Year 11

IGCSE Biology

Organisms in their Environment

Name: _____

We will study:

- Ecology vocabulary
- Adaptation to an environment
- Limits to population growth
- Transfer of energy in an environment (food chains and webs)
- The role of producers, consumers and decomposers in a food chain
- Pyramids of Number
- Energy losses in the food chain

Ecology Vocabulary

1. What is an organism?

   _____

2. What is a habitat?

   _____

3. What is a population?

   _____

4. What is a community?

   _____

5. What is an ecosystem?

_____

Composition of Ecosystems

1. Complete this paragraph:

   "Whatever the _____ ecosystems usually have the _____ components

   These components are:

2. Describe a producer

   _____

   _____

   _____

3. Produces are the only organisms that can produce

   _____

4. Describe a consumer?

   _____

   _____

   _____

5. What happens to energy in the food chain?

_____

_____

6. Describe decomposers. Why are they so important?

_____

_____

_____

7. Ecosystems are made up of biotic and abiotic organisms

Biotic	Abiotic

8. What are the various types of habitats?

_____

_____

Populations

1. Describe a population

   _____

2. Populations will make up a _____

1. What factors can limit the size of an animal population? Write your own ideas down first and then look at the PowerPoint.

   _____

   _____

   _____

   _____

2. What factors can limit the size of a plant population?

   _____

   _____

   _____

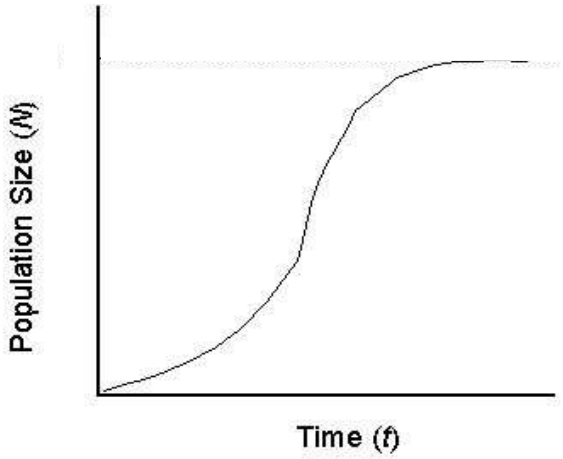
3. Explain what is meant by the "carrying capacity" of an environment.

_____

_____

_____

Look at this graph of the growth of a wild population:



4. What is the shape of this graph called? _____

5. Shade in and describe the four stages of population growth

Key

Stage 1: _____

_____

Stage 2: _____

_____

Stage 3: _____

_____

_____

Stage 4: _____

_____

_____

What are the distinct phases of a life cycle?

_____

_____

_____

_____

Interaction in An Ecosystem

1. How do organisms react with each other?

_____

_____

_____

_____

2. How do you get your energy?

_____

3. Where does all the energy in an ecosystem originate from?

_____

4. How is this energy trapped and made into useful chemical energy (food)?

_____

5. What are producers?

_____

6. Write out the photosynthesis equation

_____

7. What are consumers?

_____

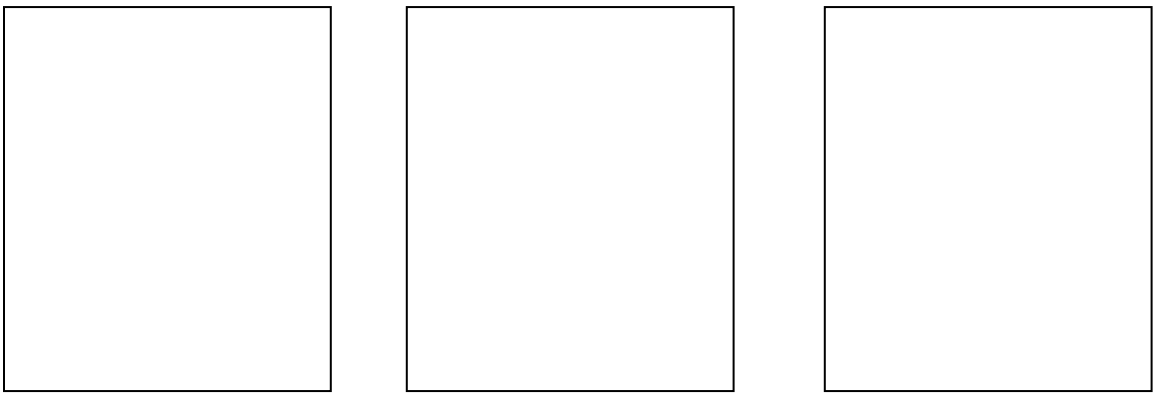
8. Complete this sentence:

   As organisms eat each other _____

   _____

9. Complete this diagram to show what is happening in this food chain:

   Grass → Rabbit → Fox



10. What does the arrow show in a food chain?

    _____

11. What is a primary consumer?

    _____

12. What is a secondary consumer?

    _____

13. Complete the detail on this food chain:

Leaf → Worm → Bird

14. Define

Herbivore _____

Carnivore _____

Omnivore _____

15. What are decomposers?

_____

16. How do they get their food? What is it broken down into?

_____

_____

_____

17. Why are decomposers so important?

_____

_____

18. Link the food chains together to make a food web;

19. Add falcons and blackbirds to your food web.

Ecological Pyramids

1. What are the three different types of ecological pyramids?

   _____

   _____

   _____

2. What do pyramids of number show?

   _____

   _____

3. Complete the paragraph:

Wheat → Mice → Owl

To stay alive the owl eats _____. So there must be lots of mice for each _____. The mice stay alive by eating _____ So there must be lots of wheat plants for each _____.

4. Draw a pyramid of numbers for the food chain above. Don't forget to label it.

5. Draw a pyramid of numbers for this food chain:

Grass → Rabbit → Fox → Fleas Oak→Caterpillar →Sparrow

6. What do pyramids of biomass show?

_____

_____

7. Why are pyramids of biomass always pyramidal in shape?

_____

_____

8. Draw the energy of biomass pyramid

9. How much energy is passed through each trophic level?

_____

_____

10. Explain why this happens.

_____

_____

_____

_____

Energy losses in a food chain

1. What is the process called when plants trap the sun's energy to turn it into food? _____

2. What is Biomass? _____

_____

3. What happens to the Biomass of a plant when it is eaten by an animal?

_____

4. How efficient are plants at transferring light energy into chemical energy?

_____

5. How is energy "wasted" in the consumers?

_____

_____

_____

6. Which part of the energy is available to the next trophic level?
   [Trophic level = the next stage in the food chain]

_____

7. If the consumer is a warm blooded animal, is more or less energy wasted? Explain your answer.

_____

_____

8. What do Pyramids of Biomass show?

_____

9. Why are Pyramids of Biomass always pyramidal in shape?

_____

_____

10. Explain why it is an advantage to eat plants rather than animals in terms of the amount of energy available in a food chain.

_____

_____