



SELF HELP
**Africa
Alive**

BOOK ONE

WATER

WATER 1: Cross-Curricular Approach

HISTORY	GEOGRAPHY	ENGLISH
Exploration	Climate	Stories, Literature based on water e.g <i>Moby Dick</i>
Trade routes	Features - ice age valley etc erosion	Vocabulary
Flour mills	Water in the environment	News Items
Irrigation schemes	Dependence on water in different aspects of life	Headlines
	Industry	Creative exercise essay/poem
		Advertising
R.E	ECONOMICS	SCIENCE
Significance of water in rituals	Trade	Sources
Creation	Resources	Types of water
Cleansing	Industry	Pollution
Justice - access	Control	Treatment
Protection of the environment	Revenue, taxes	Diseases
		Effects of water
		Uses in science and industry
ART	MUSIC	
Images	Water as a theme in pieces	
Uses	Create a piece based on movement and sound	
Create work based on theme	Write lyrics about water	

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Self Help Development International is an Irish charity that specializes in long-term famine prevention. Founded in response to the 1984 Ethiopian famine, the aim is to help Africans become self-sufficient. This involves long-term development projects in order to make outside help unnecessary in the future.

The unique approach of Self Help is to invest in development projects that cover a vast area, that meet the specific requirements of the local people (as defined by them, not us) and that depend on their knowledge, ideas and labour.

In each project, Self Help provides; tree seedlings to start the process of afforestation and to halt the advance of

the desert; simple irrigation systems; flour mills; women's programmes; health facilities; education; new drought resistant crops and training in techniques of farming and management.

Self Help provides very few personnel, (and those that are provided are indigenous) working with existing community groups, locally trained staff

and advisers lent by the country's own government. The Self Help strategy has been acclaimed and endorsed by Ireland Aid, the EU and other international agencies, but most importantly, by the national governments involved.

Self Help is implementing projects in Ethiopia, Eritrea, Uganda, Kenya and Malawi.





Africa is the second largest continent with 20% of the world's land surface, measuring 30 million km². It is bisected by the Equator with the Tropic of Cancer in the northern half and the Tropic of Capricorn in the southern half of the continent. Africa is made up of 47 countries with over 1000 different languages and dialects. The population is 900 million. Africa is home to the longest river in the world, the Nile, which is 6,620km (4,140miles) in length. The Great Rift Valley, the world's most spectacular natural feature (visible from the moon) stretches from Ethiopia to Mozambique. Two-thirds of Africa has a tropical climate, and has rain forests second only in size to the Amazon Basin. Nearly one-third of the continent is desert ,the Sahara alone covers 25% of Africa and is expanding at a rate of 5km per year. Africa is the hottest continent; Al Azaziya in Libya recorded a temperature of 58°C (136°F) in the shade on September 13th 1922. The two-thirds of Africa that has a tropical or subtropical climate gets very heavy rain which leaches the soil in both exposed and forest areas. Other areas get less than 250mm (10 inches) of rain a year.



WATER: The Most Precious Resource on Earth

In the 1970s, 80s and 90s oil became a hugely valuable resource. It was so valuable it became known as "black gold". In the 21st century water is very quickly being recognized as the new "liquid gold". The availability of water, access to it and the use of it have become very important, even controversial, issues.

The River Nile in Africa, passes through eight different countries from its source in the Luvironza in Burundi to its mouth in Egypt and it drains about one-tenth of Africa. The distribution of the earth's soil (only 30% - 35% is usable for food production) has largely been determined by the flow of rivers and the movement of ice.

The distribution of water and its consumption differs around the globe. An Irish person uses 150-250 litres of water per day, but only two litres of this is used for drinking. One person in Kenya will use 4 litres of water per day, while someone living in New York uses 680 litres of water per day.

The quantity of water available per inhabitant has gone down by 30% since 1970. The number of people that do not have access to clean drinking water has multiplied by four in the last decade, totalling two billion in 2000. Water is essential to all forms of life on Earth from the smallest bacterium to the most advanced technological development.

ACTIVITY 1 - Making a Mobile

Class Group of 25 divided into 5 groups.
You will need the following:

Markers (different colours)
Scissors x 5
String x 1 ball
Hose-pipe 1 x 30ft

PROCEDURE

Give each group a theme connected to water e.g sounds, activities, containers/measures etc. Then get each group to either write words or draw simple images (label each) associated with water.

Cut out these words and images in different shapes e.g sailboat with label sailing, and tie with the string onto the hose pipe.

Put the hose pipe up in the class-room on public area of the school to create awareness of water.

The Dublin Principles: An international conference was held in Dublin in 1991 to prepare for the UN Earth Summit in 1992. The 4 "Dublin Principles" arose from the meeting forming the basis of an international consensus on the development of water

- Principle One:** Freshwater is a limited and vulnerable resource, essential to sustain life, development and the environment.
- Principle Two:** Water development and management should be based on a participatory approach, involving users, planners and policy makers at all levels.
- Principle Three:** Women play a central part in the provision, management and safeguarding of water.
- Principle Four:** Water has an economic value in all its competing uses and should be recognized as an economic good.





WATER: The Liquid Gold of Life

How important is water to you and how far would you go to get it?

In Ireland because we have such an abundance of water – we do not appreciate how important it is to us. We are never far from the nearest source of water, be it a tap, river, stream, lake or other source. Even to get a clean source of water would only involve a few minutes journey. Water is essential to our lives – we could not live more than 3 or 4 days without it.

In contrast to Ireland in many different parts of the world, people especially women and children have to walk long distances to get it. Over 2 billion people, 30% of the world's population do not have access to clean water.

During the dry season the women in the Dodota area of Ethiopia have to spend so long each day walking many miles to the nearest well or water hole, waiting their

turn and walking back that they have little time or energy for any other work.

From the villages of Koro, Horsis, Dera women have to make a six hour round journey to get water. These are not extreme examples.

Many people end up having to use contaminated water – which is a major cause of disease and death. The frightening fact is that every minute four children worldwide die from water borne diseases.

When developing communities get clean water supplies it doesn't just cut down on the amount of time that women spend getting water, more importantly it dramatically reduces death and disease. Women freed from long hours of walking to get water can spend time working in the fields, caring for children, earning

money, taking part in community development projects.

Water is also needed to grow food – irrigation schemes are a very important part of community development. People can control and manage water, but poor communities often need help – at least initially – to dam rivers, catch and control rain water, build irrigation canals, combat soil erosion and harness the power of fast running water.

The provision of clean and adequate water supplies is central to development. Self Help Development International is involved in a large number of water based projects in Africa – from drilling boreholes, ground catchment and roof catchment schemes, to irrigation and water conservation.

Water, Facts and Figures: 95% of the Earth's water is chemically bound up in rock. Of the remaining 5% over 97% is accounted for by the oceans. Over 71% of the Earth's surface is covered by water. The way the surface of the earth has been formed and shaped (mountains, valleys, plains etc,) has largely been decided by the flow of rivers and movement of ice. Due to the large amount of mountains, swamps, deserts etc, on the Earth's surface only 30-35% of the soil is available for food production.

The world's largest ocean is the Pacific and it covers 35% of the Earth's surface.

Of the total water on land more than 75% is frozen in icesheets and in glaciers.

About 22% is water collected below the Earth's surface (ground water). Small

quantities are in lakes and in rivers (0.017% of the total).

Although water vapour only represents 0.001%, without this, there would be no life on land.

The greatest problem about water on Earth is not the amount available (even though pollution is reducing the amount) it is where the water is and whether people can get to it and use it.

Glasses of Water
4 glasses = 1 litre

Soft Drinks
3 cans = 1 litre

Flushing Toilet
20 litres per flush

Cups of tea
5 cups = 1 litre

Bath 80 litres
Shower 40 litres

Brushing teeth
3 litres

ACTIVITY 2 - The Drawing of Water

Twelve buckets (capacity 10 litres each)
Tap or hose-pipe

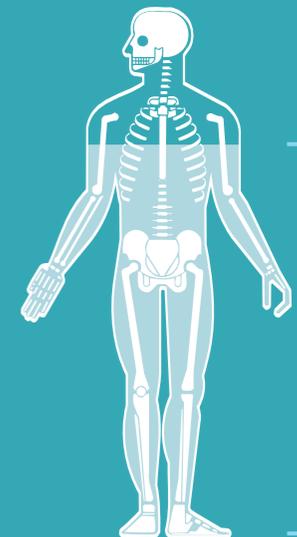
PROCEDURE

Calculate the amount of water 1 person uses in 1 day. Using a basketball court or playing field calculate the number of journeys needed to cover 2.5km - the distance to the source of water.

Each group gets 2 buckets to fill, but no second bucket can be filled until each group has got its first bucket. With buckets filled each group walks the equivalent distance back. Repeat bucket filling using different members of the group until the requirements of 1 person are met.

DISCUSSION

What problems did they encounter?
What lessons were learned?
What action will be taken to raise awareness of water?



70% of our bodies are made up of water.



Case Study 1: Rain Harvesting in Dodota Project Area

Dodota located 120km east of Addis Ababa (capital of Ethiopia). Population 120,000

The region is prone to drought and has been regularly struck by famines. The region is highly populated, food production is very low due to frequent crop failure. The health of people and animals is poor and there is an inadequate supply of drinking water.

Self Help aims to strengthen and support community activities. It focuses on the self help aspect of development work. The aim of the programme is to increase food production and farm income as well as supplying water and the conservation of natural resources.

The local people have identified water as a major problem. Women are forced to walk huge distances each day carrying heavy containers on their backs in search of water. Water is provided through the

development of springs, drilling boreholes and harvesting rain water. These provide water to farm families for human and animal consumption.

Harvesting rain water is done in 2 ways – Ground catchment and roof catchment.

Ground catchment is done by covering a large area 200ft x 100ft with stone and cement (See picture above). The area covered is sloped so as to channel any rain that falls into a pipe which takes the water into a large underground cistern (capacity 60,000 gallons). The water is stored here until the dry season when it is made available to the local people. A new development in ground catchment is to put down large sheets of polythene on a sloped area to channel any rain that falls into underground cisterns.

Roof-catchment is based on the same idea of channelling rainfall from corrugated iron roofs of schools and other public

buildings into cisterns. The capacity of the cisterns built ranges from 60,000 gallons to 500,000 gallons.

The local people provide unskilled labour and all the necessary local materials. A water committee is established in each area to ensure the facilities are maintained. Local people are trained to operate the facilities. All users pay a small fee to cover the cost of maintenance and salary of the operator.

Each rain harvesting facility benefits over 2,000 people. The cost of developing each rain harvesting facility (capacity 60,000 gallons) is €5,000.

Questions

Why are there crop failures?
What are the main problems you would identify in the Dodota area?
If you were there, what would you do?

Give 5 solutions



ACTIVITY 3 - Just a capful of water

10 litre (2 gallon) bucket x 1
Plastic cup x 2
Plastic cap of bottle x 1.

PROCEDURE

- 1 Fill the bucket with water. (This represents all the water in the world).
2. Remove 22 capfuls of water and put into one cup (this represents all the freshwater in the Southern Hemisphere – including ice in the Antarctic).
3. Remove 18 capfuls of water and put into a cup (this represents all the freshwater in the Northern Hemisphere – including ice in the Arctic).
4. Remove 1 capful of water (this represents all the water in the world's rivers and lakes).

This one capful is all the water that humans, animals, birds and plants can drink and use.

A day in the life of a Kenyan farmer's wife.

Under the pure blue Kenyan skies, another long day is beginning for Wamboi Muthoka. Wamboi is a 25 year old farmer's wife from Kenya's largest tribe, the Kikuyu. She and her husband, Kitau, 27, own a coffee farm on the slopes to the south of Mount Kenya. They have six children, all aged under eight. Wamboi's daily work is not easy. The young woman labours from dawn to dusk on the farm. As well as planting, weeding or harvesting, she has to prepare food for her family and take care of them.

About half of the 4 acre (1.6 hectare) farm is given over to coffee, and the rest is planted with maize, bananas, beans and other vegetables, which make up the family's staple diet. The coffee crop brings in hard cash, equivalent to around US\$100 a year. Coffee and tea are Kenya's leading exports, and fluctuations in world prices have a profound effect on the economy and ultimately on the wealth of Wamboi's family.

The first task of Wamboi's day is to feed and milk the family's two cows. Mostly they are fed on maize stalks, supplemented by any available vegetation. Then Wamboi packs off her two

eldest children, aged six and seven, to the nearby primary school, a timber hut that all the local people helped build a few years ago.

Although primary school education is free in Kenya, the cost of uniforms and textbooks is a constant strain on family finances (Fortunately, shoes are not obligatory). But despite the cost and the fact that the national educational system is non compulsory, few people question the need for an education - which can earn their children a prized government job in Nairobi - even if they have no formal education themselves. Wamboi had none, and Kitau only a few years of primary schooling.

Wamboi's four other children are not yet old enough for primary school. The latest addition to the family, a six-month old girl, goes everywhere strapped tightly to her mother's back while the others spend the day doing odd jobs or running around the farm. Wamboi's mother and her husband's parents also live on the farm. The whole family is housed in two grass-roofed huts made of wood and mud. Kitau has just one wife - some of the older Kikuyu have several. When her day's work in the fields is done, Wamboi goes down to the stream, 20 minutes away, to bring back water in a huge jar which she balances on her head.

She also has to go out in search of fire-wood - an increasingly difficult task, as nearby trees are felled for fuel, and collecting wood these days can take as much as an hour and a half. Wamboi carries the firewood in a large bundle on her back supported by a leather strap around her forehead.

She and her family will then spend the evening either chatting with their neighbours or listening to the government-owned 'Voice of Kenya', broadcast in Swahili or English, on their large old radio.





Case Study 2: Irrigation Scheme in Keren, Eritrea

Keren is located 90km northwest of the capital, Asmara in Eritrea. Population 21,000.

Average size of landholding is 2 acres (size of Gaelic football pitch). There is a food shortage in the area due to low rainfall. There is mixed farming but with poor results both in crops and livestock. There is a great need to increase agricultural production by using modern technology.

Because of the erratic nature of rainfall it is very important to start small irrigation schemes to ensure a regular supply of water for the production of food. In part of this project 100 hectares (240 acres) of land has been developed by pumping

water from a nearby river. There is a central reservoir and water canals bringing water to each plot. The project distributed a large number of water pumps for small irrigation schemes. Each pump benefits 4 households.

The farmers were assisted with credit loans to establish the scheme. They make repayments on an annual basis depending on the amount of money they make. The money collected in repayments is used to start up similar irrigation schemes in neighbouring areas.

The cost of one water pump is €350. The key to solve this most basic problem of growing enough food for each family

(remember the size of each farm is very small) is a regular and dependable supply of water.

When an irrigation scheme is in place it means that farmers can be sure that their crops will grow and the soil being so fertile means that they can get up to 3 crops a year.

This guarantees a healthy food supply and an income to obtain the other basic necessities of life e.g clothes, medicine, school books etc.



ACTIVITY 4 - Making a Collage

Class Group of 25 divided into 5 groups. You will need the following:

- Five large sheets of poster paper
- Ten scissors
- Ten sticks of glue

In advance get students to collect as many images as possible related to water - from newspapers, magazines, books, advertising material etc.

PROCEDURE

Get the groups to select different categories under which they will study water. e.g in nature, agriculture, industry, health, sport etc.

Then make a collage using all the different images that were collected. Each group or selected students will then tell a story or perform a drama sketch based on the pictures.

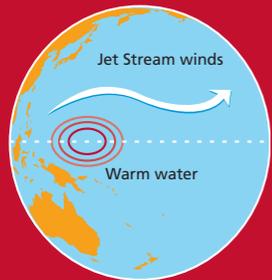
The drama sketch could be based on:

- The problems of collecting water in Africa
- The misuse and pollution of water in industry
- Perform 5 mimes based on the different uses of water

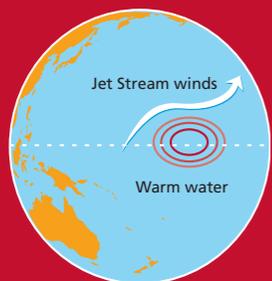
DISCUSSION

- What is water and how do we use it?
- What makes water precious?
- How do we care for water?

Water is the most important commodity of the 21st century - from tiny trickles in drought affected areas of Africa to gigantic ice-bergs in the Antarctic, to huge waves and powerful oceans. Its movement and flow affects all of our lives, sometimes in very dramatic ways. El Nino is the most dramatic and influential of ocean current reversals, and can produce devastating effects around the world.



Normal Year



El Nino Year

El Ninos 1997-98 visit was the most damaging yet, triggering (among other things) floods and landslides in northwest South America, storms in California, drought in southern Africa, monsoon failure in India and widespread rainforest fires in Southeast Asia. Estimates put the cost of the property damage alone as high as US\$33 billion.

As the previous worst case in 1982-83 showed, the commercial cost is colossal and far-reaching. This includes declining fish stocks in the eastern Pacific (the anchovy catch dropped by over 90%), frost-wrecked orange groves in Florida, crop losses in Africa and bush fires in Australia.

While El Nino is unpredictable in both power and frequency – it used to appear every 2 to 7 years – the phenomenon now occurs more often, including five consecutive seasons from 1990 to 1994. It usually last about three months but can be far longer.

The name was originally given by Peruvian fishermen to the warm but weak current that flowed south for a few weeks each

year around Christmas – hence the name, which means "Christ child". Now the term is applied to a complex if irregular series of remarkable natural happenings.

The El Nino sequence begins in the western Pacific. The mass of warm water is generally kept in check by the prevailing westerly trade winds. As these winds subside, the water moves in an equatorial swell towards South America. The rise in sea temperatures causes thunderstorms, which increase the moisture and wind energy in the upper atmosphere.

This changes the pattern of the jet stream winds causing them to flow in a more northerly direction and therefore creates freak weather conditions well outside the Pacific tropics. The El Nino warm water is also followed by rainfall, leading to droughts in Southeast Asia and Australia and excessive levels of precipitation in South America. In 1983, 1987, 1995 El Nino was followed by the cool current La Nina (the little girl).



The Bigger Picture: The amount of water in the world has not changed but due to pollution the quantity available has reduced by 30% since 1970.

In the meantime the numbers using the worlds water has increased dramatically. In the year 2000 the figure passed 6 billion – by the year 2050 the projected figure is 9 billion.

“Water may well become an issue over which wars will be fought in the 21st century”

Klaus Toepfer Director General of UNEP (United Nations Environment Programme).

Today, more than 10 conflicts in the world are linked to water in Turkey, India, Egypt, Israel and other countries.

In the Antarctic an ice shelf (the size of Luxembourg) called the Larsen B came adrift from the mainland. It had been there for the last 12,000 years and it disintegrated over a period of 35 days.

According to Trevor Sargeant of the Green Party this is the frightening result of the build-up of "green-house gases".

If ice caps continue to melt at their present rate then within 10 years 17% of the land of Bangladesh will be under water, displacing 27 million

people and the area of land available to produce food to feed a growing population will be further under threat.

The Amazon Rain Forest is losing about 5 million acres per year. By the year 2020 95% of the forest will be gone.

In the developed industrialised countries of the world 60-80% of the water is used in industry. In developing countries only 10% is used in industry.

1,000 litres of water are used in the making of 1 car.

9 litres of water are used in the making of 1 bar of chocolate.

Within 10 years 1 billion people could be given access to clean, safe water for less than the world now spends on weapons in 90 hours.

Topics for discussion

How important is water to us? How well do we use it?

How can we protect it for future generations?

Abeba's Riddle:

"You can't see it but you can see through it. You can touch it but you can't hold it. It moves quietly like a snake and roars like a lion. It flies high in the sky like an eagle and burrows in the ground like a rabbit. High or low – fast or slow – it is my friend, the source of life."

Abeba sat in the shade of an acacia tree beside her house in Sire, Dodota, Ethiopia telling stories and riddles to her five lively happy young children. She smiled with contentment and happiness knowing that the riddle she had given her children had indeed been the answer to her problems. As the children puzzled over the strange description of water, trying to figure out an answer, Abeba remembered the dry harsh conditions of her native area and the many problems encountered by her community.

A few years previously there were many meetings and lots of discussion of the problems affecting the people. The difficulty of trying to grow crops and keep livestock. Many people were regularly sick with stomach problems and diarrhoea. They did not have the money to build a school to educate their children.

The simple solution to their problems emerged one day when Abeba posed the same riddle to her village women's group. The answer was simple and the women immediately recognised how water was the means to solve all the different

problems. The village elders after some discussion agreed that the solution was water. Clean healthy water – for themselves to drink and cook with, a regular supply of water to irrigate their fields and grow food with.

With the help of Self Help, and making the most of their own resources and willingness to work hard the people of Sire, Dodota tapped into the Awassa river and harvested the most precious resource on Earth. Irrigation pumps were installed, rain harvesting schemes were put in place. Growth and development quickly took place. The results are seen all around them, but none more so than in the faces of their happy healthy children.

Abeba's biggest reward is the brighter better future for herself, her husband and her children – but she also enjoys the respect and regard of her friends and neighbours for the wisdom and conviction needed to solve their problems.



Can you solve this riddle:

The population of the world is at present 6 billion.

In 1975 20% of world's population owned 75% of the world's wealth.

In 1990 20% of world's population owned 80% of the world's wealth.

By 2000 20% of the world's population

Controls 86% of the world's resources

Consumes 45% of the world's meat and fish.

Uses 58% of the world's energy.

Has 82% of the world's export earnings.

Has 86% of the world's GNP.

By the year 2050 the world's population will be 9 billion.

What will the poorer 80% of the world's population live on?

Why is there so much indifference to the problems of water?

Most of the deterioration in clean water supply has happened in southern countries, which seem far away from us, even if it affects us directly.

Our way of dealing with the environment stems from attitudes of 30 years ago when the world's resources seemed endless.

We are under the impression – wrongly – that we are helpless in the face of such a large problem.

We can all take action by reducing unnecessary consumption and by putting governments and companies under pressure to develop a long lasting system, one that meets the needs we have now without sacrificing future generations.

The first solution therefore is to make people aware, and, because the environment does not come to the people, the attention and positive action of the people must be brought to the environment.

Case Study 3: Freezing Fish in the Desert

The Turkana area of Northern Kenya is largely described as a desert area. In spite of Lake Turkana's large expanse of water local people suffer from food shortages largely due to drought.

In the 1970s one European development agency decided to do something to help. They decided to develop a fishing industry based at the lake. Local fishermen were netting record catches so the development agency, persuaded 20,000 local people to move to the lake shore where they were given boats and nets, and then taught how to fish.

The agency then built a fish freezing plant at a cost of \$2million. They also built a road that connected the fish plant to the main road to the capital Nairobi at a cost of \$20 million - ensuring access to markets. The fish freezing plant operated for a few days only - then it stopped completely.

What was the problem? In their rush to solve the problem of food production in Northern Kenya the agency

made a major basic mistake - they did not consult with the local people.

Local people knew that the lake changed its shape about every 30 years. The part of the lake that dried up in 1980 was exactly where most of the fish had been caught and where the freezing plant had been built.

The freezing plant used up more electricity than was available in the locality. It needed huge amounts of electricity to bring the fish from normal daytime temperatures of almost 100°F (38°C) to freezing point. The electricity was cut off after 2 days as nobody else in the region could have any, while the plant operated.

The lives of the local people were hugely affected

They became dependent on food aid as they could not catch fish.

Their cattle died due to overcrowding at the lake shore.

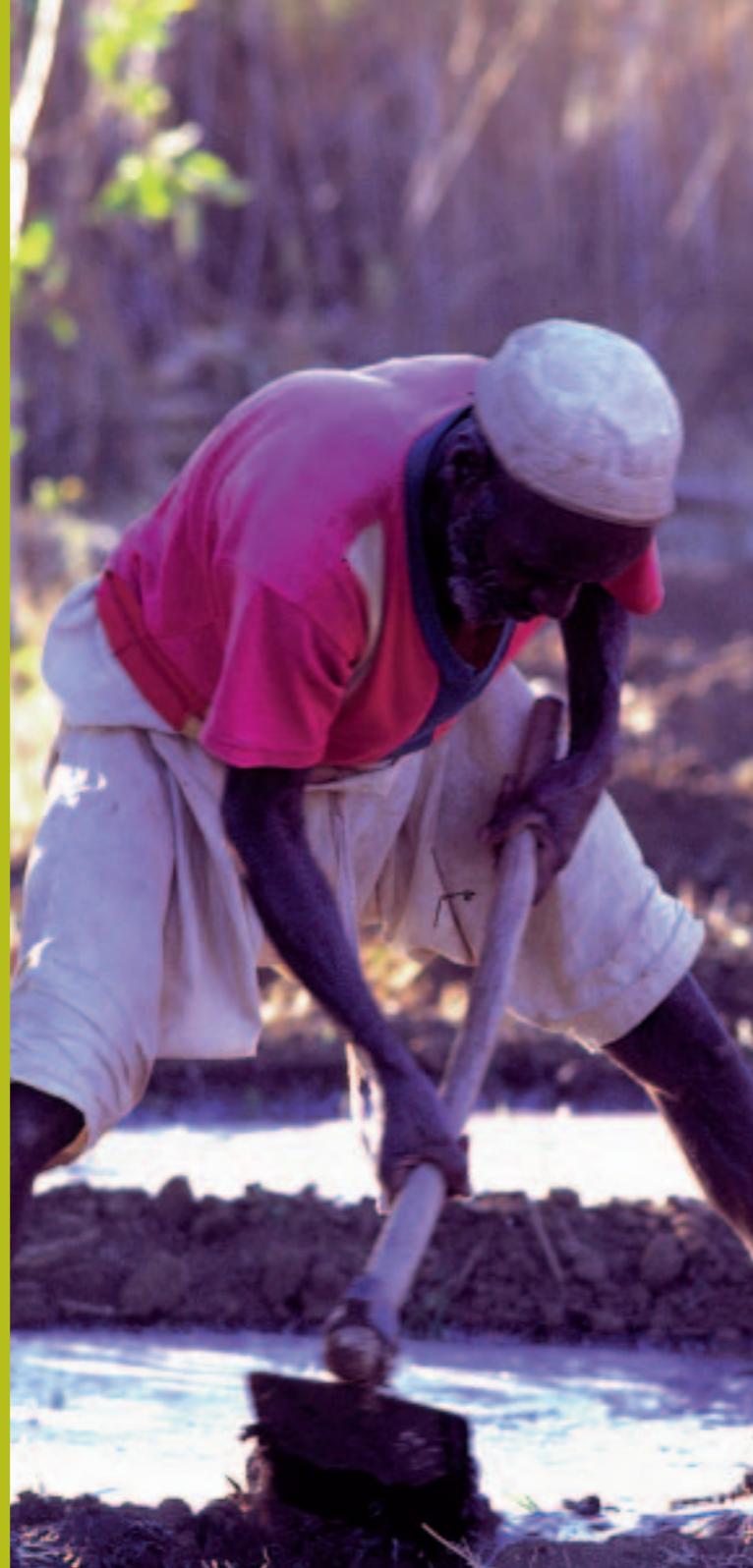
Young people could not make a living so a lot of them left their native area to make a new life elsewhere.

ACTIVITY 5 : Look at the 3 case studies

1. Rain Harvesting (page 11)
2. Irrigation Scheme (page 16)
3. Fish Freezing (page 21)

Draw up a set of criteria that you would use to pick projects that would be of most benefit to the people. Explain your criteria.

Hint - Local involvement, long term benefit, local needs, priority, appropriate technology, relevance, sustainability.



The Song of Life

Time passes
The sun
Burns the land
And brings about anxiety
But one day
The rainy season,
Arrives
And the trees start burgeoing
The mango trees
The lemon trees
The guava trees
Give out their scents
The hibiscus flowers
Show off their beauty
The flame trees
Dance in the wind
And the whole savannah,
Sings
And people,
Dance
And the mask,
Dances
And the tom-tom
Beats the cadence,
Of life
Which comes back
Again and again
For people die
And people are born
People die
And people are born
Until the end
Of time

Veronique Tadjou, Cote D'Ivoire



Coffee seedlings in Ethiopia



ACTIVITY 6 - Climatic Effects

Read the poem and pick out information about the climate of the country.

Show how the rainy season affects

- (A) The landscape
- (B) The vegetation
- (C) The people.

Write a poem of your own reflecting the climate of IRELAND and its effect on the people.

Do a drawing or painting to go with your poem.

Pick out a piece of music to go with your poem.

Do a dance, mime or movement to convey the meaning of your poem.

Water in our World:

Test your knowledge with this quick quiz

Question 1	70% of the Earth's surface is made up of...	A. Tea B. Coca-cola	C. Beer D. Water
Question 2	Water falling to the ground from the sky is called...	A. Confetti B. An Ice-berg	C. Rain D. Sunshine
Question 3	A large expanse of land covered by sand is known as...	A. A Mountain B. A Valley	C. A Desert D. A Plain
Question 4	The solid form of water is known as...	A. Rock B. Ice	C. Shale D. Vapour
Question 5	The chemical equation for water is...	A. O ₂ B. CO ₂	C. H ₂ O D. 2H
Question 6	The largest mammal in the world is...	A. An Elephant B. A Blue Whale	C. A Buffalo D. A Dolphin
Question 7	The formation of rock hanging from the roof of a cave is known as...	A. A Stalacmite B. A Stalactite	C. A Heliotite D. A Dolomite
Question 8	The Sahara Desert is expanding at a rate of...	A. 5km per year B. 10km per year	C. 50km per year D. 500km per year
Question 9	Lack of water in the body is known as...	A. Decimation B. Desertification	C. Dehydration D. Desalination
Question 10	The normal temperature of the human body is...	A. 24C° B. 33C°	C. 37C° D. 42C°
Question 11	The tip of an ice-berg is on average...	A. 1/32 above water B. 1/24 above water	C. 1/16 above water D. 1/8 above water
Question 12	The inner layer of earth's atmosphere is known as...	A. Exosphere B. Ionosphere	C. Stratosphere D. Troposphere
Question 13	Fresh water makes up what % of the total water in the world	A. 3% B. 10%	C. 12% D. 21%
Question 14	The average speed at which the earth travels around the sun...	A. 20,000mph B. 32,000mph	C. 66,600mph D. 72,400mph
Question 15	Which American author wrote <i>Moby Dick</i> ...	A. Mark Twain B. James Fenimore Cooper	C. Washington Irving D. Herman Melville

Answers on page 26



ACTIVITY 7 - Make an African Mask

You will need an assortment of pens, pencils, markers for colouring, some beads, string, feathers that students can attach to mask.

PROCEDURE

Pick a country from Africa.

Do a miniature version of the flag (see front of telephone directory for flags) at the top of an A4 page.

Write 10 points of information about the country on the A4 page.

The picture to the left is of an African mask - on a separate A4 page, draw your own outline of an African mask.

Colour in the mask using your own designs, add beads, feathers etc

Place the "coloured in" mask beside the page of facts about the country.

Write the name of the country in large letters above the mask and page of facts about the country.

Make an exhibition of your work in the classroom or public area of the school.



International Temperature Records

Highest recorded shade temperature: Al Aziziyah, Libya 58°C (136.4°F), 13th of September 1922.
Highest mean annual temperature: Ethiopia, 34.4°C (94°F), 1960-66.
Longest heatwave: Marble Bar, Western Australia, 162 days over 37.8°C (100°F), 23th of October 1923 to 7th of April 1924.
Lowest recorded temperature: Vostock Station, Eastern Antarctica 21st of July 1985, -89.2°C(-128.6°F)
Lowest recorded temperature outside poles: Verkhoyansk, Siberia, -68°C (-90°F), 6th of February 1933.
Lowest mean annual temperature: Plateau Station, Antarctica, -56.6°C (-72.0°F).



International Precipitation Records

Longest drought: Calama, N. Chile – no recorded rainfall in 400 years to 1971.
Wettest place: (12 months):Cherrapunji, Meghalaya, NE. India, 26,470mm (1,040 in), August 1860 to August 1861. Cherrapunji also holds the record for the most rainfall in a month: 2,930mm (115 in), July 1861.
Wettest place (average): Tututendo, Colombia, mean annual rainfall of 11,770mm (463.4 in).
Wettest place (24 hours): Cilaos, Reunion, Indian Ocean, 1,870mm (73.6 in), 15-16th of March 1952.
Heaviest hailstones: Gopalganj, Bangladesh, up to 1.02kg (2.25lb), 14th of April 1986 (92 people were killed).
Heaviest snowfall (continuous): Bessans, Savoie, France, 1,730mm (68in) in 19 hours, 5-6th of April 1969.
Heaviest snowfalls (season/year): Paradise Ranger Station, Mt Rainer, Washington, USA, 31,102mm (1,224.5in), 19th of February 1971 to 18th of February 1972.

Glossary of terms

Access	The means of reaching.	Erratic rainfall	Not regular rainfall.
Appropriate	Suitable, right.	Erosion	Wearing away, washing away, eating away.
Availability	Able to be used.	Essential	Needed, vital.
Bacterium	Simplest and smallest form of plant life.	Expanse	Large area.
Bisect	Cut or divide in 2 parts.	Ground catchment	Collecting the rain falling on the ground.
Borehole	Hole made by boring e.g to find water.	Harness	To use, tap into.
Burgeoning	Beginning to grow.	Irrigation	Bringing water to the land.
Cadence	Rhythm in sound.	Leeches soil	Washes out the nutrients in the soil.
Cistern	Water tank.	Miniature	Small version of.
Consensus	General agreement.	Participatory	Allowing people to be part of.
Conservation	Preservation.	Provision	Making available.
Consumption	Using up, eating, drinking.	Relevance	How important or necessary.
Criterion	Standard of judgement.	Roof catchment	Collecting rain from roofs.
Dependent	Need the support or help of.	Savannah	Treeless grassy plain
Dialect	Form of language used in part of a country.	Sustainability	Able to keep up, maintain
Drought	Long time without water/usually rain.	Technology	Industrial equipment.
Encountered	Met, to deal with.	GNP (gross national product)	Amount of money produced in a country in a year.

Follow-up: Cross-Curricular Approach

GEOGRAPHY	GAEILGE	SCIENCE
Measuring rainfall	Place names relating to water	Evaporation
Listening to and writing weather forecasts	Folk-tales related to water e.g The Salmon of Knowledge/ The Children of Lir	Saturation
Design and write postcards from different parts of the world - referring to the weather		Water divining
Local industries that use water		Pollution in water
HOME ECONOMICS	GENERAL ACTIVITIES	HISTORY
Menu based on food from water	Collage of water scenes	Make models of boats, e.g currachs/Viking long boat
Hygiene and safety	Use plastic cups, straws, bottles etc to make an art piece	Make a model of a crannóg
Study of water and liquids used in recipes	Make posters raising awareness of water usage	Interviews with relatives regarding changes, e.g village pumps and wells
	Make a pond in the school	
	Write letters to politicians raising issues related to water	

ANSWERS

Question 1 D	Question 4 B	Question 7 A	Question 10 C	Question 13 A
Question 2 C	Question 5 C	Question 8 A	Question 11 D	Question 14 C
Question 3 C	Question 6 B	Question 9 C	Question 12 D	Question 15 D



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