**A Perfect Planet**

**Episode 1: Volcanoes**

1. List the unique forces that enable life on Earth, that will feature in this series.
2. How many active volcanoes are there in the world?
3. Identify the most active volcano in the world.
4. What term is used to describe hot, liquid rock below the Earth’s surface?
5. What term is used to describe hot, liquid rock above the Earth’s surface?
6. True or false?
Without volcanoes there would be no breathable atmosphere, oceans, land or life.

**Lake Natron**

1. Where is Lake Natron located?
2. How has volcanism affected Lake Natron?
3. How has the lesser flamingo adapted to Lake Natron’s environment?
4. What atmospheric process leads to the formation of the islands of salt forming within Lake Natron.
5. How many breeding pairs of lesser flamingo’s flock to Lake Natron?
6. Identify a predator that feeds on the lesser flamingo chicks.

1. What proportion of the Earth’s surface was formed as the result of rising magma?
2. How many years ago did the process start?
3. Once lava cools, forming rock, which process occurs leading to the land being able to support life?

**Fernandina Island**

1. Where is Fernandina Island located?
2. True or false?
Fernandina is the oldest of the Galapagos Islands.
3. True or false?
Fernandina is an active volcano.
4. Why are the walls of the volcano unstable?
5. How has the land iguana adapted to this environment?
6. What proportion of the Earth’s surface is made up of volcanic islands?
7. What proportion of the Earth’s living species live on volcanic islands?

**Wolf Island**

1. True of false?
Wolf Island is an active volcano in the Galapagos Islands.
2. How have finch on the island adapted to survival?
3. When a volcanic island is no longer active, erosion and weathering wear down the land. However, coral continues to grow around the edge. What geographic feature is formed?
4. True or false?
There are hundreds of atolls around the world.

**Aldabra**

1. Where is the Aldabra atoll located?
2. When did it first form as an island?
3. How has the giant tortoise adapted to survive on Aldabra?
4. What is the greatest threat to the Aldabra giant tortoise in the future?

**North America**

1. What is the name of the volcanic hotspot found on the North American continent?
2. When did this area last experience a major eruption?
3. What name is given to a discharge of superheated water from the ground, which can reach over 90m in the air?
4. When boiling water liquifies sediment, what can form?
5. How have animals adapted to the environment in Yellowstone?
6. What benefit can volcanic areas such as these bring to humans?

**Kamchatka Peninsula**

1. Where is the Kamchatka Peninsula located?
2. How many geysers are there known to be in the world?
3. True or false?
Many of the world’s geysers are found on the Kamchatka Peninsula
4. Why are some areas of Kamchatka free from snow in May?
5. What fertilises the grass in the valley in the video?
6. How have bears adapted to life on Kamchatka?
7. Why are volcanic ash clouds so important to life on Earth?

**The Rift Valley**

1. Where is the Rift Valley located?
2. True or false?
The Serengeti is the most dynamic ecosystem and productive grassland in the world.
3. Why is the grassland so important to wildebeest?
4. How many calves are born on the Serengeti grasslands?
5. How have female wildebeest adapted to the environment when rearing their young?
6. Where did the first carbon dioxide in the atmosphere come from?
7. True or false?
Carbon dioxide is the foundation of life on Earth and its greenhouse properties has kept our climate stable and warm.
8. Why have carbon dioxide levels in the atmosphere recently increased?

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**Answers**

1. The Sun, weather, ocean currents and volcanoes
2. 1500+
3. Kilauea
4. Magma
5. Lava
6. True
7. Tanzania, Africa.
8. It is one of the most acidic lakes in the world
9. Build mounds of hardened salt above water level for eggs, large wings act as sun shields, collect algae from lakebed, the chicks have a unique call so their parents can locate them in the ‘crèche, the flamingos travel to the edge of the lake to gather water from freshwater springs, the chicks form a creche to travel to their parents
10. Evaporation
11. Half a million
12. Marabou Stalks
13. 80%
14. Over 4 billion
15. Weathering
16. Galapagos Islands
17. False, it is the youngest
18. True
19. Tremors, caused by the movement of magma within the volcano, causes small volcanoes.
20. Travels into the crater to lay its eggs in the warm ash
21. 5%
22. 20%
23. False, it is an extinct volcano in the Galapagos Islands.
24. It feeds on the blood of Nazca booby birds by cutting the quill of large flight feathers and drinks its blood.
25. An atoll
26. True
27. The Indian Ocean
28. 20 million years ago
29. Feeds in the morning, then seeks shelter due to the heat, it hides from the sun in coral caves or in the limited tree shade, they are able to float
30. Climate change, leading to sea level rise, which will cause the atoll to flood.
31. Yellowstone
32. 650,000 years ago
33. Geyser
34. Boiling mud pots
35. Otters are able to fish throughout the year due to the warm springs stopping rivers from freezing.
36. Can provide energy and reduce the demand for burning fossil fuels such as coal, oil and gas.
37. In the North-west Pacific, along a line of weakness where liquid rock rises.
38. 1000
39. True
40. Steam from geysers melts it
41. Nutrient rich water sprayed from the geysers.
42. They rise from hibernation when the snow melts, they feed on the nutrient rich grass for their first meal, they feed on the salmon which is attracted by the warm, nutrient rich, fertile waters of Kurile lake, they dive for dead salmon off the shore to conserve energy early in the salmon season when the fish are strong and swift, squeeze salmon caviar which contains 80 calories per mouthful which helps them consume the 100,000 calories per day they need.
43. A single ash cloud can contain billions of tonnes of minerals, land around volcanoes is the most fertile.
44. East Africa, the Serengeti
45. True
46. The grass is rich in calcium and phosphorous, essential for pregnant female.
47. ½ million
48. They encourage them to walk, trot then run first, for survival before allowing them to feed.
49. True
50. Volcanoes
51. Burning fossil fuels has led to 100 times more carbon dioxide in the atmosphere than is released by the Earth’s volcanoes.