

ENDEMIC ENVIRONMENTS

SUBJECT

Cape Rockjumper, Bird of the Year 2021.

AIM

To discover more about the Cape Rockjumpers' fynbos environment.

LESSON OBJECTIVES

- Learn about South Africa's fynbos environment.
- Understand the importance of endemic environments.
- Know the threats the fynbos is facing and discuss how it might be conserved.

RESOURCES REQUIRED

- Fact file 2 (environment)
- Fact file 4 (threats and conservation)
- Computer/projector/printer to show images
- Images (links and images provided at the end of this document)
- Question Sheet 1 (1 per student) (Appendix A in this lesson plan)
- Answer Sheet 1 (Appendix B in this lesson plan)
- Action Plan Template (Appendix C in this lesson plan)

INTRODUCTION

The Fynbos Biome, which corresponds largely with the Cape Floral Kingdom, is an incredibly special environment which is endemic to South Africa. The fynbos environment stretches along the southwest coast of South Africa from a small section jutting into the Northern Cape, through much of the Western Cape, and into the Eastern Cape provinces. Although it only spans around 6.7% of the country, it is a biodiversity hotspot with a larger range of unique plants than the Amazon rainforest! It is characterised by fire, poor soils, mild temperatures and often also winter rainfall. The rainfall is around 400 mm per annum. There are around 9000 plant species, of which 70% are not found anywhere else in the world. It is also home to a range of endemic animals including the Bird of the Year 2021, the Cape Rockjumper.

KEY WORDS

| | |
|-----------------------|---|
| ENDEMIC | Native or restricted to a specific country or area. |
| BIOME | A large, naturally occurring community of plants and animals which occupy a distinct region, and are often defined by the specific climate and dominant vegetation. |
| ALIEN INVASIVE | A non-native species which is introduced to an environment and has a negative impact on that environment. |
| BIODIVERSITY | The variety of plant and/or animal life in a defined area. |

LESSON PLAN**(Approx. 60 minutes)**

| Activity | Description | Estimated Time (minutes) |
|-------------------------------|---|---------------------------------|
| 1. Lesson Introduction | Introduce the fynbos environment, the home of the Cape Rockjumper. <ul style="list-style-type: none"> - Show image 1&2 to students. Highlight key facts: <ul style="list-style-type: none"> - The fynbos is a high biodiversity hotspot and one of the 6 global floral kingdoms. - Small in size but contains more than 9000 plant species. - Winter rainfall and fire dependent ecosystem. Ask who has visited this biome. | 10 |
| | Explain what endemic means and highlight that the fynbos environment is endemic to South Africa. | |
| | Show image 3 of the Cape Rockjumper, an example of the endemic bird species found in the fynbos | |
| 2. Worksheets | Get students to read the species fact files and then answer the questions. | 20 |
| 3. Evaluation | Read the answer sheet aloud and get them to peer mark each other- writing correct answers where necessary. | 5 |
| 4. Action Plans | Split students into small groups (or individually if group work is not possible). Ask them to develop an action plan for the conservation of the Fynbos Biome using the action plan template. <ul style="list-style-type: none"> - Encourage them to think about the different stakeholders that would be involved (e.g. communities, farmers, government, general public, conservation organisations, builders/developers). | 15 |
| | Present action plans to the class. | 10 |

ENDEMIC ENVIRONMENTS

1. Where is the fynbos environment found? (2 points)

2. What does endemic mean? (1 point)

3. Why might fire be an important factor for the Fynbos Biome? (2 points)

4. What is special about the plants found in the Fynbos Biome? (2 points)

5. Name three threats the fynbos is facing. (3 points)

6. What effect do alien invasive plants have on native species? (2 points)

7. Why is the Fynbos Biome especially important for species such as the Cape Rockjumper? (2 points)

8. Name one way in which changes to the climate may affect the Fynbos Biome. (1 point)

9. What are the main plant types found in the fynbos? (5 points)

/20 points

ENDEMIC ENVIRONMENTS

1. Where is the fynbos environment found? (2 points)

- South Africa
- Western Cape and Eastern Cape (with a small section of the Northern Cape).

2. What does endemic mean? (1 point)

- Only found in/native or restricted to one specific country or area.

3. Why might fire be an important factor for the Fynbos Biome? (2 points)

- Burning is needed to maintain plant diversity.
- Different levels of fire frequency would alter the species found there.

4. What is special about the plants found in the Fynbos Biome? (2 points)

- There is a large number of biodiversity (over 9000 species).
- Over 70% of species are endemic and only found in the fynbos.

5. Name three threats the fynbos is facing. (3 points)

- Fynbos being transformed into agricultural land.
- Land being converted for urban expansion.
- Alien invasive plant species.
- Changes in climate/fire regimes.

6. What effect do alien invasive plants have on native species? (2 points)

- They compete with native species for resources.
- Decrease levels of biodiversity of native plants.

7. Why is the Fynbos Biome especially important for species such as the Cape Rockjumper? (2 points)

- It is the habitat of the Cape Rockjumper and is used for their vital functions and behaviours such as breeding and foraging.
- They are endemic and only found in this environment.

8. Name one way in which a warming climate may affect the Fynbos Biome. (1 point)

- Change in rainfall patterns/ increased extreme events such as drought and flooding.
- Change in fire frequencies.

9. What are the main plant types found in the fynbos? (5 points)

- Restioids
- Ericoids
- Proteoids
- Geophytes
- Various grasses

FYNBOS ACTION PLAN

The Fynbos Biome is one of the most endangered environments in the world. It faces a range of threats which is amplified by the biome's small area. Suggest ways in which we could work to conserve it, taking into account each threat and the multiple stakeholders involved.

| Threat | Conservation Actions | Priority |
|---|----------------------|----------|
| Climate Change including changes to fire frequencies. | | |
| Land conversion for agriculture. | | |
| Land conversion for urbanisation. | | |
| Invasive plant species. | | |

Image 1 – The fynbos environment.



Image 2- The fynbos environment.



Image 3- Cape Rockjumper



Image credits: Krista Oswald