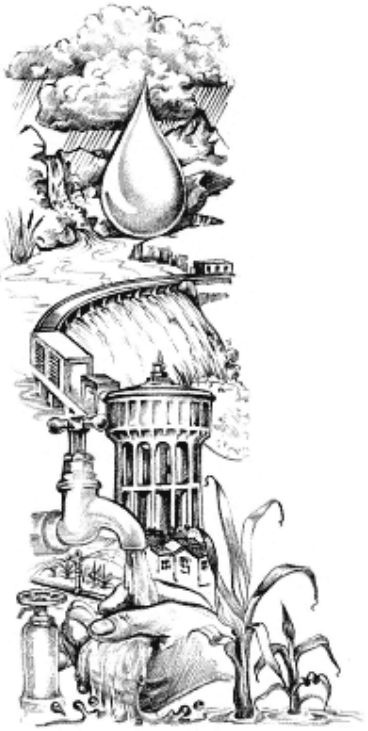
LEARNING AND TEACHING ABOUT WATER IN OUR CLASSROOMS



South Africa is extraordinarily rich in natural resources - except for water. Water is a vital but scarce resource, distributed unevenly in time (frequent droughts alternate with periods of good rainfall) and space (the eastern half of the country is markedly wetter than the western half). Increasing demand for water, and decreasing water quality, make careful water management a priority in our country. It has been estimated that by the year 2025 South Africa's human population will have doubled, and there will be insufficient water for domestic use, agriculture and industry.

Our average rainfall is less than 500mm a year, with the driest part of the country receiving less than 200mm/year and the wettest receiving more than 2 500mm/year! Rain does not always fall where it is most needed, and some areas of high demand, such as Gauteng, receive less water than they need. Most rain falls in a narrow belt along the eastern and southern coasts. The rest of the country receives only 27% of South Africa's total rainfall. In addition, hot dry conditions result in a high evaporation rate.

Water is thus a very scarce resource in South Africa.

In support of learning and teaching about water and water-related issues, the Water Research Commission of South Africa and Share-Net (a project of the Wildlife and Environment Society of South Africa) have developed a series of lesson plans on water. These lesson plan packs, from Grade R to Grade 10, are linked to the South African National Curriculum.

Each pack contains five lessons, with each lesson focusing on a different learning area – these can either be used as they are, or adapted to suit the local context. Each lesson is concluded with a rubric of criteria to assess the learners. Learning Outcomes and Assessments Standards covered during each lesson are given in the summary at the beginning of the pack.

Did you know?

- the Northern Cape receives very little rain and many of the people living there rely on groundwater;
- the Western Cape, south western Cape and KwaZulu-Natal are areas with many RAMSAR wetland sites;
- the Free State is home to one of the most important river catchment areas in the country.

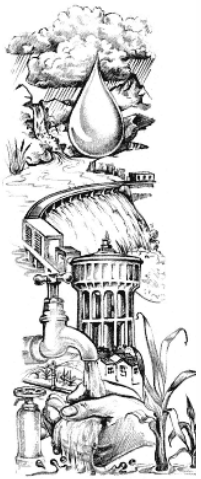
Use the map on the following page to, wherever possible, contextualise your lesson plans – in other words, if you live in the Northern Cape, bring groundwater and evaporation issues into your lessons, if you teach in KwaZulu-Natal or the Western Cape, wetlands could form the focus areas of your teaching lessons.

All these lesson plan packs are available on www.envirolearn.org.za Other useful websites are the Water Research Commission's website www.wrc.org.za and the Wildlife and Environment Society of South Africa's website www.wessa.org.za

WESSA

Share-Net

WATER IN SOUTH AFRICA



LIMPOPO
Limpopo is in the savanna biome, an area of mixed grassland and trees generally known as bushveld. A summer-rainfall region, the northern and eastern areas are subtropical with hot and humid summers and mist in the mountains. The bushveld is cattle country, where extensive ranching operations are often supplemented by controlled hunting. Sunflowers, cotton, maize and peanuts are cultivated in the Bela-Bela and Modimolle areas. Tropical fruit, such as bananas, litchis, pineapples, mangoes and pawpaws, as well as a variety of nuts, are grown in the Tzaneen and Makhado areas. Tzaneen is also at the centre of extensive tea and coffee plantations.

LIMPOPO

GAUTENG
Rain does not always fall where it is most needed, and areas of high demand, such as Gauteng, receive less water than they need. Using several small rivers along the way, water moves from the Katse Dam in Lesotho to the Ash River that flows into the Vaal to supply industry and people in Gauteng.

GAUTENG

Johannesburg
800mm/year

MPUMALANGA
The province is a summer-rainfall area. An abundance of citrus and many other subtropical fruit as well as nuts and a variety of vegetables are produced in Mpumalanga. Nelspruit is the second-largest citrus-producing area in South Africa and is responsible for one third of the country's export in oranges. The Institute for Tropical and Subtropical Crops is located in the city.

NORTHERN CAPE
Huge areas of our country have few people living there because it is so dry. People must depend on water from boreholes that suck up water trapped by underground rock formations beneath the soil surface. We have about 30 000 billion litres of water underground. In some areas, groundwater is replenished by rainfall, but in many places the water is left from ages past when the climate was wetter. This water is called fossil water and once used, cannot be replaced.

FREE STATE

FREE STATE
Bloemfontein is the Afrikaans word for 'fountain of flowers'. It originated as a resting point for oxen next to a spring where water could always be found.
The Free State is home to one of the most important river catchment areas in South Africa, with more than 50% of the water supply for the country coming from the upper catchment area of the Little Caledon River.

KWAZULU-NATAL

Port Nolloth receives only
58 mm of rain per year!

NORTHERN CAPE

Durban 1100mm/year

EVAPORATION
Why is the west coast so dry? Water that evaporates from the Atlantic Ocean condenses to form thick mists over the cold sea. But when these mists move in over the hot land, the water evaporates again instead of falling as rain.

KWAZULU-NATAL
The eastern part of country receives more rain than the rest of the country. It also has many RAMSAR wetland sites in the northern part of the province. Health and sanitation related to water-borne diseases, such as cholera, are serious issues for this region.

WESTERN CAPE
The Western Cape, unlike the rest of the country, receives its rain during the winter months. There are many important RAMSAR wetland sites in this part of the country.

EASTERN CAPE

East London
1400mm/year

WESTERN CAPE

Indian Ocean

EASTERN CAPE
The province's diverse climates and landscapes range from the dry and desolate Great Karoo to the lush forests of the Wild Coast and the Keiskamma Valley, the fertile Langkloof, renowned for its rich apple harvests, and the mountainous southern Drakensberg region around the town of Elliot.

Cape Town
600mm/year

Atlantic Ocean