

<b>CHAPTER 4</b>	<b>Biological Barriers Answer Key</b>	<b>BLM 4.3.1A</b>
<b>ANSWER KEY</b>		

1. *Two distinct species of ant live in the same national park. Little is know about their natural history, but they have been observed working during the day and resting at night in similar habitats. These species look different, and scientists have discovered that they produce different pheromones.*

**Pre-zygotic Barrier**

Even though the two species share a similar habitat, the fact that they look different (possibly mechanical isolation) and that they produce different pheromones (behavioural isolation) would likely prevent these species from interbreeding.

Pheromones are natural compounds (odours) that are created in the body of the insect. Insects use these pheromones to attract other insects of their species to them. Therefore, if they produce different pheromones, they will not be attracted to each other.

2. *Bats in the genus Myotis look identical and have always been classified as one species, even though behavioural differences have been observed. Recently, scientists using molecular biology techniques have discovered that there are many different and genetically distinct species within this genus. In one case, two genetically distinct species of Myotis were found sharing the same roost over a period of years.*

**Pre-zygotic barrier**

Each species may use different signals to attract a mate. If one species does not recognize the signals of the other, the two species will not mate. This is an example of behavioural isolation.

It could also be an example of a temporal isolation. If two species breed at different times of the day or in different seasons, they cannot mix their gametes because when one species is ready to breed, the other is not.

3. *Several species of frogs of the genus Rana can live in the same ponds. Sometimes hybrid zygotes form, but these fail to develop.*

**Post-zygotic barrier**

This is an example of reduced hybrid viability. Genetic incompatibility between the two species may abort the development of the embryo at an early stage.