WORKBOOK 3

REAL LIFE MUTATIONS

PART 3 ASSIGNMENT Complete and hand in to your Instructor before commencing Part 4.

Name: ..... Class ..... Date .....

Evolution is often defined as the change in gene frequency within a population. The classic example of such a change in gene frequency is the alteration in numbers of dark and light forms of the peppered moth in England. These moths tend to rest on the trunks and branches of trees. Prior to the industrialisation of parts of England the light forms were more common. After many years of industrialisation the air pollution had blackened the tree bark on which the moths rested the dark forms became more common. Now that pollution in England is being cleaned up, the trees are cleaner and the light moths are increasing in number again.

The explanation for the change is that prior to industrial pollution the dark forms resting on clean trees were more visible to the birds which preyed on the moths so they tended to get eaten, leaving the less visible light forms to breed. The situation was reversed when the trees were blackened by pollution - the light moths were eaten and dark ones, now well camoflaged on the blacked trees, were left to breed.

THINK IT THROUGH

3-1 Is this a good example of natural selection by the environment altering the frequency of genes?

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3-2 Does this represent the addition of new genetic information to the moth population?

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3-3 Have peppered moths evolved because of natural selection acting on them?

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3-4 Do any known mutations increase the number of types of genes, ie the amount of information, in a population?

3-5 Do any known mutations result in the evolution of one type of organism into another type of organism?

3-6 The DNA of chimpanzees is about 1% different to human DNA. List some of the differences in human biology this 1% is responsible for.

3-7. The 1% difference in DNA between humans and chimpanzees is often used to argue that man must be closely related to these creatures. What implications does the discovery of DNA polymerase have on this claimed relationship?

HAND YOUR COMPLETED ASSIGNMENT SHEETS TO YOUR INSTRUCTOR PRIOR TO COMMENCING PART 4.

Instructors Comments and Rating