**VCE Biology CoRe**

**Big Idea**

Living and non-living things interact with each other within ecosystems

**What you intend the students to learn about this idea.**

* Components of ecosystems: communities of living organisms, ecological groupings, ecological niche.
* Organisms and their immediate environment need to be considered together as a functional unit

**Why it is important for students to know this.**

* It makes it easier to understand why an animal lives the way it does if it is studied in relation to its environment.
* It is important to know that ecosystems are not isolated and that a change in one ecosystem can have an effect on an adjacent ecosystem.
* This knowledge will also help students to better understand the ideas of adaption that they would have learned in unit 2 area of study (AOS) 1 and be able to apply them to the wider concept of whole ecosystems.
* This understanding will also be important later on in this AOS when students come to study why some animals are endangered and extinct and how human activity on the environment can indirectly affect the survival of whole species.

**What else you know about this idea (that you do not intend students to know yet).**

* The environment is constantly changing and organisms change with it. It can be difficult enough trying to imagine one whole ecosystem, let alone several ecosystems interacting at once. I think that I would initially begin by explaining the interactions between animals and the environment within one ecosystem. If later on, students were comfortable with this concept, I may give an example of a species which moves around a lot and show how it can belong to more than one ecosystem. I would also then highlight, using an example, how it can be difficult to work out where one ecosystem ends and another one starts.

**Difficulties/ limitations connected with teaching this idea.**

* There are things in the environment that we can’t see in addition to those we can see. The concept of community is not easy to picture because animals are constantly moving in and out of communities and can belong to more than one ecosystem at a time. This overlap in habitat can be difficult to grasp and imagine.
* There are many new terms that must be learned along the way when teaching this big idea. It is important that students are given time to understand these terms so they do not become overwhelmed with all the new terminology.

**Knowledge about students’ thinking which influences your teaching about this idea.**

* Students will have some idea about an animal and its interaction with the environment. I would therefore start off by using an example of something that they are familiar with and is easy to understand in terms of how the animal interacts with its environment. For example most students would know that koalas live in trees and eat leaves. So you could start off by discussing this and the moving into discussing the wider environment of the koala including other plants and animals and how the koala fits into the ecosystem as a whole.

**Other factors that influence your teaching of this idea.**

* A belief that students should be able to explain the importance of knowing this information and why it is relevant to their everyday lives.
* Students can become overwhelmed when trying to picture a whole ecosystem of plants and animals interacting together. Trying to imagine so many things going on at one can be difficult, so it is important to start small and build our way up slowly.
* Students will have some sort of prior knowledge in this area. It is important to work out exactly what this level is (it will vary amongst different students), and project the teaching accordingly.

**Teaching procedures (and particular reasons for using these to engage with this idea).**

* I would begin by working out what level of understanding the students already have. This could be done perhaps through giving them a list of terms associated with the relationship between organisms and the environment (e.g. ecosystem, interaction, environment, community, ecological niche) and asking them to rate from 1-4 how familiar they are with each term. This is important so that you as a teacher know what level to project your explanations at and which sections to spend more time explaining.
* I would also take student on a field trip to a park/forest so that they can visualise the concept of ecosystems and see the interaction between animals and the environment for themselves. This will help them to better understand the terms they learn in class and actually be able to apply them to real life examples.

**Specific ways of ascertaining students’ understanding or confusion around this idea (include likely range of responses).**

* Field trip- Ask students to map different ecosystems. Ask them to describe the different ways in which organisms and the environment interact.
* Ask students to show how a particular change (for example a drought) will affect the survival of animals living in that environment. Talk about short- term as well as long term affects on the animal and how the animal could adapt over time to survive in dry environmental conditions.
* Ask students to look at a community of species within an ecosystem and discuss why they live in that environment. Make them think about what it is about that habitat that allows the community to survive in it, and why they wouldn’t be able to survive in a different habitat.