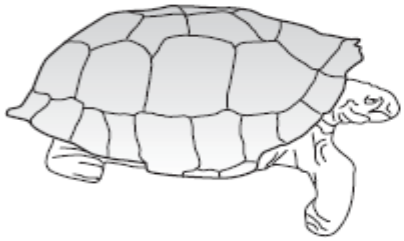
Evolution 1: Guided Reading CH. 16

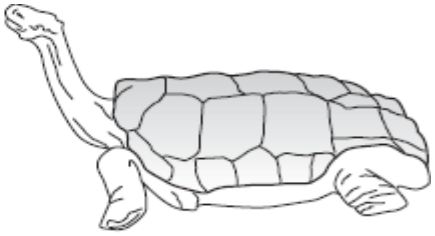
Name _____ Period _____ COOK

16.1 Darwin's Voyage of Discovery

Use the drawings of the tortoises to answer Questions 1 and 2.



Isabela Island tortoise



Hood Island tortoise

1. What important information about the Galápagos Islands tortoises did Darwin learn? _____

_____

2. Given its body structure, which tortoise above would require a habitat where food is easy to reach? _____

3. Why might Darwin come to think that the finches of the Galápagos Islands might be related to the finches of South America, despite how different the birds were in appearance?

_____

4. Darwin observed that the birds he would eventually discover were finches had differently shaped beaks. What might this suggest about the eating habits of the birds? Explain.

_____

5. What did the similarities between fossil animals and modern animals, like the glyptodont and armadillo, suggest to Darwin?

_____

16.2 Ideas That Shaped Darwin's Thinking

6. In what two ways did an understanding of geology influence Darwin? _____

_____

7. How would Lamarck have explained the length of a giraffe's neck? _____

_____

8. How do humans affect artificial selection? What role does nature play? _____

_____

16.3 Darwin Presents His Case

1. What does the phrase *struggle for existence* mean? _____

_____

2. How does an animal's level of fitness relate to its chances of survival and reproduction? _____

_____

Write True or change the underlined word or words to make the statement true.

3. Natural selection acts on acquired traits. _____
4. Any inherited characteristic that increases an organism's chance of survival is considered an adaptation. _____
5. Natural selection is the ability of an individual to survive and reproduce in its specific environment. _____

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Types of Anatomical Structures		
Structure Type	**Description**	**Example**
	Structures that are shared by related species and that have been inherited from a common ancestor	
	Body parts that share common function, but not structure	
	Body parts in animals that are so reduced in size that they are just vestiges, or traces, of homologous structures in other species	

Complete the table about types of anatomical structures.

For Questions 6-10, match the structure with the correct type. A structure type may be used

_____ 6. bat wing and mouse arm
_____ 7. reptile foot and bird foot
_____ 8. dolphin fin and fish tail
_____ 9. eyes on a blind cave fish
_____ 10. snake tongue and dog nose

Structure Type
A. homologous structure
B. analogous structure
C. vestigial structure

For Questions 11-17, complete each statement by writing the correct word or words.

11. The science of _____ provides molecular evidence that supports evolutionary theory.

12. All living cells use _____ and _____ to code heritable information.

13. The universal genetic code is used by almost all organisms to _____

14. Proteins that are _____ share extensive structural and chemical similarities.

15. Cytochrome c is a protein used for _____ in almost every living cell.

16. Homologous genes called Hox genes control timing and growth in _____

17. Relatively minor changes in an organism's genome can produce major changes in an organism's _____.

18. Which of the following hypotheses did the Grants test?
   a. Differences in beak size and shape produce differences in fitness.
   b. For beak size and shape to evolve, the birds must leave the islands.
   c. For beak size and shape to evolve, the climate must change radically.
   d. Differences in beak size and shape are not determined by genetic mutations.

19. The data that the Grants collected proved that there is
   a. no link between the environment and the shape of finch feet.
   b. no link between the environment and the shape of finch beaks.
   c. great variation of heritable traits among Galápagos finches.
   d. very little variation of heritable traits among Galápagos finches.

20. The Grants conducted their experiment to test which of the following processes?
   a. Natural selection
   b. Genetic mutation
   c. Artificial selection
   d. Sexual reproduction

21. Natural selection depends on the ability of organisms to _____, which means to leave descendants.

22. Every organism alive today _____ from ancestors who survived and reproduced.

23. Over many generations, adaptation could cause successful species to _____ into new species.

24. Common descent suggests that all species, living and extinct, are _____.

25. The principle that living species descend, with changes, from other species over time is referred to as _____.

26. The _____ provides physical evidence of descent with modification over long periods of time.