	8.7
Average Native				
Weedy	AFFR	42	69%	17.4
	BINY	17	82%	10.5
	NAAU	30	87%	4.2
Average Weedy				

What data will you graph to answer the question?

Independent variable(s): _____

Dependent variable(s): _____

Draw your graphs below: Identify any changes, trends, or differences you see in your graphs. Draw arrows pointing out what you see, and write one sentence describing what you see next to each arrow.



Interpret the data:

Make a claim that answers the scientific question.

Name_____

What evidence was used to write your claim? Reference specific parts of the table or graphs.

Explain your reasoning and why the evidence supports your claim. Connect the data back to what you learned about how weedy adaptations affect radish fitness in agricultural fields.

Did the data support Ashley's hypothesis? Use evidence to explain why or why not. If you feel the data were inconclusive, explain why.

Name_____

Your next steps as a scientist: Science is an ongoing process. What new question(s) should be investigated to build on Ashley's research? How do your questions build on the research that has already been done?



Name: _____

Class: DAY 3

The Founding of American Democracy

By Jessica McBirney
2016

The American colonies rose up against Great Britain in 1775 with the goal of becoming an independent state. In 1776, they sent the British king the Declaration of Independence, taking the first step toward forming the United States of America. After nearly eight years of fighting in the American Revolutionary War, the British finally retreated, and the Americans established their own government. As you read, take notes on what the founders thought was important to include in America's new government.

- [1] Sometimes, we see media reports about new laws; other times, we hear about the courts making decisions. A few times a year, the president gives an important speech. Do you ever wonder why the government works the way it does?

Today, the United States government is a lot like the one that was created in 1787. The Founding Fathers¹ had many reasons for writing the U.S. Constitution the way they did. Those choices are still a big part of how the American government works today.



"Scene at the Signing of the Constitution of the United States" by Howard Chandler Christy is in the public domain.

COLONIZATION AND REVOLUTION

Europeans sailed to the Americas in the late 1400s. These continents were new to Europeans, although they had been occupied by Indigenous peoples for thousands of years. The Europeans sought to explore and conquer. Spain invaded South and Central America in the 1500s seeking gold. Then, in the 1600s, British colonists created settlements and gained a foothold in North America.

The British quickly became a strong influence in North America, and by 1732, all thirteen colonies fell under British rule. For a while, these colonists enjoyed being part of a powerful

1. The Founding Fathers were key figures in America's independence from Great Britain and establishing early American government.

kingdom. It meant that they would be protected by a strong government. Then, in the middle of the 1700s, that changed. The colonists became increasingly agitated with how much power the king possessed.

- [5] The biggest problem the colonists had was how much money they paid in taxes. They sent the British a lot of money, but they didn't get to be an active part of the government. That meant they could not choose how their taxes were spent. Colonists started using the phrase "taxation without representation" to talk about this problem. It caught on and helped start the American Revolution. In 1776, the colonists wrote the Declaration of Independence. The Declaration informed the king that the colonies did not want to be part of Great Britain anymore. Instead, they would become independent states.

The British tried to stop this by sending an army to end the rebellion. By 1783, the Americans won the American Revolutionary War, and the British soldiers returned to Great Britain. The states were completely free from Great Britain's rule, but that was only the beginning.

NOW WHAT?

Following the war, the American leaders had to decide how to run the country. They remembered what life was like under Great Britain's rule and wanted to share political power between the people and those who governed.

In order to do that, the Founding Fathers wrote the Articles of Confederation. This was a document that explained the duties of the states' governments. It also determined the limits of what the central government could do. The central government would have the power to start a war, but it wasn't allowed to assemble an army. The central government would also be prohibited from collecting taxes. There wasn't even a president! Instead, those jobs were handled by individual states, and each state was allowed to decide how to complete them. At the time, the Founding Fathers felt their rights would be safer if the states had the most power.

Unfortunately, this system caused a lot of problems. In Massachusetts, farmers, upset by what they considered to be unfair taxation, started Shays' Rebellion.² It was a serious conflict, and the central government couldn't do anything to help. They didn't have any power in the state. Another problem was trade and debts, which could not be handled for the whole country at once. Making separate agreements state by state was not working well. These kinds of problems continued for years.

- [10] Many Founding Fathers realized that they were going to have to make a change. In 1786, Alexander Hamilton³ called for a meeting to fix the Articles of Confederation. Leaders met in

2. Rebels used weapons to try to overtake the state government.

3. Alexander Hamilton was a Founding Father and first secretary of the treasury.

Philadelphia, Pennsylvania to talk about how they would solve this.

A CONVENTION OF COMPROMISES

The meeting of the Founding Fathers in May 1787 was called the Constitutional Convention. The meeting took all summer, for many of the delegates disagreed on what needed to be done. Some wanted to alter the Articles; others wanted to start from scratch. In the end, everyone had to make compromises.

The Great Compromise

One of the biggest arguments was about representatives. It was important to decide how many delegates each state would have in Congress, which is the law-making body of the government. The bigger states wanted the number of representatives to be based on each state's population. The smaller states worried that this would be unfair. They wanted every state to have the same number of delegates. In the end, they agreed on the Great Compromise. Congress would be split into two parts. The House of Representatives would be based on population. The Senate would have an equal number of representatives from each state.

The Three-Fifths Compromise

Before and after the official founding of the United States, many people were taken from Africa to the Americas against their will and forced into slavery. States with large populations of enslaved people thought they should count as part of their overall populations. A high total population meant that these states could have more delegates in the House of Representatives — and therefore more power. States with fewer enslaved persons were against this.

Eventually, the states came to an agreement. Only three-fifths of each state's population of enslaved people counted toward the state's total population. Despite contributing to a state population and therefore the number of state representatives, enslaved people were not considered citizens and therefore had no voice in the country where they lived and that their forced labor helped build. This rule remained a part of the U.S. Constitution until after the American Civil War.

THE CONTENTS OF THE CONSTITUTION

- [15] The meeting ended on September 17, 1787. The result was a document called the Constitution of the United States of America. It had only seven articles and was the shortest constitution in the world. It wasn't long, but it covered what the Founding Fathers believed to be the most important parts of government.

Separation of Powers

The Founding Fathers remembered the problems they experienced under Great Britain's rule. They were determined to preserve their rights. At the same time, the Articles of Confederation taught them that the central government needed to have some power.

They decided to split the government into three sections. The legislative branch, or Congress, makes the laws. The executive branch, or the president, makes sure the laws are followed and handles relationships with other countries. The judicial branch interprets the laws and makes decisions on legal cases. The judicial branch is made up of the Supreme Court and all federal courts.

Giving each branch different responsibilities ensures no branch has too much power. This then makes it harder to take away the rights of the people.

Checks and Balances

Beyond organizing the government in branches, the Founding Fathers made it so each branch could stop another from making certain decisions or gaining too much power. This is called a system of checks and balances.

- [20] For example, Congress writes the laws, but it's up to the president to approve them. The Supreme Court can reverse new laws if they deem them unconstitutional.

Federalism

The Founding Fathers also wanted to make sure the states maintained some authority. The balance of power between the central government and all of the state governments is called federalism.

One example of this balance is the Senate. Every state has two representatives, no matter how big it is, making the states equally powerful in the Senate. Another example is the presidential election. Each state holds its own election. The results are counted later as part of the Electoral College.

CONSTITUTIONAL DISAGREEMENTS

The U.S. Constitution was carefully written to share power between the states and the central government. However, not every one of the Founding Fathers thought it was good enough. The first two-party system, consisting of the Federalists and the Anti-Federalists, was formed. The Anti-Federalists feared the central government would have too much power.

James Madison, Alexander Hamilton, and John Jay⁴ all wrote essays supporting the new

constitution. These were called the Federalist Papers. They argued in favor of a small but strong central government. The papers worked, and by 1790, all 13 colonies ratified⁵ the U.S. Constitution.

THE BILL OF RIGHTS

- [25] The Founding Fathers' job was still not done. Many states requested that Congress also add a Bill of Rights to the U.S. Constitution. This resulted in 10 important amendments⁶ attached to the original document. The purpose of the Bill of Rights is to clearly state and secure the rights of citizens⁷ in the United States.

The Bill of Rights is what protects freedom of speech, of the press, religion, and protest in the United States. Other amendments deal with legal issues, such as securing people the right to a fair and speedy trial. The 10th amendment establishes that anything the central government does not control is up to the states.

THE CONSTITUTION TODAY

Today, the U.S. uses its constitution to make new laws and policies. Congress has made 17 additional amendments over the nation's history. The U.S. Constitution is still the shortest governing document in the world.

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4. Like Hamilton, James Madison and John Jay were also Founding Fathers.
5. **Ratify (verb)** to make a document (such as a law or treaty) official by signing it or voting for it
6. a change to a law or document
7. At the time, only a select population was considered citizens in the United States, namely European colonists and their descendants.

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. Which of the following options best summarizes why American colonists separated from Great Britain?
 - A. The colonists were unhappy with life in Great Britain because there were few jobs and low wages.
 - B. The colonists struggled to communicate with Great Britain because of the distance between the two countries.
 - C. The colonists wanted to expand their territory further into North America, but Great Britain forbade them from doing so.
 - D. The colonists were unhappy under British rule because they had little power and representation in Great Britain's government.

2. What is the meaning of "agitated" as it is used in paragraph 4?
 - A. accustomed
 - B. confident
 - C. embarrassed
 - D. upset

3. Why did the Articles of Confederation eventually need to be replaced?
 - A. The Articles of Confederation gave the central government too much power.
 - B. The Articles of Confederation did not give the central government enough power.
 - C. The Articles of Confederation were too similar to that of Great Britain's constitution.
 - D. The Articles of Confederation demanded higher taxes than Americans were willing to pay.

4. Which of the following best describes a central idea about the Constitution discussed in the text?
- A. The Constitution was written based on ideas and values outlined in the Bill of Rights.
 - B. The Constitution sought to balance power between the central government and the state governments.
 - C. The Constitution strengthened the central government's power by giving the most power to the president.
 - D. The Constitution has been amended so many times that today it bears no resemblance to the original document.
5. How does the system of "checks and balances" contribute to American democracy? (Paragraphs 19-20)

MATH (Everett, Currie, Bly)

Name _____

Least Common Multiple

DAY 3

Date _____ Period _____

Find the LCM of each.

1) 10, 3

2) 14, 6

3) 15, 6

4) 15, 20

5) 27, 18

6) 4, 30

7) 24, 32

8) 20, 30

9) 24, 36

10) 35, 25

11) $18xy^2$, $15y^3$

12) $20x^3$, $16x^4$

Greatest Common Factor

Find the GCF of each.

1) 39, 6

2) 24, 28

3) 40, 10

4) $39v$, $30uv$

5) $35n^2m$, $21m^2n$

6) $30y^3$, $20y^2$

7) 54, 45

8) 25, 55

9) 68, 34

10) 54, 27

11) 55, 75

12) $66yx$, $30x^2y$

13) $60y$, $56x^2$

14) $36xy^3$, $24y^2$

15) $18y^2$, $54y^2$

16) $80x^3$, $30yx^2$

17) $105x$, $30yx$, $75x$

18) $140n$, $140m^2$, $80m^2$

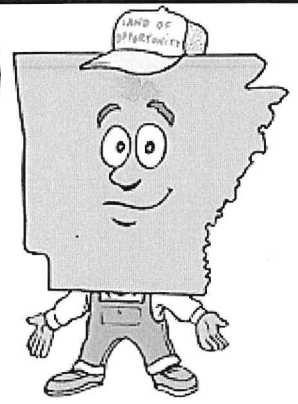
DAY 3- HISTORY (Crawson, Erstine, Milholen)

ARKANSAS

Capital: Little Rock

Pop: 2.8 million

Largest City: Little Rock



The nickname of Arkansas is "The Natural State" because of the natural beauty of the landscape. Arkansas is located in the south central part of the United States directly north of Louisiana and directly south of Missouri. The Mississippi River defines the entire eastern border of the state except for a few spots where the river has shifted course and parts of Arkansas lie east of the river and parts of Mississippi and Tennessee lie west of the river. Both the Ozark and the Ouachita Mountains are found in Arkansas. These are the only mountain ranges in the U.S. between the Appalachian mountain range in the east and the Rockies in the west. The Arkansas River flows between the mountains and provides some of the best fresh-water fish habitat in the world. The climate is typical of the southern U.S. with hot and humid summers and mild winters. There is a tendency for tornadoes to form in the Mississippi Valley and sometimes severe tornadoes will affect Arkansas.

Although the state is primarily rural most of the population lives in the urban areas of the state. Large parts of state have less than 20 inhabitants per square mile. The northwestern corner of the state is growing in population as young and old alike are attracted to the natural beauty of the region. The state greatly improved its educational system when Bill Clinton was governor.

Little Rock was at the center of the civil rights movement in 1957 when the local School Board decided to desegregate the city's high school. Local segregationists supported Governor Orval Faubus and his calling out of the National Guard to block integration. In turn President Dwight Eisenhower called in federal troops to enforce integration. Arkansas was the forty-ninth state in the nation to adopt a civil rights bill, in 1993.

About half the land in Arkansas is used for farming and Arkansas is the largest producer of rice in the nation. Cotton and soybeans are the other major crops. Arkansas is a major supplier of chickens to the rest of the country. Industries in Arkansas also produce lumber, paper, and manufactured goods while mining operations focus on bauxite and natural gas. Tourism is an important part of the state's economy.

About one-quarter of the people earn a living in wholesale and retail trade. The small town Bentonville is home to the world headquarters of the Wal-Mart corporation. Sam Walton, founder of the retail giant Wal-Mart, started his successful chain of stores in Arkansas in 1962. J. B. Hunt, one of the largest truck transportation and logistics companies in North America, is headquartered in Arkansas.

The most famous Arkansan is William "Bill" Clinton who became the 42nd President of the United States. The Ozark Mountain area has a rich musical heritage that brought us Johnny Cash and Glenn Campbell. Best selling author John Grisham is a native of Arkansas and Pulitzer Prize winner Maya Angelou grew up in Stamps, Arkansas. Famous basketball player Scottie Pippen was born in the small Arkansas town of Hamburg.

Name: _____ Date: _____

Arkansas Multiple Choice Questions

Circle the correct answer.

1. What state is directly south of Arkansas?
 - a. Missouri
 - b. Louisiana
 - c. Mississippi
 - d. Tennessee

2. A major mountain chain in Arkansas is
 - a. Ozarks
 - b. Rockies
 - c. Appalachians
 - d. None of the above

3. What type of storm frequently affects Arkansas?
 - a. Tsunami
 - b. Hurricane
 - c. Tornado
 - d. Typhoon

4. Arkansas is the largest producer in the U.S. of what crop?
 - a. Cotton
 - b. Corn
 - c. Soybeans
 - d. Rice

5. What major American store chain has its headquarters in Arkansas?
 - a. Sears
 - b. Penney's
 - c. Wal-Mart
 - d. K-Mart

6. Which recent president of the U.S. is an Arkansas native?
 - a. Barack Obama
 - b. Bill Clinton
 - c. George Bush
 - d. Ronald Reagan

ART (T.Henderson)

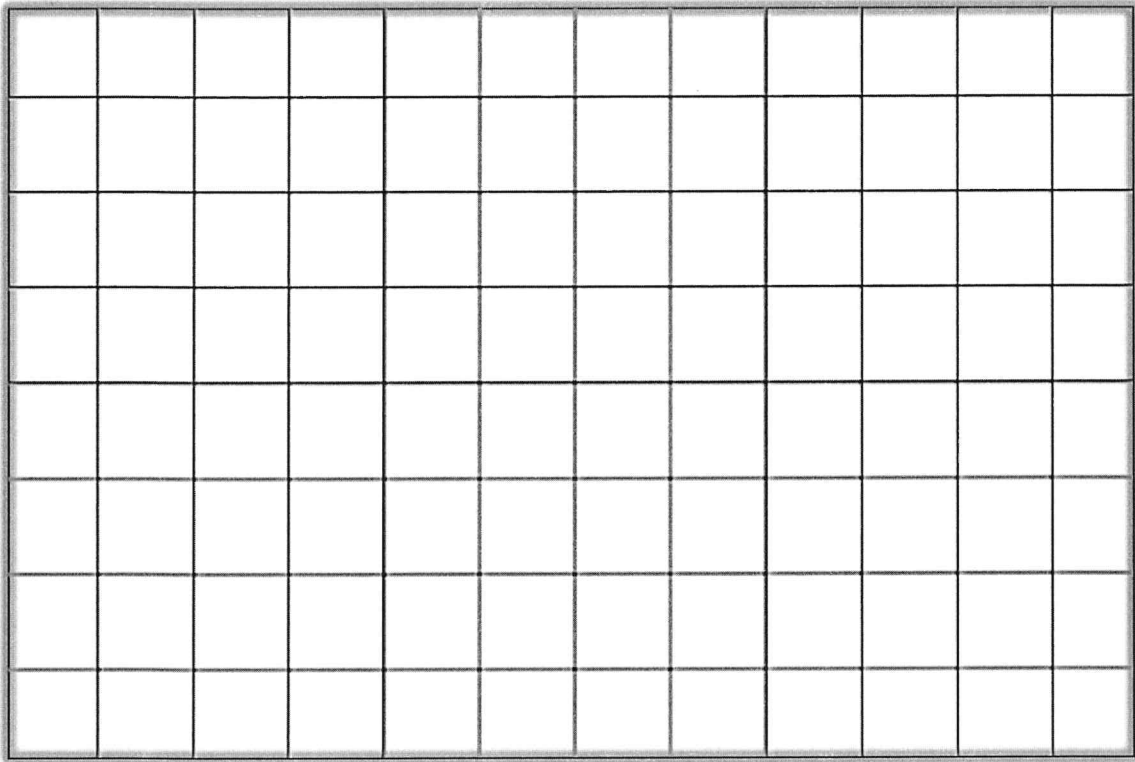
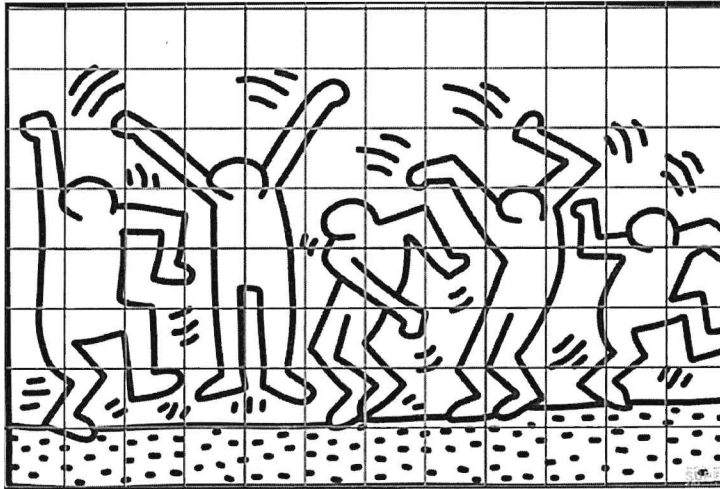
Name: _____

Class: _____

DAY 3

Grid Drawing

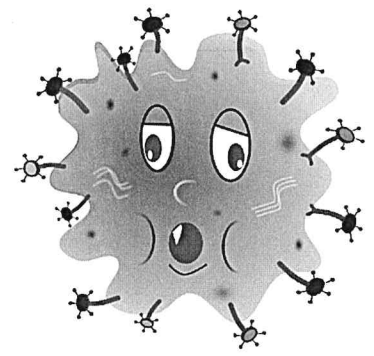
*Use the grid below to draw Keith Haring's *Dancers*.



Name _____

Health

HEALTH (Horton) Germs DAY 3



Tiny creatures that can make our bodies sick are called germs. Germs are so tiny that you cannot see them without a microscope. There are different kinds of germs. bacteria can cause infections like ear infections, sore throats (tonsillitis or strep throat), cavities, and pneumonia. Viruses cause illnesses like chickenpox, measles, flu, and the common cold.

Inside our bodies, germs take away nutrients and energy. Some germs produce toxins that cause symptoms like fever, sniffles, rashes, coughing, vomiting, or diarrhea. Doctors look at body fluids like blood and urine under a microscope to figure out what germs are in the body and what kind of illness they are causing.

Most germs are spread through the air when a person sneezes, coughs, or breathes. Germs can also be spread through body fluids like sweat, saliva, or blood, or by touching something that has been touched by someone who is sick.

There are several ways to prevent the spread of germs. One is to wash your hands frequently with soap and water for at least 15 seconds. You should washing your hands after you cough or sneeze. You should also wash your hands before you eat or prepare food, or after you use the bathroom, play outside, touch animals, or spend time with someone who is sick.

Another way to prevent the spread of germs is to cover your nose and mouth whenever you sneeze or cough. One way is to sneeze into your elbow so that you don't get germs on your hands. Using tissues and promptly throwing them away will also help to keep germs from getting on your hands.

Name _____ **Health**

QUESTIONS

1. What are germs?

2. How big are germs?

3. What are two different kinds of germs?

4. How do germs infect our bodies?

5. How do most germs spread?

6. How long should you wash your hands for?

7. Name two ways you can help prevent the spread of germs.

DAY 3

Do you think that some people have difficulty talking to others face-to-face because of how prevalent texting is today? How does it make communication more difficult? How does it make it easier? When you have an issue that you need to discuss with someone, do you prefer to sit down and talk it out or handle it through texting or Facebook or some other form of written communication? (100 word minimum).

Day 3

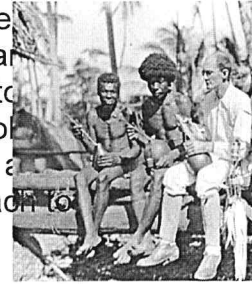
The “A” in CART is Advance, which includes student growth and self-directed learning. What does this mean? What have you done to improve yourself as a part of your EAST education? Are you practicing self-directed learning on a daily basis? (100 word minimum)

SOCIOLOGY (Clawson) - DAY 3

Name: _____ Period: _____

The Social Sciences

Science does not just examine the natural world and the stars above; it also examines the social realm under the **social sciences**. This field studies human behavior and society through anthropology, political science, psychology, history, and economics. These subfields conduct experiments or use controlled observations to answer questions about society, put assumptions to the test, and analyze human behaviors. These specialized subfields each have their own approach to understanding culture and human behaviors.



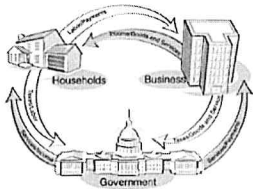
Anthropology studies humanity by bringing archaeology, linguistics, biology, cultural studies, and other social sciences together. Anthropologists seek to see what it means to be human by examining human groups and cultures and need numerous avenues to collect information to gain a more accurate perspective of humanity.

Political Science analyzes the state or governance of an area and its institutions at all levels, from local to international topics. The field seeks to understand political ideas, ideologies, processes, diplomacy, law, policies, and more. Political scientists explain what citizenship entails and teaches people how to be involved in the political process.

Psychology is the study of behavior and mental processes. It examines human development, the mind, sensations and perceptions, and it analyzes how we learn. It further assists by providing treatment options for mental disorders while also explaining the disorders and why or how they occur.

History is the study of past events that provides a narrative of those events. Historians use written documents and other evidence that has been left behind to create interpretations of the past. They cannot give a complete picture of everything that has happened; however, historians can give insight into what has happened by using evidence to back their interpretations.

Sociology is the study of social behavior and human behavior. It looks at relationships and how these relationships impact behavior. It also examines society's development and changes. The insights from this field can help a community find solutions to issues like homelessness.



Economics studies how people interact with value. It focuses on the production, distribution, and consumption of goods and services along with the transfer of wealth. It focuses on the interactions of economic agents and explains how economies work.

The knowledge gained within the fields of the social sciences is vital for numerous reasons. It explains how we operate as we do and can lead to a betterment of society when we honestly analyze who we are and what we desire for us to become.

Name: _____ Period: _____

The Social Sciences

Directions: read the article explaining the social sciences and answer the following questions.

1. What field studies the brain and our behaviors?
2. Why does anthropology bring together so many different fields when studying humanity?
3. How would political science help someone to know how to be a citizen?
4. What do historians use to create their interpretations of the past?
5. Why is economics a subfield of the social sciences?
6. What does sociology study?

Name: _____ Period: _____

Social Sciences Interview

Directions: Imagine that you have been assigned to complete a study on the community where you live. You will be able to interview several social scientists to create a report about your community. Write down 2 questions that you would ask each social scientist to help you better understand where you live.

Historian

1. _____

2. _____

Economist

1. _____

2. _____

Sociologist

1. _____

2. _____

Anthropologist

1. _____

2. _____

Name: _____ Period: _____

Psychologist

1. _____

2. _____

Political Scientist

1. _____

2. _____

Directions: Complete this worksheet by filling in the blanks or as directed by your instructor.

To learn about each section click on the section headings then answer the section questions. Pay close attention to the directions for each section.

When finished study the answers CAREFULLY. Turn in the worksheet to your instructor unless directed otherwise.

Section 1 - Input/Output

As you read the information decide which of the following peripheral items INPUT information or OUTPUT information. Designate the type of peripheral component by writing INPUT or OUTPUT by each of the items below

1. Monitor _____
2. Keyboard _____
3. Scanner _____
4. Laser Printer _____
5. Mouse _____
6. Speakers _____
7. Digital Camera _____

Section 2 – What's Inside a Computer?

Some may be used more than once or not

CPU	BIOS	power supply	hard drive	network card
Motherboard	RAM	USB Port	ROM	video card

1. I connect computers and allow them to talk to each other. _____
2. I wake up the computer and remind it what to do. _____
3. I am the brain of the computer. _____
4. Information is stored on my magnetic cylinders. _____

AMI Day 3: Survey of Business & Business Procedures

You own a fast food restaurant and you have 15 employees that work for you. Write 10 rules that you want your employees to follow.

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	