

Climate Change

HRH The Prince of Wales
Tony Juniper
Emily Shuckburgh



Contents

New words	4
Note about the book	6
Before-reading questions	6
Chapter One – The Earth's climate	7
Chapter Two – A warmer world	11
Chapter Three – The effects of a warmer world	16
Chapter Four – Climate change, then and now	26
Chapter Five – The causes of climate change	30
Chapter Six – The risks of climate change	41
Chapter Seven – Solutions	53
Chapter Eight – The future	63
During-reading questions	70
After-reading questions	71
Exercises	72
Project work	76
Glossary	77

CHAPTER ONE

The Earth's climate

Today, the Earth's climate has a huge **effect** on the daily lives of all the people in the world. It has always had a big effect on life on Earth, and it had a big effect on how life started **billions** of years ago.

So, what is climate? Climate is the usual weather in a place over a long time – normally thirty years or more. Weather can change quickly, and a place can have very different weather from one day to the next. But climate is those weather **patterns** over a long time.

On Earth, lots of things have an effect on the climate – the **atmosphere**, the oceans, the land, ice, people, plants and animals, and the light and **heat** from the Sun.

The Earth's atmosphere is a thin layer of **gases** above the Earth.



The Earth's atmosphere

Most of the atmosphere is nitrogen (N_2) and oxygen (O_2), but there are other gases in the atmosphere, too.

Some of the gases in the atmosphere are called greenhouse gases because, like the glass in a greenhouse, they keep the Earth warm. They do this by stopping some of the Sun's heat from leaving the Earth. They are very important because they help to keep the Earth at the right **temperature** for life to grow – not too hot and not too cold. Carbon dioxide (CO_2) is a very important greenhouse gas. Without the greenhouse gases, the Earth would be very, very cold.

Many scientists study the Earth's atmosphere. They do this from satellites and from the land, and their studies show that the **amount** of greenhouse gases in the atmosphere is growing. This is making the temperature on Earth get warmer, and this warming is having a big effect on the climate.

We are already seeing the effects of this all over the world. Weather patterns are changing; the water



satellite

the atmosphere

in the oceans is getting warmer; snow and ice are **melting** in the Arctic and Antarctica; and sea **levels** are **increasing**.

These effects can **cause** many problems for the people on Earth, and for the beautiful plants and animals that live on Earth, too. They could mean there is not enough food and water for everyone; they could have a damaging effect on people's health; and they could make some people poorer. We need to act now to stop climate change and to make a better **future** for our world. If we do not act now, we will put the future of our world **in danger**.

CHAPTER TWO

A warmer world

Weather stations across the world give us information about the temperature on the Earth's **surface**. We also get information from ships and buoys in the oceans. All this information helps scientists to decide if the temperature on Earth is going up or going down.

Information from the last 150 years shows that the temperature on the Earth's surface has gone up. The temperature in some places has increased more than others, and the warming in the Arctic is greater than in all other places on Earth.

Some years have always been warmer or colder than others, and the Earth's climate has changed a number of times in the past. This is because **natural** things can cause the Earth's temperature to change from one year to the next, or to change over a longer time. These things **include** the amount of heat coming from the Sun, the effect of volcanoes and weather patterns like El Niño.

But, for many years, scientists have talked about climate change and the warming of the Earth. Each of the past four **decades** has been warmer than the one before.

