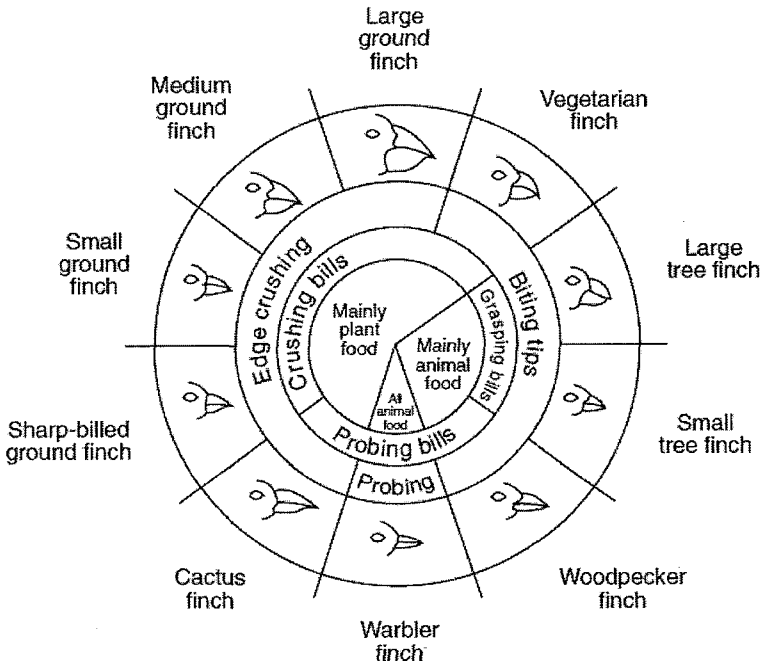
Name: **Beaks and Finches Practice**

1. A factor that contributed to the evolution of finches on the Galapagos Islands was most likely the

   1) lack of variation in beak structure of the finches
   2) isolation of the finches on separate islands
   3) relatively constant atmospheric temperature
   4) total lack of competition for food

2. The diagram below represents the relationship between beak structure and food in several species of finches found on the Galapagos Islands.

Variations in Beaks of Galapagos Islands Finches



From: *Galapagos: A Natural History Guide*

The different beak structures observed in the diagram are evidence of

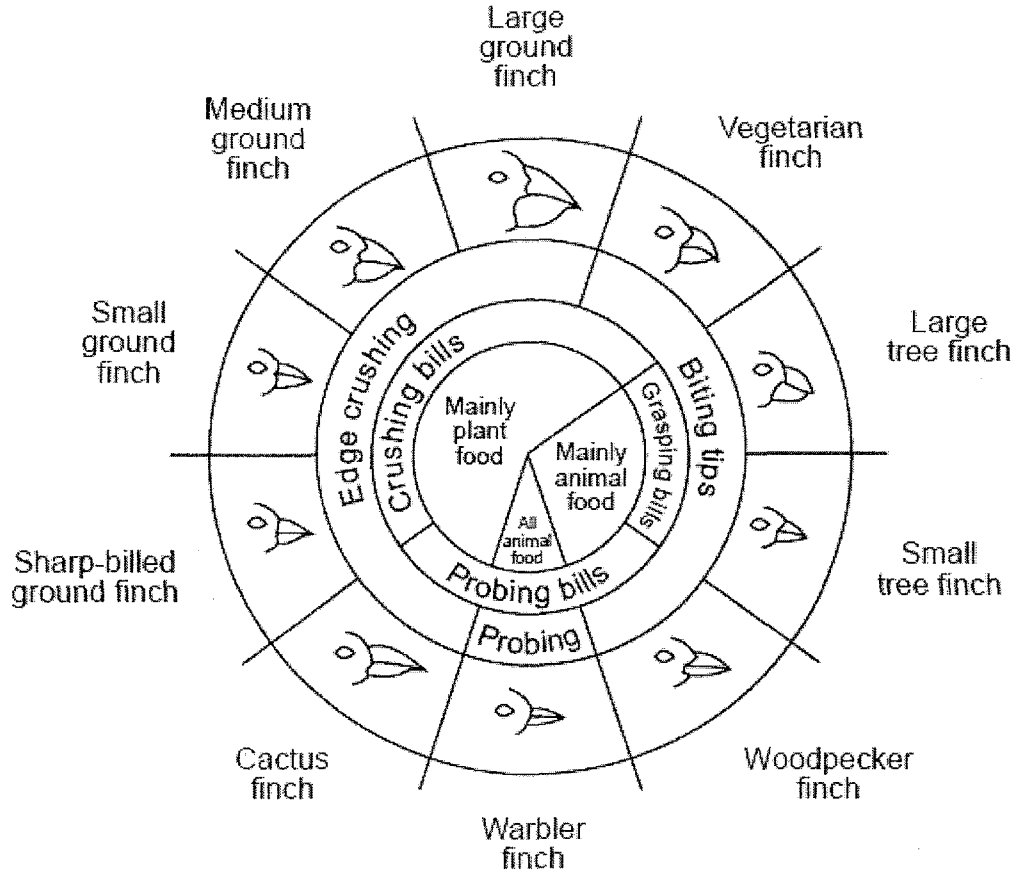
   1) different species of finches adapting to different environments over many generations
   2) finches changing their beak characteristics so that they could feed efficiently
   3) finch species with different beak structures coming to the Galapagos Islands from the mainland
   4) finches mating with birds of other species and acquiring some of their traits

3. In members of a bird species living on a remote island, the greatest number of beak variations in the population would most likely be found when

   1) there is a high level of competition for limited resources
   2) homeostasis is limited by a severe climate
   3) they have a large and varied food supply
   4) they are prey for a large number of predators

4. Base your answer to the following question on the information in the diagram below and on your knowledge of biology.

Variations in Beaks of Galapagos Islands Finches



from: *Galapagos: A Natural History Guide*

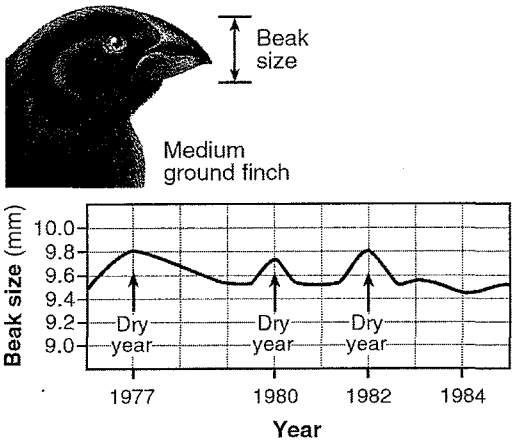
Based on the information in the chart, which statement is correct?

1) Finches with grasping bills usually eat animals for food.
2) Finches that eat animals always have larger beaks than finches that eat plants.
3) Finches that eat plants all have very large beaks.
4) Finches with crushing bills eat only animals for food.

Beaks and Finches Practice

Base your answers to questions **5** and **6** on the information and diagram below and on your knowledge of biology.

Average beak sizes of the seed-eating medium ground finch on one of the Galapagos Islands are shown in the diagram below. During wet years, all types of seeds are abundant. The medium ground finch prefers to eat small seeds that are easy to crush. However, during droughts (dry years), when small seeds are not as abundant, they eat the larger seeds on the island.



5. How might an extended period of drought influence the ground finch population?

   1) The birds with smaller beaks would be more numerous.
   2) The birds with larger beaks would be more numerous.
   3) Drought decreases seed availability, but has no influence on the ground finch.
   4) Drought increases seed availability, and all ground finches would be more numerous.

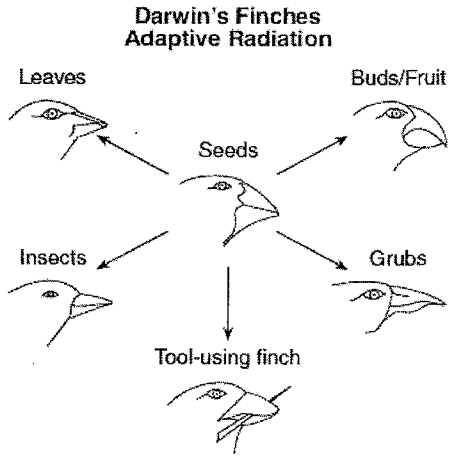
6. The most likely explanation for this variation in the beak size of the medium ground finch is that

   1) the birds acquired larger beaks so they could take advantage of the supply of small seeds
   2) the birds with smaller beaks mutated due to the drought so they produced more offspring
   3) different adaptations gave some birds a better chance for survival
   4) the environment caused the birds to exercise their beaks and the beaks became longer and stronger

Beaks and Finches Practice

7. Base your answer to the following question on the information and diagram below and on your knowledge of biology.

Finches on the Galapagos Islands are thought to have originated from South America and to have evolved into new species over the last 10,000 years. Some of this evolution is represented in the diagram below.



The seed-eating finch was most likely the

1) largest finch
2) common ancestor
3) parent of the other finches
4) most successful

Base your answers to questions **8** and **9** on the passage below and on your knowledge of biology.

When Charles Darwin traveled to the Galapagos Islands, he observed 14 distinct varieties of finches on the islands. Darwin also observed that each finch variety ate a different type of food and lived in a slightly different habitat from the other finches. Darwin concluded that the finches all shared a common ancestor but had developed different beak structures.

8. The different beak structures mentioned in the last sentence were most likely influenced by

1) selection for favorable variations
2) environmental conditions identical to those of the common ancestor
3) abnormal mitotic cell division
4) characteristics that are acquired during the bird's lifetime

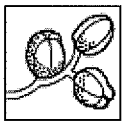
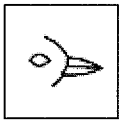
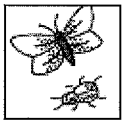
9. The 14 varieties of finches are most likely the result of

1) absence of biodiversity
2) biological evolution
3) asexual reproduction
4) lack of competition

11. Base your answer to the following question on the information and chart below and on your knowledge of biology.

The Galapagos Islands are home to many different species of finches. Three finch species, their relative beak sizes, and their food preferences are represented below. All three species live on the same island.

Three Galapagos Finches and Their Sources of Nutrition

Name	Foods
Vegetarian finch *Platyspiza crassirostris* 	Buds, leaves, fruit of trees 
Warbler finch *Certhidea olivacea* 	Flying and ground-dwelling insects 
Cactus finch *Geospiza scandens* 	Cactus flowers and nectar 

Which statement is correct concerning the nutritional preferences of these finches?

1) The three species do not compete for food because they eat different types of foods.
2) The vegetarian and cactus finches compete for food because they both feed on producers.
3) The vegetarian and warbler finches compete for food because they both live in trees.
4) The three species of finches compete for food because their beaks are similar in shape and size.

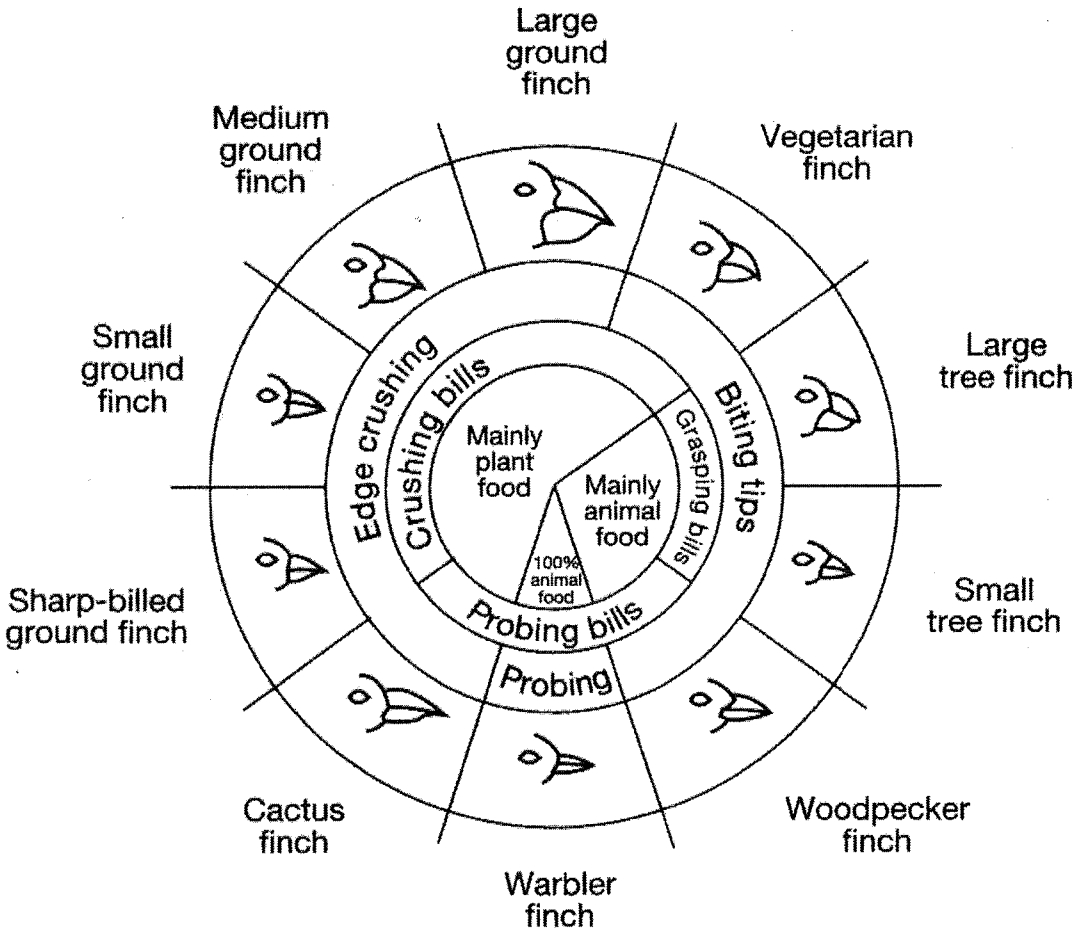
10. Base your answer to the following question on the information below and on your knowledge of biology.

Evolutionary changes have been observed in beak size in a population of medium ground finches in the Galapagos Islands. Given a choice of small and large seeds, the medium ground finch eats mostly small seeds, which are easier to crush. However, during dry years, all seeds are in short supply. Small seeds are quickly consumed, so the birds are left with a diet of large seeds. Studies have shown that this change in diet may be related to an increase in the average size of the beak of the medium ground finch.

The most likely explanation for the increase in average beak size of the medium ground finch is that the

1) trait is inherited and birds with larger beaks have greater reproductive success
2) birds acquired larger beaks due to the added exercise of feeding on large seeds
3) birds interbred with a larger-beaked species and passed on the trait
4) lack of small seeds caused a mutation which resulted in a larger beak

Base your answers to questions **12** and **13** on the information below and on your knowledge of biology. The diagram below represents the relationship between beak structured and food in several species of finches in the Galapagos Islands.



From: *Galapagos: A Natural History Guide*

Variations in Beaks of Galapagos Islands Finches

12. State *one* reason why the large tree finch and the large ground finch are able to coexist on the same island.

13. Which factor most directly influenced the evolution of the diverse types of beaks of these finches?

    1) predation by humans
    2) available food sources
    3) oceanic storms
    4) lack of available niches

Beaks and Finches Practice

Base your answers to questions **14** and **15** on the information below and on your knowledge of biology.

There are two different species of finch that live on the same small island, species *A* and species *B*. Both species successfully feed and reproduce on the island. Species *A* nests in pine trees and eats large seeds. Species *B* nests in hollowed-out dead logs and eats small insects.

14. The factor most often acting as a selecting agent for the survival of a species in a particular location is the

    1) strength of the organism
    2) new mutations within the individual
    3) speed of the organism
    4) environment they inhabit

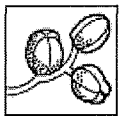
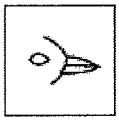
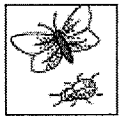
15. A third species of finch, species *C*, migrates to the island. It nests in pine trees and eats small insects. Predict what most likely will happen to the populations of both species *A and species B if species C successfully survives on the island. Support your answer.*

16. A certain small population of finches already has an "ideal" beak type for its present environment. Describe *two* specific adaptations, other than beak type, that would contribute to the ability of these finches to survive.

17. Base your answer to the following question on the information and chart below and on your knowledge of biology.

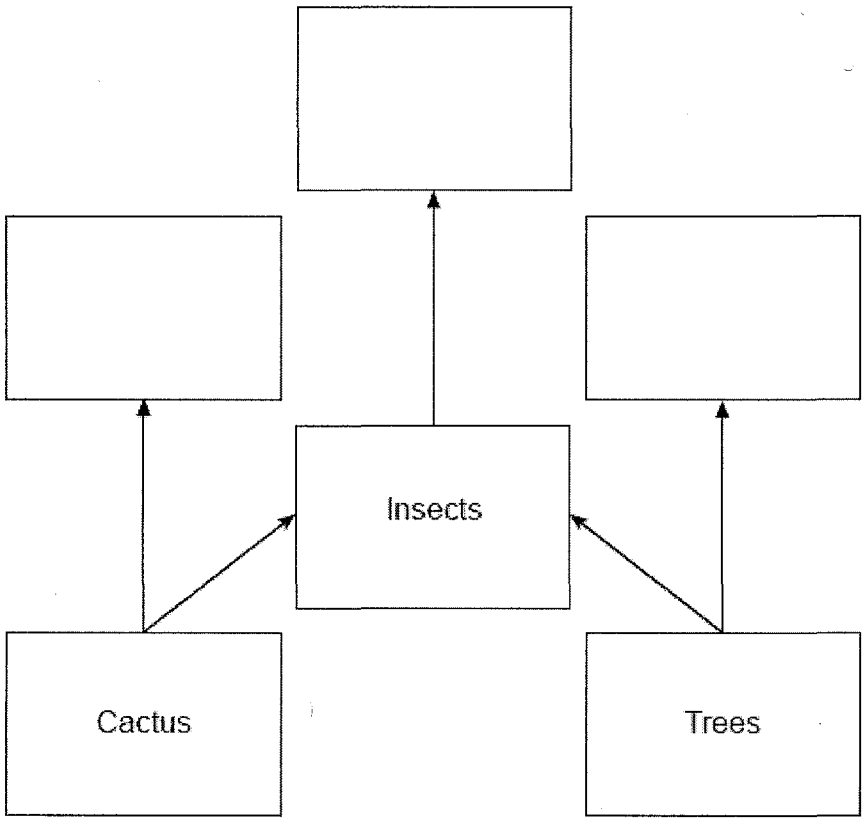
    The Galapagos Islands are home to many different species of finches. Three finch species, their relative beak sizes, and their food preferences are represented below. All three species live on the same island.

Three Galapagos Finches and Their Sources of Nutrition

Name	Foods
Vegetarian finch *Platyspiza crassirostris* 	Buds, leaves, fruit of trees 
Warbler finch *Certhidea olivacea* 	Flying and ground-dwelling insects 
Cactus finch *Geospiza scandens* 	Cactus flowers and nectar 

Beaks and Finches Practice

Complete the food web below by placing the names of the finches in the correct locations.



18. Identify or describe *one* tool used in "The Beaks of Finches" lab, and explain why the special features of this beak represented *either* an advantage or a disadvantage in the competition.

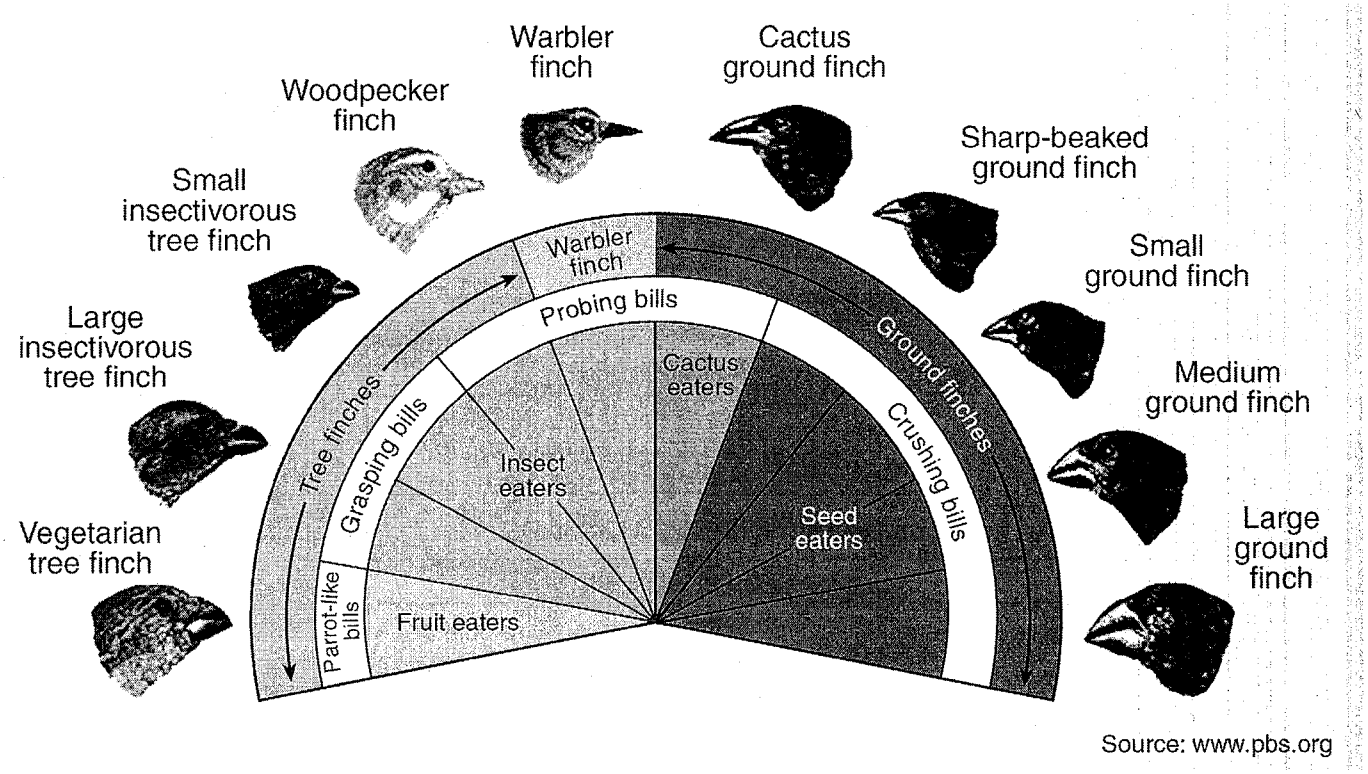
Tool : _____

Advantageordisadvantage : _____

Explanation : _____

Beaks and Finches Practice

19. Base your answer to the following question on the diagram below and on your knowledge of biology. The diagram shows variations in the beaks of finches in the Galapagos Islands.



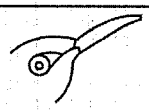
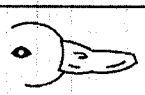
Source: www.pbs.org

State *one* reason why the large ground finch and the woodpecker finch can live successfully on the same island.

Beaks and Finches Practice

20. Base your answer to the following question on the information below and on your knowledge of biology.

The chart describes the beaks of various types of birds that live in a small island ecosystem containing flowering land plants, aquatic plants, many small mammals, amphibians, and several species of trees.

Beak Shape	Beak Type	Adaptation and Use
	Cracker	Seed eaters like sparrows and cardinals have short, thick beaks for cracking seeds.
	Shredder	Birds of prey like hawks and owls have sharp, curved beaks for tearing meat.
	Chisel	Woodpeckers have beaks that are long and chisel-like for boring into wood to eat insects.
	Probe	Hummingbirds have beaks that are long and thin for probing flowers for nectar.
	Strainer	Some ducks have long, flat beaks that strain small plants and animals from the water.

Identify the beak type that would be characteristic of predators of small mammals.

21. During the laboratory activity *The Beaks of Finches*, you obtained food under two conditions: with competition and with no competition. State *one* way the results obtained from these two conditions differed when you did this activity.

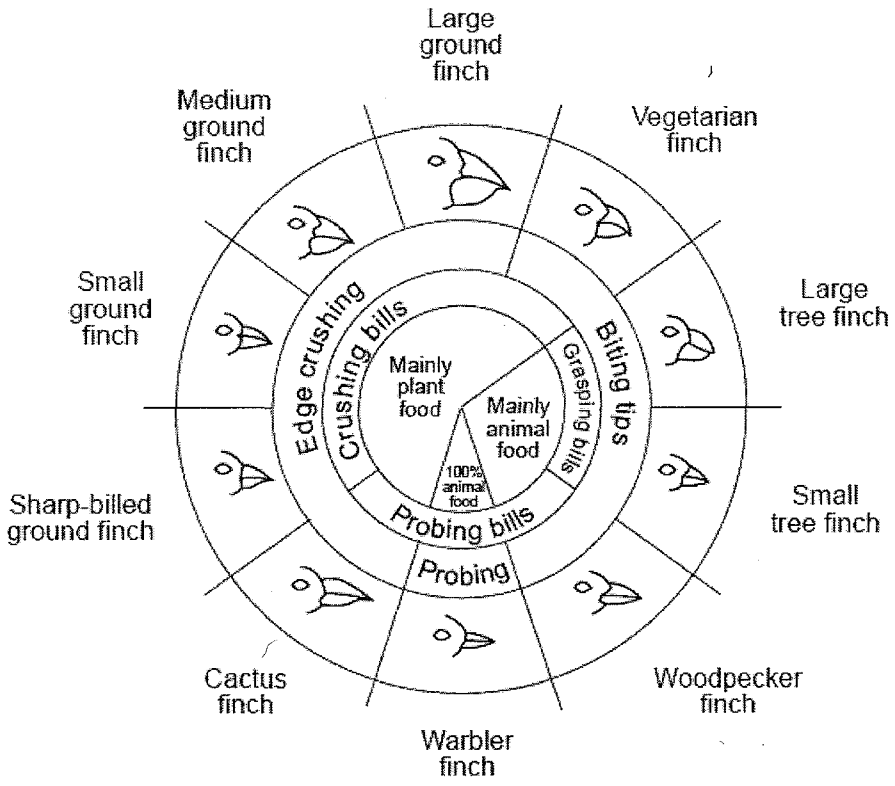
22. Base your answer to the following question on the information below and your knowledge of biology.

In the Beaks of Finches laboratory activity, students were each assigned a tool to use to pick up seeds. In round one, students acting as birds used their assigned tools to pick up small seeds from their own large dishes (the environment) and place them in smaller dishes (their stomachs). The seeds collected by each student were counted. Some students were able to collect many seeds, while others collected just a few. In round two, students again used their assigned tools to collect seeds. This time several students were picking up seeds from the same dish of seeds.

Explain how this laboratory activity illustrates the process of natural selection.

23. Base your answer to the following question on the diagram below and on your knowledge of biology

Variations in Beaks of Galapagos Islands Finches



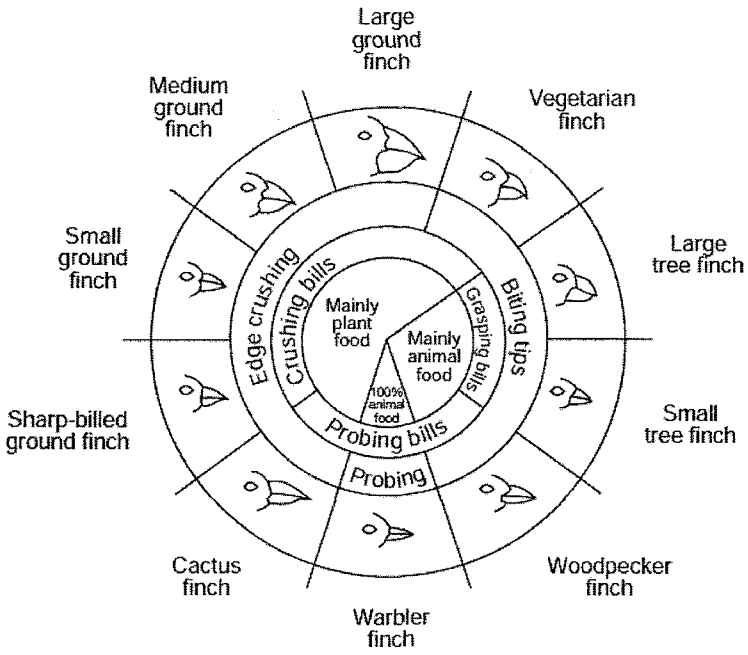
From: *Galapagos: A Natural History Guide*

There are a number of islands in the Galapagos that these finches could possibly inhabit. Explain why each island would *not* be expected to have all of the species shown.

Beaks and Finches Practice

Base your answers to questions **24** and **25** on the diagram below that shows variations in the beaks of finches in the Galapagos Islands and on your knowledge of biology.

Variations in Beaks of Galapagos Islands Finches



from: *Galapagos: A Natural History Guide*

24. In certain years, the Galapagos plants produce many tube-shaped flowers rich in nectar. Identify the finch that is best adapted to feed on the nectar within those flowers. Support your answer.

25. The number of small tree finches is increasing on an island inhabited by a large population of small ground finches. State *one* reason why the population of small ground finches has *not* been affected by the increasing number of small tree finches.