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# Ferns Defy Evolution: A Surprising Twist on Plant Adaptation

## Description

Imagine a picture of your great-grandparents, grandparents, and parents. They look alike, but each generation is different.

This is how evolution works: living things change over time.

Over many years, these changes create different kinds of life on Earth.

Many people think evolution goes one way—to "better" or "higher" living things. For example, some old pictures show humans evolving from ape-like creatures to modern humans.

But evolution does not have a final goal. There is no finish line. Living things change because of natural selection or random changes.

In a study, we looked at ferns, which are very old plants. We found that ferns can change in different ways. Some ferns became less specialized over time.

Ferns can still use basic or more complex ways to reproduce. This shows that evolution is not always about moving forward. It can go in circles, too.

Our study teaches us that evolution is not a straight line. It has many paths and can change in many ways.

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## Vocabulary List:

1. **Evolution** /ˌɛv.əˈluːʃən/ (noun): The process by which living organisms change over generations.
2. **Specialized** /ˈspeʃ.ə.laɪzd/ (adjective): Designed or adapted for a specific purpose.
3. **Natural Selection** /ˈnætʃ.əl sɪˈleɪk.ʃən/ (noun): The process whereby organisms better adapted to their environment tend to survive and produce more offspring.
4. **Complex** /ˈkɒmpleks/ (adjective): Consisting of many different and connected parts.
5. **Study** /ˈstʌdi/ (noun): The devotion of time and attention to acquiring knowledge on a subject.
6. **Change** /tʃeɪndʒ/ (verb): To make or become different.

## Comprehension Questions



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## Multiple Choice

1. What is one way living things change over time according to the text?  
Option: By natural selection  
Option: By random changes  
Option: Both A and B  
Option: None of the above
2. Which example is given in the text to explain the misconception about evolution?  
Option: Humans evolving from modern humans to ape-like creatures  
Option: Ferns evolving to become more specialized over time  
Option: Humans evolving from ape-like creatures to modern humans  
Option: Ferns evolving into flowering plants
3. What is mentioned about the changes in ferns in the study?  
Option: Ferns can only become more specialized over time  
Option: Ferns can change in different ways  
Option: Ferns do not change at all  
Option: Ferns only reproduce asexually
4. According to the text, which of the following statements is true about evolution?  
Option: Evolution has a final goal for all living things  
Option: Living things change only due to natural selection  
Option: Evolution can go in circles and not always move forward  
Option: Evolution follows a straight line
5. What is a key factor mentioned in the text that drives changes in living things?  
Option: Seasonal variations  
Option: Genetic mutations  
Option: Daily habits  
Option: Social interactions
6. How are different kinds of life on Earth created over many years according to the text?  
Option: By instant generation from a common ancestor  
Option: By sudden appearance through spontaneous generation  
Option: By gradual changes over time  
Option: By extraterrestrial intervention



### True-False

7. Evolution has a fixed end goal for every species.
8. Some ferns became less specialized over time according to the study mentioned.
9. Evolution is solely driven by natural selection and not random changes.
10. All living things change over time due to predetermined genetic factors.
11. Evolution always leads to the development of more complex organisms.
12. Ferns have no flexibility in their reproductive methods according to the text.

### Gap-Fill

13. According to the text, evolution is not a \_\_\_\_\_ line.
14. Living things change because of natural selection or \_\_\_\_\_ changes.
15. Some ferns became less specialized over \_\_\_\_\_ according to the study.
16. Our study teaches us that evolution can change in many \_\_\_\_\_.
17. Ferns can still use basic or more complex ways to \_\_\_\_\_.
18. Many people think evolution goes one way to "better" living things, but evolution does not have a final \_\_\_\_\_.

### Answer

**Multiple Choice:** 1. Both A and B 2. Humans evolving from ape-like creatures to modern humans 3. Ferns can change in different ways 4. Evolution can go in circles and not always move forward 5. Genetic mutations 6. By gradual changes over time

**True-False:** 7. False 8. True 9. False 10. False 11. False 12. False

**Gap-Fill:** 13. straight 14. random 15. time 16. ways 17. reproduce 18. goal



## Vocabulary quizzes

### Multiple Choice ( Select the Correct answer for each question. )

1. Which scientific theory explains the gradual changes in organisms over time?  
Option: Natural Selection  
Option: Complexity Theory  
Option: Specialization  
Option: Mass Interaction
2. Who are individuals seeking medical treatment from healthcare providers known as?  
Option: Normal People  
Option: Specialized Clients  
Option: Test Subjects  
Option: Patients
3. What term is used to describe a collection of stars planets and other celestial bodies?  
Option: Meteor  
Option: Constellation  
Option: Galaxy  
Option: Nebula
4. Which ancient human species is known to have coexisted with early modern humans?  
Option: Researchers  
Option: Neanderthals  
Option: Specialists  
Option: Fossils
5. What activity involves acquiring knowledge or understanding through research and analysis?  
Option: Discover  
Option: Change  
Option: Improve  
Option: Study
6. What term refers to the highest point or maximum value of something?  
Option: Peak  
Option: Bright  
Option: Normal  
Option: Count
7. What process involves investigating a subject to establish facts and reach new conclusions?



- Option: Collected
- Option: Formation
- Option: Mass
- Option: Research

8. What term describes ideas and concepts rather than specific objects or events?

- Option: Abstract
- Option: Special
- Option: Observe
- Option: Test

9. What event involves a large number of meteors entering Earth's atmosphere at the same time?

- Option: Mass Interaction
- Option: Meteor Shower
- Option: Interstellar Formation
- Option: Galactic Interaction

10. What term describes being highly skilled or trained in a specific field?

- Option: Discovery
- Option: Specialized
- Option: Intriguing
- Option: Complexity

**Gap-Fill ( Fill in the blanks with the correct word from the vocabulary list. )**

11. \_\_\_\_\_ is the process through which organisms better adapted to their environment tend to survive and produce more offspring.
12. Organisms undergo \_\_\_\_\_ over time in response to environmental factors.
13. Scientists conduct experiments to \_\_\_\_\_ hypotheses and theories.
14. It is vital to accurately \_\_\_\_\_ the number of subjects in a research study.
15. Studying the behavior of \_\_\_\_\_ cells is crucial for understanding diseases.
16. Medical research aims to continuously \_\_\_\_\_ treatments and patient outcomes.
17. Astronomers use telescopes to \_\_\_\_\_ new planets and celestial bodies.



18. The \_\_\_\_\_ of stars involves complex processes of fusion and gravitational collapse.
19. The \_\_\_\_\_ of different species in an ecosystem can lead to ecological changes.
20. A \_\_\_\_\_ comet is visible to the naked eye even in daylight.

**Matching Sentences ( Match each definition to the correct word from the vocabulary list. )**

21. Understanding the intricate workings of the human brain is a task for scientists.
22. To gain expertise in a subject one must dedicate time and effort to and practice.
23. The _____ of the Earth determines its gravitational pull on objects near its surface.
24. Archaeologists hope to _____ ancient ruins that could provide insights into past civilizations.
25. A star shines luminously in the night sky visible even from great distances.
26. The natural _____ of mountains involves tectonic processes and erosion over millions of years.
27. The exhibit displayed rare artifacts and historical documents from around the world.
28. After the field trip the students _____ samples of rocks and plants for further analysis.
29. Scientific _____ involves formulating hypotheses conducting experiments and analyzing data.
30. In a healthy ecosystem species _____ with each other to maintain a balanced environment.

## Answer

**Multiple Choice:** 1. Natural Selection 2. Patients 3. Galaxy 4. Neanderthals 5. Study 6. Peak 7. Research 8. Abstract 9. Meteor Shower 10. Specialized

**Gap-Fill:** 11. Natural Selection 12. Change 13. Test 14. Count 15. Normal 16. Improve 17. Discover 18. Formation 19. Interaction 20. Bright

**Matching sentence:** 1. Complex 2. Study 3. Mass 4. Discover 5. Bright 6. Formation 7. Special 8. Collected 9. Study 10. Interact

## CATEGORY

1. Health - LEVEL1

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