

Chapter 13–15 and Chapter 35,36 – *Ecolution Unit*

EXAM REVIEW

Charles Darwin was not the first person to ponder the origin of species. Match each of the following with his place in unraveling the history of life. Don't focus on names and dates, but rather on how ideas about the origin and history of life have changed over the centuries. {Web/CD Activity 13a and 13b}

- A. Darwin _____ 1. ancient Greek who believed living things have changed
- B. Lyell _____ 2. Greek philosopher who believed species to be fixed
- C. Wallace _____ 3. fossils led this Frenchman to believe the Earth is old
- D. Anaximander _____ 4. proposed that acquired characteristics are inherited
- E. Aristotle _____ 5. believed in gradual geological change, not catastrophes
- F. Lamarck _____ 6. wrote *The Origin of Species*, explaining “descent with modification”
- G. Buffon _____ 7. conceived a theory of evolution identical to Darwin’s

Review the reproductive barriers that separate species by categorizing the following examples. State whether each barrier is prezygotic (Pre) or postzygotic (Post), and then name the specific kind of barrier (such as temporal isolation or hybrid inviability) it exemplifies. The chart in Module 14.2 is a helpful summary. {Web/CD Activity 14.2}

Pre or Post	Kind of Barrier	Example
1.		The salamanders <i>Amystoma tigrinum</i> and <i>A. maculatum</i> breed in the same areas. <i>A. tigrinum</i> mates from late February through March. <i>A. maculatum</i> does not start mating until late March or early April.
2.		Two species of mice are mated in the lab and produce fertile hybrid offspring, but offspring of the hybrids are sterile.
3.		When fruit flies of two particular species are crossed in the lab, their offspring are unable to produce eggs and sperm.
4.		A zoologist observed two land snails of different species that were trying to mate with little success because they apparently did not “fit” each other.

5.		Male fiddler crabs (genus <i>Uca</i>) wave their large claws to attract the attention of females. Each species has a slightly different wave.
6.		When different species of tobacco plants are crossed in a greenhouse, the pollen tube usually bursts before the eggs are fertilized.
7.		Blackjack oak (<i>Quercus marilandica</i>) grows in dry woodlands, and scrub oak (<i>Q. ilicifolia</i>) grows in dry, rocky, areas. Pollen of one species seldom pollinates the other.
8.		The tigon offspring of a lion and a tiger are often weak and unhealthy.

Review the concepts of plate tectonics and continental drift by matching each of the phrases on the right with a word on the left. THE ILLUSTRATIONS IN THE TEXTBOOK WILL HELP.
{Web/CD Activity 15.3-15.4}

- A. Pangaea _____ 1. the surface of the Earth, broken into plates
- B. Plate tectonics _____ 2. this ocean is surrounded by violent geological events
- C. Plate _____ 3. Southern land mass formed when Pangaea broke up
- D. Earthquake _____ 4. place where plates slide along one another
- E. Himalayas _____ 5. this ocean grows as North America and Eurasia split apart
- F. Continental drift _____ 6. island destroyed by volcanic eruption, then recolonized
- G. Gondwana _____ 7. supercontinent formed 250 million years ago
- H. Mantle _____ 8. continent formed from the eastern part of Laurasia
- I. Australia _____ 9. any large, moving segment of the Earth's crust
- J. Pacific _____ 10. movement resulting from forces exerted at plate edges
- K. Laurasia _____ 11. mountains formed by collision of Indo-Australian and Eurasian plates
- L. Crust _____ 12. movement of continents over the Earth's surface
- M. Fault _____ 13. hot layer that lies beneath the crust
- N. Atlantic _____ 14. northern land mass formed when Pangaea broke up

O. Krakatau _____ 15. many marsupials evolved here, in isolation from other continents

P. Eurasia _____ 16. geological forces that cause movements of crustal plates

Population growth is limited by both biotic and abiotic environmental factors. Biotic and abiotic factors affect birth rates and death rates in different ways. State whether each of the following words or phrases relates more to biotic factors or to abiotic factors. {Web/CD Activity 35.4-35.5}

- _____ 1. have more effect when the population is larger (density dependent)
- _____ 2. have less effect when the population is smaller
- _____ 3. effect does not depend on density of population
- _____ 4. competition for food
- _____ 5. fire
- _____ 6. predation
- _____ 7. stress produced by crowding
- _____ 8. competition for nest sites
- _____ 9. storms
- _____ 10. drought
- _____ 11. disease
- _____ 12. heat and cold
- _____ 13. habitat disruption by humans
- _____ 14. cause populations to stabilize in size, presumably new carrying capacity
- _____ 15. cause rapid population growth followed by unpredictable crashes
- _____ 16. seem to cause boom and bust cycles among predators and prey
- _____ 17. limit the snowshoe hare population
- _____ 18. limit the lynx population

- _____ 19. effects of the nonliving environment
- _____ 20. effects of other organisms

The structure of a community is shaped by interactions among the populations making up the community. The most important kinds of interactions are predator/prey relationships, competition, and three kinds of symbiosis – parasitism, commensalism, and mutualism. State which of these five interactions is described in each of the examples below. {Web/CD Activity 36A}

- _____ 1. small fish called remoras accompany sharks and dine on scraps left over when sharks feed
- _____ 2. sheep liver flukes feed on bile and can weaken or kill their hosts; they are passed on to other sheep in the animals' droppings
- _____ 3. grazing by introduced mountain goats has reduced the numbers of alpine wildflowers in Olympic National Park
- _____ 4. pest-control specialists have brought in a destructive moth to eat tansy ragwort, a poisonous weed
- _____ 5. mistletoe obtains nutrients from a tree host
- _____ 6. a small shrimp takes shelter inside a sponge, which is apparently unaffected by its tenant
- _____ 7. mycorrhizal fungi associated with roots obtain carbohydrates from a tree, while enabling the tree to absorb water and minerals more efficiently
- _____ 8. in many parts of North America, the starling has displaced the bluebird from its nest sites
- _____ 9. a bee pollinates a tropical orchid by being tricked into "mating" with the flower; the bee uses a perfume from the flower to attract a mate
- _____ 10. the influenza virus attacks the lining of the respiratory tract and is passed from person to person by contact of airborne droplets.
- _____ 11. red-winged blackbirds arrive earlier on the breeding grounds but are forced to the edges of a marsh by larger, later-arriving yellow-headed blackbirds
- _____ 12. lions hunt large herbivorous mammals such as zebras and wildebeest