**E1 Populations are the units of the community**

E1.1 Know that a community is made up of localised, interacting populations

* Read p176-181 of the text (3rd edition)
* Click on the links below and view the presentation / quiz

<http://eccdl.dcccd.edu/Stall/Ecosystem%20Presentation.swf>

<http://live.bcps.org/web_flash/Summergames/Buttion_action%20_projectFinal.swf>

* Answer the following questions

*E1.1 QUESTIONS*

*1. Arrange the following terms from smallest to largest to represent the composition or structure of life.*

*Organism, ecosystem, tissue, macromolecule, community, organelle, cell, population, organ*

*2. Explain the difference between the terms community and population as they apply to a particular ecosystem.*

*3. Classify the following relationships according to one of the terms below:*

***Parasitism, competition, predation, mutualism, commensalism***

*a) cellulose digesting bacteria feeding in a cow’s stomach*

*b) a cat attacking and consuming a rosella*

*c) a lichen plant consisting of an association between alga and a fungus*

*d) a eucalypt and an acacia using similar resources in a savannah woodland*

*e) a shrimp given protection from predators by living in the tentacles of a sea anemone*

*4. Interactions between organisms in a community can be broadly classified as* ***competition, predation or symbiosis (mutualism, commensalism and parasitism)****.*

*Give a real life example of each of the interactions above.*

* There are many definitions in this section. You may want to create a glossary

E1.2 Explain that populations in a community consist of different species and know the characteristics that define a species

* Read p181-183 of the text (3rd edition)
* Answer the questions below

*E1.2 QUESTIONS*

*1. Explain the difference between the terms population and species*

*2. Scientists have concluded that the Adelaide, Yellow and Crimson rosellas are in fact members of the same species. What evidence has helped them come to this conclusion?*

*3. How can a group of organisms have variations in appearance but still belong to the same species?*

*4. Would you consider a Pug and a Kelpie to belong to the same species? Why / why not?*

*5. What is a Mule? How is it created? Is a Mule fertile or infertile? Why?*

E1.3 Give examples of mechanisms that maintain reproductive isolation of species in a community.

Reproductive isolation: A mechanism that prevents the passing on of genes (gene flow) between groups within a community.

These mechanisms can include strategies that prevent fertilisation including:

* Different mating rituals
* Different pheromones for attracting the opposite sex.
* Different shape genitalia (or flower shape in plants)
* Different times of reproduction (seasons)
* Sperm cannot survive when inserted into reproductive tract
* Pollen tubes can’t grow towards the ovules.

These mechanisms ensure that the egg will not be fertilised by a sperm of a different species.

Strategies that prevent the development of fertile adults:

* Zygotes fail to develop (are fertilised but don’t develop fully)
* Young fail to reach sexual maturity
* Offspring are infertile (wrong number of chromosomes). See mule example.

\*\*\*NOTE: Geographic isolation is not technically a reproductive isolation mechanism.

***Question 1: Scientists believe that two variations of frogs are in fact separate species. Explain 5 reasons / arguments that the scientists could use to support their case.***

***Question 2: Give examples of reproductive isolating mechanisms that might prevent gene flow between:***

1. ***2 groups of flowering plants***
2. ***2 groups of closely related frogs***
3. ***A horse and a donkey***