GUIDELINES FOR TEACHING TIME TABLE ON THE USAGE OF ICTs DEVICE IN SCHOOLS

2018

1. Background

The Rwanda Ministry of Education has emphasized promoting science and technology in education with special attention to ICT, for transforming the Rwandan citizen into skilled human capital for socio-economic development by ensuring equitable access to quality education and focusing on combating illiteracy. ICT is used as a tool to enhance teaching and learning at all education levels, from primary to tertiary education. The Vision 2020 aims at transforming Rwanda into a knowledge-based, technology-led and middle-income society by the year 2020. Information and Communication Technology (ICT) is considered as a ubiquitous tool that will energize the country socio-economic development. Enhancing teacher capabilities in and through ICT is one of the strategies used by the Government of Rwanda to develop a high-quality skills and knowledge base, leveraging ICT across various socio-economic sectors of the country.

The Competence Based Curriculum framework 2015 states that "The curriculum must enable educators and students to use ICT as a tool to improve the quality of education in all subjects at all levels in teaching and learning practices". ICT must support the emergence of teaching and pedagogical student-centered approaches as well as encourage research, communication and collaborative learning".

Rationale for ICT Device distribution in Schools

ICT in education is a tool which will help improve education through the digitalization of pedagogical material and enabling enhanced teaching. Courses which are interactive and multi-media based will enable students to learn on their own and facilitate the teachers to prepare lessons. In this context, Rwanda Education Board has distributed POSITIVO Laptops to more than 500 schools across the country, and also more 250,000 XO Laptops to more than 1500 primary schools across the country. The POSITIVO Laptops distributed in secondary schools have Microsoft Word, Windows, and teachers and students can surf the internet and can do research and access different content that comes with POSITIVO Laptops.

The primary focus for distributing these ICT device/ICT-tools in schools was to create Smart Classrooms in different schools across the country. Indeed, technology-enhanced classrooms can foster opportunities for teaching and learning by integrating learning technology such as computers, Internet connectivity, specialized software, multimedia digital content, audio responsive technology, audio-visual capabilities, interactive whiteboard, and projectors. When these components combined will contribute to improve the quality of Education and as well as improve teaching and learning in the classroom.

Use of ICTs in Teaching and Learning in classroom

The use of ICTs, and computers, in particular, can no longer be regarded as optional for teaching and learning, it is a requirement that teachers and learners are effectively using ICTs in teaching and learning process. ICT in education policy requires that teachers, managers, and administrators in public schools have the knowledge, skills, and support necessary to integrate ICTs into teaching, learning, and administration.

Teachers and learners are expected to use ICTs for teaching and learning purposes to improve quality education. Teachers will be guided on how to use ICTs in teaching and learning, including examples of lesson plans. However, teachers are encouraged to continuously decide on their own the variety of ICTs they can use to enhance curriculum delivery within a particular context. In addition, it will be important to take an honest look at the current ICT status at that school and to decide on how best to make use of what already exists.

Educators/teachers and students must use available ICT device in school to enrich teaching and learning experiences in all subjects at all levels. ICT device in schools must be well efficiently used within the existing teaching and learning framework to enrich pupils' classroom experiences. Teachers must use ICT in their lessons. School subjects have different period taught per week or term, in this context, REB is emphasizing the use of ICT device in the lesson preparation and during the delivery of the lesson. All ICT device in schools must be appropriately used during lesson preparation.

Importance of using ICTs in Teaching and Learning

Using ICTs in teaching and learning:
- may be a significant motivational factor in students' learning
- can support students' engagement with collaborative learning.
- facilitates educational technology and e- learning
- allows access to most up to date teaching content through various researches
- facilitates peer learning (through emailing, chatting, forums, etc)
- makes easier planning and preparation of lessons and sharing resources
- allows interactive activities

However, they have some risks to consider such as:
- Data can be lost when the devices is lost or does not function well.
- Some ICT devices require electrical power and when there is a power cut, then, some devices cannot be used anymore. Even for those which can store power using batteries, the batteries can go down if the cut stays for long time.
- When inappropriately used, ICT devices can ruin the learning. It is recommended that educators identify carefully the appropriate devices and when to use them in their teaching subjects
- ICT devices are generally expensive to some schools

These guidelines focus on the usage of ICT tools in schools to assist schools to;

- Use ICTs to support management and administration in the school
- Use ICTs to support curriculum delivery in the school
- Manage and use ICT device in the school
- Use smart classrooms on daily basis

These guidelines provide guidance on the teaching of ICT component Integrated into Science and Elementary Technology (SET) taught in Lower and Upper Primary. Lower primary learners/students will gain progressively ICT skills through ICT integrated into SET. The role of the teachers in lower and upper primary is to use ICTs in their teaching, and also to guide learners as they progressively master some ICT skills in lower primary, learners in the upper primary should be able to differentiate XO' laptops interfaces and operate within them for formatting and editing texts and drawing shapes.

Guideline related to ICT in all subjects

2. ICT in All Subjects

The existing weekly time allocation for each subject, teachers must ensure that all available ICT device in schools is properly used for lesson preparation and delivery in the classroom. For example in lower and upper primary learners in a classroom are encouraged to use XO laptops to design and contract different activities such as creating animation using scratch activity, play with different graphics and multimedia to enhance different project work, use data storage devices and data sharing available in school.

2.1 Teaching Time table for ICTs Primary Subjects

Th periods taught per week in each subject in lower and upper primary, teachers are encouraged to facilitator learners as they will continue to gain ICT skills progressively through the integration of science and elementary technology (SET) taught in both lower primary. For example, teachers in upper primary can use XO laptops to record an activity, use of Gnumeric spreadsheet, use memorize in which teachers can create game using it, paint to draw different pictures and diagram that can be shared with learners, use of AbiWord which works just like Microsoft word, teachers can use turtle block/art to study geometric shapes.

2.2 More Details on SET Subjects

ICT units should be taught throughout the year, meaning that these units must be divided into 3 terms. For SET subjects the unit is taught per term and not by term

- In P2 and P3 class SET subject has one ICT unit.

        Unit 3; Term two (3rd term)

- In P4 class SET subject has 4 ICT units 3, 4, 5 and 6.

Unit 3; term one (1st term)

Unit 4 and Unit 5; Term two (2nd term)

Unit 6; Term three (3rd term)

- In P5 class SET subject has 4 ICT units 4, 5, 6 and 7.

    Unit 4; term one (1st term)

    Unit 5 and unit 6; Term two (2nd term)

    Unit 7; Term three (3rd term)

- In P6 class SET subject has 3 ICT units 4, 5 and 6.

    Unit 4; term one (1st term)

    Unit 5; Term two (2nd term)

    Unit 6; Term three (3rd term)

- ICT periods should be one period (40 minutes) per week for Lower primary.
- The 2 periods for upper primary (2*40=80min) should be combined to allow teachers to have enough time for setting up classroom. This is possible because ICT is used in upper primary.

3. ICT Devices and how Teachers Can Use them to teach

In lower and upper secondary schools, teachers are required to prepare learning and teaching materials and organize content so as to use the classroom time effectively. It is highly recommended to use POSITIVO laptops to prepare their lesson in all subjects in lower and upper secondary schools where possible. All ICT tools and devices, application software have to be used in teaching and learning process as it is indicated in the syllabus.

Teachers need to incorporate the use of technology in their lessons so that students are equipped with competencies and skills that sooner or later be applied to create up-to-date, unique and long-lasting solutions for the present generation. An example of where ICT tools can be used in Teaching and Learning in the classroom;

How ICT tools can be used in Teaching and Learning

ICT Tool	How it is used?
Computers (laptops, desktops, tablets, etc)	Typing, preparing teaching and learning materials, displaying learning content, setting assessment, etc. When connected to internet, it can help in making research, accessing different T/L materials, sharing resources and experience, …
Projectors	Projecting content/information during class presentations
Televisions	Watching/listening to information related to a certain topic

Mobile phone	Listening to audio materials, practice literacy skills through SMS/WhatsApp, sharing information through social media, etc
External memory disks (flash disk, external hard disk, CD/DVD, etc)	Sharing and keeping information about a lesson, a topic in a lesson
Radio	Listening to a lesson recorded or a broadcasting programme. It can be used for developing listening skills and language skills.
Printer	Sharing hard copies of lessons for students when they have no access to computers for revision, printing exams/test, students can print some of their project work, etc

4. Common ICT Terminology

For the purpose of this guidelines, explanations have been provided for some of the terminology used in this document. Words and phrases have been clustered together so that concepts are understood in context.

Terminology	Meaning
Basic Computer Skills **Computer literacy**	Computer skills are related to the ability to use software and hardware of a computer. Basic hardware skills in the schools' environment include: • Knowing how to switch on the computer • Being able to use a mouse to interact with elements on the screen • Being able to use the computer keyboard • Being able to close down the computer after use Basic software skills in the schools' environment include being able to use the following: • Word processor • Email • Spreadsheets • Databases • The internet Computer literacy can refer to the comfort level someone has with using computer programmes and other applications that are associated with computers. If teachers and learners are to use computers as a medium for teaching and learning, then they need a level of comfort in using the technology.

ICT culture	Computer Literacy can also be regarded as a separate subject or learning area and the school timetable should then reflect times for classes to be in the computer laboratory or to be using other resources to specifically learn computer skills. Beliefs, practices and attitudes that support the use of ICTs in the school
ICTs for schools	Technology (machines, devices, equipment and systems) that can be used in schools as media for information and communication purposes This includes devices such as • Computers • Cameras • TVs • Video, CD and DVD players • Overhead projectors • Data projectors • Electronic whiteboards • Memory devices • Printers It also includes programmes or software that can be used with the equipment.
ICTs for curriculum delivery	Technology is used to teach subjects or topics in the syllabus
ICTs for teaching and learning	Both phrases mean that technology is used for teaching and learning
ICT integration into teaching and learning	ICTs for teaching: The teacher uses ICT equipment as the medium or methodology for teaching a particular concept or topic. Eg this could be using a computer and a projector to project a

	presentation to teach a topic, instead of using a "talk and chalk" method. **ICTs for learning:** The learner uses ICT equipment as the medium or methodology for learning a particular concept or topic. eg this could include the learner doing research on the internet, doing calculations on a spreadsheet, or using a laptop camera to take photographs for a class project. The first step in using ICTs is to know how the technology itself works. For example, to know how to connect a projector to a computer; to know how to use the presentation programme to put together a presentation; to know how to switch on the computer and connect to the internet to do research on a topic, etc. Integration assumes that both teacher and learner have some skills in how to operate the technology and that they are using it as part of their teaching and learning activities.

5. Conclusion

Schools may just want to print out the overall school timetable for each week, for the prioritized subjects. They can then have a blank timetable for the Smart classroom, science laboratories and manually write in the times for the prioritized subjects from the school timetables, ensuring that there are approximately 40 minutes per week per subject for each class where necessary. Outside of school hours, it is recommended that the smart classrooms be available for teachers and learners for example for an hour before school, in the afternoon, in the evening or perhaps over weekends for boarding schools.

Rwanda Education Board (REB) should ensure the availability of infrastructure that is critical to successfully integrate ICTs in teaching and learning at the school. To this end, smart classrooms should be equipped with computers, projectors and internet connectivity so as to facilitate the integration of ICT in teaching and learning at school level.

Smart Classroom No:...

Day / Time	Monday		Tuesday		Wednesday		Thursday		Friday	
	Teachers Name	Subject	Teachers Name	Subject	Teachers Name	Subject	Teachers name	Subject	Teachers Name	Subject

Weekly Use of XO Laptops

Day / Time	Monday			Tuesday			Wednesday			Thursday			Friday		
	Teachers Name	Subject	Nº of XO Laptops	Teachers Name	Subject	Nº of XO Laptops	Teachers Name	Subject	Nº of XO Laptops	Teachers name	Subject	Nº of XO Laptops	Teachers Name	Subject	Nº of XO Laptops