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Central School

Home School Package

**Year 12 : Biology**



**LESSON Plan**

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| G:\Home Learning Packages\Documents for SHEFA Schools Principal\download.jpg Date | Term 2 Week 8Thursday – 9th July, 2020 |
| G:\Home Learning Packages\Documents for SHEFA Schools Principal\title.jpg | Strand 4 : Environmental BiologySub-strand 4.1 : CommunitiesLesson number : 4 |
| Learning outcomesLearning outcomes | 1. Distinguish between the following relationships giving specific examples of each : mutualism (symbiosis) and commensalism. (BIO4.1.3.4 - Skill Level 3)
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| Learners notes 1Learners notes | Commensalism* Commensalism is a relationship that occurs where one species benefits from another species but does not harm it in any way. Usually, one member of the relationship obtains food from the other.
* Examples :
* Commensal relationships may lead to :

Mutualism* Mutualism is a relationship that occurs between two species with both benefiting from it. In some examples of mutualism, the association is not essential to the two species.
* Examples :
1. A crab with sea anemones on its shell – the crab obtains camouflage ; the sea anemones gain food scraps.
2. Myna birds and cattle – the cattle get ticks and other ectoparasites removed from their skin, which are a source of food for the mynas.
* Other organisms in mutualistic relationships need each other to successfully survive.
* Examples :
1. *Rhizobium* bacteria living inside the root noodles of clover provide nitrogen for the clover ; the *rhizobium* obtain a place to live.
2. Many species of bacteria, fungi and protozoans live inside part of the gut (the rumen) of animals such as cows, where they release digestive enzymes that break cellulose down into glucose. The cows obtain sustenance (food) form the glucose ; the bacteria, etc, obtain a suitable habitat inside the cows’ rumens.
* Symbiosis (meaning living together) is used for any close association between two individuals, so includes parasitism, commensalism and mutualism.
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|  | <https://www.youtube.com/watch?v=jBg59_8TXbM><https://www.youtube.com/watch?v=qRn62gtgntY> |
|  | ACTIVITY1. Distinguish between mutualism and commensalism giving specific examples.

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| Reference ClipartReferences | Bunn, T. & Roberts, A. (2008). NCEA Level 2 Biology. New Zealand : ESA Publications, pp 110, 123 - 128Roberts, A. (2011). ESA Study Guide Level 2 Biology. New Zealand : ESA Publications, pp 151 – 155 |