



OzonAction Education Pack

A guide for primary school teachers



Acknowledgements

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The Ozzy Ozone character is a registered trademark of the Government of Barbados. UNEP would like to thank the Government of Barbados for its permission to use this character.

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Preface

In the 1970's, when scientific evidence was published showing that man-made emissions of commonly used chemicals, originally thought to be harmless, were destroying the ozone layer - the natural shield that protects life on Earth from the dangerous UV radiation of the sun - a fundamental concern was raised: human activities have environmental consequences that are not always predictable but that can affect everyone's life on the planet. These increased levels of UV radiation due to the depletion of the ozone layer threaten human health. This striking reality should influence all of our actions: when we harm the environment, we harm ourselves.

The discovery in 1985 of a large ozone "hole" over Antarctica during springtime, growing larger and deeper each year, has revealed the scale of the problem. Since then, action has been taken by the international community through the adoption of the Montreal Protocol on Substances that Deplete the Ozone Layer (1987), an agreement aimed at severely restricting the use of ozone depleting chemicals. Thanks to these efforts, the first signs of the ozone layer's recovery are now becoming noticeable at mid-latitudes.

This action must be continued and sustained through informational and educational efforts to involve individuals and communities. Indeed, the damaging consequences of ozone layer depletion on human health will certainly last until the end of the 21st century, considering the time it will take for most ozone depletion to be reversed and for UV radiation levels to decrease accordingly.

Each year, between 2 to 3 million skin cancers are detected worldwide. Between 12 to 15 million people become blind from eye cataracts. According to the World Health Organization⁽¹⁾, up to 20% of these may be caused or enhanced by sun exposure. In 2003, the World Health Organization took an important initiative to address this issue and published an educational package to promote sun protection in schools. This package contains three publications to help schools and teachers develop sun protection policies and programmes with young students.

This has been the most inspiring scientific and didactic resource for the development of the OzonAction Education Pack that stands for a complementary tool aimed at highlighting the link between ozone layer depletion and increased levels of UV radiation. Indeed, the rate of health problems and diseases due to UV radiation will increase over the next decades as the ozone layer is depleted, unless people are encouraged to protect their natural environment while informed about the simple solutions they can adopt to protect themselves from the sun. The teaching programme and materials contained in the Education Pack aim at providing young students with the means to understand that they can both help prevent ozone layer depletion and adapt themselves to its potential for adverse health effects by being sun-safe.

When it comes to the consequences of ozone layer depletion on human health, children are particularly at risk. We must give them the means to protect their own future. Thanks to the assistance provided by the Protocol's Multilateral Fund, we are able to do so. The OzonAction Education Pack is part of the awareness-raising project for young children that UNEP has been developing around a very successful character: Ozzy Ozone, the ozone molecule. This project has led to the development of several multi-media materials: a video, TV and radio spots, a cartoon book and the Ozzy Ozone website. In this very important education challenge, teachers can also rely on Ozzy Ozone as a messenger to tell their students about the ozone layer in a simple and exciting way.

This Education Pack was also developed with the pedagogical advice of UNESCO, the lead agency for the promotion of the United Nations Decade of Education for Sustainable Development (2005 – 2014). Aimed at encouraging people with the knowledge and skills needed for a sustainable future, this UN initiative supports educational projects, based on interconnected issues such as environmental degradation and human health, that help children understand the complexity of the world they live in and empower them to adopt responsible behaviours.

The Education Pack offers primary school teachers a useful educational tool that meets their expectations in terms of background information, teaching ideas and materials. It is in their primary schools that children of the world get the chance to develop the social behaviour that will protect them from the harmful effects of UV radiation. Both environmentally responsible and healthy behaviour adopted at a young age stay over a lifetime. Educating children at primary school level to participate actively in the protection of the ozone layer and to know how to protect themselves from the sun must therefore be a priority.

National Ozone Units and education ministries play a crucial role in this process. Together with primary schools they can take actions to inspire both collective and individual involvement. The International Ozone Day (16 September) stands for a great occasion to do so and to start organizing classroom activities from the OzonAction Education Pack.

(1) World Health Organization, Sun Protection and Schools: How to Make a Difference, 2003, p. 1

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The education pack

The Education Pack has been developed to provide primary school teachers with a comprehensive and “ready-to-use” educational tool. It is aimed at helping them bring into their classroom the major environmental and human issues related to ozone layer depletion in a way that arouses children’s curiosity and interest.

The materials contained in this Education Pack work together to offer the opportunity of a whole teaching and learning project, based on basic knowledge, practical skills and participation, for young children to be educated about:

- 1/ the natural role of the ozone layer;
- 2/ the causes and consequences of its depletion in terms of increased harmful solar radiation, how to prevent health threats by protecting the ozone layer;
- 3/ concrete solutions concerning how to be protected from the sun and adapt oneself to increased levels of UV radiation.

GUIDE FOR PRIMARY SCHOOL TEACHERS MATERIALS IN THE PACK

The educational Guide contained in this Education Pack is addressed to teachers to help them bring the programme into their classroom. The content of the teachers’ Guide is as follows:

- **Pedagogical advice:** the Teacher’s Guide begins with a “How to use” section that offers an overview of the teaching programme and advice to implement it.

- **Teaching programme:** afterwards, the teaching programme is presented in details. It covers four major themes: *the Earth and the Sun, the role of the ozone layer, causes and consequences of ozone layer depletion, solutions to protect the ozone layer and prevent increased levels of UV radiation, as well as solutions for more sun protection.* Each theme is divided into several educational units.

Within this programme, teachers will also find a short story, “The Story of Ozzy’s Journey”, which can be read to or by the students. It tells the story of Ozzy Ozone travelling around the world and finding about various natural sun protection strategies. This story aims to introduce sun protection measures students should consider.

- **Prevention and protection measures:** following the teaching programme, teachers will find a review of the practical solutions that should be adopted to prevent ozone layer depletion as well as to protect oneself from high level of UV radiation. This review can be used to go over the main points of the programme.

- **School initiatives:** this Guide also proposes suggestions for setting an Ozone and Health Action Plan at school, aimed at children’s direct participation in a school project for collective and individual responsibility toward the ozone layer and health protection. There is also an opportunity for your school to enter their Ozone and Health Action Plan in the UNEP Volvo Adventure Award, which rewards practical action taken by young people to solve environmental problems locally.

- **Meanings and resources:** the Guide contains a glossary and mentions additional resources for teachers. The words to be found in the glossary are marked in the text as ‘*’.

- **Ozzy Ozone Video (CD):** this video can be shown to students as an introduction to the teaching programme. It is 9 minutes long and shows Ozzy Ozone taking a voyage of discovery to find out exactly who and what is attacking the ozone layer and how children can play an important role in making a difference. This video has been shown in 62 countries and has been translated to 22 languages.

- **Ozzy Ozone cartoon book:** “Ozzy Ozone, Defender of Our Planet” is included in this Education Pack for students.

- **Ozzy Calendar:** this calendar is aimed at providing the classroom with visual illustrations of the informational content and knowledge introduced by the teachers all along the educational programme. This calendar shows Ozzy Ozone presenting 12 illustrations and can be displayed to support the teaching of the different concepts. Teachers will also find these illustrations in their educational guide along with background information.

- **World map:** the world map poster is designed to visually represent the regions of the world affected by high levels of UV radiation and ozone depletion. It mentions the hottest months for each region, highlights the hot climate areas and shows the levels of ozone concentration in the upper atmosphere.

- **“Who Knows?” Cards:** these cards contains a game of 8 sets of questions and answers aimed at organizing “Who Knows?” challenges to evaluate students’ understanding of the main points of the activities and themes. There are three levels of questions for each card: three level 1 questions (easy level), two level 2 questions (intermediate) and two level 3 questions (more able students).

There are 8 “Who Knows?” cards on:

- > The Earth and the Sun
- > The ozone layer
- > UV radiation
- > UV radiation factors
- > Ozone layer depletion
- > The risks of increased UV radiation
- > Measures to protect the ozone layer
- > sun protection rules

- **UV paper:** this card’s colour changes in contact with UV radiation. It is a tool that will help students to observe different levels of UV radiation.

How to use the education pack

OBJECTIVES

- Explain in simple terms the environmental and health issues related to ozone layer depletion.
- Encourage children to become actors in the protection of the ozone layer and develop a sense of ownership towards their environment.
- Encourage children to protect themselves from the dangerous effects of the sun.
- Bring into the classroom the understanding of:
 - > The vital role of the ozone layer
 - > The causes and consequences of ozone layer depletion
 - > The dangers of sun exposure
 - > The prevention measures: how to prevent in practice ozone layer depletion
 - > The sun protective measures: how to adapt oneself in practice to increased UV radiation

To meet these objectives, teachers are provided with information and practical resources that form a comprehensive teaching programme (background information, activities and materials), including ideas and suggestions to set up an Ozone and Health Action Plan at School.



IMPLEMENTATION OF THE TEACHING PROGRAMME

CONTENT:

- The teaching programme starts with an introductory session (two units), followed by three major themes of three units each:
 - > Introductory lesson: *The Earth and the Sun*
 - > Theme 1: *The ozone layer: a shield between the Earth and the Sun to protect us*
 - > Theme 2: *Ozone layer depletion: let's not take a risk!*
 - > Theme 3: *What can we do?*
- Each unit contains all the background information needed to implement the corresponding lesson as well as various teaching ideas/activities. Therefore, each unit contains:
 - > A short presentation of the objectives to be met during the lesson.
 - > Background information and visuals providing the content of the lesson so that teachers get a clear and complete comprehension of the issue; simple and concrete messages adapted to young children's level of understanding.
 - > A set of various activities, presented in details (main subject areas, timing, objectives, location, equipment, procedures) among which teachers can choose to illustrate the lesson.

HOW TO PLAN THE LESSONS:

- The approximate timing for primary school lessons is one hour. In this framework, teachers will have the opportunity to choose, within each unit, one or several activities to illustrate the lesson, according to their teaching priority or interest. They have at least two different options to implement each unit.
 - > First, start with the lesson, then set up one or more activities to illustrate some specific points.
 - > First start with setting up one or more activities to stimulate children's interest, then introduce and sum up the lesson.

HOW TO CHOOSE ACTIVITIES:

- Teachers can choose the activities amongst those suggested according to their **time schedule** and their **teaching environment**.
- Even though the Education Pack is targeted to primary school students in general, some activities may appear to be of a higher level than others. Activities should be chosen according to **students' grades**.
- Teachers can also choose among these activities according to the **subject areas** they wish to focus on:
 - > These activities are built on existing subjects and educational objectives specific to primary school programmes, so that children keep on acquiring and improving skills in key areas such as science, geography, health, environment, communication, language, mathematics and art.
- Finally, activities can be chosen according to the **teaching methods** they are built on:
 - > The activities are based on a wide range of educational methods from opening discussions and debates to experimentation and observation, field research, writing and reading, creativity, role-playing and games. Many activities encourage interaction and students' participation. They are intended to increase knowledge, build positive attitudes and values, enhance skills and provide support for a responsible and healthy lifestyle.
 - > **The following symbols indicate for each activity the associated teaching method:**

TOOLS TO SET UP YOUR OZONE AND HEALTH ACTION PLAN AT SCHOOL

HOW TO EVALUATE:

- The “Who Knows?” cards will help the teachers evaluate students’ understanding of the main issues addressed throughout the programme.
- At the end of the teaching programme, teachers will find a review of the preventive and protective rules everyone should follow to protect the ozone layer as well as to be protected from the sun. They can use this review to sum up the whole programme and evaluate students’ understanding of these rules.

FOLLOWING THE SEQUENCE

The teaching programme has been developed as a “step by step” programme. Units have been ordered so that the interconnected social, environmental and human dimensions of ozone layer depletion are all addressed. Each unit builds on the benefits of the previous ones; therefore it is important that teachers follow their sequence.



DISCUSSION



EXERCISE



EXPERIMENTS



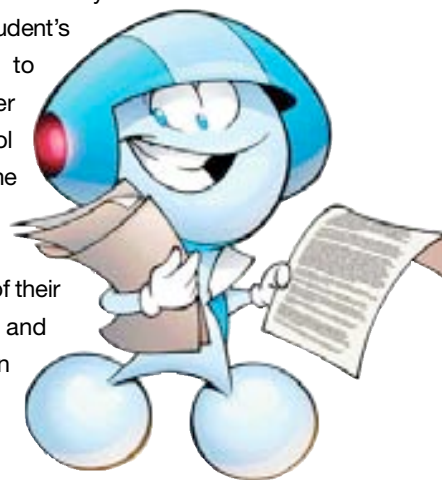
ROLE PLAY



PROBLEM

This Guide for Primary School Children also provides tools to set up Ozone and Health Action Plans at school. The corresponding section (p. 56) presents ideas and procedures for creating a local awareness and action project with students on ozone protection and sun-safe behaviours.

This Ozone and Health Action Plan at School is aimed at encouraging students to demonstrate their understanding of the issues related to ozone layer depletion. Through student’s direct participation to reach out to other members of the school and their families, ozone action planning can help students develop a sense of ownership of their own environment and reinforce sun protection behaviours.



Your school can enter its action plan in the UNEP Volvo Adventure Award. This UNEP award rewards practical action taken by young people to solve environmental problems locally.

For more information:

<http://www.volvoadventure.org>

OBJECTIVES

- > To use the content of the teaching programme to develop an Ozone and Health Action Plan for the school or community.
- > To conceive a list of practical actions – prevention measures and protection measures - to encourage and participate in ozone protection along with self-protection from the sun.
- > To implement the Ozone and Health Action Plan through school policy, individual and collective commitment and communication.

Teachers who intend to set up an Ozone and Health Action Plan for their school with the students could make the link to the project explicit while they proceed through the programme. All along the teaching programme, activities that can be used for Ozone and Health Action Planning are marked with the following symbol:



OZONE AND
HEALTH ACTION
PLAN

LESSON PLANNING Objectives and activities in the programme

INTRODUCTION The sun and the Earth

CONTENTS AND ACTIVITIES	OBJECTIVES	MAJOR AREAS	METHODS	LOCATION	MATERIALS	TIMING	P
UNIT A THE EARTH AND THE SUN, HOW DO THEY WORK TOGETHER?							
Contents: what the students should know	<ul style="list-style-type: none"> The sun is an essential source of energy for life on Earth The Earth around the sun The ozone layer filter 	Science Communication Environment	Teacher's presentation	Classroom	Ozzy Calendar illustrations 2 / 3	30mins	13
Activities							
What is the sun?	<ul style="list-style-type: none"> Facts and perceptions about the sun 	Science Environment	Discussion	Classroom	Ozzy Calendar illustration 2	20mins	15
The many moods of the sun	<ul style="list-style-type: none"> Creative sentences about the sun 	Language Communication	Writing Reading	Classroom	Notebooks and pens	20mins	15
How can we see the Earth is turning?	<ul style="list-style-type: none"> Observing the Earth rotation 	Science Environment	Experimentation Observation	Schoolyard Clear ground Sunny place	Ozzy Calendar illustration 2 Chalk	15mins (3X)	15
Understanding the seasons	<ul style="list-style-type: none"> Relate the Earth and the Sun to the seasons 	Science Environment	Discussion	Classroom	Ozzy Calendar illustration 2	15mins	16
The ozone layer filter	<ul style="list-style-type: none"> Introduce the role of the ozone layer 	Science Environment	Discussion	Classroom	Ozzy Calendar illustration 3	15mins	16

om	Ozzy Calendar illustrations 4					30mins	17
surroundings lay						15mins	18
rd round	Ozzy Calendar illustration 4, 2 pieces of paper					25mins	18
om	"Who Knows?" card 1					15mins	19

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_11171

