**Chapter 2**

**Why is evolution important to anthropologists?**

**Discussion Questions**

1. What is the relationship between humans and chimpanzees?

2. What do you know about Charles Darwin’s theory of evolution?

3. What are the main components of Darwin’s theory of evolution?

4. If evolution is a theory, what does that mean for evidence of biological evolution?

5. What is natural selection?

6. Have you ever provided a DNA sample to understand your own origins? If so, did what you learned match your expectations?

7. Can you name at least one way that DNA has been used to help people?

**Critical Thinking Questions**

Until approximately the mid-18th century, the Great Chain of Being was the primary concept through which all living matter was understood. Its basic premise was that organisms closest to divine perfection (as indicated by their material and ideal forms) were to be understood as being most God-like and thus ranked highest on the hierarchy of being-ness. With this concept in mind, describe how we are to understand the legitimization and rationalization of varying forms of ethnocide and genocide that were normalized during that time period? How does this relate to the previous chapter? What significance does this have to the 19th century perception of races being indicative of human subspecies? Is race evidence of evolution; why or why not?

**Activities and Assignments**

In-Class Exercise: Considering Evolution on Earth

Break the class into small groups of 2–3 students and have each group make a list of 5 to 10 events significant to the evolution of life on Earth. Canvas the class and determine what the top 3 evolutionary events are.

In- or Outside-Class Exercise: On the Origin of Species

Ask the students to visit the website http://darwin-online.org.uk/, download On the Origin of Species, and read the Conclusions (pp. 480–490). This reading can then be used to guide discussion revolving around Darwin’s contributions to evolutionary theory.

**Supplemental Materials**

1. Charles Darwin’s publications, letters, and manuscripts are all freely available at Darwin Online at: http://darwin-online.org.uk/

2. The History of Evolutionary Theory is presented by the American Association for the Advancement of Science: http://sciencenetlinks.com/lessons/the-history-of-evolutionary-theory/

3. The University of California at Berkeley provides numerous resources for Understanding Evolution at: http://evolution.berkeley.edu/evolibrary/home.php

4. Nature provides a strong overview of Gregor Mendel and the Principles of Inheritance: http://www.nature.com/scitable/topicpage/gregor-mendel-and-the-principles-of-inheritance-593

5. The National Institutes of Health present What Is DNA? http://ghr.nlm.nih.gov/handbook/basics/dna

6. BioInteractive is an “award-winning multimedia resources, including apps, animations, videos, interactives, and virtual labs, to bring the excitement of scientific discovery into your classroom. Our rich video resources range from a series of short films on evolution, hosted by an award-winning author-scientist, to lectures on the brain given by a Nobel-prize winner—all supplemented by teacher guides and classroom activities.”

http://www.hhmi.org/biointeractive and blog here http://www.hhmi.org/biointeractive/blog

7. The Making of the Fittest: Natural Selection in Humans – “This 14-minute film describes the connection between the infectious parasitic disease malaria and the genetic disease sickle cell anemia - one of the best-understood examples of natural selection in humans.”

http://www.hhmi.org/biointeractive/making-fittest-natural-selection-humans

8. Celebrating 150 years of Mendelian Genetics - https://blogs.biomedcentral.com/bmcseriesblog/2015/03/08/celebrating-150-years-mendelian-genetics/

**Film Suggestions and Questions**

Film: Natural Selection Explained Simply (5 min)—YouTube (2016)

[Natural Selection Explained Simply - YouTube](https://www.youtube.com/watch?v=X-CL4Mywfkc)

A clear and understandable explanation of natural selection.

Q: Darwin’s On the Origin of Species introduced the world to the theory of evolution and an evolutionary process known as natural selection. How did this differentiate from the previous perception of species development? What role did biostratigraphy play in validating his theory?

Film: Human Origins: The Face of Lucy’s Ancestors

In 2016, Dr. Yohannes Haile-Selassie, the Cleveland Museum of Natural History’s Curator of Physical Anthropology, discovered a “remarkably complete” hominin cranium at the Woranso-Mille Research Site in Ethiopia. He spent the next few years analyzing the specimen with the help of his team of experts to determine its age and species. Now, he’s ready to reveal the face of Lucy’s ancestor, which challenges previous theories about evolution, in an article published in the journal Nature. Learn about this discovery and groundbreaking research from Dr. Haile-Selassie himself.

Q: How does this examination of human history provide answers to questions about evolution? What did you learn about methods used to explain human evolution?