**Genetics and Evolutionary Change: Chapter 14.3 pg. 299 - 302**

1. When does genetic variation occur?

* **After a mutation**

1. Why does natural selection only operate on an organism’s phenotype?

* **Because it is a trait that is visual and cannot be seen, invisible traits cannot be selected for**

1. What is “the raw material for natural selection”?

* **Phenotype variation**

1. What is a **population** with reference to biology?

* **A collection of individuals, of the same species, in the same area that are able to interbreed**

1. What is a **gene pool**?

* **the common group of genes shared by a population**

1. What is the **relative frequency** of an allele?

* **The number of times an allele occurs within a gene pool compared to the number of times other alleles for the same gene occur**

1. What is the relative frequency of the hair colour allele in this class?
2. How else can we view evolutionary change? Give an example.

* **It involves a change in the relative frequency of alleles in the gene pool of a population eg) peppered moth, relative frequency of the white moth allele changed over time**

1. If someone dyed their hair from blonde to brown to get a mate, would this trait then be passed on to their offspring? Why/why not?

* **No, changing your hair colour will not affect your genes, and therefore will not be passed on to offspring. The blonde allele will be passed on.**

If this person instead had a gene that coded for brown hair and it helped them get a mate, would this trait then be passed on to their offspring? Why/why not?

* **Yes, it is a gene, coded in their DNA. Genes would be passed on to offspring**

1. Which of the scenarios from question 9 would be considered an evolutionary adaptation? Explain your reasoning.

* **First scenario, could be considered behavioural change in order to reproduce. This would be evolutionary adaption of behaviour**
* **Second scenario, if the gene underwent a mutation to become brown, and this helped acquire a mate, that would be evolutionary adaptation of physical traits**

1. What is the definition of a species?

* **a group of similar looking organisms that breed with one another and produce viable offspring**

1. Scientists notice that the individuals of a certain plant species are growing taller with each successive generation. Explain what is happening to the gene pool of this population.

* **The relative frequency of the “tall” gene could be changing within the population**