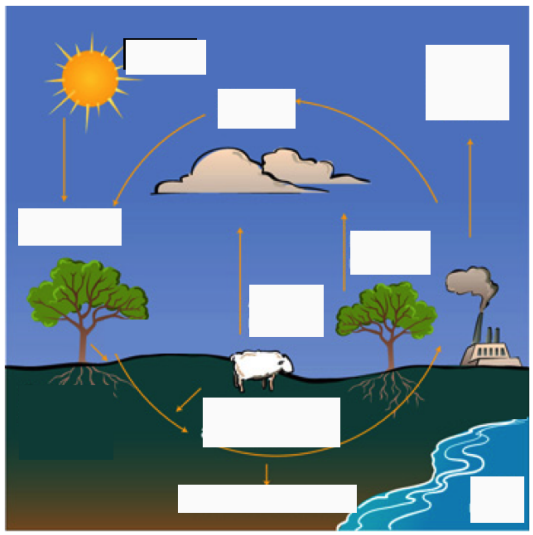
Ecology Study Guide **Name:** _____ **Block:** _____

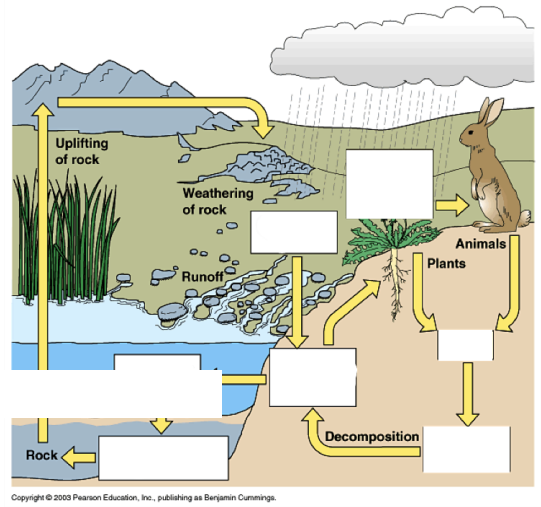
Describe how energy and chemicals (nitrogen, carbon, water, & phosphorous) pass through different levels of an ecosystem).

Insert vocabulary for the following cycles (**You may be asked to draw a cycle given vocabulary terms).**

CARBON: Photosynthesis, plant respiration, animal respiration, emissions, dead organisms/waste, fossil fuels, CO2 in oxygen, sunlight, carbon cycle



PHOSPOROUS: Phosphate in soil, phosphate in rock, phosphate in plants, phosphate in solution, new rocks, decomposers, detritus



Create drawings to represent the water and nitrogen cycle using the following word banks:

NITROGEN: animals, plants, nitrogen in soil, nitrogen in atmosphere, decomposers, denitrification bacteria,

WATER: Condensation, evaporation, precipitation, run-off, ocean, ground water

At each energy level of a food pyramid _____ energy is lost moving up each level.

Identify the amount of energy passed to each trophic level in the following trophic pyramid:

Blue whales are the largest animals on the Earth today. An adult blue whale requires 1,010,000 kCal of krill a day in order to survive. How many pounds of krill is this? (Hint: one pound of krill supplies 460 kCal)

In an ecosystem, all energy is provided by _____. At each increasing _____ level, _____% of energy is lost. For example, if small birds eat only seeds how many pounds of birds could be supported by 50,000 seeds: _____. How many pounds of predator birds could be supported that eat only the small birds: _____.

A _____ can be used to show the amount of living material at each level.

Give at least three examples of how energy can be lost in an ecosystem:

Describe the following terms and/or give an example:

Term	Definition	Example
Producer		
Consumer (1^{st}, 2^{nd}, 3^{rd})		
Autotroph		
Heterotroph		

Draw an example of a food chain below:

How is a food web different than a food web?

A _____ influence on organisms is called a biotic factor; a _____ factor of an ecosystem is called an abiotic factor.

Three examples of biotic factors include:

Three examples of abiotic factors include:

A _____ is an organism that produces its own energy; a _____ is an organism that can not produce its own energy and must acquire it from another source. This type of organism makes its own energy_____. Three examples include _____, _____, _____. A _____ is an organism that must acquire its energy from another organism. Two types of these include _____ (don't eat meat) and _____ (eat meat).

Describe, explain, and **analyze** the relationships between biotic and abiotic parts in an ecosystem.

List the six levels of organization and explain what is included in each level:

0. _____
1. _____
2. _____
3. _____
4. _____
5. _____

A _____ relationship describes the relationship between two living organisms. Types of this relationship includes the following: 1.) A _____ relationship results in both organisms benefiting. 2.) A _____ relationships results in one organism benefiting and another not benefiting or being harmed. 3.) A _____ relationship results in one organism benefiting and one organism being harmed. 4.) A _____ _____ relationship describes how population size can change due to dependence of the species on one another.

Relationship:				
Example?				

A _____ is where an organism lives and a _____ is the organisms role in the ecosystem.

Describe how an organisms' habitat is different from its niche.

Give an example of an organism's habitat and its niche.

Predict the outcomes of a change in resource (shelter, food, and matter) or human disturbance has on an ecosystem

Type of Succession	What happens	Example
Primary		
Secondary		

A _____ species is "the first on the scene" and helps to re-establish an ecosystem.

Scenario Analysis: Describe what affect the event would have on the ecosystem.

In an ecosystem gardener snakes are the primary source of food for a bird species but they will also eat small insects. Gardener snakes eat mostly small grasshoppers but can also eat small birds and rodents if present. Grasshoppers and other insects in the area begin to destroy a local crop so the farmer uses pesticide to poison the insects. The poison remains in the insect after their death. Describe how the introduction of this pesticide could affect this ecosystem?

What effect does loss of biodiversity have on an ecosystem?

What effect can humans have on accelerating climate change?

Describe what an invasive species is and give at least one example.

Describe and **explain** factors causing population patterns and change.

The resources available in an ecosystem that limit growth are called _____ _____. Some examples of these include:

Populations grow _____ when _____ are abundant or the population is _____. This unlimited growth shows a _____ when graphed. Draw a graph below to show what this looks like below.

Populations grow _____ when resources are _____. This growth is shown as an _____ when graphed. Draw a graph below to show what this looks like.

The maximum size of a population given its limiting factors is called a _____ _____.

Populations reaching their carrying capacity _____ and _____. Draw a graph below to show this.

The distribution (separation) of individuals in a population depends on:

-
-

Three types of population distributions:

-
-
-

Draw a simple sketch to represent each type of distribution below