

Name _____ Week _____ Period _____ Student # _____

Monday	Learning Target	Success Criteria	
Reflection			
Tuesday	Learning Target	Success Criteria	
Reflection			
Wednesday	Learning Target	Success Criteria	
Reflection			
Thursday	Learning Target	Success Criteria	
Reflection			
Friday	Learning Target	Success Criteria	
Reflection			

Name _____ Week _____ Period _____ Student # _____

Date	Learning Target	Success Criteria	
Reflection			

[Cornell Notes] Unit Topic: _____	Name: _____ Period: _____ Class: _____ Date: _____
Learning Target: _____ _____ _____	Success Criteria: _____ _____ _____
Essential Question: _____	
Questions/Main Ideas: _____	Notes: _____
Summary: _____ _____ _____ _____ _____	

Questions/Main Ideas:

Notes:

Summary:

[Cornell Notes] Unit Topic: <hr/> <hr/>	Name: _____ Period: _____ Class: _____ Date: _____
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Learning Target: <hr/> <hr/> <hr/> <hr/>	Success Criteria: <hr/> <hr/> <hr/> <hr/>
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Essential Question:

Questions/Main Ideas:	Notes:

Summary:

Name _____ Date _____ Period _____

What is Life?

Have you ever wondered what characteristics are used to determine whether something is living or not. What attributes of a object tells you that it's living? You will have 5 minutes to examine the objects your teacher has distributed to you and your partner(s) and during this time you will create a list of characteristics associated with life.

Procedure:

- 1. Examine the objects with your partner(s) and create a list of characteristics associated with life. (What tells you that something is living?)
- 2. At your teacher's direction, trade items with another group of students near you. Again, examine the objects of the characteristics associated with life

A1		A2
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- 3. Form a group of four with the group you traded objects with to develop a common set of characteristics that can be used to identify life. Record your list of characteristics below and on a post it. When you've completed the task, post your list in the location provided by your teacher.

- 4. Write a definition for life you developed with your group.

- 5. Write and answer the following questions (using complete sentences):
 - a. Why is defining life difficult?

 - b. When you compared the pair of objects, which characteristics were most useful to you in distinguishing which was living or not living?

 - c. In general, what does all life require in order to live?

Unit 1: Life on Earth

TEKS Analysis

TEKS	7.9A- analyze the characteristics of objects in our solar system that allow life to exist such as the <u>proximity of the Sun</u> , <u>presence of water</u> , and <u>composition of the atmosphere</u> .	Essential Questions
Know		What are the requirements for life to exist?
Want to know		How does the relationship of the Earth to the Sun allow life to exist?
Learned		How do the characteristics of Earth allow life to exist?
TEKS	7.9B- <u>identify accommodations</u> , considering the characteristics of our solar system, <u>that enabled manned space exploration</u> .	Essential Questions
Know		Describe characteristics of Space.
Want to know		What risk factors in space affect human exploration?
Learned		What items are needed for humans to explore space?

Name: _____ Period: _____

Unit 1 Life on Earth (LoE) Vocabulary

Vocabulary Review aka Vocabulary You Might Know

Please use the space provided to write the definitions, sentence clue, picture clue, and/or anything YOU need to help you to remember the vocabulary term. Use the checkbox for terms that you know and do not need to study. You will be tested over the vocabulary and must be able to identify the vocabulary terms.

- 1. atmosphere

- 2. equilibrium

- 3. force

- 4. gravity

- 5. homeostasis (SUPER IMPORTANT TERM)

- 6. insulation

- 7. organisms

- 8. organic molecules (carbon)

- 9. radiant energy (light)

- 10. solar system

- 11. thermal energy

New Vocabulary/Terms I Will Learn During Unit 1--Life on Earth

This list includes both science vocabulary and non-science vocabulary. The science vocabulary includes both a definition and picture for each term. The non-science vocabulary includes space for you to create your own definition, picture and/or sentence clue for the terms. You will be tested over all the vocabulary and must be able to identify the terms.

- 1. accommodations
- 2. enable
- 3. manned space exploration
- 4. proximity
- 5. characteristics
- 6. composition

- 7. deflecting

- 8. essential

- 9. exist

- 10. microgravity

- 11. presence

- 12. requirement

- 13. sustain/sustainability

- 14. transport

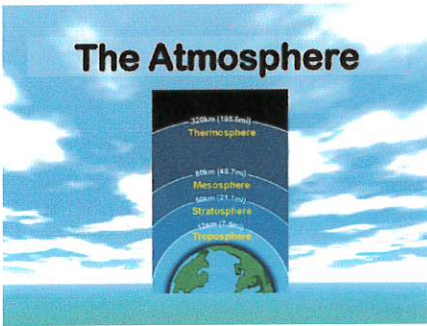
- 15. vacuum

1. **accommodations:**



changes that must be made in an environment to maintain livable conditions for humans

2. **atmosphere:**



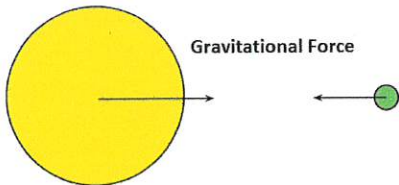
a mixture of gases that surrounds a planet or moon.

3. **enable:**



to make possible

4. **gravity:**



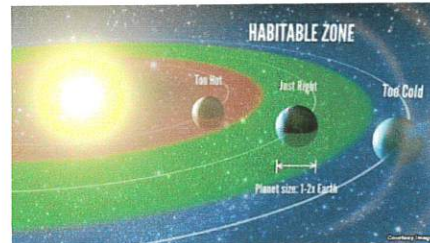
a force of attraction between objects that is due to their masses

5. **manned space exploration:**



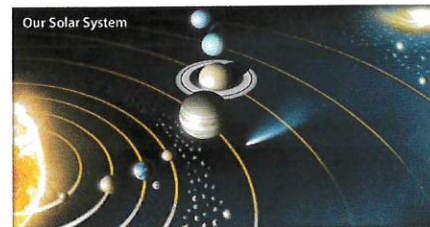
humans on board space craft

6. **proximity:**

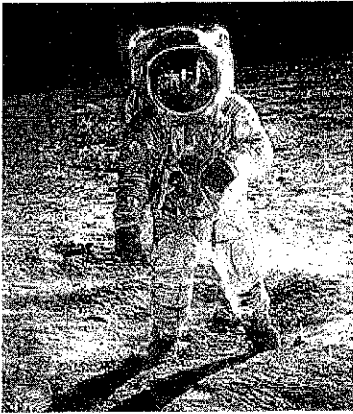


closeness

7. **solar system:**



sun, planets, and all the other objects that revolve around the sun

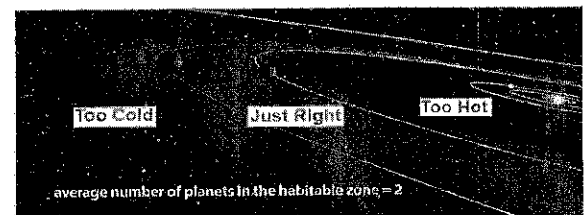
Traveling to another planet...What planet will you choose? What will you take with you?**Day 1: Introduction**

All organisms respond to stimuli, extract energy from food, eliminate waste, grow, and reproduce. In order for organisms to survive in their environment they require a few basic things. Living things on Earth are interconnected, meaning that many organisms rely on other organisms to survive. All organisms on Earth obtain the resources that they need from the environment. While not all organisms need exactly the same things there are some basics that we all need. They include:

W- Water cycles in our environment through the water cycle. All organisms require water to stay hydrated. Plants use water for photosynthesis, while humans need it to stay cool and hydrated. Both plants and animals need water in its liquid form. On a cold planet or moon there must be internal heat to melt ice, while on a hot planet water will need to be found trapped beneath the surface. Water has unique properties that make it important to life. Water's ability to transport substances within organisms makes it critical for life to exist. To be in all three phases of matter water must be in a small range of temperature and pressure which allows for a wide variety of habitats and microhabitats.

A- The **atmosphere** has essential elements such as carbon dioxide which plants use for photosynthesis and oxygen which animals breathe. Gases such as carbon dioxide in the atmosphere also insulate our planet by trapping heat, commonly known as the greenhouse effect. The ozone layer of the atmosphere protects us from harmful ultraviolet radiation by absorbing it. The atmosphere also acts like a shield by burning up things like meteors and space debris, keeping them from slamming into the ground. Without this protective layer Earth would be as barren as the moon.

G- Goldilocks Zone. Life on earth is limited to a temperature range between -15°C to 115°C . Planet Earth is in just the right position in our solar system. Not too close to the sun, not too far away. The proximity to the sun determines how much liquid water exists on our planet and what the temperatures of the air and ground tends to be. It also determines how much energy is available to life on the planet Earth, as plants use the radiant energy of the sun in the process called Photosynthesis. This is the basis for all available energy in ecosystems.

Goldilocks Zone

O- Oxygen is a very important gas on Earth. About 21% of Earth's atmosphere is oxygen. Plants produce oxygen through photosynthesis and animals breathe in oxygen. Most living organisms require oxygen to live.

N- All organisms require **nutrients** to survive. The main elements that comprise the nutrients needed for survival are carbon, hydrogen, nitrogen, oxygen, phosphorus and sulfur. These elements are found within the food we eat. It is important that they are in constant supply. If people do not get the food they need to survive they will starve to death. This is true for other animals as well. Plants transform nutrients in the environment into a form that other organisms can use. A system for cycling nutrients in the environment and delivering them to organisms is important for life to survive.

The things people need to survive are becoming harder and harder to find on Earth. As the population grows the nutrients and water available stay the same. This means they are becoming more difficult to obtain. Our constant use of technology is pumping toxins into the atmosphere, limiting its ability to protect us, and deforestation (cutting down trees) is dropping the

amount of oxygen available. Changes in the atmosphere are also causing changes to the global climate system which is increasing global temperatures. What are we going to do?

After you have read and annotated the passage complete the table below. Then discuss what you have written with your team.

What did you learn?	What questions do you have?

The Task.

You are a member of a group of scientists that are planning to start a colony on a new planet! Everyone has their own idea about which planet is best. Before you set off on your voyage, your group must come to a scientific conclusion about which planet is most likely to make a good home. The group realizes the fatal risk involved in moving to a planet that is not habitable. People could die if they walk on an unsafe planet. Your team must make a plan to determine where to go on your journey.

The guiding question of this investigation: ***Which planet will your team settle, and what will you need?***

<p>Materials. You may use <u>any</u> of the following materials during your investigation:</p> <p>Go to your google classroom to access links</p> <ul style="list-style-type: none"> • Planetary characteristic cards • Organism cards • Plant survival game (brainpop) • Conditions for survival on Earth • Exploring Extreme environments video • Life in Extremes • Space travel 	<p>Equipment. This is how you will use the materials available to you!</p> <ul style="list-style-type: none"> • Computer with internet access • Headphones • Cards • Packet
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Safety Precautions: Only visit approved websites.

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ADI Laboratory Investigation Proposal A: Descriptive Studies

The Guiding Question...

Which planet will your crew inhabit and what will you bring to ensure your survival?



What data will you collect?

1. What characteristics of our solar system make Earth habitable?

2. What are the characteristics of the other planets?

3. What are the conditions like in space?

4. What are the requirements for manned space travel?



Your Procedure

1. What tools will you use to find out about what makes Earth habitable?

2. How will you find out about the characteristics of other planets?

3. How can you find out about conditions in space?

How will you collect your data?

4. What can you use to determine what organisms would survive in space conditions?

5. How can you find information about requirements for manned space exploration?

6. How do you plan to organize your findings?



How will you analyze your data?

1. How will your data help you determine which planet is the best to inhabit?

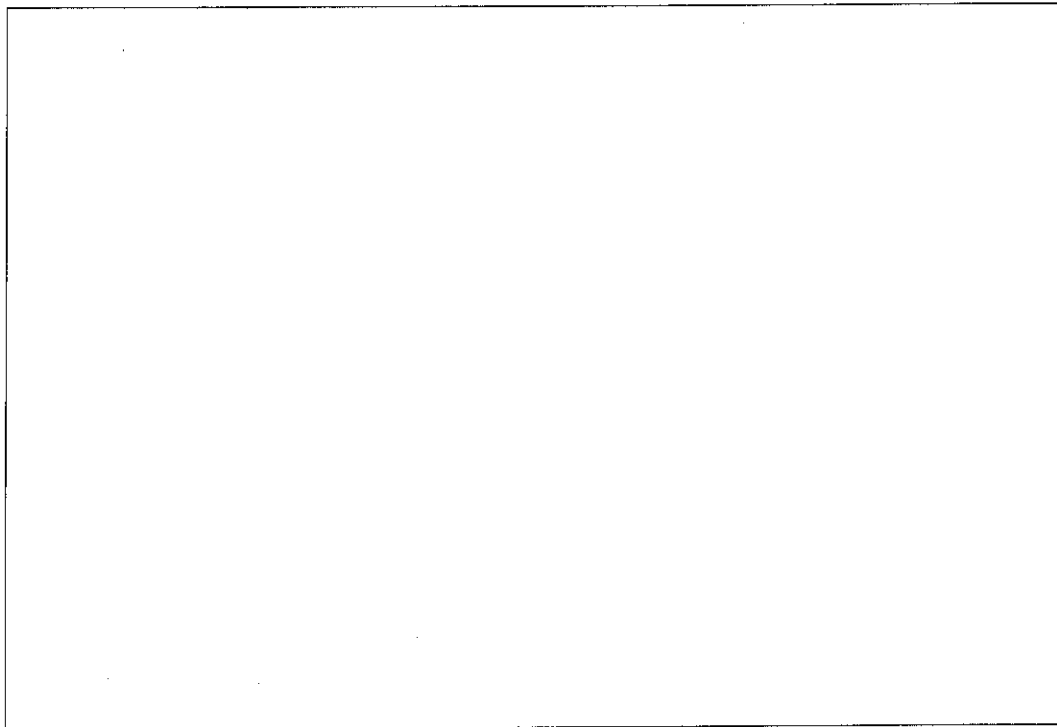
2. How will your data help you determine which items you will need to take to survive?

I approve of this investigation.

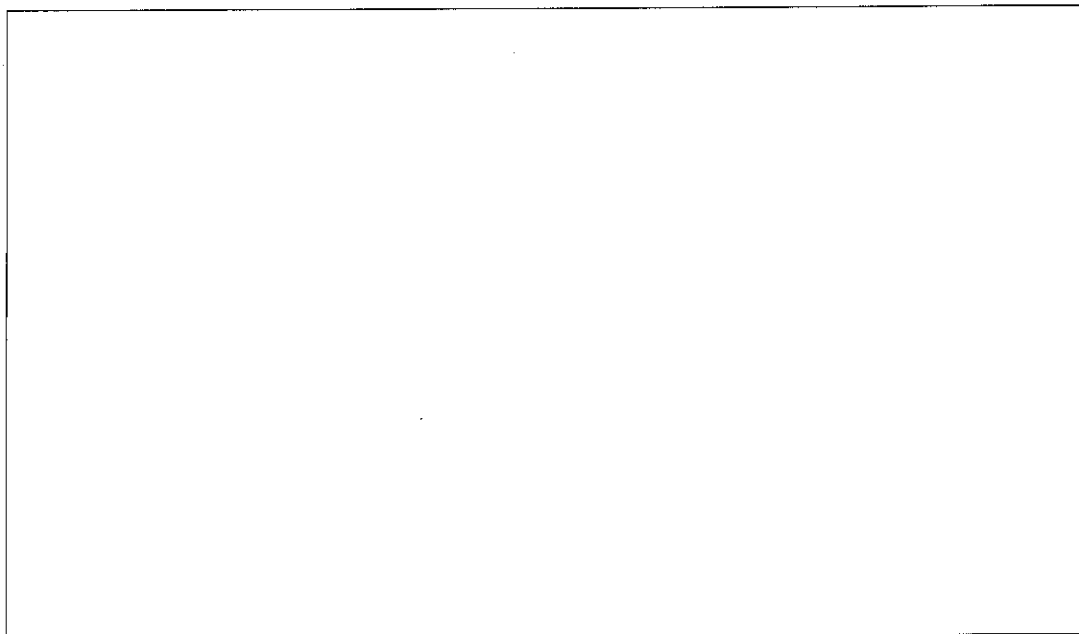
Instructor's Signature

Date

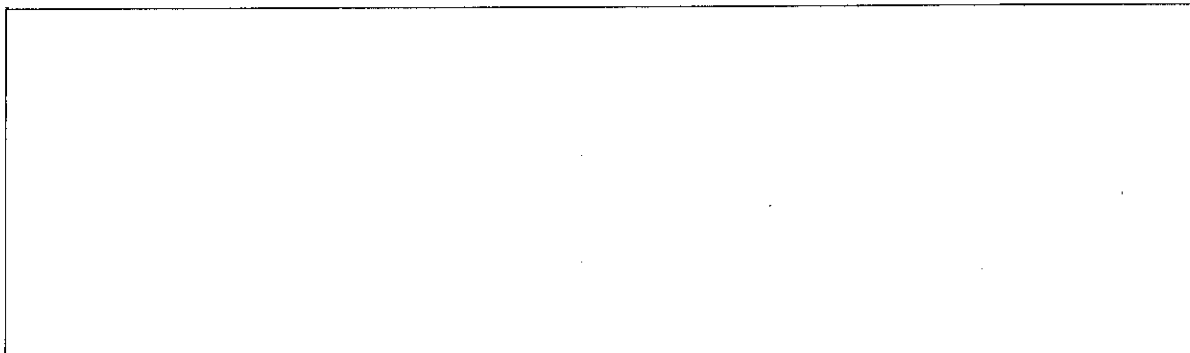
Notes from
information
gained.



Inferences
from the
data you
collected.
Focus on the
question you
are trying to
answer.



Claim:
Answer to
the question
and
support.



DAY 4: Close the research and Board Plan.

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It is time to present your findings to the other teams around the world who are also trying to solve this problem. You are going to present using a whiteboard, organized in such a way that other teams can understand your claim in just a few moments.

Before you start you are going to make a Board Plan. Plan the layout of the board you will be constructing tomorrow on the diagram below. This is your last chance to gather any final information you need.

If you would like to use a **blank sheet of paper** so that you have more room to write you may but you **MUST** use these rectangles, and you must keep the correct labels, though you can make them much smaller.

The Guiding Question:	
Our Claim:	
Our Evidence:	Our Justification of the Evidence:

A few tips:

- The guiding question was given to you.
- Your claim is your answer to that question.
- Your evidence is the information you found in your resources.
- Your Justification of the Evidence is an explanation of why you think that evidence is important and connects your evidence to the scientific ideas from the introduction.

I approve this Board Plan _____ Date: _____

DAY 5: A Gallery of Boards

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It is finally here! Today you are going to explain your board and the planet you are suggesting that humanity settle next! You are also going to listen to other groups present their information. You will do this by standing beside your board, as well as walking around and see the boards of other groups. Space is provided below for you to make notes about what you hear from other groups.

Remember: This is your big chance to get more information, and a different perspective. You have not yet written your final report and it is OKAY to change your mind, or to add details found by other teams! This is the time to get those details!

Information I need to add to our board:

Information I may want to change on my board:

Information I found interesting:

I feel the most prepared group was group _____ because.....

What can I do to be more prepared next time we have a Gallery of Boards?

DAY 6: Report your Findings

You have your research, and the notes you made yesterday. It is time to write your report. The report is independent work, meaning for this step you are NOT going to be working with your team. The job of the report is to show what you, as an individual have learned about Life on Earth, and what is needed for it to continue.

Humanity needs a new home. When I set out to do my research I focused on the guiding question _____

I, Dr. _____, ^(Your name) feel that we should choose to settle the planet

_____ ^(Planet number you chose) To answer the guiding question I used many valuable resources

including _____

(List the resource you used)

Here is what I found.

For life to exist on a planet that world has to have five things to support life, including _____

(Look at the reading, what five things support life?)

The planet I chose supports life by, _____

(Describe your evidence. What characteristics of the planet make it a good choice.)

I feel this evidence is important because, _____

(Look at your justification)

As I did my research, and reviewed the research of my peers, I learned many fascinating things, including _____

(At least one thing you found interesting)

Be prepared to have your writing reviewed by other students and to give feedback on other students' writing.


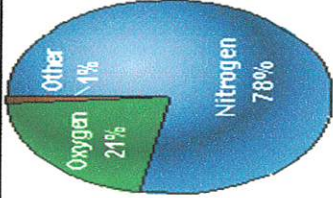

Name _____ Date _____ Period _____

Living in Space

Directions: As you watch the videos on manned space exploration complete the chart by identifying the effects each obstacle to space travel has on humans. Describe what accommodations have been developed to help preventing these effects on humans.

Obstacle to Space Travel	Effects on Humans and Accommodations	
	Effects	Accommodations
Leaving Earth: overcoming gravity, slingshot effect, orbiting distances between objects in the solar system, dangers of meteoroids, cosmic rays, etc.		
Effects of Microgravity on the Body: being weightless, physical effects, long-term effects on muscles and bones, etc.		
Pressure, Temperature, and Atmosphere Changes: suits that provide air supply, temperature, pressure, and radiation protection, maneuverability, etc.		
Space Food: challenges in preparing and eating, taste, etc.		
Living and Working in Space: providing living, sleeping, hygiene, working areas, sleeping, health, toilet, showers, garbage disposal, etc.		

Daily Work-Life on Earth

Monday	<p>1</p> <p>Define: accommodations</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>2</p> <p>Define: habitable zone</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>3</p> <p>Define: proximity</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>4</p> <p>Define: composition</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
Tuesday	<p>Just trying to take a drink or eat a meal in outer space can be very challenging. Scientists and engineers who work for NASA have designed special devices to help astronauts eat in microgravity. Explain microgravity.</p> <p>_____</p> <p>_____</p> <p>_____</p>		<p>On the space shuttle, the food stays in special locker trays, with a net restraint to keep it from floating away. How do net restraints work?</p> <p>_____</p> <p>_____</p> <p>_____</p>	 <p>What percentage of oxygen? _____</p> <p>What percentage of Nitrogen? _____</p>
Wednesday	 <p>Explain why astronauts sleep as shown in picture.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>How is Earth different from all the other planets?</p> <p>A. It has a breathable atmosphere.</p> <p>B. It has a rocky surface.</p> <p>C. It is warmed by the sun.</p> <p>D. It rotates on its axis.</p>	<p>Which of the following accommodations is designed to overcome the unique difficulties associated with showering in space?</p> <p>A. A skid-proof floor mat</p> <p>B. A drain in the floor of the shower</p> <p>C. A bench inside the shower</p> <p>D. A vacuum system to control water movement</p>	<p>What design element of an astronaut's spacesuit protects him or her from micrometeoroids, which are tiny bits of space debris traveling at high speed?</p> <p>A. Large oxygen tank</p> <p>B. Tough outer shell</p> <p>C. Powerful jet pack</p> <p>D. Small radio communicator</p>

