

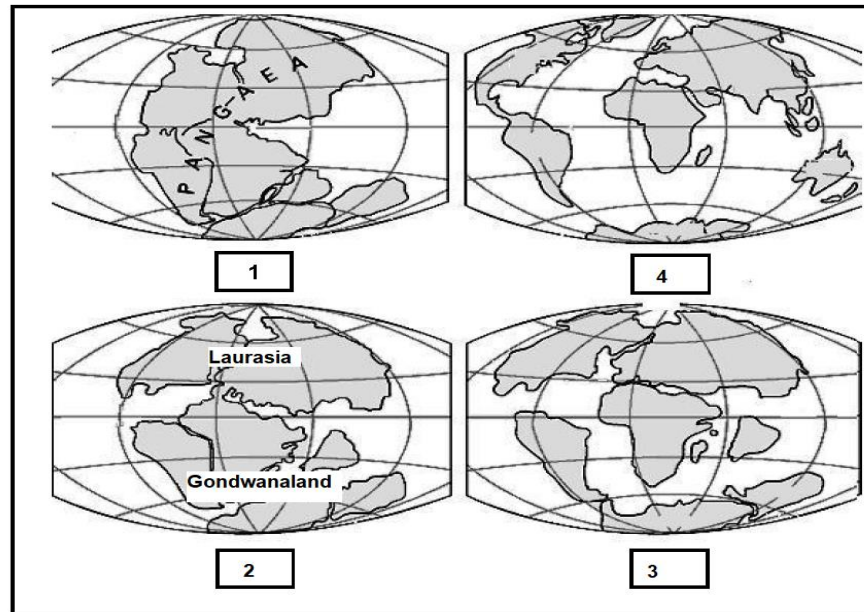


SUBJECT and GRADE	Life Sciences Grade 10
TERM 4	Week 3
TOPIC	History of Life on Earth
AIMS OF LESSON	At the end of this lesson you should be able to know the following changes/events that had a major influence on the development and evolution of living organisms i.e.: • Changes in the composition of the atmosphere • Changes in climate • Geological events • Fossil evidence
RESOURCES	<i>Paper based resources</i>
	Refer to your textbook section on: • History of life on earth
INTRODUCTION	• Revise the topics 'environment and ecosystems' in Grade 10
CONCEPTS AND SKILLS	<u>Study the following content:</u> <u>Changes in the composition of the atmosphere:</u> • When the earth formed, oxygen levels in the atmosphere were very low • Fossil records show that the first living organisms i.e. bacteria (prokaryotes) were anaerobic i.e. they did not need oxygen to survive • Blue-green bacteria appeared and they used carbon dioxide in the atmosphere and released oxygen i.e. they could produce their own food through photosynthesis • The levels of oxygen started to increase in the atmosphere and aerobic organisms started to develop • The increase in oxygen resulted in an increased variety of living organisms on earth <u>Changes in climate e.g. the ice age:</u> • An ice age is a long geological period of drastic decrease in temperature of the earth's surface and atmosphere • Many species died out during the ice ages and some migrated to warmer areas on earth. • When the ice forms, the level of the ocean will decrease exposing more land • Ice ages therefore affected life on earth due to the extinction and redistribution of species

Geological events:

- The theory of continental drift proposes that the earth's continents moved and are still moving slowly.
- About 250 million years ago all continents were joined to form one large continent, called Pangaea
- Pangaea eventually broke up into two supercontinents i.e. Laurasia in the north and Gondwanaland in the south
- These two supercontinents eventually broke up further into the continents that we know today.
- The climate and habitats changed because of continental drift
- A large number of life forms became extinct.

Study the diagrams below showing the movement of the continents

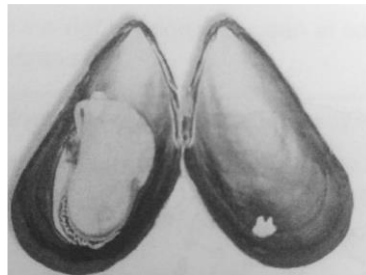


Fossil evidence:

- Fossils are complete organisms or the remains, imprints or traces of organisms that were preserved in rock.
- Fossils provide evidence of earlier life on earth and give the indications of the climate and environment of millions years ago

- The following examples of fossils suggest that the areas where they were discovered were once covered by sea e.g. fossils of bivalves and ammonites (extinct marine snail) found on the Makhatini Flats in northern Kwazulu – Natal, whale fossils in the Sahara and trilobites (extinct arthropods) found in the Karoo.
- The rise and fall of sea levels helps explain why these fossils were discovered on high -lying land.

A bivalve



An ammonite



A trilobite fossil



Know the meaning of instructional verbs in test and examination questions e.g.

Instructional verb	Meaning
Name	Give the name of something
Differentiate	Use differences to qualify between two or more categories
Tabulate	Draw a table and indicate the answers as direct pairs.
Describe	State in sentences the main points of a process
Explain	Give your answer in a cause-effect or statement and reason sequence
Compare	Give similarities and differences between concepts

Answer the following questions:

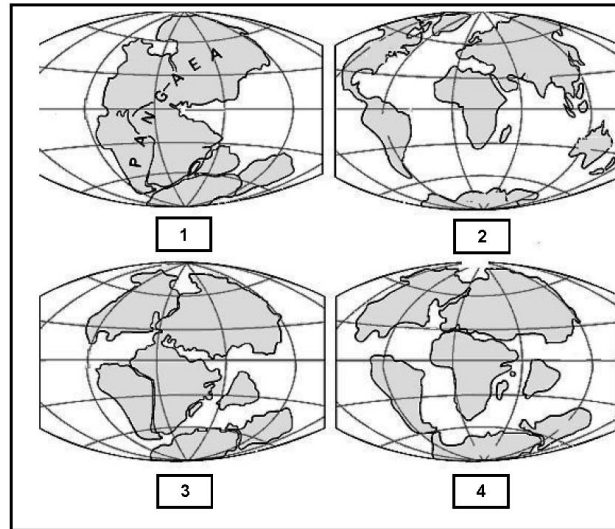
Question 1:

1. Give the correct biological term for each of the following descriptions.

- The first life forms that arose and could respire anaerobically
- The type of organisms that appeared when the oxygen levels in the atmosphere increased
- Long geological periods of extreme decrease in the temperature of the earth's surface and atmosphere
- A complete organism or remains, imprints or traces of an organism that are preserved in rock.

Question 2:

2. Study the diagrams below and answer the questions.



2.1 Name the process that occurred from 1 to 4

2.2 Use the numbers 1, 2, 3 and 4 in the diagram and arrange the events, that take place during the process mentioned in Question 2.1, in the correct sequence.

2.3 The super continent, Pangaea, eventually broke up into two continents. Give the name of the continent of which Africa was a part.

Common errors made by learners in examinations:

- Not familiar with basic terminology
- Not understanding instructional verb/s in a question e.g. the difference between *describe* and *explain*

ACTIVITIES/ASSESSMENT	Complete the activities/questions in your textbook on the section of this lesson.
CONSOLIDATION	• Define all the terminology relevant to the concepts covered in this lesson • Work through questions on this topic in your textbook and other resources.
VALUES	By studying and learning about this section you will develop an ability to critically evaluate and debate scientific issues and processes.