AUSTRALIAN EARTH SCIENCE EDUCATION

Video: Rise of the Continents - Africa
Student Worksheet

Documentary Series: Rise of the Continents presented by Professor Iain Stewart
Episode: 1 - Africa
Duration: 58 minutes

Overview of the Episode

Iain Stewart weaves a story of how the continent of Africa was formed from prior supercontinents and cratons. It explores how this has influenced the landscape, wildlife and geology able to be seen in Africa today.

Episode Index

6:45 min - Rapidly cooled basalt with small crystals, mantle plumes, formation of Africa

11:45 min - Introduction to evolution of whales

15:00 min - Pyramids of Giza - nummulites in shallow seas

18:10 min - Egypt's Western Desert - fossilised whale ancestor

24:00 min - End of evolution of whales

29:00 min - Why do the continents move at all? Diamonds in Sierra Leone, diamond formation

31:15 min - Cratons

33:45 min - Static Cratons before plate tectonics

36:00 min - Diamond inclusions (olivine and eclogite) - evidence for first subducting oceanic plates

38:40 min - Continent supercycle

39:55 min - African continent breaking up - migration of wildebeest

43:55 min - Ol Doinyo Lengai volcano in Tanzania - unique ash and nutrients for grasses

Ol Doinyo Lengai, "Mountain of God" in the Maasai language, an active volcano located in the Gregory Rift, south of Lake Natron within the Arusha Region of Tanzania, Africa. Part of the volcanic system of the East African Rift, it uniquely produces natrocarbonatite lava. This is a carbon rich lava with the lowest-temperature lava in the world, at 500–600°C.

49.45 min - Cratons

52:35 min - Great African Rift

Video: Rise of the Continents - Africa
Student Worksheet

Questions

1. **Describe** the formation of Africa.

2. **Describe** how the size of crystals in igneous rocks provides evidence of the conditions in which they formed.

3. **State** how mantle plumes affect supercontinents.

4. **Describe** the evolution of whales and how it is related to Africa.

5. **Describe** the evidence that nummulites provide.

6. **Describe** how diamonds are formed.

Video: Rise of the Continents - Africa
Student Worksheet

7. **Describe** cratons.

8. **Describe** how cratons are different to the current mobile plates.

9. **Describe** how diamond inclusions (olivine and eclogite) are evidence for the first subducting oceanic plates.

10. **Describe** the plate tectonic supercycle.

11. **State** how the Ol Doinyo Lengai volcano in Tanzania is unique.

12. **Describe** what is happening at the Great African Rift currently and what is projected to occur into the future.