



THE REPUBLIC OF UGANDA

Lower

Secondary

Curriculum



**INFORMATION &
COMMUNICATIONS
TECHNOLOGY
SYLLABUS**



NCDC

NATIONAL CURRICULUM
DEVELOPMENT CENTRE

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FOREWORD

This four-year Syllabus for Information and Communications Technology (ICT) is one of the 20 subjects of the New Lower Secondary School curriculum. The Learning Outcomes of the Syllabus are structured to afford the learner opportunities to develop knowledge and practical performance within the different topics, across the four-year study.

ICT is a critical and topical issue in the modern times and a key requirement for engaging in the 21st century. Since the world is moving technological, it supports the teaching and learning process across all subjects by providing a wide range of resources while preparing learners for the modern workplace. It also prepares learners for programmes like Computer Science, Cyber Security, Computer Programming and other IT related careers.

ICT not only contributes to the development of critical thinking, creativity, invention and innovation, but also to practical performance and functional application of knowledge and skills. ICT helps the learner to apply knowledge and skills to provide individual and community needs and solve problems in everyday life. The effective application of knowledge of ICT, business skills and the development of the technological and entrepreneurial attitude, are to this Syllabus.

The study of ICT contributes to the development of independent thinking and living, and helps to develop the capacity of learners to identify opportunities, map out available resources to create jobs, and reduce youth unemployment, which is crucial for the development of the country's economy.

The teachers of ICT are required to shape the learning experiences and performances to cater for the needs and interests of all. Good learner textbooks and the use of resource people and practitioners will greatly assist teachers to achieve the objectives.

I therefore endorse this Syllabus as the official document for the teaching and learning of ICT at the Lower Secondary School level throughout the country.



Hon. Janet K. Museveni

The First Lady and Minister for Education and Sports

ACKNOWLEDGEMENT

National Curriculum Development Centre (NCDC) would like to express its appreciation to all those who worked tirelessly towards the production of this Lower Secondary Syllabus.

Our gratitude goes to the Ministry of Education and Sports (MOES), for overseeing the development of the syllabus and taking timely decisions whenever necessary. They have worked as a team with NCDC to produce this syllabus. Their decisions have been invaluable in getting this work completed as required. Our thanks also go to our partners in education who provided the necessary guidance.

We would also like to thank the members of the public who made helpful contribution towards shaping this syllabus. Their efforts are invaluable towards having this syllabus implemented in the schools and for improved quality of education in Uganda.

The Centre is indebted to the learners, teachers and consultants from Cambridge Education and Curriculum Foundation UK, who worked with NCDC specialists. Great thanks go to members of Information Communication Technology Working Group who worked tirelessly to put together the necessary facts and guidance in producing this Syllabus.

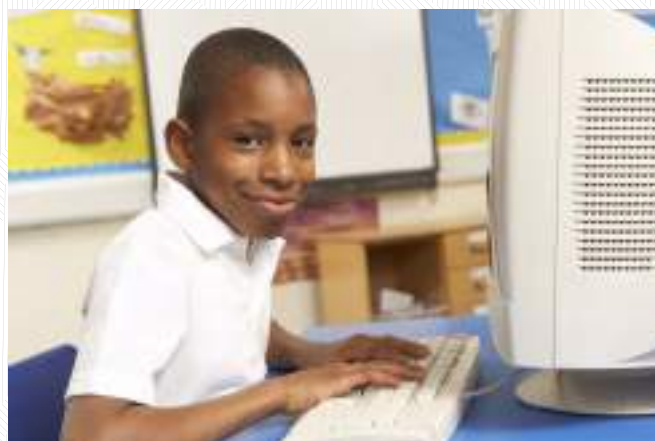
Furthermore, NCDC would like to thank the World Bank for the initial technical support and the Government of Uganda for funding the rest of the processes up to implementation of the Lower Secondary Curriculum Review.

Last but not least, NCDC would like to acknowledge all those behind the scenes who formed part of the team that worked hard to finalise the work on this Syllabus.

NCDC takes responsibility for any shortcomings that might be identified in this publication and welcomes suggestions for effectively addressing the inadequacies. Such comments and suggestions may be communicated to NCDC through P.O. Box 7002 Kampala or email admin@ncdc.go.ug or through our *Contact Us* page on our website at www.ncdc.go.ug.



Grace K. Baguma
Director
National Curriculum Development Centre



INTRODUCTION

The Uganda Vision 2040 aims to transform Uganda into a modern and prosperous country, while the NDP recognises the existing weaknesses in education, including the low efficiency and variable quality at the secondary level. The Sustainable Development Goal 4 advocates for quality education, while the National Development Plan II focuses on enhancement of human capital, development, strengthening mechanisms for quality, effective efficient service delivery and improvement of quality and relevance of skills development. The NRM Manifesto (2016-2021), emphasises continuous assessment examination systems, strengthening soft skills, which promote self-esteem, conscientiousness and a generally positive attitude to work, promoting e-learning and computer literacy in order to enhance learning outcomes. All these are lacking and where they exist it is at a minimum level.

In alignment with the above, the Education and Sports Sector Strategic plan (2017/20) advocates for delivery of equitable, relevant and quality education for all. The current secondary school curriculum of Uganda, although highly regarded by some, is focused on the needs of tiny academically oriented elite yet the needs of the majority of learners need to be the focus. The Ministry of Education and Sports (MoES) through the National Curriculum Development Centre (NCDC) therefore, undertook a review of the Lower Secondary Curriculum, aimed at providing a learning environment, opportunities, interactions, tasks and instructions that foster deep learning by putting the learner at the centre of the learning experience. This is in line with the aims of secondary education in Uganda, as provided for in the Government White Paper on education (1992) as outlined below:

The aims of secondary education in Uganda are:

- Instilling and promoting national unity; an understanding of the social and civic responsibilities;
- Promoting an appreciation and understanding of the cultural heritage of Uganda including its languages;
- Imparting and promoting a sense of self discipline, ethical and spiritual values, personal responsibility and initiative;
- Enabling individuals to acquire and develop knowledge and an understanding of emerging needs of society and the economy;
- Providing up-to-date and comprehensive knowledge in theoretical and practical aspects of innovative production, modern management methods in the field of commerce and industry and their application in the context of socioeconomic development of Uganda;

- Enabling individuals to develop basic scientific, technological, technical, agricultural and commercial skills required for self-employment.
- Enabling individuals to develop personal skills of problem solving, information gathering and interpretation, independent reading and writing, self-improvement through learning and development of social, physical and leadership skills such as are obtained through games, sports, societies and clubs;
- Laying the foundation for further education.
- Enabling the individual to apply acquired skills in solving problems of community, and to develop a strong sense of constructive and beneficial belonging to that community.
- Instilling positive attitudes towards productive work.

BACKGROUND TO THE CURRICULUM

The review was based on the Education Sector Strategic Plan (ESSP), 2009 – 2018) which set out strategies to improve the quality and relevance of secondary education. The ESSP's sub-objective 2.2 was to ensure that "Post-primary students are prepared to enter the workforce and higher education". This is also in line with the current Strategic Plan of 2017-2020. To achieve this objective, one of the Ministry's strategies was to revise the curriculum and improve instruction and assessment by eliminating the shortcomings in the current curriculum.

The review focused on: producing a secondary school graduate who has the competences that are required in the twenty first century; promoting values and attitudes; effective learning and acquisition of skills in order to reduce unemployment among school graduates.

The review also aimed at reducing the content overload and contact hours in the classroom so as to create time for: research and project work, talent development and creativity, allowing for emerging fields of knowledge across all subjects and doing away with obsolete information. There was a need to address the social and economic concerns of the country like in the mining sector, tourism, services provision, science and technology development and to ensure a rigorous career guidance programme to expose learners to the related subjects. This will enable learners to make informed choices as they transit, and to equip them with knowledge and skills that will enhance their competitiveness in the global value chain.

To meet these requirements, the review is based on:

- The development of a holistic education for personal and national development based on clear shared values
- A commitment to higher standards, deeper understanding and greater opportunities for learners to succeed
- A focus on the key skills that are essential to work, to learning, and to life, and which will promote life-long learning
- An integrated approach that will develop the ability to apply learning in practical situations.

The ESSP further outlines what the review implies:

“This review will necessitate a sweeping revision of the general secondary curriculum, away from strictly academic learning objectives that are thought to prepare students for erudite higher education and towards a set of competencies that serve both those who continue their education after S4 and those who choose to enter the workforce. The new curriculum will enable learners to acquire specific vocational skills that they can use once they enter the world of work. The new curriculum will help learners make informed decisions as citizens and family members, and it will give those who continue with their education, either immediately in S5 or later in life, the learning skills they need to think critically and study efficiently.”

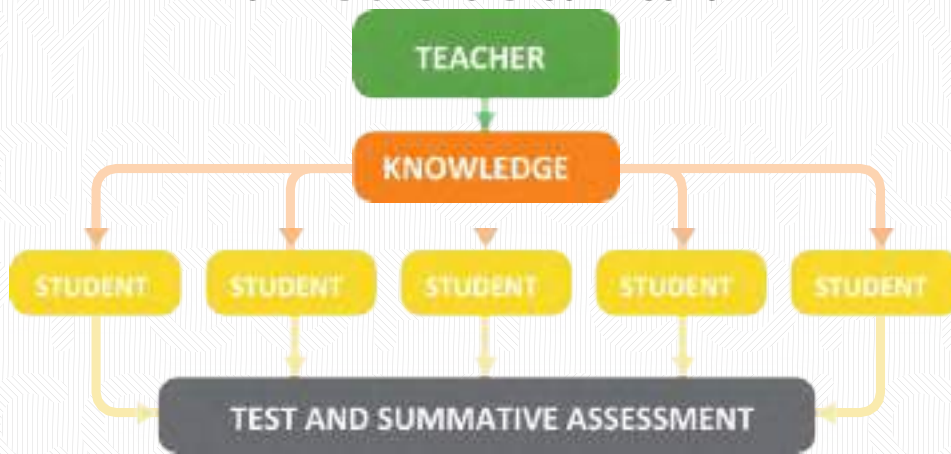
KEY CHANGES IN THE CURRICULUM

The key change in the curriculum is a move from a knowledge-based curriculum to a competence and skills-based curriculum. It is no longer sufficient to accumulate large amounts of knowledge. Young people need to develop the ability to apply their learning with confidence in a range of situations. They need to be able to use knowledge creatively. A level of competence is the ability to use knowledge rather than just to acquire it. This requires an active, learner-centred rather than passive, teacher-centred approach.

This approach to teaching and learning is in support of the Sustainable Development Goals (SDG's), otherwise known as the Global Goals. These are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. The key changes in the curriculum will ensure that Uganda is making good progress towards SDG 4 in particular which aims to ensure equitable quality education and promote lifelong learning opportunities for all.

The change can be summarised in the following diagrams.

KNOWLEDGE-BASED CURRICULUM



Knowledge-based teaching was based on transferring knowledge from the teacher to the students. The teacher had knowledge, and transferred this knowledge to the students by lecturing, talking and asking them to read the textbook or writing notes on the board for them to copy and learn. Students acquired the knowledge, often without fully understanding it, and were tested at the end of a topic, term or school course to see if they remembered it. The knowledge was based mainly on the knowledge in the subjects traditionally taught at University, and little attempt was made to make it relevant to young people's everyday lives. The whole education system was seen by many people as a preparation for University, but the vast majority of learners never reach university. The curriculum caters for this majority as well as those who later go on to University.

THE COMPETENCE BASED CURRICULUM



In the competence-based approach, the “student” becomes a “learner”. The new Learning Outcomes can only be achieved through active engagement in the learning process rather than simply absorbing knowledge given by the teacher.

The teacher needs to build on the learners’ own knowledge and experience and create Learning Activities through which learners can explore the meaning of what is being learned and understand how it is applied in practical situations.

Teaching and learning becomes a two-way process of dialogue between the teacher and learners. Learners also learn from one another through discussions. Assessment also becomes a two-way process of formative and summative assessment; not just to give grades but to find out problems the learners may be having and help to solve them.

THE CURRICULUM

The curriculum focuses on four “Key Learning Outcomes” of: self – assured individuals; responsible and patriotic citizens; lifelong learners; positive contributors to society. The curriculum emphasises knowledge, application and behavioural change. It is based on a clear set of values which must be imparted to learners during the learning process.

At the heart of every subject there are generic skills that allow development into life-long learners. Besides, there are also cross cutting issues that are embedded across subjects to enable learners understand the connections between the subjects and complexities of life.

Key Learning Outcomes

This curriculum sets out ‘Key Learning Outcomes’ that sum up the expectations of the curriculum as a whole, and set out clearly the qualities that young people will develop.

By the end of the educational process, young people will become:

1. Self-assured individuals who:

- demonstrate self- motivation, self-management and self-esteem.
- know their own preferences, strengths and limitations.
- adjust their behaviour and language appropriately to different social situations.
- relate well to a range of personality types.

2. Responsible and patriotic citizens who:

- cherish the values promoted in the curriculum.
- promote the development of indigenous cultures and languages and appreciate diversity and equity.
- apply environmental and health awareness when making decisions for themselves and their communities.
- are positive in their own identity as individuals and global citizens.
- are motivated to contribute to the well-being of themselves, their community and the nation.

3. Lifelong learners who:

- can plan, reflect and direct their own learning.
- actively seek lifelong learning opportunities for personal and professional development.

4. Positive contributors to society who:

- have acquired and can apply the Generic Skills.
- demonstrate knowledge and understanding of the emerging needs of society and the economy.
- understand how to design, make and critically evaluate products and processes to address needs.
- appreciate the physical, biological and technological world and make informed decisions about sustainable development and its impact on people and the environment.

Values

The curriculum is based on a clear set of values. These values underpin the whole curriculum and the work of schools. They are also the values on which learners need to base their lives as citizens of Uganda. The values are derived from The Uganda National Ethics and Values Policy of 2013. They are:

- Respect for humanity and environment
- Honesty; uphold and defend the truth at all times
- Justice and fairness in dealing with others
- Hard work for self-reliance
- Integrity; moral uprightness and sound character
- Creativity and innovativeness
- Social Responsibility
- Social Harmony
- National Unity
- National Consciousness and patriotism

These values are not taught directly in lessons, nor will they be assessed, but they will inform and shape all teaching and learning.

Generic Skills

The generic skills lie at the heart of every Subject. They enable the learner to access and deepen learning across the curriculum. They are the same skills employers seek, and which will unlock the world of work. These skills allow young people to develop into lifelong learners who can adapt to change and cope with the challenges of life in the twenty first Century.

Young people need to be able to think critically and solve problems, both at school and at work; creative and innovative in their approach to learning and life; communicate well in all forms, co- operate with others and also work independently. They should also be able to use functional mathematics and ICT effectively. The details of the generic skills are:

Critical thinking and problem-solving

- Plan and carry out investigations
- Sort and analyse information
- Identify problems and ways forward
- Predict outcomes and make reasoned decisions
- Evaluate different solutions

Creativity and innovation

- Use imaginations to explore possibilities
- Work with others to generate ideas
- Suggest and develop new solutions
- Try out innovative alternatives
- Look for patterns and make generalisations

Communication

- Listen attentively and with comprehension
- Talk confidently and explain ideas/opinions clearly
- Read accurately and fluently
- Write and present coherently
- Use a range of media to communicate ideas

Co-operation and Self-Directed Learning

- Work effectively in diverse teams
- Interact effectively with others
- Take responsibility for own learning
- Work independently with persistence
- Manage goals and time

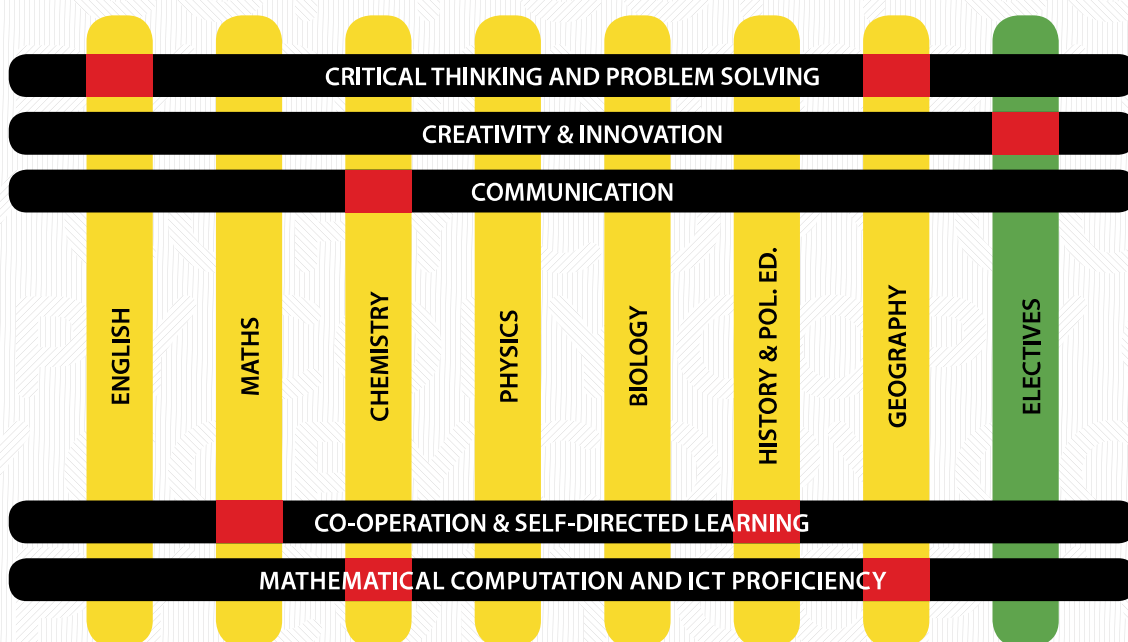
Mathematical Computations and ICT Proficiency

- Use numbers and measurements accurately
- Interpret and interrogate mathematical data
- Use mathematics to justify and support decisions
- Use technology to create, manipulate and process information
- Use technology to collaborate, communicate and refine work

GENERIC SKILLS WITHIN ICT

These skills are not separate subjects in themselves; they are developed within the subjects of the curriculum. They also facilitate learning within those subjects. It is when these generic skills are deployed that learning is most effective. The generic skills are a key part of the curriculum. They have been built into the syllabuses for each of the subjects and these subjects provide the context for the skill development. ICT provides a rich context for learners to communicate, co-operate, and think critically, calculate and solve problems. ICT is, indeed, one of the Generic Skills and has application across all subjects.

The subjects also provide the contexts for progression within the skills. The same skill definitions apply to all year groups, and skills progression is provided by the increasing complexity of the subject matter within each subject. For example, within 'critical thinking', learners begin thinking critically about the relatively simple subject matter in Senior 1 and then progress to thinking about the much more complex matters in Senior 4. Thus the progression is in the increasing complexity of the matters being thought about.



Cross-cutting Issues

There are some issues that young people need to learn about, but which are not confined to one Subject. These are the 'Cross-cutting Issues' and they need to be studied across the subjects. These issues develop the learner's understanding of the connections between the subjects, and so of the complexities of life.

The Cross-cutting Issues identified in the curriculum are:

1. Environmental awareness
2. Health awareness
3. Life skills

4. Mixed abilities and involvement
5. Socio-economic challenges
6. Citizenship and Patriotism

(For details on cross-cutting issues, refer to the Curriculum Framework document, page 11).

These have been built into the syllabuses of each subject. The way in which they operate within the subject is very similar to the generic skills. ICT provides a very good method of investigating all of these issues and communicating about them.

ICT Integration

ICT is embedded as a teaching / learning tool. ICT integration framework is summarized below and cuts across all the subjects on the curriculum.

| Category of a task in the syllabus | ICT application (How ICT will be integrated for the task category) |
|---|--|
| Field work | Use of cameras to take photos and record videos |
| Locate places on a map | Use digital maps such as Google maps or an equivalent application. |
| Presentation in class | Use presentation application |
| Search for key words and meanings | Use online dictionary or search online |
| Make drawing/graphics | Use publishing software/Word processor |
| Role play, narrations | Use audio and video recordings |
| Demonstrations | Use audio/video recordings, models and simulations |
| Locating and putting marks on an area | Use digital/online mapping |
| Show data charts, statistics | Use spreadsheet software |
| Data analysis | Use spreadsheet or any other specialized data analysis software |
| Group discussions | Mind mapping software |
| Search for extra reading materials | Download files from the Internet |
| Writing equations and formulae | Use equation editors |
| Carry out academic research | Use the Internet and other academic applications like "Encarta", "Britannica" etc. |
| Share or learn with your peers or people across the world | Form learning networks with blogs, social media, emails or any other networking application. |

THE ICT SYLLABUS

ICT is an optional subject from Senior 1 up to Senior 4.

Time allocation

| ICT | S1 & S2 | S3 & S4 |
|-----|------------------|------------------|
| | 2 periods a week | 4 periods a week |

Rationale

ICT is a critical and topical issue in the modern times and a key requirement for engaging in the twenty first century. Since the world is moving technological it supports the teaching and learning process across all subjects by providing a wide range of resources while preparing the learner for the modern workplace. It also prepares learners for programmes like Computer Science, Cyber Security, Computer Programming and other IT related careers.

The syllabus is designed to help the learner to:

- i) acquire basic ICT literacy skills.
- ii) use ICT as a tool for learning in other subjects.
- iii) acquire the appropriate knowledge and skills for applying ICT skills in other areas like education, business and social life.
- iv) use the technology to communicate effectively.
- v) access and share information through the use of technology.
- vi) follow basic ethics in the use of ICT tools.

Teaching and Learning ICT

The thrust of the new syllabuses is experiential and towards deeper understanding and the development of skills. The focus in ICT is on the development of the ability to use technology to explore the world around her/him and to communicate in the wide range of ways that technology makes available. It is a practical subject where the learner needs to use the technology, but not just be told about it.

The new syllabuses provide the learner with a wide range of contexts in which to develop the understanding of ICT. These contexts are designed to engage the interest of the learner and to provide opportunities to build life-related knowledge, experience and skills. Teachers are encouraged to go beyond the textbooks and provide as many meaningful contexts as possible. The generic skills have been integrated throughout the curriculum and can only be acquired through active approaches.

The role of the teacher is to build on the learner's existing knowledge and experience, and also to extend that knowledge by posing problems to the learners. This makes them think about their own ideas and experiences as well as adding new knowledge and skills to it.

The learner needs to interact with real situations inside and outside the classroom. She/he needs to look at pictures or diagrams, examine statistics, or read texts from a range of sources; find out knowledge and ideas for herself/himself; should then be able to express these in her/his own words, not those of the teacher, and so demonstrate that she/he has understood what they have learnt.

In this approach, the learner is encouraged to:

- be responsible for her/his own learning.
- think for herself/himself and form her/his own ideas and opinions.
- become a critical thinker, ready to face new challenges and situations for herself/himself.

Programme Planner

The syllabus consists of 16 topics distributed across 4 thematic areas for the four-year course. The Programme Planner presents the order in which the topics will be sequenced for each term of the year for the entire four-year programme of study. It also shows the number of periods allocated to each topic.

| SENIOR ONE | Theme | Topic | Time (Periods) |
|--------------|-----------------------------|---------------------------------------|----------------|
| Term 1 | Computer Systems | Introduction to ICT | 24 |
| Term 2 | Computer Systems | Computer Hardware and System Start up | 12 |
| | Data Management and sharing | File and Folder Management | 12 |
| Term 3 | Data Management and sharing | Word Processing I | 24 |
| Total | | | 72 |

| SENIOR TWO | Theme | Topic | Time (Periods) |
|--------------|-----------------------------|--------------------------------|----------------|
| Term 1 | Data Management and sharing | Spreadsheet I | 24 |
| Term 2 | Data Management and sharing | Electronic Presentation | 24 |
| Term 3 | Data Management and sharing | Information Access and Sharing | 18 |
| | ICT Safety and Environment | Health and Safety | 6 |
| Total | | | 72 |

| SENIOR THREE | Theme | Topic | Time (Periods) |
|--------------|-----------------------------|-----------------------------|----------------|
| Term 1 | Data Management and sharing | Word Processing II | 48 |
| Term 2 | Data Management and sharing | Spreadsheet II | 32 |
| | Publications | Electronic Publication | 16 |
| Term 3 | Data Management and sharing | Database Management Systems | 48 |
| Total | | | 144 |

| SENIOR FOUR | Theme | Topic | Time (Periods) |
|--------------|----------------------------|-----------------------------|----------------|
| Term 1 | Publications | Web Design | 32 |
| | ICT Safety and Environment | Electronic Waste Management | 16 |
| Term 2 | Computer Systems | Basic Software Management | 48 |
| Term 3 | Computer Systems | System and Data Security | 40 |
| Total | | | 136 |

The syllabus details for all subjects are set out in three columns:

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|--|---|---|
| The knowledge, understanding or skills expected to be learned by the end of the topic. | The sort of learning activities that include the generic skills and that will help the learner achieve the Learning Outcomes. | Opportunities for assessment within the learning and guidance on how to assess acquisition of the intended Learning Outcomes. |

Teachers should base their lesson plans on the Learning Outcomes using the Suggested Learning Activities as a guide. These are not the only possible learning activities, and teachers are encouraged to extend these and devise their own that are appropriate to the needs of their class.

DETAILED SYLLABUS FOR ICT

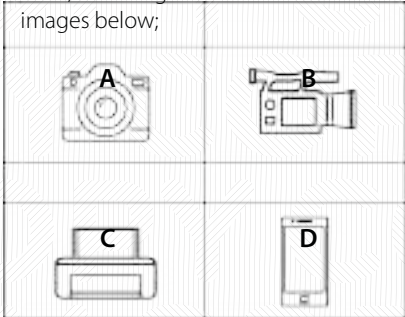
SENIOR 1: TERM 1

THEME: COMPUTER SYSTEMS

TOPIC 1: INTRODUCTION TO ICT

24 PERIODS

Competency: The learner understands the concept of ICT and the related terminologies, its benefits and the required safety precautions.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|---|--|--|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> Explain the concept of "ICT" and the related terminologies. (k) know the common ICT tools and their use in various fields. (k, u, v) use various ICT tools. (s, v) appreciate the Safety precautions for the different ICT tools. (u, v) | <p>Guide learners to:</p> <ul style="list-style-type: none"> brainstorm the term "ICT". name the ICT Technologies they know of and how they are used in the everyday life. <p>Use ICT equipment, and in pairs or in groups, ask them to:</p> <ul style="list-style-type: none"> identify and name each of the ICT tools, and describe how they are used. research on specialised applications of ICTs in various fields; health, industry, transport, banks, communication, education, security and allow them to discuss in groups. work in pairs to study user manuals for a variety of ICT tools, summarise and present the safety precautions in a whole class discussion. operate available ICT tools to produce a product i.e. taking a photograph using a camera, typing a text, texting...project using a projector. describe, in a discovery session, the information processing cycle using a simple diagram to illustrate how data is processed into information and stored for future use. identify, in a guided discussion, possible threats to computers prepare, in groups, and present rules to govern the use of the computer laboratory. in a tutoring session in class or computer laboratory to identify some security and safety concerns of ICT tools | <ul style="list-style-type: none"> Listen and ensure that learners interact with, name and state the use(s) of ICT tools, including those shown in the images below; <div data-bbox="1059 952 1465 1267" style="border: 1px solid black; padding: 5px; text-align: center;">  </div> <ul style="list-style-type: none"> Listen as learners' state the necessary safety precautions they would take while using each of the tools above. Observe learners' use or describe the use of various ICT tools. |

SENIOR 1: TERM 2

THEME: COMPUTER SYSTEMS

TOPIC 2: COMPUTER HARDWARE AND SYSTEM STARTUP

12 PERIODS

Competency: The learner understands the importance of the physical devices of a computer system and uses them in everyday life.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|--|---|---|
| <p>The learner should be able to:</p> <ol style="list-style-type: none">know the physical devices of a computer system and how each operates. (k, s, u, v)assemble a computer system. (s, v)safely start and shut down a computer system. (s, v)use computer peripheral tools. (k, u, s, v) | <p>Guide learners to:</p> <ul style="list-style-type: none">classify in pairs, a list of hardware devices as Input, output, storage, communication and processing tools into their respective categories.brainstorm, in a think pair session, and report on the importance of each of the hardware tools.identify by name and use, the physical devices of a computer system (not assembled).work in pairs, to follow a given step-by-step procedure to connect parts of a computer, power, start and shut down a computer system.individually prepare texts, take picture and use peripheral tools such as printer, scanner and projector to get an output. | <ul style="list-style-type: none">Observe learners as they, assemble the different parts into a working computer system.Observe learners as they connect and use peripheral tools such as printer, scanner and projector appropriately.Listen as learners discuss and explain the importance of each of these hardware tools: Mouse, Keyboard, Monitor, Speakers.Evaluate the connected set of peripherals and confirm whether the connections are proper. |

THEME: DATA MANAGEMENT AND SHARING**TOPIC 3: FILE AND FOLDER MANAGEMENT****12 PERIODS**

Competency: The learner understands the different types of storage media to store information following the structure of files, folders and directories.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|--|--|--|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> use the different types of storage media to create, save and transfer files. (u, s,v). convert units for data storage. (k, u) | <p>Guide learners to:</p> <ul style="list-style-type: none"> discuss and identify different types of storage media. create and save a simple file. transfer files between different storage media. work in pairs and use a simple program (e.g. paint, WordPad) to add some information on a file (e.g. shapes, simple drawings) work in pairs and create, name and rename folders/files on a variety of storage media. match different storage devices to their respective names and storage capacities. work in pairs or in groups, and: <ul style="list-style-type: none"> save files on a variety of storage media. store files/folders in a desired location (file path); online/offline. convert from one storage measurement unit to another (B, KB,MB, etc.). In pairs, learners classify physical storage media according to methods of storage and move files/folders from one storage device to another. work in pairs, to compare the different types of storage media in terms of speed of access, portability, storage capacity and method. | <ul style="list-style-type: none"> Observe learners identifying different storage media types and transferring files. Observe learners' drawings and their accuracy in using paint. Observe learners as they create and transfer files and folders from one location to another. Discuss with learners as they make conversions of data storage units. |

SENIOR 1: TERM 3**THEME: DATA MANAGEMENT AND SHARING****TOPIC 4: WORD PROCESSING I****24 PERIODS****Competency:** The learner uses a Word processing software (e.g. MS Word) to create, edit and print documents.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|--|--|--|
| <p>The learner should be able to:</p> <p>a. use the word processor interface. (k, u, s, v)</p> <p>b. use a word processing software to create, format, edit and print a document. (k, u, s, v)</p> | <p>Working individually or in pairs, learners:</p> <ul style="list-style-type: none"> • open a word processing Application software. • study the word processor interface and take note of the various features and their effects on text. • study a hard copy document (prepared by the teacher) and identifying the range of formats used. • use tools and features of a word processor to format and edit documents (s). • format a Word document (page orientation, margins, size, fonts, paragraphing, etc.). • insert objects in a word document (tables, images, shapes, header and footer). • print part or the whole document. | <ul style="list-style-type: none"> • Observe as learners open and interact with the word processing application. • Observe learners making a peer review of each other's work • Evaluate learners printed work in line with the specifications given. |

SENIOR 2: TERM 1**THEME: DATA MANAGEMENT AND SHARING****TOPIC 5: SPREAD SHEET I****24 PERIODS****Competency:** The learner uses spreadsheet software (e.g. MS Excel) to create, save, edit and print spreadsheets.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|---|---|---|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> use spreadsheet functions to manipulate data and print it, (k, s, v). use charts to represent data. (s, v) | <p>Guide learners to:</p> <ul style="list-style-type: none"> open a spreadsheet. enter data in a spreadsheet. study the spreadsheet interface and try out the various features on text. study a pre-type set hardcopy document with various formats and ask them to comment on the observed features. use a simple spreadsheet formula to compute sum, min, max, average and count. (See below for an example). sort data using alphabetical, ascending & descending order. generate simple labelled charts: pie, line and bar. using a discovery approach to creatively come up with different formats of presenting information. | <ul style="list-style-type: none"> Observe learners as they open spreadsheet application and interact with its features. Check for the correctness of the formulas used based in the computations and procedures. Evaluate learning through assessment of products (such as the mark sheet) and contributions to class discussion. |

SENIOR 2: TERM 2**THEME: DATA MANAGEMENT AND SHARING****TOPIC 6: ELECTRONIC PRESENTATION****24 PERIODS****Competency:** The learner uses presentation software (e.g. MS PowerPoint) to prepare, deliver and print presentations.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|---|--|---|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> use the presentation application functions and tools to prepare interactive presentations. (u, s, v, k) deliver a presentation to an audience (s, v) | <p>Guide learners to:</p> <ul style="list-style-type: none"> conduct a research from the surrounding community using a field visit guideline to gather information including taking pictures and prepare a presentation. watch a simple demonstration of a presentation, (From YouTube or teacher led presentation) load and open presentation software enter information in a presentation application. prepare a presentation formatted with themes, animations, backgrounds, images, transitions, hyperlinks. discuss their presentation with the audience, evaluating strengths and inviting suggestions for improvement print a presentation or part of a presentation to specified print settings. | <ul style="list-style-type: none"> Observe learners perform the activity, intervening to help them improve their skills and develop their understanding so they can all achieve learning outcomes. Listen to learners' discussions as they work on their presentations. Ask probing questions to deepen their learning. Evaluate quality of presentations produced, the steps along the way and contributions to evaluation of their own and others' work. |

SENIOR 2: TERM 3**THEME: DATA MANAGEMENT AND SHARING****TOPIC 7: INFORMATION ACCESS AND SHARING****18 PERIODS****Competency:** The learner uses a computer and internet to access and share information.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|--|---|---|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> use online and on offline platforms to search for information. (k, s, v) use various ICT tools to share information. (u, s, v) explain safety practices while using the internet (netiquette). (k, u, v) | <p>Guide learners to:</p> <ul style="list-style-type: none"> individually use online or offline platforms like Encarta, Encyclopedia to search for information. use different technologies such as e-mails, networks, cloud, Bluetooth to share data / information between ICT tools or devices. research about possible risks and safety practices associated with Internet use. | <ul style="list-style-type: none"> Observe pairs as they carry out the steps involved in the activity, intervening to steer learning towards achievement of the learning outcomes. Listen to learners as they discuss the tasks and promote deeper learning by encouraging them to think critically about the process. Evaluate learning by assessing quality of presentations, information sharing, reports, providing feedback to improve. |

THEME: ICT SAFETY AND ENVIRONMENT

TOPIC 8: HEALTH AND SAFETY

6 PERIODS

Competency: The learner appreciates the various health problems associated with regular use of computers/ICT systems and how they can be avoided.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|---|---|---|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> analyse common health problems associated with prolonged use of computers (eye strain, back pains, RSI). (k, u, s, v) explain possible ways to avoid each of the health problems associated with use of ICTs. (k, u, v) communicate information on health and safety measures of using a computer(k, u, v, gs). | <p>Guide learners to:</p> <ul style="list-style-type: none"> brainstorm what they think are the health risks associated with using a computer. watch a video showing common health problems associated with computers. develop a graphic, matching a computer part/device to a body part it affects. research and report on mitigation measures to the health problems associated with computer use in an article. write articles on health and safety of using computers and share with the immediate community. | <ul style="list-style-type: none"> Listen to and observe learners as they discuss various health problems caused by prolonged use of ICTs. Listen and observe learners when they discuss how problems caused by prolonged use of ICTs can be avoided. Evaluate learning through the verbal contributions and products (mind map, record of brainstorm / video comparison, graphic of computer parts / devices and health impact, reports on avoiding health problems). Listen to learners presenting their articles taking note of the facts, pronunciation, and the presentation skills in terms of grammar. |

SENIOR 3: TERM 1

THEME: DATA MANAGEMENT AND SHARING

TOPIC 9: WORD PROCESSING II

48 PERIODS

Competency: The learner uses advanced word processing features to enhance document outlook.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|--|--|---|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> explain the effects of various advanced tools and features of a word processor (k, u). use advanced tools and features of a word processor to format and edit documents (s, v). | <p>Guide learners to:</p> <ul style="list-style-type: none"> research about various advanced word processing features (footnotes, mail merge, paragraph, text columns) and how they affect document appearance. work in groups to choose a topic or topics and write about it in form of a school magazine (about 4 pages). ensure that the article has the following characteristics: <ul style="list-style-type: none"> Images at different points with text wrapping around them in different ways. Some of the information in tabular form Use footnotes and end notes Some text in multiple column layout A watermark The document is secured with a password Page numbers in both Arabic and Roman numerals within the same document. A list of figures and tables and a table of contents for the entire document. write and send a personalized letter to the parents of 10 (fictional) selected students informing them of their children’s performance (use mail merge). | <ul style="list-style-type: none"> Observe and listen to learners as they research and discuss their chosen topic and develop their magazine content. Evaluate learners’ progress by assessment of products: magazine overall and all elements of it; letters to parents. |

SENIOR 3: TERM 2
THEME: DATA MANAGEMENT AND SHARING
TOPIC 10: SPREADSHEET II
32 PERIODS
Competency: The learner processes data using advanced spreadsheet features for quick and easy interrogation.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|--|---|--|
| <p>The learner should be able to</p> <ol style="list-style-type: none"> explain the effects of various advanced tools and features of a spreadsheet (k,u). use advanced tools and features of a spreadsheet to process and present data. (s,v) | <p>Guide learners to:</p> <ul style="list-style-type: none"> • Enter data provided in a table and: <ul style="list-style-type: none"> - Generate bar / column, pie and line charts - Work with chart formatting; title adjustment, positioning, legend and data label formatting. - Use varying scales on graph axes. - Customise chart appearance (e.g. colour, design) • Load a mark sheet with at least 20 (fictional) students and 3 subjects, e.g. Maths, English, History populated with marks out of 100. <ul style="list-style-type: none"> - Filter the data in various ways, e.g. students who scored more than 30% in Maths, between 25 and 50 in English. - Work with the functions of IF, Sumif, Countif, Rank, Vlookup and HLookup (up to 4 outcomes for nested functions). - Reference using absolute/ relative/ mixed referencing. - Toggle between formula and value views. - Set print area. - Deliberately create the following errors, explain and fix them: #N/A, #VALUE!, #REF!, #DIV/0!, #NUM!, #NAME?, or #NULL!, #####. | <ul style="list-style-type: none"> • Observe learners as they perform the tasks, intervening to ensure they understand and develop required skills. • Listen to discussion, correcting any misconceptions and guiding learners towards expected outcomes. • Evaluate learning through quality of products of each task. |

SENIOR 3: TERM 2

THEME: PUBLICATIONS

TOPIC 11: ELECTRONIC PUBLICATION

16 PERIODS

Competency : The learner uses desktop publishing software (e.g. MS Publisher) to design and produce simple publications such as business cards, flyers, calendars, invitation cards, letterheads and certificates.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|---|--|--|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> explain the concept of electronic publishing. (k, u, v) use the electronic publishing application features to prepare a publication. (u, s, v) | <p>Guide learners to:</p> <ul style="list-style-type: none"> discuss the meaning of electronic publishing. identify publications in their school and other organisations and research about techniques involved in electronic publishing. research about different examples of electronic publishing software. navigate through a publication software suite to discover the different templates provided. open electronic publishing application software. study the application interface; take note of and practice using the various features/ tools. explore the features of a pre-type set hardcopy document with various formats. use a template and blank page to create a publication, customise the templates and add content (shapes, images and text) and produce a publication, also adjusting measurement units (inches, centimetres). save a publication to a given location. load an existing publication and format the publication to a desired style, adjusting the shapes, sizes, colour of graphics, objects and text, applying borders to the publication or parts of the publication and adjusting the publication background. effectively make use of the spaces in a publication. | <ul style="list-style-type: none"> Listen to learners discussing tasks and intervene as appropriate, asking probing questions to deepen learning and guide thinking. Observe as groups or pairs carry out the activities, offering support and guidance to ensure that intended learning outcomes are achieved. Evaluate the quality of learning through reports and products developed in each task. |

SENIOR 3: TERM 3

THEME: DATA MANAGEMENT AND SHARING

TOPIC 12: DATABASE MANAGEMENT SYSTEMS

48 PERIODS

Competency: The learner uses a Database Management System (DBMS) programme (e.g. MS Access) to manage data.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|---|---|---|
| <p>The learner should be able to:</p> <p>a) explain the concept of databases. (k, u, v)</p> <p>b) use tools and features of a DBMS to manipulate data. (s, v)</p> | <p>Guide learners to:</p> <ul style="list-style-type: none"> • research and report on: a) commonly used Database Management Software (e.g. MS Access, Oracle, MySql) and their features b) how and why database management systems are used in businesses, the public sector and the home, contributing their thoughts to class discussion (e.g. family records, e-library management system, students' records, government records, bank account records, hospital patient details, airline booking systems) • identify records and fields in the database of class list, address book, library catalogue. • add some information to selected databases (records and fields). Launch database software and create and save databases, identifying the various database objects such as tables, forms, queries, reports. • determine an appropriate data type for each of the fields identified and respective field properties. • apply simple validation rules, validation text and input mask • enter data in a table to create a form and use it for data entry. • query the database, retrieving data in various form views and create query objects to retrieve specific records and or fields. • use the following operators in a query: = (Equal), <> (Not equal to), < (Less than), <= (Less than or equal to), > (Greater than), >= (Greater than or equal to) NULL and NOTNULL. • practise generating reports using various approaches: design view, report view and generate automatic calculations in various database objects. • create a relational database of up to two tables. • print objects to required layouts and formats. | <ul style="list-style-type: none"> • Listen as pairs discuss the tasks involved in the activity, asking questions to develop understanding and ensure skills are learned. • Observe learners carrying out the tasks, noting good practice and providing guidance to help them achieve expected learning outcomes. • Evaluate learning through the quality of reports and databases produced by the learners. |

SENIOR 4: TERM 1

THEME: PUBLICATIONS

TOPIC 13: WEB DESIGN

32 PERIODS

Competency: The learner uses a web authoring software (e.g. HTML Editor, Dreamweaver, FrontPage, Expression web Designer) to design and publish personal, family and company websites.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|---|--|---|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> explain the concept of web designing. (k, u, v). create aWebsite. (u, v, gs) | <p>Guide learners to:</p> <ul style="list-style-type: none"> navigate through a website to understand the terms: website, static and a dynamic, webpage, hyperlink, websites, using local sites for Ugandan companies as examples. identify categories of websites (wikis, blogs, content aggregators, etc.) research about common website authoring software available. develop a plan for a simple website (not more than 4 pages) including identifying the necessary media elements e.g. images, videos, audios, animations, text. design the page layout for the planned website. identify the web authoring software to use. add content to the designed website including forms and tables. run the website, testing its functionality, improving it as necessary. save the website as a web page & print a web page. | <ul style="list-style-type: none"> Listen and observe as pairs discuss and carry out the tasks involved in the activity. Intervene to help learners improve their skills and deepen their understanding. Evaluate learning through the quality of the websites created. |

THEME: ICT SAFETY AND ENVIRONMENT

TOPIC 14: ELECTRONIC WASTE MANAGEMENT

16 PERIODS

Competency: The learner appreciates the importance of proper e-waste management and the roles of different stakeholders.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|---|---|--|
| <p>The learner should be able to:</p> <ul style="list-style-type: none"> a) explain the meaning of E- Waste management. (k, u) b) apply different approaches in managing electronic waste. (u, s, v) c) identify key stakeholders and their roles in e-waste management. (k, u, s, v). | <p>Guide learners to:</p> <ul style="list-style-type: none"> • Research in groups about the meaning of e-waste management and good practice in management of electronic waste (donations, electronics recycling, and take-back programs). • Explain the importance of proper E-Waste management. • Develop; <ul style="list-style-type: none"> - a public awareness campaign (using ICT skills) to inform the school community about e-waste management. - Guidelines for management of e-waste around their school, taking account of different approaches used in school and in the locality. • In groups, organize and perform a role play on the roles of government, industry and citizens towards proper management of e-waste. | <ul style="list-style-type: none"> • Observe as learners perform the tasks and intervene to ensure all engage and make progress. • Listen as learners discuss the activities, asking probing questions to steer them towards achievement of learning outcomes. • Evaluate the products: mind maps/ spider diagrams, campaigns, guidelines, reports, role plays and learners' other contributions. |

SENIOR 4: TERM 2

THEME: COMPUTER SYSTEMS

TOPIC 15: BASIC SOFTWARE MANAGEMENT

48 PERIODS

Competency: The learner manages software that enables a computer to function properly.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|---|--|--|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> explain the various categories of software. (k, u, v) describe the functions of software on a computer system. (k, u) manage (Install/Uninstall) various software categories on a computer system. (k, s, u, v) | <p>Guide learners to:</p> <ul style="list-style-type: none"> search the web for information about the functions of an operating system and the difference between the operating system and application system and discuss conclusions with the class. prepare a diagrammatic representation of categories of computersoftware. install, uninstall and troubleshoot an operating system and system software and produce flow charts to explain the processes. use utility programs to enhance computer performance and report on their impact. | <ul style="list-style-type: none"> Listen as pairs discuss the tasks, intervening to ensure misconceptions are addressed and to deepen learning. Observe as learners perform tasks and offer guidance to ensure all develop their understanding and skills. Evaluate learning through the quality of products: contribution to class discussion, diagrams, flow-charts reports. |

SENIOR 4: TERM 3

THEME: COMPUTER SYSTEMS

TOPIC 16: SYSTEM AND DATA SECURITY

40 PERIODS

Competency: The learner uses security applications to safeguard computer systems.

| LEARNING OUTCOMES | SUGGESTED LEARNING ACTIVITIES | SAMPLE ASSESSMENT STRATEGY |
|--|---|---|
| <p>The learner should be able to:</p> <ol style="list-style-type: none"> explain the concept of computer security, (k, u, v). secure computer systems against attacks, (s, v). describe ethical practices while using ICTs, (k, u). | <p>Guide learners to:</p> <ul style="list-style-type: none"> discuss and research about computer security risks and their potential impact. research about actions or events that could cause loss or damage of a computer or its information. identify a computer that has been infected with malware. identify technologies for securing computer systems. research about different types of computer security risks and attacks. research and produce a report on approaches for securing a computer system (hardware and software) using passwords, biometrics, firewalls, antivirus software, honey pots, intrusion detection programs. secure a computer system on the network and off the network. develop a set of moral principles (code of conduct) to regulate the use of ICTs for a given community. | <ul style="list-style-type: none"> Listen as groups and pairs discuss the tasks, asking probing questions to promote critical thinking and to deepen learning. Observe as learners perform tasks, providing advice and guidance to boost progress and accelerate skill development. Evaluate learning by assessment of quality of products: diagrams, oral and written reports, summaries, charts, practical demonstrations, codes of conduct. |

ASSESSMENT

Assessing the New Expectations for Learning

The curriculum sets new expectations for learning, with a shift from Learning Outcomes that focus mainly on knowledge to those that focus on skills and deeper understanding. These new Learning Outcomes require a different approach to assessment.

The “Learning Outcomes” in the syllabuses are set in terms of Knowledge, Understanding, Skills, and Attitudes. This is what is referred to by the letters k, u, s & a.

It is not possible to assess attitudes in the same way as knowledge, understanding and skills because they are more personal and variable and are long-term aspirations. This does not mean that attitudes are not important. It means that we must value things that we cannot easily assess.

So this guidance focuses on knowledge, skills and understanding. Each has its own implications for learning and assessment.

| | |
|----------------------|--|
| Knowledge | The retention of information. |
| Understanding | Putting knowledge into a framework of meaning – the development of a ‘concept’. |
| Skills | The ability to perform a physical or mental act or operation. |
| Values | The inherent or acquired behaviours or actions that form a character of an individual. |
| Attitudes | A set of emotions, beliefs or behaviours toward a particular object, person, thing or event. |

To assess knowledge, skills and understanding we need to look for different things. Knowledge can be assessed to some extent through written tests, but the assessment of skills and deeper understanding requires different approaches. Because of this, the role of the teacher in assessment becomes much more important.

Knowledge

Knowledge is the easiest to assess because it is fairly straightforward to find out whether or not a learner has retained some information: a simple question can usually help find this out. We ask them to name something, or state something, or label a diagram.

Skills

Skills are the ability to perform a mental or physical operation, so we have to observe the skill being performed or look at the product, or outcome, of the skill; for example a piece of writing, a picture or diagram. Some skills, such as speaking or a physical education skill do not have a product so need to be observed.

Understanding

Assessing deeper understanding is much more difficult, so we usually ask learners to explain, compare or outline a process. This can be done orally (in conversation) or in writing, and will give us some idea of the extent of their understanding.

Values and Attitudes

Values and Attitudes determine how we interact with others, working in a team, meeting deadlines, being self-driven, holding democratic values, and having respect for democracy, race, gender, disability, human dignity, culture, nation, life and social justice.

Examinations

There will be examinations or tests set at the end of every year. There will also be a summing up of on-going teacher assessments made in the context of learning.

Formative Assessment

Assessments are used for a wide range of purposes in schools and education systems. Just as academic lessons have different functions, assessments are typically designed to measure specific elements of learning e.g., the level of knowledge a student already has about the concept or skill the teacher is planning to teach or the ability to comprehend and analyse different types of texts and readings. This syllabus focuses on the evaluation of progressive day-to-day classroom learning; hence Formative Assessment.

Formative assessment refers to a wide variety of methods that teachers use to conduct in-process evaluations of student comprehension, learning needs, and academic progress during a lesson, unit, or activity.

The general purpose of formative assessment is to improve learning and achievement; give educators in-process feedback about what students are learning or not learning so that instructional approaches, teaching materials, and academic support can be modified accordingly. Formative assessments are usually not scored or graded, and they may take a variety of forms, from more formal quizzes and assignments to informal questioning techniques and in-class discussions with students.

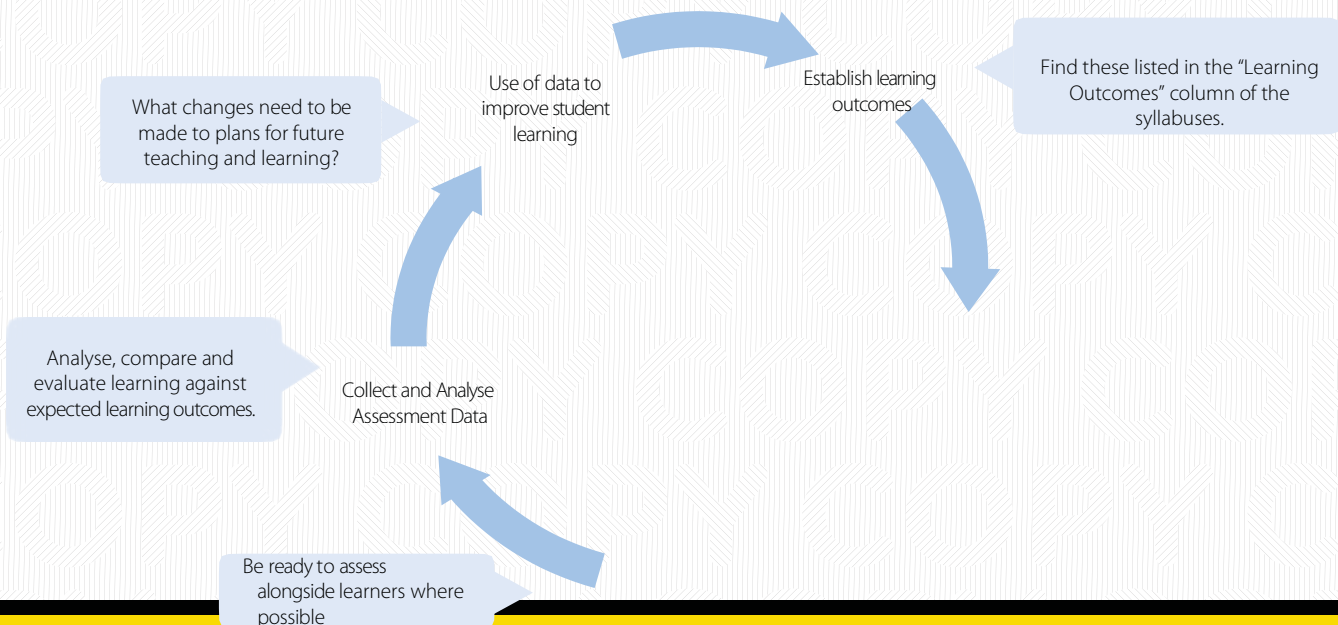
The general goal of formative assessment is to collect detailed information that can be used to improve instruction and student learning while it's happening. What makes an assessment "formative" is not the design of a test, technique, or self-evaluation, per se, but the way it is used, that is, to inform in-process teaching and learning modifications.

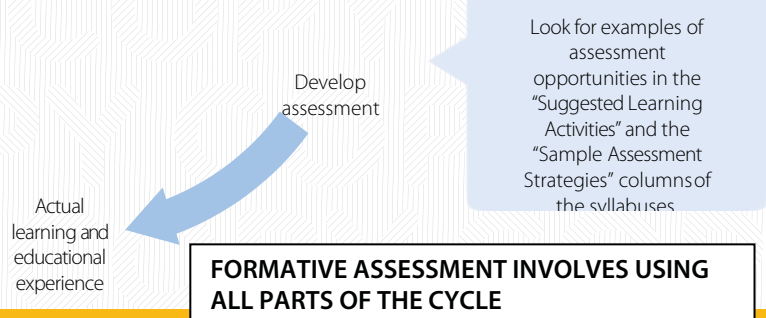
The final examination at the end of Senior 4 will be very different in nature, and will focus on the learners' ability to apply their learning in new situations, rather than on the ability to recall information.

If assessment is to make a difference to teaching and learning, then teachers must use the information they gain from assessment to make some changes to the teaching and learning process. This is formative assessment. If teaching and learning stay the same, there would have been no point in carrying out the assessment. The changes that can be made include decisions about:

- i) What needs to be learned next
- ii) Whether an element of the syllabus needs to be taught again in a different way
- iii) Changing teaching approaches if necessary
- iv) Identifying learners who need more support, or who are making exceptional progress
- v) Enabling learners to understand what they have to do to improve

The process of teaching, making formative assessments and then changing the teaching and learning in some way can be seen as a cycle:





How do we find the opportunity to make formative assessments?

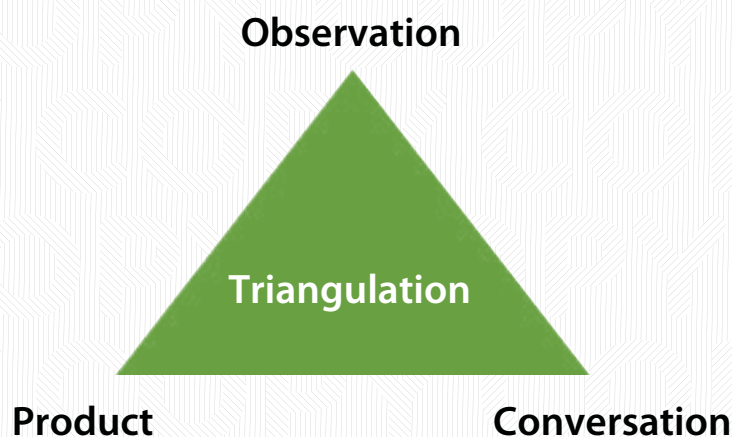
In the new curriculum, the teacher's assessment role is not to write tests for learners, but to make professional judgements about learners' learning in the course of the normal teaching and learning process. The professional judgement is about how far the learner meets the Learning Outcomes that are set out in this syllabus. To make these judgements the teacher needs to look at how well the learners are performing in terms of each Learning Outcome.

School-based formative assessment is a part of the normal teaching and learning process, and so the assessment opportunities will also occur during this normal process. It is not something that needs to be added on after learning; it is an integral part of it.

These opportunities occur in three forms and are often called:

- Observation – watching learners working (good for assessing skills and values)
- Conversation – asking questions and talking to learners (good for assessing knowledge and understanding)
- Product – appraising the learner's work (writing, report, translation, calculation, presentation, map, diagram, model, drawing, painting etc.). In this context, a "product" is seen as something physical and permanent that the teacher can keep and look at, not something that the learner says.

When all three are used, the information from any one can be checked against the other two forms of assessment opportunity (e.g. evidence from "observation" can be checked against evidence from "conversation" and "product"). This is often referred to as "triangulation".



Triangulation of Assessment Opportunities

To find these opportunities, look at the syllabus topics. These set out the learning that is expected and give 'Sample Assessment Strategy', and in doing so they contain a range of opportunities for the three forms of assessment.

Generic Skills

The Generic Skills have been built into the syllabuses and are part of the Learning Outcomes. It is therefore not necessary to assess them separately. It is the increasingly complex context of the subject content that provides progression in the Generic Skills, and so they are assessed as part of the subject Learning Outcomes.

Attitudes

It is not possible to assess attitudes in the same way as knowledge, understanding and skills because they are more personal and variable and are long-term aspirations. This does not mean that attitudes are not important. It means that we must value things that we cannot easily assess.

Record keeping

Keeping detailed records of learners' individual progress is always difficult with very large numbers of pupils. For the purposes of school-based formative assessment, it is not even always necessary to keep such detailed records anyway. If feedback is given immediately and action is taken, then learning is changed and the record would soon become out of date and redundant.

Most formative class-based assessments are dynamic in that they feed straight back into the teaching and learning process. Therefore detailed records of these are not appropriate.

What is needed is record of assessments of learners' learning made in terms of each topic or unit. This means recording the on-going summative assessments of each unit. There is no need to make separate records of each of the Learning Outcomes because this would be very time-consuming and

also unnecessary. It is much more useful to make an overall assessment about whether or not each learner met the Learning Outcomes for each Topic as a whole.

Each Topic is made up of a number of Learning Outcomes. Therefore teachers need to consider all the Learning Outcomes when making an overall judgement about the topic as a whole. It is not always necessary for every individual Learning Outcome to be achieved for the topic as a whole to be achieved. This will vary with the subject and topic.

By looking at the Learning Outcomes within each topic, it is possible to identify four broad groups of learners in terms of their achievements:

| Descriptor |
|---|
| No Learning Outcome (LO) achieved |
| Some LOs achieved, but not sufficient for overall achievement |
| Most LOs achieved, enough for overall achievement |
| All LOs achieved – achievement with ease |

The overall assessments should be made on the basis of the many formative assessments that the teacher has made during the course of teaching the topic. If teachers have been working with the learners over the course of the topic, they will be able to make broad judgment about which learners have achieved or have failed to achieve the topic's overall learning expectation. These "Authentic Assessments" will be more valid and valuable than a test set by the school.

Recording these overall assessments will be simple, manageable and yet valuable, and can be recorded on a sheet such as the one below in which the categories are indicated with a number.

Although it is a very simple process, these four categories will give rich data when a comparison is made between the learners in each category for different subjects and units. They will also identify easily those learners who need extra support or who may not be ready to move on to the next grade at the end of a year.

If records are kept of the learning outcomes of each syllabus unit through the year, then there will be no need for an end of year test. Teachers will already have a record of those learners who have met the learning outcomes, and those who have not done so. Therefore teachers will know if there were any learners not ready to progress to the next grade.

An overall record should be made of the individual unit assessments by subject in terms of the 4 descriptors. If numbers (0-3) are used as identifiers, then it will be possible to arrive at an overall number for a year by aggregating the identifiers for each topic.

| Descriptor | Identifier |
|---|------------|
| No Learning outcome achieved | 0 |
| Some LOs achieved, but not sufficient for overall achievement | 1 |
| Most LOs achieved, enough for overall achievement | 2 |
| All LOs achieved – achievement with ease | 3 |

In the example below, the table shows the end-of-unit assessment for six learners.

| ICT | | | | | | | | | | |
|-----------|----|----|----|----|----|----|----|----|----|-----|
| | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 |
| Learner A | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | 3 |
| Learner B | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| Learner C | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 3 | 2 | 3 |
| Learner D | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Learner E | 0 | 1 | 2 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| Learner F | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

This method will give much more information than using a tick. For example, at a glance it can be seen that learners A & B are achieving much higher than learners E & F. It can be seen that Learner C has improved during the year. We can even see that more learners achieved success in Topic 9 than Topic 7.

All of this is very valuable assessment information and can be used to improve learning.

This summative teacher assessment will contribute 20% to the final grade of the School Leaving Certificate as elaborated in the Assessment Framework.

Glossary of Key Terms

| TERM | DEFINITION |
|------------------------------------|--|
| Competency curriculum | One in which learners develop the ability to apply their learning with confidence in a range of situations. |
| Differentiation | The design or adaptation of learning experiences to suit an individual learner's needs, strengths, preferences and abilities. |
| Formative assessment | The process of judging a learner's performance, by interpreting the responses to tasks, in order to gauge progress and inform subsequent learning steps. |
| Generic skill | Skills which are deployed in all subjects, and which enhance the learning of those subjects. These skills also equip young people for work and for life. |
| Inclusion | An approach to planning learning experiences which allows each learner to feel confident, respected and safe and equipped to learn at his or her full potential. |
| Learning outcome | A statement which specifies what the learner should know, understand, or be able to do within a particular aspect of a subject. |
| Process skill | A capability acquired by following the programme of study in a particular subject; enables a learner to apply the knowledge and understanding of the subject. |
| Sample assessment strategy | A strategy which gives a learner the opportunity to show the extent to which s/he has achieved the Learning Outcomes. This is usually part of the normal teaching and learning process, and not something extra at the end of a topic. |
| Suggested learning activity | An aspect of the normal teaching and learning process that will enable formative assessment to be made. |



National Curriculum Development Centre
Ministry of Education and Sports,
P.O. Box 7002, Kampala, Uganda

Website: www.ncdc.go.ug