

# Ecology Review Sheet - ANSWERS

For this test you should be able to DEFINE and USE the following terms:

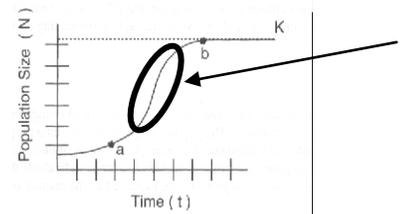
Ecology	Species	Symbiosis	Oligotrophic
Biosphere	Population	Parasitism	Mesotrophic
Lithosphere	Community	Mutualism	Eutrophic
Hydrosphere	Ecosystem	Commensalism	Eutrophication
Atmosphere	Biome	Herbivores	Stochastic Events
Carrying Capacity	Biotic	Omnivores	Pollution
Limiting Factors	Abiotic	Carnivores	Habitat Fragmentation
Biodiversity	Food Chain	Biomagnification	Invasive Species
Trophic Levels	Food Pyramid	Ecological Succession	Water Cycle
Producers	Food Web	Pioneer Species	Carbon Cycle
Consumers	10% Rule	Intermediate Species	Fossil Fuels
Decomposers	Autotrophs	Climax Community	Greenhouse Effect
Niche	Heterotrophs	Exponential Growth	Global Warming

- The key word in ecology is INTERACTIONS.
- The biosphere is the thin layer of the earth's surface where life can exist and is divided up into 3 parts called:  
atmosphere, hydrosphere, lithosphere
- The levels of organization in the biosphere from simplest to complex are:  
species --> population --> community --> ecosystem --> biome --> biosphere
- How is an ecosystem different from a community?

**A community only deals with the biotic (living) parts but an ecosystem also considers the abiotic (nonliving) parts.**

- Identify the type of population growth depicted in the graph.

**Exponential Population Growth**



- What is a "carrying capacity"?

**The maximum number of organisms that an ecosystem can support.**

- What are limiting factors?

**Forces that determine the carrying capacity of an ecosystem.**

- How are the increases and decreases in the moose population related to the changes in the wolf population?

**Increases in moose population are followed closely by increases in wolf population, and decreases in moose population are closely followed by decreases in wolf population.  
(typical predator / prey interaction)**

9. Identify some **density-dependent** and **density-independent** limiting factors that influence the moose and wolf populations on Isle Royale.

	Moose	Wolves
Density-Dependent	<ul style="list-style-type: none"> <li>• Ticks</li> <li>• Predators</li> <li>• Food Supply</li> </ul>	<ul style="list-style-type: none"> <li>• Disease (<i>Parvovirus</i>)</li> <li>• Genetic Inbreeding</li> <li>• Food Supply</li> </ul>
Density-Independent	<ul style="list-style-type: none"> <li>• Severe Winters</li> <li>• Warm Winters</li> </ul>	<ul style="list-style-type: none"> <li>• Severe Winters</li> <li>• Warm Winters</li> </ul>

10. What is symbiosis?

Two different species living closely together.

11. Identify and describe the 3 types of symbiotic relationships.

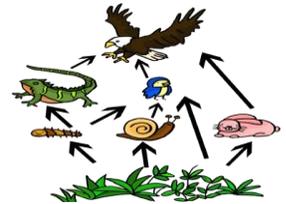
Parasitism – one organism benefits, other is harmed (without being killed)

Mutualism – both organisms benefit

Commensalism – one organism benefits, other is unaffected

12. The diagram to the right is an example of a food web.

The grass is an example of a producer. In the food chain of the grass, snail, bird, and hawk, the hawk would be considered a tertiary consumer.



13. How much energy is transferred from one trophic level to the next? 10 %

14. The ultimate source of energy comes from the sun.

15. Energy from the sun enters the food chain through producers (autotrophs).

16. Why are food chains not realistic?

Because seldom in nature does one organism eat only one food source.

That would represent a very unstable and easily-disrupted energy flow through an ecosystem

17. What is Biomagnification?

The process through which pollutants build up inside organisms and become more concentrated through a food chain.

18. Define and describe the steps of ecological succession on land and in water.

On land, this often occurs when bare rock is colonized by **pioneer species** such as lichens and mosses, which are replaced by **intermediate** species such as grasses and shrubs, replaced by a **climax community** such as large trees that develop into a forest (in our biome, that is.)

In water, an **oligotrophic** lake slowly fills in with debris until it becomes a **mesotrophic** lake, then ultimately a **eutrophic** wetland.

19. What's the difference between primary and secondary succession?

Primary succession begins with bare rock (no ecosystem) and secondary succession begins with an existing ecosystem that has been disturbed.

20. What is a biome?

A large area defined by the unique climax community shaped by a unique climate.

21. Explain eutrophication.

The speeding up of aquatic succession through the addition of excess nutrients from fertilizers, sewage, etc.

22. What are some things that can disrupt an ecosystem?

- Addition or removal of a species
- Stochastic events
- Habitat fragmentation
- Pollution
- Invasive species

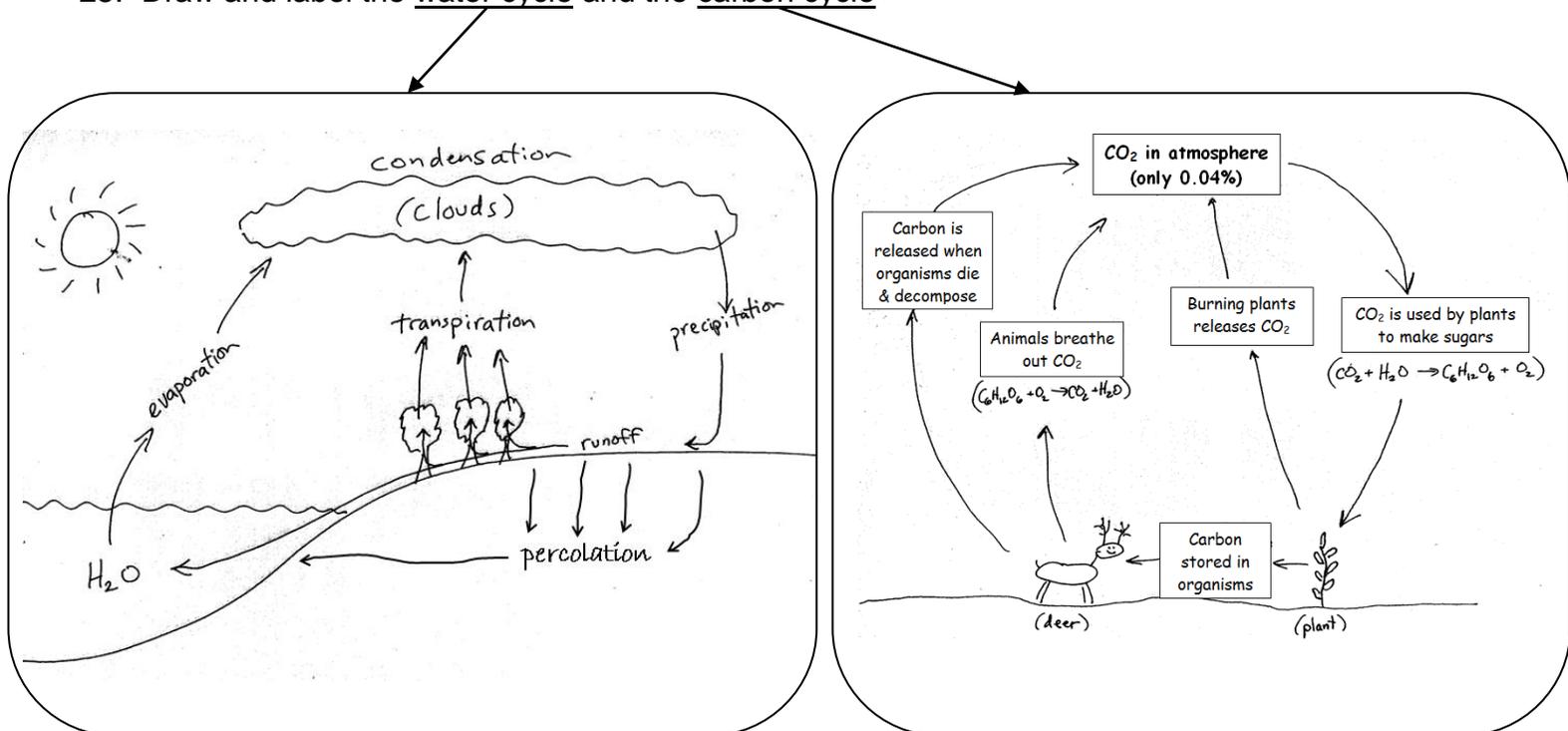
23. What is an invasive species and why are they bad?

Non-native organisms that disrupt the energy flow of an ecosystem. They are bad because they consume energy that native species need to survive.

24. Distinguish between point-source and nonpoint-source pollution.

Point-source pollution is from a single identified location. Nonpoint-source is pollution from many unidentified locations.

25. Draw and label the water cycle and the carbon cycle



26. Differentiate between transpiration and evaporation.

Evaporation is water vapor rising from lakes/ivers or the ground; transpiration is water vapor rising from the leaves of plants.

27. Two ways carbon dioxide enters the atmosphere are:

Organisms exhaling, decomposing, or burning. (*Wow, that's three! Go me!!!*)

28. The greenhouse effect is how the earth stays warm by trapping the sun's heat under a layer of atmospheric CO<sub>2</sub>. This is a GOOD thing. It can result in too much warming if the layer of CO<sub>2</sub> becomes too thick from burning fossil fuels, which is a bad thing.

29. List and describe the 3 types of fossil fuels.

Coal – the solid remains of ancient organisms.

Petroleum – the liquid remains of ancient organisms.

Natural Gas – the gaseous remains of ancient organisms.

30. Name some drawbacks of relying on fossil fuels.

- Non-renewable
- Dangerous to extract and transport
- Release excess carbon into atmosphere, increasing global temperatures