



Language & **MATHS**

VVOB Mentors: Lieve Leroy and Hans Casier



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GROUP 5

Language and maths

SOME REFLECTIONS ON THE GRASSROOTS PROJECTS: “HOW TO BE A GOOD FERTILISER?”

LIEVE LEROY

When I first heard about the Grassroots concept, I found it an exciting idea. However, I was a bit doubtful about the examples given. According to me they were far beyond the reality of Zambia and I was afraid we would help creating some islands of unrealistic projects. Once I became a mentor of a Grassroots group, my opinion changed. Each project in my group was based on a very down to earth idea. They were projects that could be done with a minimum of ICT equipment and with basic ICT and media knowledge and skills. And yet, all these projects potentially catered for huge learning experiences and change. In Charles Lwanga College students

improved their pronunciation of English language via the use of different kinds of media. Since they got proper feedback on what they did via video and audio recordings, they were motivated to change and improve. In Malcolm Moffat College communication among staff and students improved by the introduction of a newsletter. In Kabwe Trust School learners and educators experienced how exciting reading can be via the use of ICT. Pupils wrote stories for their peers and via PowerPoint they made those stories fun! None of these projects entailed advanced or revolutionary equipment, but they simply implemented media and ICT to optimise

It was great to see that new software could be used without having formal training or workshops. What made the difference is the fact that participants just wanted to learn, they wanted to succeed their dream and because of that they just tried, failed, tried again and succeeded. If there is anything that we can learn from this Grassroots Project, it is that learning doesn't start because someone organises a workshop. No, learning simply starts when someone has a dream, an exciting idea, and wants to make it happen.

My role in all this was to ask questions, encourage, demonstrate, ... In short, I tried to fertilise the soil, but the Grasshoppers did the work. I am pleased to look at the fruits that are about to be harvested.

SOME REFLECTIONS ON THE GRASSROOTS PROJECTS: “YOU CAN DO IT IF YOU REALLY WANT”

HANS CASIER

How can schools/colleges motivate teachers to reflect on their practice and improve? Challenging you might think? Well, the Grassroots initiative and this book you are reading, shows that it is possible. To borrow Jimmy Cliff's song: **“You can do it if you really want”**. Ownership! Bottom-up! Real change is about what teachers do. Some change might appear small, but then ask yourself: *how do you eat an elephant? (*)*

Leadership at all levels, take note! The Grassroots Projects show that change in education is about mobilising the ideas and energy of educators. Love your employees; help create a spirit and culture of working together for the common purpose of making a positive difference in the life of our children.

My personal reflection is to thank the Grasshoppers for their camaraderie and enthusiasm during the grassroots gatherings. I thank them for their perseverance and sharing their work with all of us in this book. Finally, I thank Leonie and Bart for their enthusiasm to make the grassroots a success story.

I look forward to seeing the next family of grasshoppers. You are hereby invited to join.

(*) *One bite at the time.*

MAMOCE NEWSLETTER WRITING PROJECT

INTRODUCTION: Jury Report

The newsletter writing project clearly shows that ICT enables students to demonstrate what they know in new and creative ways. It stimulates students to become information literate. An information-literate person is one who knows how to learn by efficiently accessing, critically evaluating, and effectively using information for academic and personal reasons.

Without thinking skills, students may learn facts, but will not know how to use them. Thinking means that we have to arrange our thoughts in our minds. The best way to do this is by writing. As we manage to develop thoughts sensibly on a piece of paper, and we constantly reflect on what we are writing and why, we are surely using our thinking skills. Unfortunately, *Zambian* students tend to have very poor writing skills, probably because we don't ask them often enough to write. The newsletter writing project shows us that it should not take that much (*See Tool Publisher in Tab 7*).

Thinking skills are crucial to information literacy development

This newsletter writing project isn't merely about writing and ICT skills using WORD and Publisher, it is a process that also includes basic activities such as thinking about the problem, questioning a topic, identifying possible sources of information, searching for information in those resources, organising the information for better understanding, and sharing this information with others (*See Lesson Plan in Tab 8*).

This Grassroots Project also shows us that **Group interaction helps in producing critical thinkers**

Group work obliges them to reach a consensus, so students will have to build up appropriate argumentation to assure those with different opinions. Students also learn to review their opinions, to critically assess them and reflect on them. These are very essential attitudes for critical thinkers.

Finally, the successful newsletter writing project clearly indicates that not all good speakers are good writers as well. For some learners writing helps the thinking process when we first try to explain what we think to others.

The jury is looking forward to receiving the following issues of the MAMOCE Newsletter and encourages other learning institutions to support such initiatives to give the students a voice.



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Kennedy Kasimba is a self-motivated and innovative senior lecturer currently based at Malcolm Moffat College of Education. He is qualified to teach Geography (at college and university levels), English Language and Literature in English (High School and College level). He has worked as team leader of a team behind Malcolm Moffat College of Education's Technology plan. He has been privileged to represent the college and country at the 2009 Intel ICT in the classroom conference in Durban. Since then, he has created videos using Movie Maker and has also been working on a project with colleagues to use computers for expressive arts.

Kennedy Kasimba holds a Masters and a first degree from the University of Zambia (UNZA).

Case study on the use of a NEWSLETTER WRITING PROJECT and PUBLISHER (SOFTWARE)

Mr. Kenson is a Senior Lecturer in the Literacy and Language Education (LLE department). In one of his literacy lessons the issue of various forms of writing came up. At the end of the lesson one of his students suggested that the production of a college newsletter would be a good idea. The following day he wrote on the blackboard:

Writing Skill

Newsletter Writing Project

Mr. Kenson thought of what students would be able to do for this project. One of the things that crossed his mind was allowing students to demonstrate their writing skills through the newsletter using Microsoft Word and Publisher. They could also apply their editing skills while writing a story or an article of specified words.

Students of class P2B were put in groups with a hand-out of specific projects to complete. The groups were asked to find news worthy reporting on within the college and to write articles between 250-300 words. Plain papers were given and deadlines were set. Some students in the group who had operated a camera before were assigned as photographers of any events/persons that would match their stories/articles.

In the process of typing the newsletter (first in WORD, later on in Publisher), a number of issues came out. For instance, some students had problems with finding synonyms while working on PCs. Instead of looking for a thesaurus in the library, Mr. Kenson advised students to use the thesaurus on the PCs (by pressing shift key and F7).

Mr. Kenson and his class also faced a number of challenges: (i) lack of cartridges to print out their work, (ii) some students' work was tempered with in the computer lab, (iii) limited time in the computer lab for students i.e. 1 hour per week, (iv) administration was apprehensive about some news stories students wrote.

In spite of the challenges, Mr. Kenson learned a lot from this experience. Firstly, what had started as a newsletter writing project to improve writing, brought out other skills in process: problem solving, critical thinking and teamwork (student to student collaboration and student-staff interaction). He also noticed that some students who were no good speakers in class were actually good writers.

Mr. Kenson's students were ecstatic to see the final product of their work typed and printed. "I would like to do this again. I enjoyed the whole experience especially interviewing some students and members of staff and further typing my story in Publisher," students said.

“Computers will never replace lecturers and teachers, but lecturers and teachers who use computers will replace those who don't.”

What **METHODOLOGY** was mainly used?

Projects (*)

A project is a set of tasks for students individually or groups. The students exercise autonomy over how, where, when and in what order the tasks are carried out.

Projects give the students an opportunity to use their skills and knowledge. It gives students some control and responsibility over their learning and use higher-order intellectual skills such as creativity, problem-solving, evaluation, synthesis and analysis, etc. Students also develop key skills such as communication, self-management, and working in group.

Devising a Project

Creating a project will involve the following:

- Decide on objectives: What do you aim to achieve with the project?
- Consider resources
- Consider time needed
- Consider skills needed
- Devise student activities

Make sure the activities:

- Interest the students
- Offer an opportunity to practice skills
- Are active and varied
- Are well defined
- Set an achievable target, which is rewarding to meet.

Designing the Project

Every project needs to be described to the student. This is usually done with a hand-out containing:

- an introduction which describes the context for the project
- the aims and objectives of the project
- the tasks
- an outline of what will be assessed, and how
- background notes
- date for completion

Role of the teacher/lecturer during Project work

The teacher/lecturer must become a learning manager and a facilitator rather than just an instructor. There is more to this than just answering queries, assessment, debriefing, and evaluation. Check work while it is being done, and request improvement where necessary. Make positive comments where you can!

(*) *Excerpted and adapted from PETTY, G. (2009). Teaching Today. A Practical Guide. Stanley Thornes (Publishers) Limited, Cheltenham.*



MAMOCE NEWSLETTER

BI-MONTHLY NEWSLETTER



1ST CONGRATULATES MR. MOYO

MR. MOYO
Mr. Moyo, Mamoce College of Education, A/Vice Principal, Ghana, has been elected as Vice-Chancellor, 1st Vice-Chancellor, 2016 congratulated and praised the MAMOCE electoral committee on the job well done during the past week college student representative election.

EXECUTIVE PRINCIPAL
I am very proud to congratulate Volume 1, Issue 1 written on the job well done during the past week college student representative election.

In an interview with our reporter, the VP had this to say: "I have received electronic letters in other colleges that they also got elected but from the same members and self organized. They organized one of the best election."

The VP also encouraged the future work hand to hand with the students because at the end of the day it was democracy that had won.

SUCCESS IN ACADEMICS

Followers implementers, the world that we live in is the one we choose, whether consciously or unconsciously. Instead of us choosing to fail, then we will definitely fail. I think today we must know that failure is the foundation of our success.

Friends we must know that failure that we might will help us to our success. We must know to have specific and concrete goals to accomplish.

Instead we choose will help us make choices in our life. And how we feel your life. With our belief we will be able to live on or not off our team.

The first step we must take towards achieving our success in our life is to feel beliefs that will give us grounds for our success. Thus the success we want to achieve will determine our success.

Mamoce Faculty Class P20-Reporter

Remember that the path to success will consist of being able to



THIS IS NOT FUNNY

Agony is your best friend when you are suffering from the pain of the morning. Without realizing the pain is not anything you have given you the hardship without knowing the words after which you have chosen you have to suffer.

While in school, you must not be afraid of your own mistakes. You must always be open to learning as well as open to other opportunities. Always think in terms of possibilities. Yes, if you must do better, you will be a limited professional. Always work to the peak of your abilities. You can be a world changer.

Mwame Michael Class P20

Learn your own lessons, taking your own action, learning the lessons you can get as well as being flexible with your own resources. We must always be open to learning as well as open to other opportunities. Always think in terms of possibilities. Yes, if you must do better, you will be a limited professional. Always work to the peak of your abilities. You can be a world changer.

CODE OF HONOUR FOR MAMOCE STUDENT LEADERS



When the election time had ended down, student leaders who were elected their leadership for 2016 were made in sign a code of honour at a wonderful installation ceremony which the college principal, Chibinda Mwanza, officiated on Friday, 10th February, 2016.



Finally, the leaders accepted responsibilities entrusted to them as well as the challenges to build their duty to the best of their abilities. In addition, they promised never to allow their positions to hinder, but to use them to the benefit of

their fellow students. Finally they pledged to serve the Principal, Vice-Principal, members of staff, fellow students and members with the respect. Finally, they pledged to be a good example to their fellow students at all times.

In addition, they would never tolerate being disrespectful, violent and profane. Furthermore, they would not cheat, plagiarize, cheat, or use any other means to gain an unfair advantage which would be a good example to their fellow students at all times.

about the organizational code of conduct the college management and the student body reserves the right to replace or amend it.

Finally, but not the least they declared that they were prepared to serve their college to the best of their ability and health. They also pledged to be a good example to their fellow students at all times.

VIEWS FROM MAMOCE VOTERS & ORGANISERS

During the recently held MAMOCE student elections, some of the voters complained over the disturbance in the commencement of the voting exercise. Speaking to an interviewer with the press Philip Mwanza explained over the past management of this is that the election was supposed to start at 14:30 but unfortunately they started around 14:00 and students were still required to attend classes at 14:00 hrs.

Regarding a second year student expressed concern over the pre-voting individual attempts between the first and second year students. "I am aware the first year are going to vote for their 2nd year the first year and the second year will also vote for their 3rd year second year students." Mwanza explained.

On the other hand, Mwanza commented the manner in which the elections were handled and compared them to the national level because of the professional manner in which they were undertaken. In addition, she also said that all the voters complied with the directions of voting.



Some students expressed disappointment over the use of paper boxes to collect votes while other students expressed appreciation and happiness over the way the elections were conducted. The election itself provided a good experience and many lessons were learnt.

When they first year students and some second year students who commented that the election was held in a professional manner. This was so because some commentators did not conduct elaborate campaigns so as to pull a lot of supporters.

Finally, after voting for their 2nd year, Mwanza the campaign manager for Mamoce College of Education said, "we cannot tell who will emerge the greatest but I am confident that my candidate Mamoce College of Education will win." He further said that he was impressed with the great organization and the students' attitude and that the election integrity did not mean to state that he did not respect the rigging of elections.

Some voters were confused with ballot papers for the second year college leaders since some people commented on the same question that they were

supposed to be one ballot paper. However, the single ballot paper for the two positions contained same voters. Most voters agreed on both matters that this made them feel voters will be given their own and votes.

When asked by the press, the Managing Officer Mr. Philip Mwanza who happened to be one of the members of the observation committee explained that there was no need for the voters to tick their names at all. He further explained that the first two commentators who would go higher votes will be picked. However, some members felt that this was not fair to each voter but the observation of the matter remains to a great extent.

Mwame, Katsaga, Mwanza, Mwanza & Mwanza (Press Club)

CHILD TO CHILD READING ROUTES PROJECT

INTRODUCTION: Jury Report

Once again, this Grassroots Project shows that we can use ICT in many different ways. In fact, it shows that with (very) basic ICT skills a lot can be achieved... it only takes creativity and flexibility.

Flexibility is a STATE OF MIND

There are many different flexibility dimensions. Flexibility can involve options in learning resources, in types of learning activities, in media to support learning, and many other possibilities.

This Grassroots Project combines computer lessons on the use of WORD and PowerPoint (see Tools WORD and PowerPoint in Tab 7) with story writing and reading. A variety of learning activities and methodologies are used, one of them being reading for learning by and for students. As if that is not enough, the outcome of this project is the creation of simple booklets containing a nice story or fairy tale (including some reflective activities). In that way, the project successfully meets the needs of the community school: trying to add reading materials in the library.

The jury applauds the approach of engaging learners in different ways. The project showcases very clearly that new technologies and new pedagogies encourages pupils to take a more active role in the learning process. It also shows that the use of ICT can help address specific learning styles that may be neglected in traditional teaching methods.

A learning style refers to how individuals learn, involving how they prefer to receive information, express themselves, and process information

This Grassroots Project promotes peer learning and independent learning, learning basic ICT skills and creative design while producing learning materials that fill the empty shelves of the school library.

The jury hopes this team continues to be creative and flexible. Other learning institutions can adopt a similar approach because flexible learning creates flexible learners.



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Ivy Kabamba Kabuswe Ndhlovu is a teacher by profession. She has been in the teaching practice for 14 years; she is a holder of a Primary Certificate in Home Economics and a Primary Diploma. She is purchasing a Secondary School Diploma in Home Economics through distance learning. She has also done a course in Library Guidance & Counseling and ICT.

Ivy Kabamba Kabuswe Ndhlovu is currently offering computer lessons to pupils from Reception [3 to 5 years] up to grade 9. She is also the Provincial Chairperson for the Home Economics Association of Zambia (HEAZ).

Case study on the use of ICTs and READING FOR LEARNING

Joyce Mwelwa, a computer/library teacher, offers computer and library lessons at Kabwe Trust School from reception to grade nine. It had come to her attention that a particular grade 7 class was having difficulties in completing their reading program because of the limited number of books on the school library shelves.

Mrs. Mwelwa and learners had to find a way to overcome the problem. To solve thisJoycedecided to distribute the few books of all levels to individual learners on demand. This was to enable learners to read and comprehend the stories and then write a book review. Reading requires that the students take full responsibility for learning.

Joyce later used computer lessons to introduce learners to story writing in PowerPoint. Further, during the library lessons the learners reviewed stories on the computers for others to read.

There were quite a number of challenges, e.g. there were some learners that had limited typing skills, so they could not finish typing in one week. Others could not animate the PowerPoint slides and some could not add time to the slides, so the slideshow would run very quickly.

Joyce now decided to make it easier by asking the learners who were fast to help the slow learners. Then she gave instructions to the whole class on how to animate slides. The procedure was followed step by step. This led to a successful compilation of digital reading materials. A number of story books have been printed, others have been put on the desktop of the computer.

Both Mrs. Mwelwa and the learners have enjoyed the reading for learning method. Proofs of this are the answers to the questions after reading the story.

“AKOUSULILEEKOPANOKO”

A Bemba saying meaning “do not look down upon an idea, it may be the best one in achieving your goal.”

What METHODOLOGY was mainly used?

Reading for learning (*)

Approaches to reading

Reading does not guarantee learning. Different levels should be distinguished:

Surface-level processing

Students take a passive approach and are concerned with:

- covering the content
- how much they have learned
- finding the right answers
- assimilating unaltered chunks of knowledge
- learning verbatim (letter-perfect)

Deep-level processing

Students take a mentally active approach and are concerned with:

- the central point
- what lies behind the argument
- the whole picture
- what it boils down to
- what it is connected with
- the logic of the argument
- points that are not clear
- questioning the conclusions

Zero-level processing

The learner simply reads the text, believing that understanding will automatically follow. The student is only concerned with getting it over as quickly as possible.

How to maximise the chance that students will learn from reading?

Reading should be an active process where learners interrogate the text to form a personalised version of its message. This can be encouraged by:

Interesting reading activities. A challenge to discover something puzzling from a book is more motivating than just 'read chapter 13'.

Expecting reading notes. Ask your students to produce a summary or a set of key points. This should be done in the students' own words.

Reorganising the material into a different form. A text could be reorganised to give the information in a different way.

Reading for information. Ask students to look for specific information such as the answers to specific questions.

Reading for criticism. Ask students to take a critical view of the text they are reading: What is the author's point of view? What is the evidence for and against this point of view? What's missing? What would other authors think of the points of view expressed?

Expecting to make a presentation. Ask students to read different material in groups, and make a presentation to the rest of the class.

Expecting a discussion. Students can be asked to read a text to prepare for a class discussion. Give some challenging questions in advance to focus attention.

Reading requires that the learner takes responsibility for understanding and learning. It:

allows learners to study at their own pace

develops the very important skill of learning from reading

helps to develop library and book-searching skills.

If the texts you would prefer to use are not available in the quantities you need, it is possible to organise a group-work carousel, where text circulate, and groups carry out different activities with each of the texts. Don't forget non-book material such as journals, newspapers, CD-ROM's, the Internet and so on.

Library and Information-Searching Skills

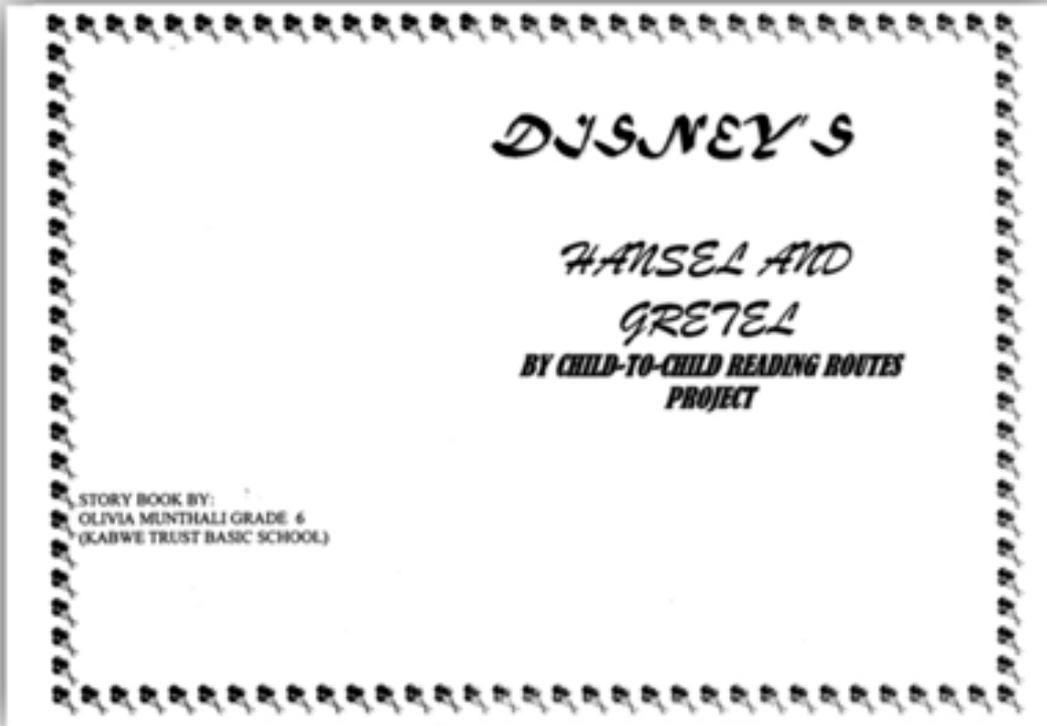
Every student should be taught information-searching skills, including the effective use of libraries or the effective use of search engines on the internet.

Reading Techniques

Reading should follow the SQR³ process:

- SURVEY:** Skim-read the chapter, noting content and organisation.
- QUESTION:** Before reading each section, stop and ask what is being covered, and what you want to extract from it.
- READ:** Read the text, but think about the material as you do so and try to answer the questions mentioned above.
- RECITE:** At the end of each section, stop and recite the major points to yourself.
- REVIEW:** At the end of the chapter, review the whole of it, paying special attention to the way the author organised the material.

(*) *Excerpted and adapted from PETTY, G. (2009). Teaching Today. A Practical Guide. Stanley Thornes (Publishers) Limited, Cheltenham.*



"Your stepmother has gone, and she is never coming back," he said hugging the children. When he saw the jewels, the woodcutter couldn't believe his eyes. "We are rich!" he cried. "And we shall ever be parted again."

From then on they lived happily and they never were parted again!



THE END

WHAT I HAVE LEARNT FROM THE STORY

1. Hansel and Gretel lived with _____ and _____.
2. Their stepmother and Father left them in the _____.
3. The old woman who lived in the forest was a _____.
4. The witch was going to cook and eat _____.
5. Gretel was made to clean the _____ by the witch.
6. Gretel pushed the witch in the _____ and shut its door.
7. In the witch's house they found _____.
8. A _____ showed them the way back home.

SOUND TO SOUND PROJECT

INTRODUCTION: Jury Report

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The following Grassroots Project is set up for students that have learning difficulties caused by a problem with reading, speech or speaking. It shows that the use of ICT is essential in enabling ALL students to gain a better access to the curriculum.

The jury especially appreciates the extra time that is taken to teach the learners with learning difficulties and the variety of ICT tools that is used, including PowerPoint and CD, audio and video recordings. In more than one way, the project is quite original.

“ There is nothing more unequal than the equal treatment of the unequal.”
(Thomas Jefferson)

The project clearly shows that ICTs are a tool for content enrichment and differentiation. Learners are given the opportunity for a greater appreciation of the content through expanding the material for study and the extra time that is given to practice, practice, and practice.

Still, even more could have been achieved. For example, simple PowerPoint presentations could also have served to drill and practice phonology and phonetics. The jury also feels that content enrichment can be achieved through the wealth of information available on the Internet (e.g. podcast and video clips). Additional assignments could have been set to give learners an even wider exposure. Of course, the added assignments should have been self-directive and somewhat challenging.

The jury hopes that this Grassroots Project shows that all colleges and schools should strive and make special provisions for ALL students to succeed regardless of their needs and abilities. Schools are morally and legally obliged to create environments that do not restrict but rather enhance students' learning.

ICTs can help to create such conducive environments.



NAME: JONATHAN MWIINGA HAAZELA

INSTITUTION: CHARLES LWANGA COLLEGE OF EDUCATION

The late Jonathan Mwiinga Haazela, holder of a BA Education degree (BA Ed-UNZA) and a Diploma in Computer Studies, was working as a senior lecturer and Head of Department (Languages Department) in Charles Lwanga College of Education until recently when he was promoted to be Education Standards Officer-Mazabuka District in Southern Province and immediately after transferred to MOE head quarters as Senior Education Officer at Directorate ESS.

He trained many teachers in Primary Reading Programme- New Breakthrough To Literacy (NBTL), Step In To English (SITE), and Read On Course (ROC). This was a Ministry's initiative to improve reading and writing in Zambian Schools. He worked with QUESTT whose main objective was to train community school teachers. His main task was to write and produce six teaching Literacy and Language Modules which have been used in pre-service primary Colleges of Education. He has co-produced Action Research Modules, basically aimed at improving classroom practice through identifying problems/issues and doing research so as to help the situation. The Action Research follows the basic research principles and guidelines.

He was not only involved in teaching student teachers, but also in the training of head teachers on Education Leadership and Management courses.

In September 2009, Mr. Haazela was among many lecturers who submitted proposals for grassroots projects. His project "Sounds to Sounds Project" was selected and his cheerful way of acting boosted the enthusiasm of others. During the official launch of the Grassroots Project by the Deputy Minister of Education, he introduced the word "grasshopper" as the name for all people running a Grassroots Project.

Mr. Haazela died in a car accident on the 18th of June 2010. Education in Zambia has lost a skilled and enthusiastic teacher and grasshopper. He will be dearly missed.

Case study on the use of ICT for SPECIAL NEEDS EDUCATION

Charles Lwanga College of Education is situated in Monze District-Southern Province. It is a Catholic college run by the Jesuits. This college has a conducive environment; Information Communication Technologies are fully integrated with teaching and learning. It has over 80 computers for students and staff, all connected to internet which is very fast. With the large number of computers and a steady internet connection, Mr. Banda improved his ICT skills to be able to use it both in the classroom and in implementing the project.

The teaching of pronunciation in colleges before the use of ICT was not as motivating as it is today. However, when this technology was acquired, Mr. Banda made sure that it was applied not only in the teaching of language in general but also in the teaching of pronunciation to students.

The process of implementing the project was very involving. Firstly, Mr. Banda used PowerPoint presentations to teach Phonetics and Phonology to second year students. This had a lot of advantages both for him and the students. For example, work could be changed easily; saving work at different stages allowed a record to be kept and students were able to engage with him in many ways not possible with paper based materials.

The whole class teaching strategy was used since the group was rather small. The students enjoyed the variety of ICT tools that was used including video and audio.

“Wakalilekelela
wakawa”

A Tonga saying meaning

“he who does not support himself falls off.”

What **METHODOLOGY** was mainly used?

Whole-class interactive teaching (*)

In whole-class interactive teaching the teacher is in control, but students are very much involved in reasoning, and in making their own sense of the ideas and skills they are learning. Some students may also participate by demonstrating the skills being learned, while their peers decide whether this demonstration is sound.

Four separate but related problems are caused by the teacher being in control. After 15 or 20 minutes of conventional teacher talk there will have been:

No Practice: students will not have had a chance to practice the skills that they are supposed to be learning.

No Feedback: the teacher will not know whether students have learned what has been taught.

Free Riders: some students may not have been listening from the start.

Poor Concentration: even the most motivated students will lack concentration after 20 minutes.

Whole-class interactive teaching seeks to solve these problems by ensuring that the class, individually and collectively, process the new skills and information, linking it with their prior learning.

Whole class teaching strategy

The basic strategy is to create a dynamic mix of teacher talk and:

Assertive Questioning, intended to maximise participation, active learning, and the linking of new learning with old

Student Demonstration: Students display their developing skills, while their peers decide whether this has been done correctly.

Assertive questioning

1. Ask the question
This must require the students to reason
Use clear and concise wording
2. Monitoring the reasoning
Don't give the answer away until the last stage!
Use proximity
3. Check for completion
'Does anyone need more time?'
'Hands up if you don't have an answer'.
4. Get a number of answers
Not just volunteers ... be unpredictable about whom you ask.
5. The class scrutinises the answers (skip if answer is obvious)
'Do you agree? ... Why?'
'Can this answer be improved?'

6. The teachers confirms the correct answer
Only now is the answer given by the teacher
7. Reinforcement: thanks and praise
'Who else got the correct answer? ... Well done!

Student Demonstration

This can be a separate activity, but it can also be used as the 'give answer' part of assertive questioning. An alternative approach is to use assertive questioning to establish the skill or procedure you are teaching, and then use student demonstration to provide the class with 'doing detail'. It will also provide you with feedback on student learning.

Set the task, writing it on the board. If necessary students can be given time to consider their approach to this problem, working first individually and then peer checking in pairs. Give short time limits for these activities, perhaps one minute or two.

Monitor students' progress, discovering those who do not have an answer.

Once you are confident that most students have an answer, choose a student to do the demonstration. Start by asking volunteers. When choosing students at random, don't choose students who need more time, or who made it clear that they are unable to carry out the demonstration.

If a student becomes stuck in front of the class, what should you do?

Do not be critical, and do not ask the failing student to sit down, but ask: 'Will anyone come up and help?' Whole-class collaboration towards a good answer creates a better atmosphere than shaming a student who gives a bad one.

If the student makes some errors this is usually all to the good, as their correction will provide some excellent teaching points.

Withhold your judgement so the class exercises theirs. You can ask the class for improvements, for alternative approaches or for agreement. It will give you more feedback.

When providing the answer, do this persuasively, explaining your reasoning so as to leave no doubt or confusion!



(* Excerpted and adapted from PETTY, G. (2009). **Teaching Today. A Practical Guide**. Stanley Thornes (Publishers) Limited, Cheltenham.

MATH'S BULLETIN PROJECT

INTRODUCTION: Jury Report

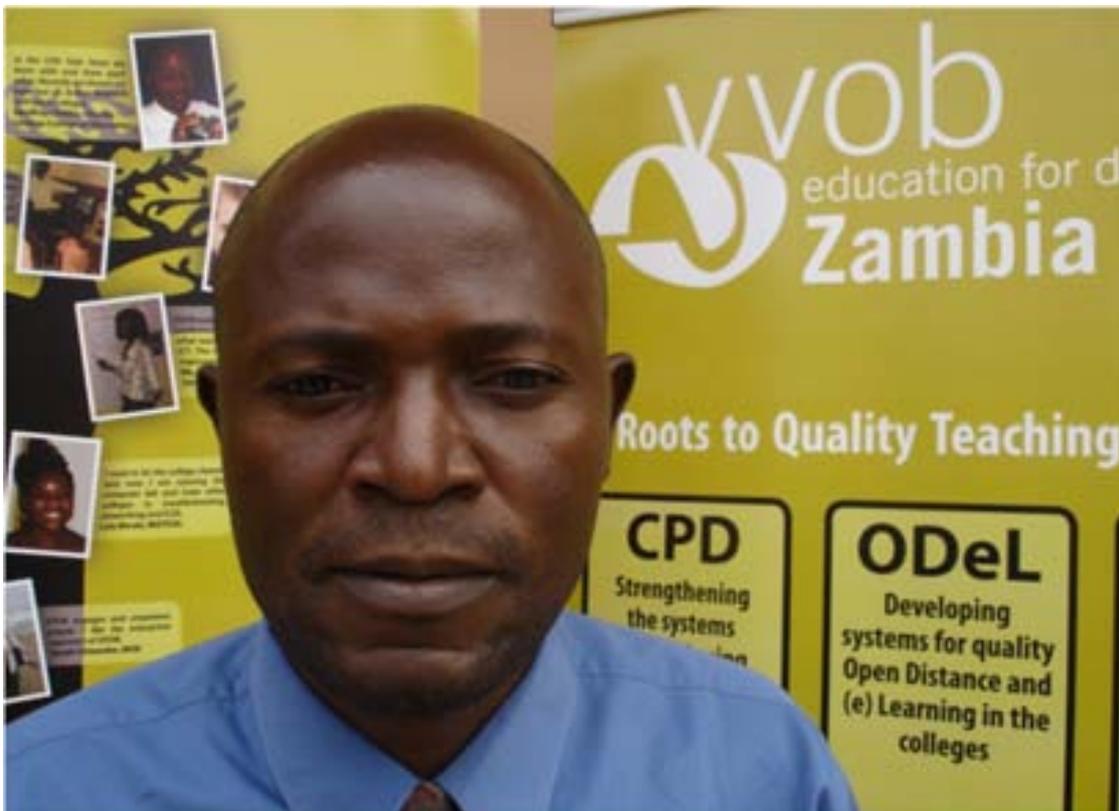
At first sight, this Grassroots Project bares a lot of resemblance with the MAMOCE Newsletter writing project, still, the math's bulletin is quite different in terms of tools and methodologies that are used. As such it shows the limitless applications of ICT in education.

The bulletin is designed in Word (see tool Word in tab 7). The idea of a bulletin is based on the needs of the students and on the understanding that the knowledge in mathematics is changing daily. The lecturer selects the concept of a bulletin to keep content current for the learner.

ICT is used to create a math's bulletin with clear objectives. Within the concept of a bulletin various mathematical concepts are presented in an original way. The bulletin both includes theory and practice, activities and examples, problem solving and test taking tips. More importantly, the bulletin wants to showcase that maths is fun!

Anyone is free to contribute to this (trial) Math's Bulletin Project. In that way, it enables lecturers and students to demonstrate what they know in an original way. The jury feels that the right balance between different topics and activities still needs to be found. We encourage the writers to stick to their plan to come up with a new bulletin every term. This will stimulate the contributors to be even more creative. The jury also hopes that the distribution of the bulletin will evolve, e.g. the bulletin can be distributed online via email or via a blog etc. By doing so, a larger network the entire Grasshoppers network - can benefit from it. Also, the bulletin can best be saved and distributed as a PDF file, that way no changes can be made to the document after publishing.

**A learner must be
able to see relevance**



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Simon Kanchebele completed his secondary education in 1985 at Serenje Boys Secondary School. In 1989 he completed a diploma/training course at COSETCO (Copperbelt Secondary Teachers College) where he obtained a Mathematics Diploma in Education. In 1989 he started a teaching career at Lubwe Secondary School.

In 2002 Simon Kanchebele completed an Advanced Diploma training in Mathematics at Copperbelt Secondary College. In 2008 he completed a BA Education at the University of Zambia where he did a major in Mathematics and Religious Studies as minor.

He has worked as District Planning Officer in Chiengwe District for 4 years under the Ministry of Education. In 2008 he was transferred to Mansa College of Education (MACE) as Senior Lecturer in Mathematics Education where he has been to date. In order to apply the Mathematics he has done further, he decided to enroll with Penn Foster College in the field of Civil Engineering. He still wants to do a Masters Degree in Mathematics.

Case Study on the use of a **BULLETIN** and **PRIVATE STUDY**

When Mr. Kangwa entered the class to teach addition using the abacus, Purity explained the only contact she had with an abacus was to use it to indicate the place value of any numeral. Then Mr. Kangwa placed the abacus in front of her so that she could read the number indicated on it and she read it correctly as 3241. When the second abacus was placed in front of her with the numbers 3473 and she was asked to add the two, she asked for more time to figure out how to do it.

When he asked Purity what she could do with the ones(unity) indicated on the abacus, she identified that she could add the ones on the first abacus to the ones of the other to get 4. She also noticed that counters under the tens of the other abacus could be added to counters under 'tens' of the other abacus. This meant that there were 11 counters under the tens.

When he asked Purity if the 'eleven' counters can be left as it were, she responded that we leave one counter under the tens and the other could be added to the hundreds. This brought counters fewer than hundreds to 7.

For counters under thousands, she just added counter under thousands of one abacus to the other making a total of 6 counters under the thousands. Purity reads the final number/answer as 6714.

The challenge Kangwa faced to explain to Purity is to change the 11 counters under the tens to 1 and the other be added to the hundreds. He explained that the 11 was the same as counting it as 1 group of 10 plus 1 and that is why under the hundreds, we just added 1 instead of 10.

Purity liked the method and opted to try to add other numbers using the abacus and it worked for all the cases. She later showed a friend adding numbers using the abacus.

That is how Mr. Kangwa thought a math's bulletin would meet the needs of students like Purity. She can then go through it at her own time and pace (private study).

Umupama pamo watulile ing'oma

A Bemba saying meaning that consistency
enables one to achieve his/her goals

What **METHODOLOGY** was mainly used?

Private study (*)

Private study should:

- involve students in a useful activity that is best done alone - or at least does not require teacher support
- be checked that it has been completed satisfactorily
- require a minimum of extra work for the teacher
- provide feedback
- not be too demanding

Which student activities best fit these criteria?

Reading. Most private study could simply be reading the textbook. Give a short 'test' to check that the material has been read and understood. If students' check each other's papers, the test need only take three minutes. Alternatively ask students to produce a summary. Reading familiarises the student with the textbook, and develops self-study skills, as well as a direct subject learning.

Preparation for a lesson. This may take the form of reading, revising relevant material covered earlier, or answering questions which orientate the student.

Preparing revision notes. Summaries, mind maps, mnemonics or revision notes are often best produced by the learners themselves. It makes an excellent activity at the end of the topic.

Learning revision notes. Nearly every subject has basic factual material which must be remembered by heart: vocabulary, formulae, definitions, procedures, etc. Make sure students understand what they are expected to learn.

Whatever the private study, if it is set, it must be seen, checked or tested by the teacher.

In general, don't set anything more difficult than the students have practised in class.

If you do, some will get stuck and others will use the difficulty as an excuse for not doing the work.

(*) *Excerpted and adapted from PETTY, G. (2009). Teaching Today. A Practical Guide. Stanley Thornes (Publishers) Limited, Cheltenham.*

DEVELOPING THE BULLET

CHARLIE CHAN MATHS

DEVELOPING

Introduction

Mathematics Trial Bulletin Project is intended to assist students and staff and eventually the general public through articles that would be relevant and applicable to their academic needs and their everyday life.

Concrete objectives:

- To produce a trial bulletin on timely basis that would inform mind and influence behaviour towards current mathematical and ICT trends.
- To build capacity and supplement on the teaching and learning activities in the college through articles relevant to educational needs of students and lecturers.
- To encourage and stimulate mathematical thought and research in students.
- To make mathematics a fun!
- To assist surrounding community to improve their teaching of mathematics.
- To link between those concerned with mathematics in educational institutions and those in the field.

PROBLEM SOLVING

Many problems can be solved without much calculating if you understand the basic mathematics concepts. Always look carefully at what is asked, and think of possible shortcuts for solving the problem.

How do you know if a number is divisible by 2, 3, 4, 5, 6, 8, 9 or 10?

The dividend is divided by the divisor to get the quotient. $5 \div 3 = 1 \text{ R } 2$ is the dividend, 3 is the divisor and 1 is the quotient.

Factor tests: Numbers which are divisible by 2:

Must end with an even number: i.e. 0, 2, 4, 6 or 8 e.g. 10, 24, 68, 88 etc.

Numbers which are divisible by 4:

Last two digits must be divisible by 4, e.g. 2284 is divisible by 4 since the last two numbers (84) are divisible by 4.

Numbers which are divisible by 8:

Last three digits must be divisible by 8, e.g. 22284 is divisible by 8 since the last three numbers (284) are divisible by 8.

Numbers which are divisible by 3:

The sum of its digits divisible by 3, e.g. 228 is divisible by 3 since $2 + 2 + 8 = 12$ is divisible by 3.

Numbers which are divisible by 6:

Must be even and sum of their digits must be divisible by 3, e.g. 132 is even and sum of digits $1 + 3 + 2 = 6$ is divisible by 3.

Numbers which are divisible by 5:

The last digits of numbers divisible by 5 must be either 0 or 5.

Numbers which are divisible by 9:

If the number is divisible by 3, then the sum of the digits of the number is also divisible by 9.

Numbers which are divisible by 10:

Find the sum of the digits in the odd and even places separately. If the difference is divisible by 5, the number is divisible by 10.

Teaching Methods and Techniques

Teaching is mostly based on two categories of methods namely the teacher - control and pupil - control. Both have their own advantages and disadvantages. In order to make an informed choice of teaching method(s) in the teaching and

learning process, the teacher must know teaching methods available, strengths and weaknesses of each method, purpose each can serve and how each method can be used in practice.

Activity 1:

Write down examples of teacher control and pupil control methods. Source for information from the internet and the library.

Discussion method

Robert (2004)(2005) describes the discussion method as one that permits open interaction between learner and learner as well as between teacher and learner. It involves free flowing conversation, giving learners an opportunity to express their opinion on a theme, hear those of their peers and the teacher. The teacher does not take the leadership role, the learner participates as a member of the group. Every member adheres to the set guidelines for specified acceptable discussion behavior. If properly planned and structured, the discussion method involves pupils in higher order cognitive skills such as analysis, synthesis and evaluation.

Activity 2:

Describe briefly situations in which each discussion method is used.

Note that some of the uses it could be used include:

- Checking what has been learnt from a field/experimentation.
- Exploring the opinions, knowledge and experience of pupils on some issues.
- Conducting a laboratory experiment.
- Doing specific practice in learning, expressing and evaluating opinion.

Order of Operations

When more than one operation is used, we need to know which one to perform first so that everyone gets the same answer. Mathematicians have come up with rules called the order of operations.

For example:

$20 = 2 + 18 = 4 + 16$
 $= 7 + 13 = 4 + 16 = 20$
 $= 7 + 13 = 20$
 $= 7 + 13 = 20$
 $= 7 + 13 = 20$

The Order and Leaf Plot

The way it displays a large data set to make it easy to read is to construct a stem and leaf plot. For example, the data below indicates scores in a class test as recorded by the teacher.

30 20 15 45 40 55 60 50 35 25 30 20 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95

Step 1: Find the least and greatest number and the base digit in each. In this case, 10 is the least number and 95 is the greatest. 10 is the base.

Step 2: Make two columns using vertical and horizontal lines. Write the base digit from least to the greatest to the left (vertical line).

Step 3: Write corresponding units (base) digits in the right column (horizontal).

Step 4: Order the base in each row from least to greatest.

The Stem and Leaf Plot

Stem	Leaf
0	0
1	0 5
2	0 5
3	0 5 10 15
4	0 5 10
5	0 5 10 15 20
6	0 5 10
7	0 5 10
8	0 5
9	0 5

27 4 8 means 2748

From the above list the following:

- How many pupils wrote the test?
- If the pass mark was 40, how many passed?
- Record the scores of the best 10 pupils in the test.

JUST THINK!!!

I instead of writing out the right letters or test after several photos of time to review the base skills and formulas. If you prepare early, you will have time to find your weaknesses and ask for help.

If you are working on a group of questions and find that the questions are getting too difficult, quickly read through the rest of the questions in the section and answer the ones that you know first and leave the ones you attempt.

Place

In a large square each thousands and digit place has the same sum. Copy and complete the large square.

2			
3	1	1	1
1			

THOUSANDS HUNDREDS TENS ONES

ADDING USING THE ABACUS

Addition using the abacus can be versatile if properly taught.

What number does the abacus (A) and (B) represent? Adding the two would give the result in abacus (B). Verify the answer.

THOUSANDS HUNDREDS TENS ONES

NUMBER WHEEL GAME

Rotate the wheel with numbers from 1 to 8 and give the answer in the box within five seconds of the stopping of the number wheel.

WRITING MATHEMATICS ASSIGNMENTS DIGITALLY PROJECT

INTRODUCTION: Jury Report

This Grassroots Project is a good example of a small-scale teaching initiative in which a lecturer applies basic ICT in her own teaching and learning. It showcases that if we would have started top-down, with the curriculum integration first, followed by the integration in the classroom, it would have been very abstract.

So we turned it up-side-down as we want teachers and lecturers to get a feel first of what ict integration means at the level of the learning process.

This project is aligned with the MoE's vision to integrate ICT in the classroom in general and in assessment more specifically. This Grassroots Projects stimulates students to write their maths assignments digitally.

So the students learn to type mathematical symbols like $+4^{\circ}\text{C}$, w° , @, %, *, (), #, <, >, {}. They learn how to use superscript x^2 and subscript x_2 to type fractions like $\frac{1}{4}$, $1\frac{1}{2}$, $\frac{3}{4}$, and write numbers like 31_{eight} , $10x^2y^3$, $7\frac{1}{2}\%$. They also use the computer to draw basic shapes, number lines and Venn diagrams. With this knowledge, all students are now confident to set and type mathematics questions, draw tables, present and keep mathematical data at basic school level.

The jury appreciates that the focus is on a teaching and learning strategy that makes a difference in daily practice. It showcases that the participants of the Grassroots Project don't necessarily have to be highly technically skilled and that even with basic ICT skills teachers and lecturers can make a difference.



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Mrs. Maimbolwa R. M. Muyangana has been working as a senior lecturer at Solwezi College of Education since 1993. She is a member of the ICT and Distance Education Committees. She has been offering basic ICT skills to student teachers in the college. She had been the focal point person for Primary Teachers Diploma by Distance Learning [PTDDL] Programme and is currently the Coordinator for Education Leadership and Management [ELM] Course.

Maimbolwa holds a Degree in Primary Education [ZAOU], Advanced Diploma in Mathematics [Nkrumah], Secondary Teacher's Diploma in Education [Nkrumah], Certificate for Course Leaders [Vordingborg-Denmark] and a Certificate for Distance Education Practitioners [UNISA]. She is also an Examiner, Trainer of Trainer and Resource Person in Teacher Education methodologies.

Case-study on the use of ICT in maths assignments

Grace Musonda is a mathematics lecturer. She dreams of a time that students submit assignments digitally and that lecturers provide digital feedback. However, the keyboard of a computer doesn't show the mathematical symbols. And how to go about graphs and diagrams? On the other hand, the mathematics books she uses as resource make her believe that there must be a way. Ms. Musonda decided to involve her second year students, who had already acquired some basic skills, to start exploring. "Would students manage to type my assignment questions on computer?", she wondered.

Students were excited to participate in the project "Writing Mathematics Assignments digitally". It was the first time they were typing mathematics questions. They were aware of the advocacy of the Ministry of Education to introduce the use of ICT in the classroom and that all schools would have computers sooner or later. They pictured themselves being used as resource persons in schools where they would be deployed in the near future and that they would be required to implement their ICT skills. They felt that if pupils should be innovative, they should be able to walk the talk.

The journey however was not without potholes. One group of students will probably never forget again to regularly save their work. Students had to sacrifice some of their time during lunch and evening time. But they also had a lot of fun working together. It felt good each time they discovered something new and they could inform Ms. Musonda about their progress. Their confidence to work with computers was growing steadily. Also Ms. Musonda felt good to see the enthusiasm of some of her students.

Umupama pamo watulile ing'oma

A Bemba saying meaning that consistency
enables one to achieve his/her goals

What **METHODOLOGY** was mainly used?

Assignments (*)

An assignment is a set of tasks for students individually or groups. The students exercise autonomy over how, where, when and in what order the tasks are carried out.

Projects and assignments give the students an opportunity to use their skills and knowledge. It gives students some control and responsibility over their learning and use higher-order intellectual skills such as creativity, problem-solving, evaluation, synthesis and analysis, etc. Students also develop key skills such as communication, self-management, and working in group.

Designing the assignment

Every assignment needs to be described to the student. This is usually done with a handout containing:

- an introduction which describes the context for the assignment
- the aims and objectives of the assignment
- the tasks
- an outline of what will be assessed, and how
- background notes
- date for completion

Role of the teacher during assignment work

The teacher must become a learning manager and a facilitator rather than just an instructor. There is more to this than just answering queries, assessment, debriefing, and evaluation. Check work while it is being done, and request improvement where necessary. Make positive comments where you can!

The limitations of assignments

Skills need to be actively taught and checked. Some skills however are often assessed without being taught e.g. the skill of self-management or time management. Completing a task does not in itself guarantee learning. For this reason, most teachers combine assignments with other teaching and learning methods.

Checklist

- Was the assignment well defined in writing, with tasks broken down in sufficient detail?
- Was assessment transparent and were criteria given in advance?
- Was it enjoyable, with a clear purpose?
- Were students adequately prepared for the task?
- Were resources adequate?
- Did you check on and encourage both general work-rate and the content of the students' work while it was in progress?
- Have you got annotated monitoring copy of the assignment?
- Did all students succeed in completing the assignment satisfactorily?
- While marking, did you comment on good and bad features of the work, as well as awarding a grade?
- Did debriefing confirm what students should have learned?

(*) *Excerpted and adapted from PETTY, G. (2009). Teaching Today. A Practical Guide. Stanley Thornes (Publishers) Limited, Cheltenham.*

SOLWEZI COLLEGE OF EDUCATION BOARD
ICT SUPPORT PROJECT
GRASSROOTS PROJECT
WRITING MATHEMATICS ASSIGNMENTS DIGITALLY

ASSIGNMENT 1

INSTRUCTIONS

- The aim of this assignment is to help you improve your ICT skills in numeracy
- You have four weeks [from the time you start] to work on this assignment and thereafter you are required to hand in your work as a soft copy [on CD]
- Copy each question then answer it appropriately. Marks will be awarded for correct typing and all steps of working shown.
For example, Express the ratio 2% : 1% in its simplest form

Solution:

Express the ratio 2% : 1% in its simplest form [1 mark for correct typing]
 [1% mark]
 $\frac{2}{100} : \frac{1}{100}$ [1% mark]
 $\frac{2}{100} \times \frac{100}{100} : \frac{1}{100} \times \frac{100}{100}$ [1% mark]
 $\frac{2}{1} : \frac{1}{1}$ [1% mark]
 2:1 [1 mark]

- Write what you have learnt, the challenges you have faced and how you solved them as you were working on this assignment.
- Write your name and class



- Illustrate each of the following by a Venn diagram: [11 marks]
 a) $E = \{1, 2, 3, 4, 5, 6\}$; $P = \{1, 2, 3\}$; $Q = \{4, 5\}$
 b) $E = \{a, b, c, d, e, f\}$; $F = \{a, b, c, d\}$; $G = \{e, f, a, c\}$
 c) $E = \{b, 1, 2, 3, 4\}$; $M = \{1, 2, 3\}$; $N = \{2\}$ [11 marks]
- Express 7.946 in standard form, rounding off your answer to 3 significant figures. [1 mark]
- Copy and draw the diagrams below: [11 marks]



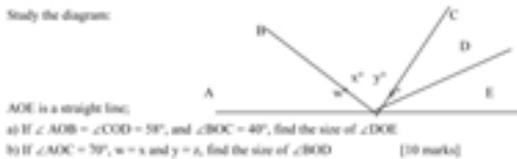
GOOD LUCK!!!!

Attempt all questions

- If * means 'take half the first number and add one quarter of the second number', calculate the values of:
 a) $6 * 4$ b) $5 * 2$ [5 marks]
- Carry out the following division and give the answer in base 2
 $31_{base 2} \div 25_{base 2}$ [4 marks]
- Which fraction is bigger, 1% or $\frac{1}{2}$? [3 marks]
- When $x = 2$ and $y = 3$, calculate the values of:
 a) $3x^2 + 2xy + y^2$ by $10b \times y^2$ [5 marks]
- A man who earns 1 per week gets a rise of 70%.
 What is his new wage? [3 marks]
- Copy the magic [8 marks]

A	66	1	01	7	79	B	58
E	78	M	59	N	81	G	06
F	51	O	76	P	08	H	89
C	09	K	88	L	56	D	71

- Illustrate the inequalities $-4 \leq x < 3$ on a number line [3 marks]
- Subtract 19.0237 from the sum of 38.05 and 8.457
 [Show the work in vertical form] [4 marks]
- Find the average temperature of -5°C , -2°C , $+4^\circ\text{C}$, $+7^\circ\text{C}$, -9°C [3 marks]
- Find the product of 342 and 18 using the Lattice method. [8 marks]
- Study the diagram:



- Copy and arrange the following shapes according to their number of sides;



- TAB 1 FROM GRASSROOTS TO GRASSHOPPERS**
- TAB 2 FIND, SEARCH & COLLABORATE**
VVOB Mentor: Leonie Meijerink
- TAB 3 GADGETS AND TOOLS**
Pier Goudappel
- TAB 4 HANDS ON ICT**
VVOB Mentors: Andre Irabishohoje and Lukonga Lindunda
- TAB 5 AUDIO, VISUAL & VIDEO LEARNING**
VVOB Mentor: Bart Cornille
- TAB 6 LANGUAGE & MATHS**
VVOB Mentors: Lieve Leroy and Hans Casier
- TAB 7 35 TOOLS FOR GRASSHOPPERS**
- TAB 8 eLESSON PLANS BY AND FOR GRASSHOPPERS**
- TAB 8 DUPLICABILITY OF THE GRASSROOTS PROJECT**



VVOB?



**Oh, that stands for Very
Very Organised Business**