

- 7 The finches of the Galapagos Islands have different shaped beaks to feed on different food sources.

The photograph below shows one of these finches, the medium ground finch, *Geospiza fortis*. The medium ground finch has a deep beak that enables it to crush seeds.

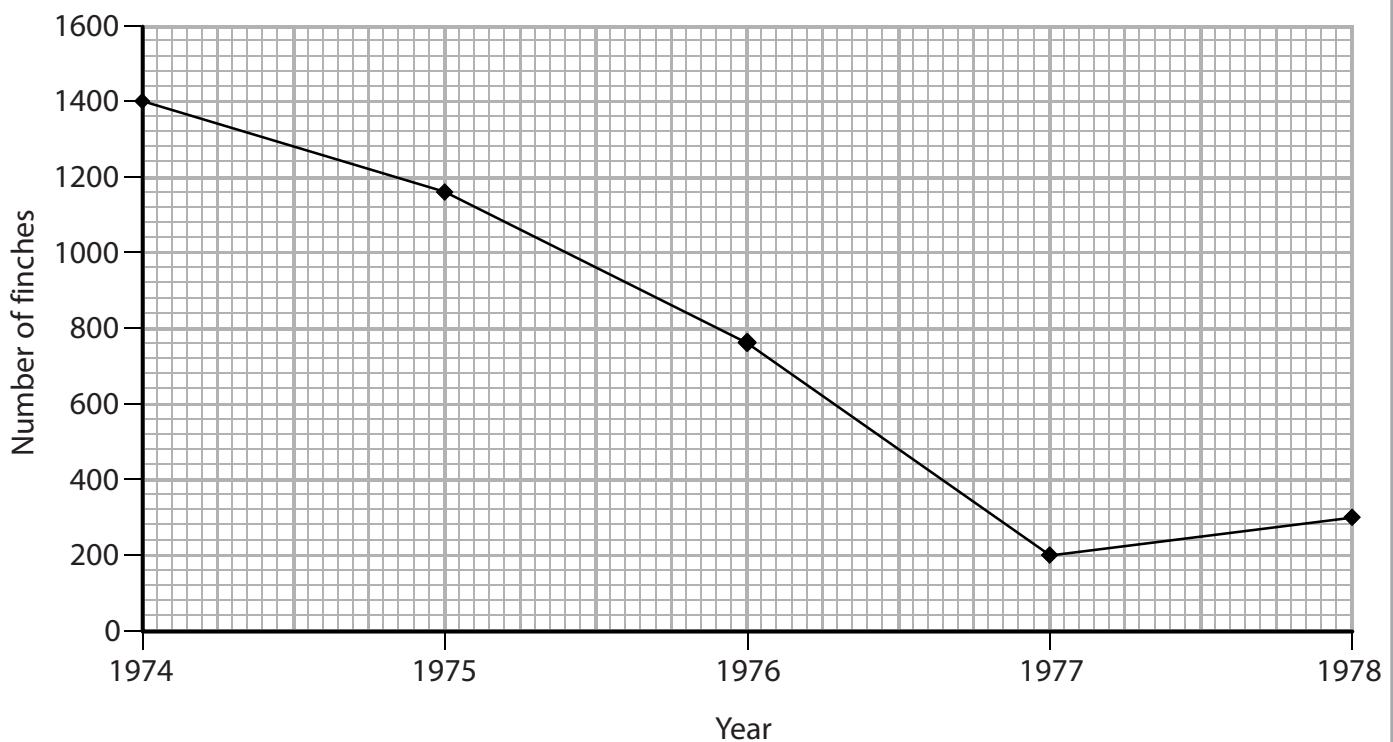


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Magnification $\times 0.5$

In the 1970s, there was a severe drought on the Galapagos Islands. This caused a decrease in the production of the seeds eaten by this finch.

The graph below shows the number of medium ground finches, on one of the Galapagos islands, from 1974 to 1978.



P 4 5 0 6 8 A 0 2 1 2 8

(a) Place a cross ☒ in the box next to the correct word or words to complete each of the following statements.

(i) The deep beak of the medium ground finch is an example of

(1)

- ☐ **A** anatomical adaptation
- ☐ **B** behavioural adaptation
- ☐ **C** physiological adaptation
- ☐ **D** selective adaptation

(ii) The number of medium ground finches fell most rapidly from

(1)

- ☐ **A** 1974 to 1975
- ☐ **B** 1975 to 1976
- ☐ **C** 1976 to 1977
- ☐ **D** 1977 to 1978

(b) Medium ground finches have a range of beak sizes.

Suggest an explanation for the variation in beak sizes in medium ground finches.

(2)

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(c) One of the few plants that survived during the drought produces seeds in large, tough fruits. These are very difficult to eat for birds with small beaks.

Sampling the birds that survived and those that died provided the data shown in the table below.

Mean beak size / mm	Dead birds	Survivors
length	10.69	11.07
depth	9.42	9.96

As the population of the medium ground finches recovered, the mean beak size of the offspring increased.

Using the information in the table, suggest how this increase in mean beak size was brought about by natural selection.

(4)

[illegible]

(Total for Question 7 = 8 marks)

