

The Blue Planet

Chapter 1

Water is the cornerstone of life on planet Earth. It is the only planet in our Solar System that contains large quantities of water. Looking down from space Earth looks like a giant blue marble. White wispy clouds are obscuring part of the Earth's surface.

The oceans cover 71 % of the Earth and contain 97.5 % of the water on the planet. The remaining 2.5% of the water is found in ice caps, ground water, freshwater lakes, rivers, water vapor in the atmosphere and moisture in the soil. Most of the fresh water is locked in ice caps and only 1% is available for plants and animals living on land.



View from the International Space Station of Earth and a hurricane in the Atlantic Ocean. The hurricane is headed for the east coast of the United States. NOAA

The Water Cycle

The water cycle is a continuous cycle fed by the oceans. The sun shining on the surface of the ocean warms the water. The surface water turns into vapor that rises above the oceans forming clouds in the atmosphere. Wind currents over the ocean blow the clouds toward land.

The clouds are forced upward over coastal mountain ranges where they cool and condense. The clouds drop part of the moisture in the mountains as rain. The rain produces a temperate rain forest on the western slopes of the mountains. The Olympic National Park in northwestern Washington annually receives over 3.5 meters of rain on the western side of the park.

The Cascade Range forms the next barrier in the Pacific Northwest. The Cascade mountain peaks are between 3000 m and 4000 m high. The clouds are pushed over the mountains by winds blowing eastward. The clouds are forced over the mountains by winds flowing eastward. The moisture in the clouds condenses as the clouds move

Water Pressure

Activity 1

Introduction

The atmosphere is held to the Earth by gravity. At sea level the pressure is **one atmosphere**. If you could dive without special equipment to a depth of 1000 meters the pressure on your body would be 100 times greater than at sea level. Cuvier's beaked whale is the deepest diving animals. One whale was tracked on a dive that lasted 2 hours and 17 minutes. The whale dived 2,992 m during this time. The whales dive to these great depths to feed on giant and colossal squids.



Materials

- ◆ Plastic glass
- ◆ Small index card that covers the top of the glass completely
- ◆ Water

Directions

1. Clear plastic water glass. It is recommended you use a plastic glass instead of a glass that will break just in case the water glass is dropped.
2. Fill the glass with water about half full.
3. Go outside on a grassy area to do the activity.
4. Place the index card over the glass.
5. Carefully turn over the glass holding your hand on the index card, This keeps the water from flowing out when you are turning it over.

Table of Contents

Chapter 1

The Blue Planet.....	1
Water Pressure	5

Chapter 2

Earth's Five Oceans	8
Sailing the Oceans.....	12

Chapter 3

The Ocean Floor	15
New Ocean Floors.....	19

Chapter 4

Zones of Life.....	22
Living in the Oceans	25

Chapter 5

The Seashore.....	28
Sand Samples	32

Chapter 6

Tide Pools	35
3-D Sea Stars.....	39

Chapter 7

Estuaries.....	42
Warm & Cold Currents.....	46

Chapter 8

Coral Reefs.....	49
Tropical Island Map.....	52

Chapter 9

The Drifters.....	55
Floating on the Oceans.....	58

Chapter 10

Fantastic Fish	60
Coral Reef Fish Cards.....	63

Chapter 11

Marine Mammals.....	66
Create a Game.....	70

Chapter 12

Mollusks.....73
Calcite Seashells76

Chapter 13

Deep Sea Vents78
Life Around a Vent81

Chapter 14

Tides & Currents.....83
Ocean in a Bottle.....88

Chapter 15

Tsunami.....91
Protecting Seashores94

Glossary97

Books by Myrna Martin101