

General Biology B

Test Study Guide: Unit 2 – Evolution

Objective 1: Describe evidences of evolution including genetic information, fossil records, similar DNA sequences, anatomical structures, and order of appearance of structures in embryological development.

Students will be able to:

- 1) Describe the evidences of evolution which explain the process of evolution.
- 2) Describe how Darwin discovered the process of natural selection and concluded that evolution was a method of changing organisms over time.
- 3) Differentiate between homologous, analogous, and vestigial structures.

How to study:

- a) Read pages: 298-304. (Chapter 10.4)
- b) Define the following terms:
 - Biogeography:
 - Fossil Records:
 - Homologous Structures:
 - Analogous Structures:
 - Vestigial Organ (Vestigial Structure):
 - Vestigial DNA:
 - Embryology:
- c) Know the following diagrams: Figure 4.2 on Page 299; Figure 4.4 on Page 301; Figure 4.5 on Page 302; Figure 4.6 on Page 303; and Figure 4.7 on Page 304.

Objective 2: Explain what natural selection is and how it occurs.

Students will be able to:

- 1) Explain what natural selection is.
- 2) Describe how natural selection can change a population over time.
- 3) Describe how natural selection leads to new adaptations.

How to study:

- a) Read Pages: 292 - 297. (Chapter 10.3)
Read Pages: 316 – 321. (Chapter 11.1)
- b) Define the following terms:
 - Natural selection:
 - Variation:
 - Adaptation:
 - Heritability:
 - Population:

- Overproduction:
- Microevolution:
- Speciation:
- Stabilizing selection:
- Random mating:
- Directional selection:
- Disruptive selection:
- Gene pool:
- Allelic frequency:
- Genetic equilibrium:
- Geographic isolation:
- Mutation:

c) Know the following diagrams: Figure 3.2 on Page 295.

Objective 3: Explain how behavior, morphology, and physiology changes can result in evolution.

Students will be able to:

- 1) Explain how changes in behavior can lead to increased competition for limited resources.
- 2) Explain how changes in behavior can lead to natural selection.
- 3) Explain how morphology changes can increase species numbers.
- 4) Explain how morphology changes can lead to changes in heritable genetic variation of individuals due to mutation and sexual reproduction.
- 5) Explain how changes in physiology can result in evolution.

How to study:

- a) Read Pages: 323 – 326. (Chapter 11.3)
Read Pages: 332 - 334. (Chapter 11.5)
- b) Define the following terms:
 - Behavioral isolation:
 - Sexual selection:
 - Temporal isolation:
 - Morphology:
 - Sexual selection:
 - Vestigial structure:
 - Reproductive isolation:
 - Polyploidy:

Objective 4: Explain the role of group behavior on individual species' ability to survive and reproduce.

Students will be able to:

- 1) Recognize how individual members of a group behave to help the entire species survive.

- 2) Recognize how the behaviors of group members working together helps to increase their species survival rate?

How to study:

- a) Read Pages: 513 - 521
- b) Define the following terms:
 - Social:
- c) Read notes provided in class.

Objective 5: Explain how competition for limited resources can result in evolution.

Students will be able to:

- 1) Explain how competition for limited resources can increase species numbers.
- 2) Explain how competition for limited resources can lead to changes in heritable genetic variation of individuals due to mutation and sexual reproduction.
- 3) Explain how competition for limited resources can lead to increased competition for limited resources.
- 4) Explain how competition for limited resources can lead to natural selection.

How to study:

- a) Read Pages: 423, 435, 488 – 489.
- b) Define the following terms:
 - Competition:
- c) Know the following diagrams: Figure 6.2 on Page 336. (Chapter 11.6)

Objective 6: Explain why species go extinct due to changes in the environment.

Students will be able to:

- 1) Describe how environmental changes can lead to evolutionary change.
- 2) Distinguish between divergent and convergent evolution.
- 3) Describe how changes in the environment can create new species or extinctions.

How to study:

- a) Read Pages: 335 - 340. (Chapter 11.6).
- b) Define the following terms:
 - Divergent evolution:
 - Adaptive radiation:
 - Convergent evolution:
- c) Know the following diagrams: Figure 6.2 on Page 336 (Chapter 11.6)