



**Republic of Zambia
Ministry of Education**

Sample Science Lessons For Grades 5 to 7

May 2007



USAID
FROM THE AMERICAN PEOPLE



Preface

The Ministry of Education is working to ensure that the teaching of Science in our basic schools is improved. One of our priorities is to promote learner-centred instruction. Learners must be given the chance to practice skills and discover concepts on their own.

Many teachers have found the teaching of Science to be very difficult, especially when it comes to applying learner-centred methodologies. That is why the teaching of Science has not yielded the desired results in basic schools. However, I would like to assure you that Science can be taught in a learner-centred manner just as easily as any other subject.

Teacher Education Department, with QUESTT Project of Education Development Centre, and support from USAID, have targeted this by working with teachers to produce *Sample Science Lessons for Grades 5 to 7*. Together they have produced 30 sample Science lessons that are published in this booklet. Six of those lessons are demonstrated in a video. The lessons provide examples of how learner-centred methodologies can be used to cover topics that some teachers have found difficult to teach. The booklet and the video include teaching methods, resources and activities that make it fun for children to learn the science skills and ideas and easier for teachers to teach them.

After viewing the sample lessons, I hope that every teacher will organize learner-centred activities in their classrooms. Learner-centred activities engage learners in scientific enquiry.

I urge all teachers to make good use of the booklet of the sample science lessons and the video of six lessons. Keeping in mind that the 30 sample science lessons do not cover all the objectives of the Grade 5 to 7 science curriculum, I encourage you to use them as an inspiration to create your own learner-centred activities to teach other Science topics. Once you have used some sample lessons in your class, I challenge you to create your own learner-centred lessons to cover other topics of the curriculum.

Lillian E.L. Kapulu
Permanent Secretary
Ministry of Education, 2007

ACKNOWLEDGEMENTS

The lesson plans for *Sample Science Lessons for Grades 5 to 7* were written at the Workshop to Develop Integrated Science Lessons, held 18th to 21st March 2006. Many thanks for the hard work and efforts of the educators who developed the lessons:

Prisca Chisamanga, Teacher, Chingwele Basic School
Chiemyfy Mulolo, Teacher, Muleya Basic School
Diverson Sikazwe, Teacher, Chawama Basic School
Regina Seketa, Senior Teacher, Olympia High School
Staphness Malambo, Zonal In-service Provider, Sefula Basic School
Saasa E. Mufalali, Head Teacher, Sefula Basic School
Elizabeth Nyambe, Head Teacher, Kabulonga Basic School
Judith Muzona, District Resource Centre Coordinator, Kafue
Agripa Simatimbe, District Resource Centre Coordinator, Lusaka District
Florence Manda, Senior Lecturer, Chipata College of Education
David Mulenga, Senior Lecturer, Mansa College of Education
Ricky Siakatila, Technology Officer, National Science Centre
Edward Tindi, Senior Education Officer, Teacher Education & Specialized Services
Malinda Malinda, Senior Education Officer, Teacher Education & Specialized Services
Simon Hikaula, Curriculum Development Specialist, Curriculum Development Centre
Samson Njapau, Curriculum Development Specialist, Curriculum Development Centre
Sue Chelemu, Science Consultant, QUESTT Project

Appreciation goes to **Hideo Nakano**, Senior Volunteer of the Japan International Co-operation Agency (JICA), for sharing his expertise and demonstrating teaching aids from the National Science Centre throughout the workshop. Many thanks also go to the administration, teachers and pupils of Lotus Basic School for welcoming us into their classes to try out early versions of the lessons on 20th March, 2006.

We wish to express our gratitude to **Sue Chelemu** for demonstrating learner-centred teaching methods at the workshop, reviewing the lesson plans before publication and for putting together the “Games and Practical Activities to Enhance Science Lessons”. We encourage teachers use and adapt the games for their own lessons.

It has been a pleasure to work with so many enthusiastic and hard-working people on this manual.

Francis Sampa, Teacher Education Coordinator, QUESTT Project
David Anderson, Teacher Education Advisor, QUESTT Project
Jim O’Rourke, Deputy Chief of Party/TEA, QUESTT Project

A workshop to develop Integrated Science Lessons was conducted by the Teacher Education Department of the Ministry of Education with technical and financial support from QUESTT, a USAID-funded project.

You may contact Teacher Education Department and QUESTT as follows:

Teacher Education Department Ministry of Education P.O. Box 5009 Lusaka, Zambia Office phone: +260-1-255 235	QUESTT (Quality Education Services Through Technology) Project Education Development Centre Private Bag 542X, Ridgeway Lusaka, Zambia Office phone: +260-1-266 829
---	---

Contents

NOTES FOR TEACHERS USING THIS MANUAL.....	1
FRAMEWORK FOR SCIENCE LESSONS.....	5
GRADE 5 SCIENCE LESSON PLANS	8 - 38
1. Water in the body and dehydration.....	8
2. Parts of the digestive system.....	11
3. Accidents and First Aid.....	14
4. HIV/AIDS and treatment of patients.....	17
5. Drug and substance abuse.....	21
6. How soil is formed.....	25
7. Sources of electricity and conductors.....	27
8. Weight.....	29
9. Volume.....	32
10. Insulators and conductors.....	35
GRADE 6 SCIENCE LESSON PLANS	38 - 61
1. The circulatory system.....	38
2. Substance abuse and its effects.....	40
3. The effects of rain on the environment.....	42
4. Conservation of fish.....	44
5. Photosynthesis.....	46
6. Transpiration.....	50
7. Methods of communicating using sound.....	53
8. Movement of sound.....	55
9. How to make a magnet.....	57
GRADE 7 SCIENCE LESSON PLANS	62 - 88
1. Discovering the basic facts about human skin.....	62
2. Differences between viruses and bacteria.....	65
3. Effects of skin lightening creams on skin.....	70
4. Waterborne diseases.....	71
5. Propagation.....	77
6. Properties of copper.....	79
7. Discovering the causes of lightning.....	82
8. The solar system.....	84
9. Earthing and electrical appliances.....	86
10. Converting electricity to other forms of energy.....	88
GAMES AND PRACTICAL ACTIVITIES	91 - 113