

Lesson 11 Evolution

Task 1

There are many theories of origin of life, how do you think the following ones explain the existence of life?

1. Evolution
2. Theistic evolution
3. Creationism
4. Progressive creationism
5. Intelligent design
6. Cosmic ancestry

Now match each of the theories with one of the statements below:

- a) Everything in Genesis is completely true.
- b) God mixing a bunch of atoms in his celestial science lab and exploding them to see what happened.
- c) All the different species have evolved from simple life forms which first developed more than 3 billion years ago.
- d) God created plants and animals and so on over vast periods of time to let them get used to each other.
- e) Complex life formed when microbes from space landed on Earth and set about multiplying.
- f) Certain biological features are too complex to be the result of natural processes, and therefore these features are evidence of design.

(adapted from <http://listverse.com/2013/03/08/10-alternatives-to-evolution/>; wikipedia.org)



Task 2 Darwin's theory – Fill in the missing words

Charles Darwin (1809-1882) was an English naturalist who studied variation in plants and animals during a five-year voyage around the world. He explained his ideas on evolution in a book called *On the Origin of Species*, published in 1859.

The main features in his theory are that:

- individuals compete for limited _____
- individuals in a population show natural variation
- individuals with characteristics best suited to their environment are more likely to _____
- 'successful' characteristics are _____

Species unable to compete successfully eventually become _____.

Darwin's ideas caused a lot of controversy, and this continues today. They can be seen as conflicting with religious views about the creation of the world and the creatures in it.

(http://www.bbc.co.uk/schools/gcsebitesize/science/ocr_gateway_pre_2011/environment/4_survival_of_fittest6.shtml)

Task 3 Speaking: How would you correct these misconceptions about the theory of evolution?

- Evolution is not science because it is not observable or testable.
- Evolution is 'just' a theory.
- Gaps in the fossil record disprove evolution.
- Evolution and religion are incompatible.
- Teachers should teach "both sides" of the evolution issue and let students decide — or give equal time to evolution and creationism.

When talking about evolution, you can use these collocations:

1.

hold test confirm advance develop formulate
propose have prove disprove challenge
complete partial conflicting general

theory

2.

abundant clear insufficient extensive crucial available
first-hand convincing scant objective valuable irrefutable
look for gather obtain provide (sb. with) collect

evidence

suggests supports points to demonstrates is based on

Task 4 Read the paragraphs below and put them into a logical order.

How life began

- a) The gradual migration of life from the ocean to the land was another major step that made many advances possible. Eventually plants and animals divided into males and females, and possibilities increased for developing new and varied species or types. To date, more than 400,000 species of plants and 1,200,000 species of animals have developed. Gradually, the senses of sight and hearing improved in animals and brains grew and developed. Finally, intelligence progressed, leading to the development of human beings.
- b) To discover how life began, archaeologists study fossils. Fossils are the remains or imprints of plants and animals of long ago that have been preserved in the earth's crust. The simplest forms of life appear in the lowest or oldest rocks. Although scientists can calculate that the earth is 4.6 billion years old, the oldest rocks that show any trace of life are less than 2 billion years old. Therefore, about 2.5 billion years had passed on the earth when life originated. Since the oldest forms of life were all sea life, many scientists believe life began in the sea.
- c) The early cells reproduced simply by dividing into two. After a long time, single cells became attached to one another, and each cell became specialised in a different function. Gradually organisms became more and more complex. Today, many living things are made up of a combination of cells; our bodies are composed of skin cells, muscle cells, brain cells, and so on.
- d) We do not know exactly how, but in some miraculous way, the right kind of molecules happened to combine in the ocean or in clay to form a minute organism. All life has probably evolved from that single original cell, which may have been something like the bacteria of today. This one-celled organism ate, grew, responded to its surroundings, reproduced itself and spread throughout the oceans. Probably those first tiny organisms were not all alike. Some were better able to obtain food or adapt to colder waters. The stronger cells survived and their characteristics were passed on to the next generation.
(Zimmerman, F. *English for Science*. Prentice Hall Regents, 1989.)

Find examples of tenses in the above text:

1. Simple past tense – a completed action:
2. Present perfect tense - an uncompleted action:
3. Past perfect tense – an action completed before a given past time:

Now complete the sentences using the verb in brackets in suitable tense and voice (active or passive).

1. Charles Darwin _____ (publish) his theory of evolution in 1859.
2. Darwin _____ (work) on his theory while in the Galapagos.
3. The first fossils _____ (find) on rocks that are 2 billion years old.
4. About 165 million years ago, giant dinosaurs _____ (live) on the earth.
5. The fossils of Neanderthal man _____ (discover) in Iraq between 1953 and 1960.
6. By 1957, Russia _____ (launch) the first Sputnik.
7. More than a hundred elements _____ (discover).
8. For many years, scientists _____ (know) there is no life on the moon.
9. Human beings _____ (destroy) more living things than any other organism.
10. Another man-made satellite _____ (just go) into orbit.

Task 5 Video What is natural selection?

(<https://www.youtube.com/watch?v=0SCjhI86grU>)

descent	offspring
due to	superior
random	witness
vulnerable	discard
trait	

Watch the video and then describe the main concepts: **descent with modification, common descent** and **natural selection**. Why was the hypothesis of common descent rejected by many in the past?

Task 6 Vocabulary in context

Circle the option that best matches the meaning of the italicized word as used in each of the sentences:

1. Efforts are being made to *preserve* clean air in the cities.
a) protect b) prevent
2. Although Aristotle's theories of motion were believed to be true for centuries, they were *discredited* by Galileo's experiments.
a) supported b) disproved
3. Newton performed experiments to *confirm* what Galileo had proposed about motion.
a) verify b) disprove
4. Einstein's theories have *prevailed* throughout the twentieth century.
a) failed b) dominated
5. We found a rare *species* of bat.
a) class b) habitat
6. The camel is *adapted* to desert life and can go without water for long periods.
a) unsuited b) adjusted
7. The *evolution* in computer technology has accelerated since 1980.
a) development b) decline