

1. Pre-Darwinian views of Life:
 - a. Creationism
 - b. Perfect and constant forms
 - c. Purposeful and Designed
2. Challenge of Evolution
 - a. Change challenges our desire for stability
 - b. Man is not the focal point of Creation
 - c. Man is an animal
 - d. God is not essential to Physical World
3. Artificial Selection and Domestic Breeding
 - a. Dogs, horses and cattle have been varied by selective design in breeding by artificial selection
4. Journey of the Beagle
 - a. Five years
 - b. Galapagos islands—iguanas and tortoises; 13 different varieties of finches— island was far enough from mainland that it experienced isolated evolution and resulting variation in species
 - c. Beetles; animal skins and bones
5. Previous ideas of evolution
 - a. Greeks
 - b. De la Marck—all life arose from a single organism; change happens as an organism responds to environment
 - c. Giraffes are tall because they need to eat leaves off tall trees
 - d. False: genes explain the “how” of evolution, not Need
6. How Evolution works
 - a. Each organism has unique traits (genes)
 - b. Struggle for survival
 - c. Inherent differences in individuals gives advantage in survival and procreation
7. Randomness vs. Design
 - a. Evolution is NOT random
 - b. Mutation IS random
 - c. But the selection process is directed by the power of survival
8. Societal Response
 - a. Religious condemnation as atheism
 - b. Scientific support largely
 - c. June 30, 1860: debate at British Association for the Advancement of Science; Bishop Samuel Wilberforce; T.H. Huxley, biologist; Bishop asked Huxley whether he was descended from a monkey on his grandmother’s side or his grandfather’s. He responded he would rather have an ape for a grandfather than disrupt a scientific debate with personal attacks.
9. Modern Darwinian implications
 - a. Flu vaccine must be redesigned each year due to evolution of flu
 - b. Pesticide resistant pests

- c. Aids virus mutates and drugs stop working
- d. Medicine become obsolete as bacteria and viruses evolve; you are supposed to use the whole prescription because you want to kill as many as possible and not allow some to survive and gain resistance
- e. Bacterial resistance to penicillin
- f. Malaria and mosquitoes—as mosquitoes evolve we find it harder to eradicate them

10. Human evolution

- a. Slow compared to small organisms like bacteria
- b. 95% of our dna is the same as Stone Age man
- c. Social Change has outpace human genetic evolution—explains some social problems
- d. We are equipped to respond to emergencies with fight/flight response; adrenalin and blood sugar chemistry; but in modern contexts that may not be appropriate and can cause conflict.
- e. Fatty and high caloric diet is not suited to our modern lifestyle

11. Social Darwinism

- a. Problematic
- b. Survival of the fittest never used by Darwin; cannot be used to justify moral or ethical behavior or rules
- c. Darwin's vision: survival of those best adapted
- d. Eugenics: problem is that you can't predict future challenges or define what human is most fit
- e. Evolution is not about change from lesser to greater or worse to better; it is simply change in response to conditions
- f. Evolution is properly used to describe species and not individuals