Water for Life

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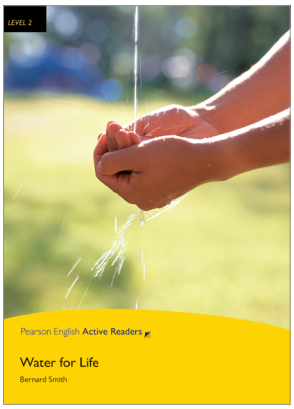

Summary

Each chapter in the book deals with the different topics and issues related to water. The importance of water, the contamination of water, the history of how water was transported, the current sources, new ways of transporting water and the danger of running out, are all discussed.

Chapter 1: The importance of water to life on Earth is stressed and the environmental dangers of rising temperatures are outlined. As the Earth heats up, it experiences an increase in hurricanes and floods, the ice in the Arctic regions begins to melt faster than before and sea levels rise. Changes in the weather cause floods and droughts which affect the ability of farmers to produce all the food we need. Many people do not have enough clean drinking water, and contaminated water kills many people in many countries. The author stresses that it is time some action is taken to stop this.

Chapter 2: A very large proportion of our Earth is composed of water. Most of it is salt water in the oceans. The rest is fresh water in the form of ice in the Arctic and Antarctic regions, and in our rivers and lakes. We can only use a very small percentage of the water on Earth. In fact, if we put all the world's water in a hundred glasses, ninety seven of them would be undrinkable, salty water. As the population increases, more and more problems arise. Every life form needs water to drink, and humans need water for their farms and factories as well. About half the water we need comes from food.

Chapter 3: Our clean water comes from rain. Rain is caused by warm air absorbing water and then carrying it up to a higher altitude. The air cools down and the water forms clouds and later it rains. This water is not always clean because the rivers and lakes it forms can be contaminated by cities, factories and farms. A lot of water also goes underground, this is called ground water, and we can pump this up to the surface. This water is very important in the driest areas of the Earth. We can also access groundwater from wells, but when there is little rain, the wells run dry. Also the ground water in areas near the sea can be salty.

Chapter 4: In early history, the first people to live in towns built them near rivers. As the population increased, people moved away from the rivers and used water from wells. Later, in about 2500 BC, in Persia (now Iran), people transported water from the mountains to the towns in a series of underground pipes called *qanats* or *falajes*. Some of these ancient systems are still used today in the Middle East. The Romans developed this idea further to bring water from the mountains into the city of Rome. Today, nearly every country is supplied with water by an elaborate system of waterways.

Chapter 5: People are always thinking of ways to obtain fresh water. One of these is to dam a river to produce a big lake, and another is to use the world's ice. Most of the world's ice is in the south, in the Antarctic, and the ice sheet there can be up to three kilometres thick. When the weather gets hotter, huge icebergs break off and float out to sea. Icebergs also form in the north, especially around Greenland, and float south into the Atlantic. These can be very dangerous for ships, and one in particular was fatal for the ship, the *Titanic*, in 1912. In 1977, a group of people suggested the idea of pulling a large iceberg from Antarctica to Saudi Arabia. They tried but it was not very successful. Another idea is to put chemicals into clouds to make them produce rain, but this is unreliable. In the Middle East there are many factories that make fresh water from sea water. This is very expensive, but it works.

Chapter 6: People in the developed world use a lot of water every day in their homes, whereas people in poorer regions have very little. Also farms and factories use even more water. Much of this water comes from rivers. Rivers flow into lakes and into the sea and in some areas so much water has been taken from a river that it doesn't reach the lake or the sea. Factories use water and then put it back into rivers and the sea. This water is often dirty. Factories also produce smoke which pollutes the air. Farmers put chemicals on their land and these chemicals pollute the ground water and the rivers. People in the developed world must think about these problems and try to stop polluting the environment. They also have

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to think about how they can use water more efficiently, and how they can help people who do not have enough clean water.

Background and themes

Climate change and the environment: The temperature of the Earth is increasing and this is having an effect on our weather, the sea levels and on the distribution of rainfall. Many countries are experiencing longer and hotter droughts, and others, bigger and more damaging floods. The cause of all this is human activity – both industrial and agricultural. We need to think about what we are doing to the Earth and how we can reverse the process.

The developed and the developing world: Many people in the developing world have very little access to water, and a lot of the water they have is dirty. In contrast, the developed world pollutes and wastes water on an alarming scale. People in rich countries must learn not to waste water and to use it more effectively. The book emphasises the need to rectify these problems before it is too late. Indeed, some people have suggested that if there is another world war, it will not be about oil or land, but about water and the lack of it.

The search for new water: Although water cannot be created, many attempts have been made to find water from previously untried sources. In the future we may see many more and varied ways of getting clean water.

A historical aspect: Many centuries ago, people built elaborate structures to transport water from place to place. In those times, people did not have the machinery we have today, so the task was enormous and took many years and many men to complete.

Discussion activities

Before reading

1 **Discuss and predict:** Put students in small groups to talk about the following questions and predict what answers will be given in the book. *Why is the world getting warmer? What is happening to the world's ice and seas? How much of the Earth is water and how much of it can we drink? Why does it rain? How did people get fresh water in the past? In countries where it doesn't rain, how can they get more water?* Get students to make a note of their answers for checking after reading.

Chapter 1

Before reading

2 **Discuss:** Put the students in small groups to discuss the following questions: *Do you live in a wet or a dry country? How often does it rain in your country? Is it the same in every part of your country? When does it rain more? Are there problems with water? Is there too much water or too little? Are there a lot of lakes and rivers? Do you live near the sea or near lakes and rivers? Is the water in the sea, lake or river clean?*

After reading

3 **Pair work and write:** Put students in pairs and ask them to choose a short paragraph from Chapter 1. Tell then to write it again, making five changes to words in the text. Students then read out their paragraphs to the other students, who have to identify the mistakes.

Chapter 2

Before reading

4 **Pair work and discuss:** Put the students in pairs to make a list of all the names of fruit, vegetables, meat and fish they know in English. Write the names on the board and add some suggestions of your own. Ask the students to discuss which of these foods they like and normally eat. Then, ask them to try and guess how much water, as a percentage, there is in the following: *banana, cucumber, tomato, egg, fish and chicken.*

After reading

5 **Pair work:** Write the following words on the board: *The Pacific, Greenland, farms, a week, 60%, a quarter.* Have the students talk and write in pairs to say how these words were used in Chapter 2.

Chapter 3

After reading

6 **Write:** Write *When does heavy rain start to fall in the centre of Africa and in south Asia?* on the board and elicit the answer (In the middle of June.). Ask students to write another question about something in Chapter 3. Check their work as they do this. Now have students stand up and ask and answer each other's questions.

Chapter 4

While reading (p. 20 after, 'They have to carry it to their homes on their heads or on the backs of animals.')

7 **Role play:** Put students in pairs and tell them that one of them lives in a very dry, poor country where people have to carry water from wells to their houses, and the other lives in a rich country where there is a lot of water. How are their lives different? Suggest the following questions: *How much water do you use a day? Is there always water in your house? Do you have a bath in your house? How do you wash your clothes? How do you cook? How far do you walk to get water?*

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After reading

8 **Pair work:** Put students in pairs and ask them to look back at the pictures and drawings in Chapter 4. Ask them to make a list of the things they can see in each picture. The pair with the longest list wins.

Chapter 5

While reading (p. 28 after, 'More than 1,500 people died.')

9 **Research:** In groups students use the Internet find out as much as they can about problems and disasters that water, ice or large scale pollution and contamination have caused in the world. Ask them to choose one problem and give an oral presentation to the rest of the class. Tell the students they should look for the following information: *When/where/why did it happen? How many people died? What problems did people have after it happened? What did other countries do to help? Can people stop it happening again?*

Chapter 6

Before reading

10 **Write and discuss:** In small groups ask the students to write down how much water each of them uses everyday and for what. Ask them to consider the following questions: *How much do you drink / use in the bath / use to wash bowls, plates and cups / use in the toilet?* Remind them to consider not just water, but all the tea, coffee, soft drinks etc that they drink. Then the students compare the figures with each other and decide if they think they use too much water, and how they can use less.

After reading

11 **Group work:** Put students in groups of four or five and tell them they are meeting on World Water Day to talk about how we can make the world a better place and help the people who are experiencing problems with water. Each student is representing a region where there are different problems with water. For example, Bangladesh (floods), North Africa (droughts), a European country (pollution) and a country which is losing some of its land because of rising sea levels.

Extra activities

12 **Research:** Write the following film titles on the board: *The Day after Tomorrow, A Perfect Storm, Twister*. Ask the students if they have seen any of the films. Explain they are films in which extreme weather is the central theme. Ask them if they know any more films with the same theme. Then divide the class into groups of three and ask them to look for information on the Internet about the three films above. Each student takes one of the films. Students then tell the rest of their group about the film they have done research on and they decide which one they think is the most interesting.

13 **Check:** Tell the students to go back to the predictions they made before reading the book (activity 1). Were they right?

14 **Write:** Ask students to look back through the book and write in their notebooks the five most important things they learnt. Get feedback from the whole class and see if the students agree.

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While reading

Chapter 1

1 Find the words in Chapter 1.

a You can see these on the sea. (p. 1) .....
b They happen when there is very little rain. (p. 3) .....
c Fires or factories make this. (p. 3) .....
d It is very hard, cold and usually white. (p. 3) .....
e When there is too much water, these happen and they kill plants and animals. (p. 4) .....
f They make people ill and can kill them. (p. 5) .....

2 Put the underlined letters in the right place to make a word.

a crenasirhu ..... begin over the sea and can be very big.
b The dirty flood water goes into the ogudnr ..... water.
c nasoruged ..... fires start every summer near Sydney.
d Ice moves slowly down the nonatisum ..... and into rivers.
e People say there will be big beporlsm ..... in the future.
f Our children will live in a very fetnfried ..... world.

Chapter 2

3 Put a word on the left with a word on the right.

thin	wet
large	outside
began	thick
die	small
dry	finished
inside	live

4 Write questions for these answers.

a How / ice / Greenland?
.....
Two kilometres.
b Where / life?
.....
In the water.
c Where / live / nine months?
.....
In water.
d When / lose / water?
.....
When the weather is hot.
e How / water / food?
.....
About a half.
f How / water / fish?
.....
67%.

Chapter 3

5 Answer the questions.

a Where does clean water come from?
.....
b When does the air start to lose water?
.....
c How much water comes from ground water in European and North American homes and workplaces?
.....
d Where is ground water very important?
.....
e Who takes the ground water from the pumps to the villages in dry countries like Saudi Arabia?
.....
f How much more water is in ground water than in rivers and lakes?
.....

6 Finish the sentences.

a In some countries, it doesn't rain for months and then suddenly .....
b Warm air can carry more water than .....
c When the air is very cold, ...
d We have to clean the water before .....
e Sometimes water is only two or three metres under the ground and sometimes it .....
f More and more people need .....

Chapter 4

7 Write the words to finish the sentences.

mother highest Egypt wells Appenine European

a The people of ..... lived next to the River Nile.

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b People made …… and took fresh water from them.
c The people in Persia called the first well the …… well.
d The Romans brought water from the …… mountains to their cities.
e The Romans took their ideas to other …… cities.
f The Pont du Gard is the …… Roman waterway in Europe.

8 Circle the wrong word in the sentences.

a People made wells and took a fresh water from them for their animals and plants.
b The people in Persia went to at the high ground and studied it carefully.
c The water ran from well to the well and then out into the land below.
d The Persians took their clever ideas to up Arabia.
e The Romans used waterways but in a best better way.
f There are great Roman waterways in on France and Spain.

Chapter 5

9 Put the underlined letters in the right place to make a word.

a We can stop llignutop …… fresh water and use it more carefully.
b The weather is getting warmer and the ice is getmlni …… .
c When water changes to ice it gets gregbi …… .
d Antarctica is the ecltsdo …… land on Earth.
e In every iceberg there are shsadnuto …… of litres of water.
f To make rain from clouds is veepxeisn …… and does not always work.

10 Find the words in Chapter 5.

a You use them to drink from. (p. 27) ……
b A lot of ice floating in the sea that can be dangerous. (p. 28) ……
c They are white and you can see them in the sky. (p. 30) ……
d A place where people make things. (p. 31) ……
e It's something you put on your food. (p. 31) ……
f It's a word to say when something costs a lot of money. (p. 31) ……

Chapter 6

11 Finish the sentences with the right word.

paper rich baths floods dam fish chemicals

a In the United Kingdom people use 60 litres of water for …… and clean clothes.
b Too much rain causes …… .
c 3% of …… in Russian shops came from the Aral Sea.
d Today, there is a new …… across one end of the Aral Sea.
e Factories use 400 litres of water for one kilo of …… .
f Farmers put a lot of …… on the land.
g People in …… countries have to think about how they use water.

12 Circle the right word.

a *Five / Ten* thousand children die everyday because their water carries diseases.
b In Australia, the drought problem is getting *better / worse*.
c The Yellow River runs across *China / Russia*.
d Chemicals in the land make the plants bigger and *greener / stronger*.
e Getting water from ice and sea water is difficult and *expensive / dangerous*.
f 90% of the rivers in *Asia / Europe* have chemicals in them.

After reading

13 Circle a number to show what you think is the most dangerous to people in your country.

1 is a not dangerous and 5 is a very dangerous. Talk to a friend. Do you think the same? Then think about these problems in other countries.

Hurricanes	1	2	3	4	5
Floods	1	2	3	4	5
Droughts	1	2	3	4	5
Pollution	1	2	3	4	5
Waves	1	2	3	4	5

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1 Finish the sentences with the right word.

Spain Bermuda Persia Bangladesh Australia Asia Britain Rome United States Arctic

a There is water everywhere in ..... but the people can't drink it.
b The big rivers in the south-west of ..... are often dry.
c In many places in the ..... the ice is dangerous.
d Every year there are 500,000 new wells in the ..... .
e The people of ..... built waterways in about 2,500 BC.
f The Aqua Claudia waterway brought water to the city of ..... .
g There are great Roman waterways in France and ..... today.
h The Titanic was on its way from ..... to the United States.
i An iceberg made a journey of 4,000 kilometres to ..... .
j The Aral Sea is in ..... .

2 Answer these questions.

a Where did Hurricane Katrina hit in August 2005?
.....
b Why are the Arctic animals dying?
.....
c How long can we live without food?
.....
d Where do rivers go?
.....
e Who took their clever ideas to Arabia?
.....
f Where do they call the waterways *qanats*?
.....
g When was the last ice age?
.....
h What makes icebergs move?
.....
i What is the Aral Sea today?
.....
j What began in 1992 in Rio de Janeiro?
.....

3 Circle the right words.

a Our world is changing *fast* / *slowly*.
b In the *summer* / *winter* more of Bangladesh is under water.
c Greenland is a large country in the *Arctic* / *Antarctic*.
d The air takes up *fresh* / *salty* water from the sea.
e When the air gets colder it starts to *take up* / *lose* water.
f When the Nile flooded the land, it made it *good* / *bad* for farming.
g The Romans made *worse* / *better* waterways than the Persians.
h Nearly all an iceberg is *below* / *above* the water.
i When aeroplanes put chemicals into the clouds, they *sometimes* / *always* make rain.
j In the United States there are *many* / *not many* people without clean water.

4 Circle the wrong word in the sentences.

a Warmer air above warmer seas can to cause hurricanes.
b In the Maldives, a lot of land is only a the metre above the sea.
c There is a lot of water of on the Earth.
d Most people don't live in at the mountains.
e Sometimes ground water is only two or three metres inside under the ground.
f Some waterways in Persia were a hundred kilometres longer long.
g Behind a dam there is a big lake of on fresh water.
h People in Australia live in big cities next near the sea.
i Too many much rain causes floods.
j People need of houses, clothes and cars.

5 Are these sentences right (✓) or wrong (✗)?

a Some people say that without the ice on Greenland, the seas will be one metre lower. ☐
b Some people think that countries will fight about water. ☐
c There were animals on the land when life first began. ☐
d When the air gets warmer, we can see clouds. ☐
e More than half the water people use in Europe and North America comes from ground water. ☐
f Between ice ages, the Earth is very cold. ☐
g In 1912, the *Titanic* was the biggest ship in the world. ☐
h World Water Day began in 1992, in London. ☐
i To take salt out of sea water is a very new idea. ☐
j Farms cause more problems of pollution than factories in most countries. ☐

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Book key

1.1 **1–3** Open answers
1.2 Open answers
2.1 **1** Open answers
2 **a** changing **b** diseases **c** melting **d** higher **e** floods **f** bigger
2.2 **1** ✗ **2** ✓ **3** ✓ **4** ✗ **5** ✗ **6** ✗ **7** ✓ **8** ✓
2.3 **1** thinner, more dangerous **2** more afraid, higher **3** more important **4** more careful **5** shorter, hotter **6** warmer **7** bigger, more difficult **8** dirtier
2.4 Open answers (**2** **a** ✓ **b** ✗ **c** ✓ **d** ✓ **e** ✗)
3.1 **1** Sentence b
2 **a** salty **b** fresh **c** ice **d** food
3.2 **1** 25%
2 90%
3 10%
4 2%
5 40%
6 75%, 65%
3.3 **1** f **2** b **3** e **4** c **5** d **6** a
3.4 **1** a river a lake rain a well
2 Open answers
4.1 Ice, snow, water in the air
4.2 **1** **a** carries **b** mountain **c** cold **d** sometimes **e** old **f** will not **g** sea
4.3 **1** a **2** b **3** a **4** b **5** b **6** b **7** a
4.4 Persians 1 Romans 3 Europeans 4 Egyptians 2
5.1 **a** Europeans **b** Romans **c** Egyptians **d** Persians
5.2 **1** ✗ **2** ✓ **3** ✓ **4** ✓ **5** ✗ **6** ✗
5.3 **1** How long is the waterway?
2 How old are Oman's falajes?
3 How much of Iran's fresh water comes from qanats?
4 How many falajes are there in Oman?
5 How long was the Aqua Claudia?
5.4 Open answers
6.1 **1** **a** bigger **b** sometimes **c** Antarctic **d** smaller
2 Most of an iceberg is under the water.
The Titanic hit the iceberg in the middle of the night.
6.2 **1** B **2** C **3** A
6.3 **1** can **2** could **3** can't **4** couldn't **5** can **6** can't **7** couldn't **8** can
6.4 Open answers (**1** ✓ **2** ✓ **3** ✗ **4** ✓ **5** ✓ **6** ✓)

Talk about it Open answers
Write about it Open answers
Project 1 **a** Inuit usually live in villages next to the sea ice, in houses of wood. They also sometimes make igloos, houses of ice, when they are away from home. (Students' own drawings)
b They eat fish and meat from animals on the ice. (Students' own drawings)
c Inuit boats are often kayaks, canoes or umiaks. (Students' own drawings)
2–4 Open answers

Discussion activities key

1–3 Open answers
4 Open answers + banana 70.7%, cucumber 96.4%, tomato 95%, egg 73–95%, fish 67%, chicken 74%.
5 Suggested answers:
The Pacific has more than half the world's water. The ice on Greenland, a large country in the Arctic, is two metres thick. Farms are polluting fresh water. People can live for only a week without food and water. People are 60% water. People die when they lose a quarter of the water inside them.
6–7 Open answers
8 Suggested answers:
camel, boy, men, well, tree, bucket, rope, shirt, butterfly, lizard, plants, spider, waterway, river, rocks
9 Suggested disasters:
Tsunami disaster, Prestige, Bhopal, Chernobyl
10–14 Open answers

Activity worksheets key

1 **a** waves **b** droughts **c** smoke **d** ice **e** floods **f** diseases
2 **a** Hurricanes **b** ground **c** Dangerous **d** mountains **e** problems **f** different
3 thin–thick
large–small
began–finished
die–live
dry–wet
inside–outside
4 **a** How thick is the ice in Greenland?
b Where did life begin?
c Where do we live for the first nine months?
d When do we lose more water?
e How much water comes from food?
f How much water is there in fish?

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5 **a** From rain.
b When it gets colder.
c About half.
d In the hottest and driest countries.
e Drivers.
f Thirty times more.

6 **a** it rains for days.
b cold air.
c it snows.
d we can drink it.
e is a long way down.
f more and more water.

7 **a** Egypt **b** wells **c** mother **d** Appenine **e** European **f** highest

8 **a** a
b at
c the (before 'well')
d up
e best
f on

9 **a** polluting **b** melting **c** bigger **d** coldest **e** thousands **f** expensive

10 **a** glasses **b** icebergs **c** clouds **d** factory **e** salt **f** expensive

11 **a** baths **b** floods **c** fish **d** dam **e** paper **f** chemicals **g** rich

12 **a** Five **b** worse **c** China **d** stronger **e** expensive **f** Europe

13 Open answers

Progress test key

1 **a** Bangladesh **b** Australia **c** Arctic **d** United States **e** Persia **f** Rome **g** Spain **h** Britain **i** Bermuda **j** Asia

2 **a** New Orleans, in the United States.
b Because they are losing their food.
c About three months.
d Into the sea.
e The Persian people. / The Persians.
f In Iran.
g About 10,000 years ago.
h The winds and the seas.
i A small lake.
j World Water Day.

3 **a** fast **b** summer **c** Arctic **d** fresh **e** lose **f** good **g** better **h** below **i** sometimes **j** many

4 **a** to **b** the **c** of **d** at **e** inside **f** longer **g** on **h** next **i** many **j** of

5 a ✗ b ✓ c ✗ d ✗ e ✓ f ✗ g ✓ h ✗ i ✗ j ✓

