**Changing Ecology Revision Worksheet**

1. What are three steps in primary succession?

Answer: a) Colonisation of habitat by pioneers such as moss and lichen.

 Pioneers weather rocks and from soil.

b) dead organic material enriches soil and allows more complex

 plants to be established. So, lichens make the environment

 suitable for higher plants to be established.

 c) climax is reached when the ecosystem is stable and no more

 changes take place.

1. How is secondary succession different from primary succession?

Answer: secondary succession starts with soil intact. Therefore, growth of plants is faster due to presence of soil and climax is reached sooner than in primary succession.

1. What is carrying capacity of an ecosystem?

Answer: it is the number of organisms the ecosystem can support at a particular time.

1. A biologist is studying a population of bilbies. She wanted to estimate the total number in the wild. She caught 35 and marked them and released them. After three weeks she caught 24 out of which 8 were marked. How many bilbies are there in the wild?

Answer: 35 x 24 / 8 = 105

1. What quadrats used for?

Answer: to estimate the number of a population of plants or animals.

1. What is the difference between using a quadrat and capture-recapture method in trying to estimate the number of organisms in a population?

Answer: a quadrat is used on stationary organisms, whereas, capture-recapture method is used on mobile animals.

1. What is the difference between vulnerable, endangered and critically endangered species?

Answer: vulnerable are those species who have lost a significant part of their habitat but are not at a risk of extinction in the near future.

Endangered species are those who have been hunted and are at high risk of extinction in the near future.

Critically endangered are those species that are extremely low in numbers and their habitat is fragmented and are likely to go extinct in the near future.

1. Why seed banks are considered a good practice for genetic conservation?

Answer: because seeds contain genes for the plant. By collecting seeds the bank is preserving the genetic material of that plant so it does not go extinct and farmers can ask for a certain plant that has a certain genetic feature such as drought tolerant rice.

1. Give an example of environmental management.

Answer: reforestation- by planting more trees the environment is restored.

Pest control- by getting rid of pests/invasive species the food web is returned to normal.

1. Why are invasive species harmful to an ecosystem?

Answer: because they take over the habitat of native animals and plants;, and they compete for resources with native species, causing their death or reduction in their number.

1. What is the difference between bioaccumulation and biomagnification?

Answer: bioaccumulation is the accumulation of toxins in the tissue of an organism, whereas, biomagnification is the increase of toxin concentration as it moves up the food chain.

1. Why is it important to conserve species?

Answer: to preserve the genetic diversity;

foster sustainable use of the species such as fishing; and

maintain essential ecological process such as bees important for pollination and reproduction of plants.

1. Which of the following factors affecting population size is a **density independent** factor? *Fire*, *disease*, *competition*, *space* and *food* *resource*.

Answer: fire is a density independent factor because fire is not related to how densely populated is the species, however, disease is dependent on density because the higher the density the more likely for disease is to spread in the population.

1. What is the density of Dandelion per meter square if there are 1758 dandelions in an area measuring 40m x 80m?

Answer: total area is equal to 3200m2 (40x80)

Total number of population is 3758 dandelions.

 Therefore density is equal to 3758 / 3200 = 1.17 dandelion/m2

1. List two processes that remove carbon in the form of carbon dioxide from the atmosphere.

Answer: photosynthesis removes carbon from the atmosphere as carbon dioxide is used by the plants in making sugar.

Carbon in the form of carbon dioxide is dissolved in water and used by

animals to make shells.

1. How does energy enter the food web and how does it exit?

Answer: energy enters the food web from the sun in the form of radiant energy. Plants use it to make food. Food is eaten by herbivores; thereby energy is transferred from producers to consumers. Consumers produce heat from their body. Heat is a form of energy that escapes the food web and back into the environment.

1. Explain how land clearing results in salinity.

Answer: by cutting down trees, water in the ground is no longer being removed by the roots of the trees therefore water table rises. Salt dissolved in the water rises to the surface causing salinity.

1. What are humans doing to upset the carbon cycle?

Answer: by burning trees and fossil fuels, mankind is releasing carbon dioxide back into the atmosphere in large amounts.

By cutting trees, mankind is reducing the ability of carbon in the atmosphere to be stored or sequestered in trees, which keeps carbon levels high in the atmosphere.

1. Describe the effects of releasing nutrients into the river.

Answer: nutrients such as nitrogen and phosphorus cause overgrowth of plants and algae in the water.

Algae grow quickly causing algal bloom which prevents sun from entering the water. Plants cannot photosynthesise and as a result die.

Oxygen levels in the water decrease because of lack of photosynthesis and decomposers feeding on dead plants consume available oxygen making worse for fish to survive.

Fish die and decompose, further reducing oxygen levels (hypoxia).