



KENYA INSTITUTE OF CURRICULUM DEVELOPMENT
A Skilled and Ethical Society

SENIOR SCHOOL CURRICULUM DESIGN

**INFORMATION AND COMMUNICATION TECHNOLOGY
(ICT)**

GRADE 11

OCTOBER, 2025

First Published in 2025

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ISBN: 978-9914-43-056-1

Published and printed by Kenya Institute of Curriculum Development

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NATIONAL GOALS OF EDUCATION

Education in Kenya should:

1. Foster nationalism and patriotism and promote national unity.

Kenya's people belong to different communities, races and religions, but these differences need not divide them. They must be able to live and interact as Kenyans. It is a paramount duty of education to help young people acquire this sense of nationhood by resolving conflicts and promoting positive attitudes of mutual respect which enable them to live together in harmony and foster patriotism in order to make a positive contribution to the life of the nation.

2. Promote the social, economic, technological and industrial needs for national development.

Education should prepare the youth of the country to play an effective and productive role in the life of the nation.

a) Social Needs

Education in Kenya must prepare children for changes in attitudes and relationships which are necessary for the smooth progress of a rapidly developing modern economy. There is bound to be a silent social revolution following in the wake of rapid modernization. Education should assist our youth to adapt to this change.

b) Economic Needs

Education in Kenya should produce citizens with the skills, knowledge, expertise and personal qualities that are required to support a growing economy. Kenya is building up a modern and independent economy which is in need of an adequate and relevant domestic workforce.

c) Technological and Industrial Needs

Education in Kenya should provide learners with the necessary skills and attitudes for industrial development. Kenya recognizes the rapid industrial and technological changes taking place, especially in the developed world. We can only be part of this development if our education system is deliberately focused on the knowledge, skills and attitudes that will prepare our young people for these changing global trends.

3. Promote individual development and self-fulfillment

Education should provide opportunities for the fullest development of individual talents and personality. It should help children to develop their potential interests and abilities. A vital aspect of individual development is the building of character.

4. Promote sound moral and religious values.

Education should provide for the development of knowledge, skills and attitudes that will enhance the acquisition of sound moral values and help children to grow up into self-disciplined, self-reliant and integrated citizens.

5. Promote social equity and responsibility.

Education should promote social equality and foster a sense of social responsibility within an education system which provides equal educational opportunities for all. It should give all children varied and challenging opportunities for collective activities and corporate social service irrespective of gender, ability or geographical environment.

6. Promote respect for and development of Kenya's rich and varied cultures.

Education should instill in the youth of Kenya an understanding of past and present cultures and their valid place in contemporary society. Children should be able to blend the best of traditional values with the changing requirements that must follow rapid development in order to build a stable and modern society.

7. Promote international consciousness and foster positive attitudes towards other nations.

Kenya is part of the international community. It is part of the complicated and interdependent network of peoples and nations. Education should therefore lead the youth of the country to accept membership of this international community with all the obligations and responsibilities, rights and benefits that this membership entails.

8. Promote positive attitudes towards good health and environmental protection.

Education should inculcate in young people the value of good health in order for them to avoid indulging in activities that will lead to physical or mental ill health. It should foster positive attitudes towards environmental development and conservation. It should lead the youth of Kenya to appreciate the need for a healthy environment.

THE SENIOR SCHOOL IN THE COMPETENCY BASED CURRICULUM

Senior School is the fourth level of Basic Education in the Competency Based Curriculum (CBC) that the learner shall proceed to after the Pre-Primary School, Primary School and Junior School levels. The essence of Senior School is to offer learners a pre-tertiary/university/ pre-career experience in which the learners have an opportunity to choose pathways, tracks and subjects where they shall have demonstrated interest and/or potential at the earlier levels. Senior School comprises three years of education for learners generally in the 16-18 years age bracket and lays the foundation for further education and training at the tertiary level and the world of work. In the CBC vision, learners exiting this level are expected to be *engaged, empowered and ethical citizens* ready to participate in the socio-economic development of the nation.

At this level, the learner shall take seven (7) learning areas as recommended by the *Presidential Working Party on Educational Reforms* (PWPER, 2023). These shall comprise **four compulsory learning areas** namely: English, Kiswahili, Essential Mathematics/Core Mathematics and Community Service Learning (CSL). Learners will choose between Core Mathematics (for learners pursuing the Science Technology Engineering and Mathematics Pathway) and Essential Mathematics (for learners pursuing the non-STEM pathways). The learner will select three learning areas depending on their career choice, aptitude, interest and personality with guidance by the Senior School career teacher.

LEARNING OUTCOMES FOR SENIOR SCHOOL

By the end of Senior School, the learner should be able to:

1. communicate effectively and utilise information and communication technology across varied contexts,
2. apply mathematical, logical and critical thinking skills for problem solving,
3. apply basic research and scientific skills to manipulate the environment and solve problems,
4. exploit individual talents for leisure, self-fulfilment, career growth, further education and training,
5. uphold national, moral and religious values and apply them in day-to-day life,
6. apply and promote health care strategies in day-to-day life,
7. protect, preserve and improve the environment for sustainability,
8. demonstrate active local and global citizenship for harmonious co-existence,
9. demonstrate appreciation of diversity in people and cultures,
10. manage pertinent and contemporary issues responsibly.

TABLE 1: LIST OF SUBJECTS AT SENIOR SCHOOL

Core Subjects	Arts & Sports Science	Social Sciences	Science, Technology, Engineering & Mathematics (STEM)
1. English 2. Kiswahili/KSL 3. Core Mathematics/ Essential Mathematics 4. Community Service Learning (CSL)	5. Sports and Recreation 6. Music and Dance 7. Theatre and Film 8. Fine Arts	9. Literature in English 10. Indigenous Languages 11. Fasihi ya Kiswahili 12. Sign Language 13. Arabic 14. French 15. German 16. Mandarin Chinese 17. Christian Religious Education 18. Islamic Religious Education 19. Hindu Religious Education 20. Business Studies 21. History and Citizenship 22. Geography	23. Biology 24. Chemistry 25. Physics 26. General Science 27. Agriculture 28. Computer Studies 29. Home Science 30. Aviation 31. Building Construction 32. Electricity 33. Metalwork 34. Power Mechanics 35. Woodwork 36. Media Technology 37. Marine and Fisheries Technology

Note:

- Physical Education (PE) and Information Communication and Technology (ICT) will be offered to all learners to facilitate learning, enjoyment and acquisition of life skills.
- Every school shall offer Pastoral/Religious Programme of Instruction (P/RPI) to enhance moral, spiritual and character development of the learners.
- There shall be one (1) lesson for personal or group study to deepen knowledge and enhance skills in areas of choice by the learners.

Table 2 provides guidelines on distribution of lessons at Senior School.

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TABLE 2: LESSON DISTRIBUTION AT SENIOR SCHOOL

Subjects	No of Lessons Per Week (40 minutes per lesson)
Core Subjects 4	
1. English	5
2. Kiswahili	5
3. Essential Mathematics/Core Mathematics	5
4. Community Service Learning	3
Elective Subjects	
5. Elective 1	5
6. Elective 2	5
7. Elective 3	5
* Physical Education	3
* ICT Skills	2
*PPI	1
* Learner Personal /Group Study	1
Total Number of Lessons	40

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ESSENCE STATEMENT

Information and Communication Technology (ICT) is concerned with the use of computers and telecommunication systems to acquire, create, store, process and disseminate data and information for the purpose of supporting decision making at individual or organisational level. ICT subject at Senior School builds on the Pre-Technical Studies competencies developed at Junior School where learners acquired basic skills of computer hardware, computer software, safety, communication and visual programming.

The curriculum aims at equipping all learners at senior school with knowledge, skills, attitudes and values for creative and innovative use of ICT. It focuses on developing and imparting ICT skills as well as preparing learners who can safely, securely, socially and ethically use: ICT systems, ICT productivity tools, ICT applications and Internet & web technologies. These components aim to develop critical thinking, problem-solving, creativity, innovation, communication and digital literacy skills, all considered essential to prepare learners for further studies in higher level of education.

A learner skilled in productivity tools, web development, and basic AI visualization and robotics can pursue careers in digital media, interactive design, or educational technology. This versatile skill set enables roles like web designer, multimedia artist, UI/UX designer, or robotics programmer to create engaging websites, visuals, and smart systems.

This subject is anchored on Kenya's National Goals of Education No. 2, Kenya Vision 2030, and Sessional Paper No. 1 of 2019 by promoting technical skills and innovation. It aligns with the National ICT Policy of Kenya (2016, revised 2020), emphasising ICT's role in economic growth.

SUBJECT GENERAL LEARNING OUTCOMES

By the end of Senior School, the learner should be able to:

- a) Communicate effectively through the use of information and communication technological innovations.
- b) Demonstrate knowledge of information and communication technology applications that enhances their personal and professional productivity
- c) Recognise potential risks associated with the use of ICT and means by which they can mitigate the risks in a responsible way.
- d) Make valuable contributions to the social and economic development of the society through the use of information and communication technology skills.
- e) Apply knowledge, skills, attitude and values in information and communication technologies in daily live activities and lifelong learning.
- f) Demonstrate information and communications skills that can impact current and new methods of working in the outside world and on social, economic, ethical and moral issues.

SUMMARY OF STRANDS AND SUB STRANDS

Strands	Sub Strands
1.0 ICT and Society	1.1 Impacts of ICT on society.
	1.2 Digital Citizenship
2.0 Productivity Tools	2.1 Spreadsheets
	2.2 Database Management Systems (DBMS)
3.0 Internet and Web Technologies	3.1 Web Authoring

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STRAND 1.0: ICT AND SOCIETY

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 ICT and Society	1.1 Impact of ICT on society	By the end of the sub strand, the learner should be able to: a) describe the impact of ICT on society, b) evaluate the impact of ICT on society, c) recognise the impact of ICT on society.	The learner is guided to: - brainstorm on the impact of ICT on individuals, organisations and society, - role-play how ICT has impacted our day-to-day activities, such as mobile communication, electronic money transfer, - visit an environment where ICTs are used, analyse the operations, and evaluate the positive and negative impacts of ICT on those operations. - develop digital content to raise awareness on the impact of using ICT in society such as mental health, - explore the government digital service and analyse how ICTs are impacting service delivery, - participate in a debate on the impact of ICT on individuals, organisations and society,	- How does ICT affect a society? - How does the performance of organisations using ICT compare to those that do not?

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Core competencies to be developed • Citizenship: Learner develops social cultural sensitivity and awareness skills when visiting an environment where ICTs are used, analysing the operations, and evaluating the positive and negative impacts of ICT on those operations. • Communication and Collaboration: Learner develops speaking and listening skills while brainstorming on the impact of ICT on individuals, organisations and society.
Values: • Social Justice: Learner is democratic when brainstorming on the impact of ICT on individuals, organisations and society, • Love: Learner is caring when participating in a debate on the impact of ICT on individuals, organisations and society.
Pertinent and Contemporary Issues (PCIs): • Good governance: Learner observes attributes of good governance when exploring the government digital service and analysing how ICTs are impacting service delivery. • Mental health: Learner acquires skills on mental health when developing digital content to raise awareness on the impact of using ICT in society such as mental health.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 ICT and Society	1.2 Digital Citizenship	By the end of the sub strand, the learner should be able to: a) describe impact of ICT use on ethics in society, b) use ICT ethically in society, c) appreciate the need for ethical use of ICT in society.	The learner is guided to: • search and discuss information on the impact of ICT use on ethics in society, such as driving while on the phone, Cyberbullying, misinformation, copyright violations, plagiarism, immorality, digital divide, environmental degradation • discuss mitigating strategies that address ethical concerns associated with the use of ICT in society. • create a mock social media platform, then practice ethical use of ICT in society such as using proper etiquette, respecting other users' privacy and confidentiality, responsible usage of ICT, and observing the law and policies guiding the usage of ICT • engage in community or peer outreach to provide digital literacy awareness on the ethical use of ICT in society.	1. What can we do to help our friends, families, and communities use ICT ethically? 2. How does the unethical use of ICT affect society?

Core competencies to be developed: • Self-efficacy: Learner acquires leadership skills when creating a mock social media platform, then practice ethical use of ICT in society such as using proper etiquette, respecting other user's privacy and confidentiality. • Citizenship: Learner acquires Ethical digital citizenship skills when engaging in community or peer outreach to provide digital literacy awareness on ethical use of ICT in society.				
Values: • Integrity: Learner honestly engages in community outreach to provide digital literacy awareness on ethical use of ICT in society. • Respect: Learner shows positive regard for self and others when discussing mitigating strategies that address ethical concerns associated with the use of ICT in society.				
Pertinent and Contemporary Issues (PCIs): • Safety and Security: search and discuss information on the impact of ICT use on ethics in society, such as driving while on the phone, Cyberbullying, misinformation, copyright violations, plagiarism, immorality, digital divide, environmental degradation.				

Suggested Assessment Rubric

Indicators	Level	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Ability to evaluate the impact of ICT on society		Learner always evaluates the impact of ICT on society	Learner often evaluates the impact of ICT on society	Learner occasionally evaluates the impact of ICT on society	Learner rarely evaluates the impact of ICT on society
Ability to use ICT ethically in society		Learner consistently uses ICT ethically in society	Learner usually uses ICT ethically in society	Learner inconsistently uses ICT ethically in society	Learner rarely uses ICT ethically in society

STRAND 2.0 PRODUCTIVITY TOOLS

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Productivity Tools	2.1 Spreadsheet	By the end of the sub strand, the learner should be able to: a) explain the importance of spreadsheet productivity tools in manipulating data, b) select spreadsheet productivity tools in manipulating data, c) use spreadsheet productivity tools to manipulate data, d) appreciate the role of spreadsheet productivity tools in solving real-life problems.	The learner is guided to: • brainstorm on the meaning and importance of spreadsheet productivity tools in data manipulation, • watch a tutorial video on spreadsheets productivity tools fundamentals, discuss and make notes on the learned concepts, • explore spreadsheet productivity tools options such as LibreOffice Calc, Microsoft Excel, and Google Sheets • select suitable spreadsheet productivity tool for specific tasks, • create, format, and edit spreadsheet files to organise and present data accurately and clearly.	1. Why might spreadsheet productivity tools be better than other productivity tools in manipulating data? 2. How are spreadsheet productivity tools used to make decisions?

			• carry out data manipulation using functions. • extract a dataset from a data range, • organise data in spreadsheets using methods such as sorting, filtering, validating, conditional formatting, grouping, forms, • create graphs to visualise the dataset in a worksheet, • share spreadsheets' outputs using various methods such as hard-copy, PDFs, email, online-based sharing platforms, • participate in an activity to gather data from varied real-life sources then analyse the data.	
Core competencies to be developed: • Self-efficacy: Learner acquires leadership skills when participating in an activity to gather data from varied real-life sources then analyse the data. • Creativity and imagination: Learner acquires experimentation skills when extracting a dataset from a data range. • Critical thinking and problem solving: Learner acquires interpretation and inference skills when creating graphs to visualise the dataset in a worksheet.				

Values: • Unity: Learner cooperates with others when brainstorming on the meaning and importance of spreadsheet productivity tools in data manipulation. • Patriotism: Learner respects fellow citizens when participating in an activity to gather data from varied real-life sources then analyse the data.
Pertinent and Contemporary Issues (PCIs): Safety and security: Learner observes online safety when watching a tutorial video on spreadsheets productivity tools fundamentals.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Productivity Tools	2.2 Database Management System(DBMS)	By the end of the sub strand, the learner should be able to: a) explain the importance of DBMS productivity tools in data management, b) select DBMS productivity tools to manage data, c) use DBMS productivity tools to manage data, d) appreciate the role of DBMS productivity tools in managing data.	The learner is guided to: - brainstorm on the meaning and importance of Databases, database Management System(DBMS) productivity tools in data management, - explore DBMS productivity tools options such as Microsoft Access, SQL, Apache OpenOffice Base, FileMaker Pro., MariaDB (open-source), Grist, Knack, MongoDB, - select suitable DBMS productivity tool for specific tasks, - explore areas in real life situations where DBMS is used to manage data, - search on how data is organised in a database such as file, tables, fields, records, data values and present findings, - design databases using tools such as entity-relationship diagrams	- Why are database productivity tools better than other productivity tools in managing data? - What makes one database tool more suitable than another in certain situations?

			(ERDs) to visually represent the database structure, - create, format, and edit database files to organise and manage data, - participate in an activity to gather data from various real-life sources, then manage the data using a DBMS.	
Core competencies to be developed - Communication and collaboration: Learner acquires speaking, listening and team working skills when brainstorming on the meaning and importance of Databases, database Management System (DBMS) productivity tools in data management. - Learning to learn: Learner develops the skill of carrying out research when exploring areas in real life situations where DBMS is used to manage data.				
Values: - Respect: Learner appreciates diverse opinions of others when brainstorming on the meaning and importance of Databases, database Management System(DBMS) productivity tools in data management. - Peace: Learner displays tolerance when participating in an activity to gather data from various real-life sources, then manage the data using a DBMS.				
Pertinent and Contemporary Issues (PCIs): Citizenship education: Learner exhibits integrity and principles of leadership when participating in an activity to gather data from various real-life sources, then manage the data using a DBMS.				

Suggested Assessment Rubric

Level Indicator	Exceeds expectations	Meets expectations	Approaches expectations	Below expectations
Ability to use spreadsheet productivity tools to manipulate data	Learner demonstrates advanced use of spreadsheet productivity tools to manipulate data	Learner demonstrates basic use of spreadsheet productivity tools to manipulate data	Learner demonstrates limited use of spreadsheet productivity tools to manipulate data	Learner demonstrates limited use of spreadsheet productivity tools to manipulate data with few errors
Ability to use DBMS productivity tools to manage data	Learner demonstrates advanced use of DBMS productivity tools to create	Learner demonstrates basic use of DBMS productivity tools to manage data	Learner demonstrates limited use of DBMS tools to manage data	Learner with help demonstrates limited use of DBMS tools to manage data

STRAND 3.0: INTERNET AND WEB TECHNOLOGIES

Strand	Sub strand	Suggested learning outcomes	Suggested learning experiences	Suggested Key Inquiry Questions
3.0 Internet and Web Technologies	3.1 Web Authoring	By the end of the sub strand, the learner should be able to: a) describe the basic elements of web technology, b) create a webpage for a target audience, c) appreciate the role of web authoring in communication.	The learner is guided to: - search and present findings on the elements of web technology such as web page, website, browser, web authoring software, web server, - brainstorm on the layers of a web page, such as content, presentation and behaviour layers, - practice creating webpage content using HTML, - reflect on the use of styling such as inline, internal and external and its importance in web presentation, - modify webpage presentation using styling such as inline styling, internal Cascading Style Sheet(CSS), and external CSS, - analyse a case study to explore how CSS have been applied in a webpage,	- What features make a webpage engaging and meaningful for different audiences? - How can using different types of styling (like CSS) affect the way users experience a webpage?

			practice creating a web page for target audiences, such as a web page on road safety,	
Core Competencies to be developed: - Critical Thinking and Problem-Solving: Learner develops evaluation and decision-making skills when practising creating a webpage content using HTML. - Creativity and imagination: Learner acquires open-mindedness and creativity skills when modifying web page presentation using styling such as inline styling, internal Cascading Style Sheet (CSS), and external CSS.				
Values: - Responsibility: Learner is devoted to a given task when modifying a webpage behaviour using rudimentary scripting, - Love: Learner puts the interest of others before their own interest when brainstorming on the layers of a web page, such as content, presentation and behaviour layers.				
Pertinent and Contemporary Issues (PCIs): Safety and security: Learner acquired skills on road safety when practising creating a web page for a target audience such as a web page on road safety.				

Suggested Assessment Rubric

Level Indicator	Exceeds expectations	Meets expectations	Approaches expectations	Below expectations
Ability to create a webpage for a target audience	Learner creates a webpage for a target audience making good use of HTML and CSS with no errors	Learner creates a webpage for a target audience making good use of HTML and CSS with some errors	Learner creates a webpage for a target audience making use of basic HTML and CSS with many errors	Learner creates a webpage for a target audience making use of limited HTML and CSS with many errors and with help

APPENDIX: SUGGESTED ASSESSMENT METHODS, LEARNING RESOURCES AND NON-FORMAL ACTIVITIES

Strands	Sub Strands	Suggested Assessment Methods	Suggested Learning Resources	Suggested Non-Formal Activities
1.0 ICT and Society	1.1 Impact of ICT on society.	- Oral tests - Observation - Checklist - Written test - Rubrics	- Video clips - Charts - Digital devices - Internet	Learner takes a walk around the school and discuss with the peers the impact of ICT on society
	1.2 Digital Citizenship	- Oral tests - Observation - Checklist - Written test - Rubrics	- Video clips - Charts - Digital devices - Internet	Learner educates the school community on how to apply netiquette while in an online environment
2.0 Productivity Tools	2.1 spreadsheet	- Oral tests - Observation - Checklist - Written test - Rubrics - Project - Practical work - Portfolio	- Digital devices such as; computer, laptop, smart phone, tablets - Word processing software - Internet	Learner uses computer labs during clubs and societies and practice spreadsheet activities.

Strands	Sub Strands	Suggested Assessment Methods	Suggested Learning Resources	Suggested Non-Formal Activities
	2.2 Database Management System(DBMS)	• Oral tests • Observation • Checklist • Written test • Rubrics • Project • Practical work • Portfolio	• Digital devices such as; computer, laptop, smart phone, tablets • Databases software • Internet	Learner assists members of community to create databases for various use
3.0 Internet and Technologies	3.1 Web Authoring	• Oral tests • Observation • Checklist • Written test • Rubrics • Practical work	• Digital devices such as; computer, laptop, smart phone, tablets • Internet • Web authoring software	Learner creates websites for communication with their peers, mentors and parents during the school holidays and when at home