

HONORS BIOLOGY

SUMMER ASSIGNMENT

Teacher: Mrs. Hammock

Email: hammockj@mcnairy.org

Welcome to Honors Biology! In order to proceed in this course, you must complete the following Summer Assignment and turn it in on the first day of school, regardless of which semester you have Biology. During the first week of school, you will be given a Test covering this content. The flashcards and handout will count as an assignment grade and the Test as an assessment grade. Due to the amount of content that needs to be covered during the class, the summer assignment introduces terms that will help during the year and cover a topic that should be a review for all students - SYMBIOSIS.

Part 1: Letter of Introduction

- Send me an email at hammockj@mcnairy.org to introduce yourself.
- Make sure that you put "Honors Biology Introduction to _____" (Your name would go in the blank.)
- Begin your email with a formal salutation, like "Mrs. Hammock,"
- Now introduce yourself and tell me a little bit about yourself. You do not have to answer all of the following questions, but the more you do answer, the better I'll get to know you!
 - What do you like to do? (Hobbies, Sports, Music, Interests, Etc.)
 - Do you have a job?
 - Tell me a little bit about what is important to you - friends, family, pets, etc.
 - What did you like about your previous science classes?
 - What was the last book you read for fun?
 - What are you looking forward to the most in Honors Biology? What are you most anxious about in Honors Biology? What motivated you to sign up? What do you expect to get out of the class? (PLEASE ANSWER THESE QUESTIONS!!)
 - Give an honest assessment of your current learning skills, your strengths and weaknesses, your approach to homework, your attitude towards exams, your attendance pattern, and your own integrity. (PLEASE ANSWER THESE QUESTIONS!!)
 - What are your career goals and college dreams?

Part 2: Science Vocabulary Flashcards

For this portion of the Summer Assignment, you will create flashcards for the following 20 vocabulary terms. These are terms that we will use quite frequently during the semester. Each flashcard should have the vocabulary word on one side and the definition on the other side. I highly recommend using <https://www.biologydictionary.net> to get your definitions since some words may have multiple meanings. You want to make sure that you have the biological definition.

- Monomer
- Polymer
- Chemical Reaction
- Products/Reactants
- Activation Energy
- Catalyst
- Enzyme
- Prokaryote
- Eukaryote
- Autotroph
- Heterotroph
- ATP
- Photosynthesis
- Chemosynthesis
- Cellular Respiration
- Aerobic Respiration
- Anaerobic Respiration
- Biotic
- Abiotic
- Homeostasis

Part 3: Ecology

For this portion of the Summer Assignment, you will read the attached article, "Ecology Vocabulary: Interactions Within the Environment" and complete the questions on the back. You will have a vocabulary TEST that includes these words along with your flashcard words during the first week of your Biology class.

Part 4: Symbiosis Project - Wanted Ad

For this portion of the Summer Assignment, you will create a Symbiosis Wanted Ad. Using your knowledge of Mutualism, Parasitism, and Commensalism, choose from the list attached a set of organisms that have a close relationship. The directions for the Project are also attached.

What You Do:

Create a classified advertisement/want ad for a job opening in which an organism in a symbiotic relationship is looking for the other organism. The ad should be based on a mutualistic, parasitic, or commensalistic relationship.

Headline describing job

Create a catchy headline to grab attention. Write a line describing the relationship you are seeking (mutualistic, parasitic, commensalistic), a line about who you are and the qualities you possess, a line about the type of organism you need for the job (Qualifications), a line about why you need this service, and a line describing what you will give the organism in return for his or her services.

Picture accompanying advertisement:

A picture showing you, the organism in search of the other organism. A picture showing the organism of which you are searching. A picture showing the two of you together in your symbiotic relationship - can be hand-drawn. Must be neat and colorful

Materials to use

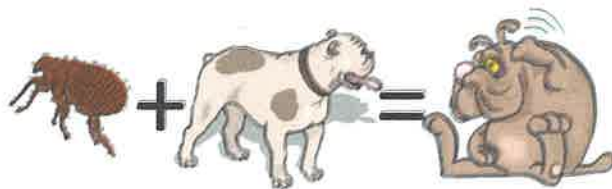
To create this ad, use construction paper, copy paper, magazine/newspaper cutouts, clip art, computer graphics, photographs, hand drawn images, etc. The ad can be done as a PowerPoint presentation, brochure, newspaper ad, magazine ad, poster, prezi presentation, glogster, etc.

© Getting Nerdy, LLC

WANTED: Lazy Pup with Short Nails

Desperately seeking a parasitic relationship. I am a flea with a thin body and springy legs who can jump 1,000 times my own body size! I am in search of a dog with long fur for me to cuddle up in, thin skin for me to bite, and short nails to keep from scratching me. I need your help because your blood is my nutrition and I need it to keep me alive. In return, I promise to give you the heebie jeebies and plenty of scabby bites to scratch and keep you busy!

ME YOU US TOGETHER



Shark & Remora	Ants & Aphids
Mistletoe & Hardwood Tree	Pinworm & Humans
Bacteria & Termite Gut	Botflies & Deer
Ants & Acacia Tree	Oxpecker & Mammal
Honeyguide bird & badger	Sloth & Algae
Shrimp and Goby Fish	Botfly & Mammal
Tapeworm & Mammal	Fig Tree & Amazon Fruit Bat
Barnacles & Whales	Olive Baboon & African Elephant
Sea Anemone & Clownfish	Egrets & Cattle
Brownheaded cowbird & songbird	Wombat & Snails
Hermit Crab & Sea Anemone	Coyote & American Badger
Langur Monkey & Chital Deer	Egyptian Plover & Crocodile
Sea Slug & Algae	Human & Lice
Pygmy Seahorse & Seafan	Varroa destructor & Honeybee
Fig Wasp & Fig	Pompeii Worm & Thermophilic bacteria
Spanish Moss & Trees	Yucca Plant & Yucca Moth
Euprymna Bobtail Squid & Bioluminescent Bacteria	Leafhopper & Meat Ant

Headline Describing Job - You must have AT LEAST the following criteria:

- Catchy headline to grab attention (10 points)
- A line describing your relationship (mutualism, parasitism, commensalism) (10 points)
- A line about who you are and the qualities you possess (10 points)
- A line about the type of organism you need for the job (Qualifications.) (10 points)
- A line about why you need this service (10 points)
- A line describing what you will give the organism in return for his or her services. (10 points)

Picture accompanying advertisement - You must have AT LEAST the following criteria:

- A picture showing you, the organism in search of the other organism (10 points)
- A picture showing the organism you are in search of (10 points)
- A picture showing the two of you together in your symbiotic relationship- can be hand-drawn (10 points)
- Neat and Colorful (10 points)

Do you have the following? Check it off:

- Catchy headline to grab attention?
- One line describing your relationship (mutualism, parasitism, commensalism)?
- One line about who you are?
- One line about the type of organism you need for the job (Qualifications)?
- One line about why you need this organism?
- One line describing what you will give the organism in return for his or her involvement (if nothing will be given, please say that)?
- A picture showing you, the organism in search of the other organism?
- A picture showing the organism you are in search of?
- A picture showing the two of you together in your symbiotic relationship- can be hand-drawn?
- Neat and Colorful?

Again, you will submit your completed Flashcards, Ecology Vocabulary Handout, and Symbiosis Wanted Ad to me during the first day of school. Even if you have Honors Biology during the second semester, you will still need to turn in those things during the first day of school. You will then have a TEST over the Flashcards and Ecology Vocabulary during the first week of your Biology class.

Enjoy your Summer! Please email me if you have any questions!

Mrs. Hammock

hammocki@mcnairv.org

Ecology Vocabulary:

Name: _____

Interactions Within the Environment

How do things "work" together to survive in their environments? **Ecology** is the study of the interactions among organisms and their environments. There are several things that make up an ecosystem. An **ecosystem** is all of the living and non-living features of an environment. **Abiotic factors** are those things that are non-living in an environment like air, water, soil and sunlight, and **biotic factors** are all of the living components such as trees, plants, animals, insects, bacteria, and us! We have many different ecosystems on our planet, too! Large geographic areas with similar climates and ecosystems are called **biomes**, and they can include such environments like the snowy tundra, the desert, or the very diverse tropical rainforest. Most organisms live in a specific area suited for their needs.

An **organism** is any single living thing living within an ecosystem, and the place where it obtains the types of food, shelter, moisture and temperature that it needs is called its **habitat**. Its **niche** is the unique way that the organism survives within its environment, or it's "job" within the environment. Organisms live in groups called **populations** within their ecosystem and certain features of that ecosystem can affect how that population lives and thrives. Anything that can limit the size of a population, including living and nonliving features of an ecosystem, is called a **limiting factor**. An example of a factor that could limit the size of a population might be a hunter or a drought. An ecosystem can only support a certain number of individuals before that system begins to run out of resources. The largest number of individuals of a particular species that an ecosystem can support over time is called its **carrying capacity**.

All organisms rely on other organisms for energy. The transfer of energy from one organism to another is called the **energy flow** through the ecosystem. We can trace the path of energy through an ecosystem with an **energy pyramid**. An energy pyramid shows the direction that energy flows and each level on the pyramid is called a **trophic level**. At the bottom are **producers**, organisms that can make their own food. Next are **consumers**, who need to consume food from another source, such as a producer or another consumer. **Decomposers** return nutrients to the soil by consuming wastes and dead organisms. We can see how organisms rely on each other for energy in food chains and webs. A **food chain** shows how food energy passes from one organism to the next. **Food webs** are more complex and show the network of many interconnected food chains. Organisms have special types of interactions with one another. If an animal hunts and kills another animal for food, it is called a **predator** and is a consumer. The animal that is hunted and caught for food is the **prey** and is also a consumer; it may be an herbivore, omnivore, or carnivore. A **carnivore** is a meat eater and can eat herbivores, omnivores, or other carnivores. **Herbivores** eat producers or plants only, and an **omnivore** eats both producers (plants) and consumers (other animals).

Some organisms have very close relationships with one another. **Symbiosis** is any close relationship between different species, and including mutualism, commensalism, and parasitism. **Mutualism** is when both species benefit from the relationship, like bees pollinating flowers. **Commensalism** is when one species receives a benefit and the other organism doesn't really get anything out of it. The relationship between a shark and a remora is an example of this. The remora just hangs around the shark waiting for it to drop food, but the shark doesn't get anything from the remora. **Parasitism** is when one organism gets helped in the relationship and the other organism is harmed, like fleas on a dog.

Relationships exist among all living things. When one thing is out of balance, it can affect the entire environment. For example, when we spray pesticides on our crops, those chemicals can upset the delicate ecosystem that exists there, causing some populations to soar while others may die out. So the next time you think about throwing trash on the ground or pouring chemicals down your drain, think about who or what you might be affecting!

Ecology Vocabulary:

Name: _____

Interactions Within the Environment

Use the reading to match the vocabulary term with the appropriate definition.

1. _____ : study of the interactions that take place among organisms and their environment
2. _____ : living things within an ecosystem
3. _____ : one of any living thing
4. _____ : place where an organism lives and that provides the types of food, shelter, moisture, and temperature needed for survival
5. _____ : chain showing how energy passes from one organism to the next
6. _____ : eat producers
7. _____ : any close relationship between species, including mutualism, commensalism, and parasitism.
8. _____ : animal that hunts and kills other animals for food. A predator is a consumer [carnivore or omnivore]
9. _____ : largest number of individuals of a particular species that an ecosystem can support over time
10. _____ : non-living parts of ecosystem-air/water/soil/sun
11. _____ : all the living organisms that live in an area and the nonliving features of their environment
12. _____ : large geographic areas with similar climates and ecosystems. Includes: Tundra, Desert, Tropical Rainforest, Temperate Rainforest, Grassland, Arctic Tundra, Temperate Deciduous Forest
13. _____ : in an ecosystem, refers to the unique ways an organism survives, obtains food and shelter, and avoids danger
14. _____ : anything that can limit the size of a population, including living and nonliving features of an ecosystem, such as predators or drought
15. _____ : shows the direction in which energy flows. As the amount of available energy decreases, the pyramid gets smaller. Each layer on a pyramid is called a _____ level.
16. _____ : through an ecosystem – The transfer of energy from one organism to another through food webs.
17. _____ : organism that makes its own food, autotroph.
18. _____ : organism that cannot make own food, a heterotroph
19. _____ : consume wastes and dead organisms
20. _____ : complex network of many interconnected food chains and feeding relationships
21. _____ : an animal that is hunted and caught for food. Prey is a consumer; it may be a herbivore, omnivore, or carnivore.
22. _____ : eat herbivores, omnivores, or other carnivores
23. _____ : eat producers and consumers

Free Response:

24. What are the three types of symbiosis? Using the symbols (+) for positive, (-) for negative, and (0) for neutral, describe what each organism gets out of the relationship for each type of interaction.
 - a.
 - b.
 - c.
25. List some limiting factors that might limit the size of a population within its environment?
i.e. increased hunting by man and drought