



**REPUBLIC OF KENYA
MINISTRY OF EDUCATION**

**JUNIOR SECONDARY SCHOOL CURRICULUM DESIGN
GRADE 7**

**COMPUTER SCIENCE
FOR LEARNERS WITH HEARING IMPAIRMENT**



KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

First Published in 2022

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FOREWORD

Curriculum is a tool which a country employs to empower its citizens. The Kenya Institute of Curriculum Development in meeting its core mandate '*to develop curriculum and curriculum support materials*' has spearheaded curriculum reforms in the education sector. The reforms are based on rigorous research, monitoring and evaluation activities conducted on the 8-4-4 system of education to inform the Competency-Based Curriculum through a phase-in phase-out model. The reforms were informed by the Summative Evaluation Survey (2009), Needs Assessment Study (2016) and the Task Force Report on Re-alignment of Education Sector (2012), 21st century learning and approaches, the East Africa Protocol on harmonisation of education, among many others.

The curriculum reforms aim at meeting the needs of the Kenyan society by aligning the curriculum to the Constitution of Kenya 2010, the Kenya Vision 2030 and the East African Protocol, among other policy requirements as documented by the Sessional Paper No. 1 of 2019 on 'Reforming Education and Training in Kenya for Sustainable Development'. The reforms adopted the Competency-Based Curriculum (CBC) to achieve development of requisite knowledge, skills, values and attitudes that will drive the country's future generations as documented by the Basic Education Curriculum Framework (BECF). Towards achieving the mission of the Basic Education, the Ministry of Education has successfully and progressively rolled out curriculum implementation for Early Years Education and Foundation level, Grades 4 ,5 and Intermediate Level. The roll out for Grade 6, Junior Secondary (Grade 7-9), and Prevocational Level will subsequently follow.

It is my hope that the Curriculum designs for learners with Hearing Impairment in Grade 7 will guide the teachers, among other educational stakeholders, for progressive achievement of the curriculum vision which seeks to have engaged, empowered and ethical citizens.

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PREFACE

The Government of Kenya embarked on the national implementation of the Competency Based Curriculum in January, 2019 for Early Years Education (Pre-Primary 1 and 2, and Lower Primary Grade 1, 2 and 3) and Foundation Level. The implementation progressed to Upper Primary (Grade 4, 5 and 6) and Intermediate Level based on the reorganization of the Basic Education structure. Grade 7 curriculum furthers implementation of the Competency-Based Curriculum to Junior Secondary education level. This level marks the zenith of Middle School education whose main feature is to offer a broad opportunity for the learner to explore talents, interests and abilities before selection of pathways and tracks in Senior Secondary education level. This is similar to the Pre-vocational and Vocational Level.

The Grade 7 curriculum designs for learners with Hearing Impairment in the respective learning areas will enable the development of 21st Century competencies. Ultimately, this will lead to the realization of the vision and mission of the Competency-Based Curriculum as documented in the Basic Education Curriculum Framework (KICD, 2017).

It is my hope that all Government agencies among other stakeholders in education will use the designs to guide effective and efficient implementation of the learning activities as well as provide relevant feedback on various aspects of the curriculum. Successful implementation of the Grade 7 curriculum for learners with Hearing Impairment will be a significant milestone towards realization of the curriculum mission ‘Nurturing Every Learner’s Potential’.

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ACKNOWLEDGEMENT

The Kenya Institute of Curriculum Development (KICD) Act Number 4 of 2013 (Revised 2019) mandates the Institute to develop curricula and curriculum support materials for basic and tertiary education and training, below the university. The curriculum development process for any level involves thorough research, international benchmarking, and robust stakeholder engagement. Through this systematic and consultative process, KICD conceptualized the Competency Based Curriculum (CBC) as captured in the Basic Education Curriculum Framework (BECF). The CBC responds to the demands of the 21st Century and the aspirations captured in the Constitution of Kenya 2010, Kenya Vision 2030, East African Commission Protocol and the United Nations Sustainable Development Goals.

The Kenya Institute of Curriculum Development has developed and adapted the Grade 7 curriculum designs for learners with Hearing Impairment taking cognisance of the tenets of the CBC, key among them being the need to ensure that learners are provided with learning experiences that call for higher order thinking, thereby ensuring they become engaged, empowered and ethical citizens as articulated in the BECF Vision. The Grade 7 designs for learners with Hearing Impairment also provide opportunities for learners to develop the core competencies as well as engage in Community Service Learning. The designs present assessment rubric linked to sub strands in the individual subjects. Teachers are encouraged to use varied assessment tools when assessing learners.

KICD obtains its funding from the Government of Kenya to enable the achievement of its mandate and implementation of the Government and Sector (Ministry of Education (MoE) plans. The Institute also receives support from development partners targeting specific programmes. The Grade 7 curriculum designs have been developed and adapted with the support of the World Bank through the Kenya Secondary Education Quality Improvement Program (SEQIP) commissioned by the MoE. The Institute is grateful for the support accorded to the process by the Government of Kenya, through the MoE and the development partners for the policy, resource, and logistical support.

I acknowledge the KICD curriculum developers and other staff, teachers and all the educators who participated, as panelists, in the development and adaption of the designs. I also appreciate the contribution of the Semi-Autonomous Government Agencies (SAGAs) and representatives of various stakeholders for their various roles in the development and adaptation of the Grade 7 curriculum designs.

My special thanks to the Cabinet Secretary, Ministry of Education; the Principal Secretary State Department of Early Learning and Basic Education; the Secretary, Teachers' Service Commission (TSC) and the Chief Executive Officer, Kenya National Examinations Council (KNEC) for their support in the process. Finally, I am grateful to the KICD Governing Council for their consistent guidance during the development and adaptation of the curriculum designs. The Institute assures all curriculum implementers, parents, and other stakeholders that the designs will ensure effective implementation of the CBC at Grade 7.

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TIME ALLOCATION

	Subject	Number of Lessons Per Week (40 minutes per lesson)
1.	English	5
2.	Kiswahili/KSL	4
3.	Mathematics	5
4.	Integrated Science	4
5.	Health Education	2
6.	Pre technical and Pre-Career Education	4
7.	Social Studies	3
8.	Religious Education (CRE/IRE/HRE)	3
9.	Business Studies	3
10.	Agriculture	3
11.	Life Skills Education	1
12.	Sports and Physical Education	2
13.	Optional Subject including Braille skills and Sign Language	3
14.	Optional Subject	3
	Total	45

NATIONAL GOALS OF EDUCATION

Education in Kenya should:

i) 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 removing 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.

ii) 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.

iii) 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.

iv) 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.

v) **Promote social equality 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.

vi) **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.

vii) **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

viii. **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

LEARNING OUTCOMES FOR MIDDLE SCHOOL

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

1. Apply literacy, numeracy and logical thinking skills for appropriate self-expression.
2. Communicate effectively, verbally and non-verbally, in diverse contexts.
3. Demonstrate social skills, spiritual and moral values for peaceful co-existence.
4. Explore, manipulate, manage and conserve the environment effectively for learning and sustainable development.
5. Practice relevant hygiene, sanitation and nutrition skills to promote health.
6. Demonstrate ethical behaviour and exhibit good citizenship as a civic responsibility.
7. Appreciate the country's rich and diverse cultural heritage for harmonious co-existence.
8. Manage pertinent and contemporary issues in society effectively.
9. Apply digital literacy skills for communication and learning.

ESSENCE STATEMENT

Computer science is the study of computers and algorithmic processes, including their principles, hardware and software designs, applications and their impact on society. This discipline is deeply concerned with how computer systems work, and how they are designed and programmed. Computer science as a subject will equip learners with hearing impairment with knowledge, skills, attitudes, values and 21st century skills that are necessary in the attainment of Vision 2030. The curriculum will focus on developing computing skills as well as preparing future experts, engineers and specialists in computer related fields by equipping them with relevant and modern computing competencies through up-to-date technologies and learning experiences. The learning experiences have been adapted and broken down into smaller activities to allow active participation of the learner. Development, harmonisation of signs and use of audio visual resources supported with captions or sign language interpretation is encouraged. Provide clear instructions using appropriate language during practical and experiential learning activities. Create more time to practise and explore skills learnt to enhance development of intended competencies in various computational thinking and career development.

Ensure appropriate positioning and grouping in horseshoe shape to allow for effective communication, peer support and peer assessment during learning. The acquired knowledge, skills and attitudes will form a strong foundation for development of computational thinking competencies for learners who wish to specialize in the STEM pathway. The curriculum for computer science responds to the demands of the 21st Century and the aspirations captured in the Constitution of Kenya 2010, Kenya Vision 2030 and National ICT policy of Kenya 2016 (revised 2020).

After the adaptation of this grade 7 curriculum design, the hard of hearing and the deaf can comfortably go through the curriculum and achieve the suggested learning outcomes.

GENERAL SUBJECT OUTCOMES

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

- a) Apply computer fundamental knowledge and skills in everyday life.
- b) Demonstrate ethical behaviour, security and safety when using computers.
- c) Acquire foundational knowledge and skills in computer networks and programming.
- d) Exhibit competency in the use of computers to adapt to the fast-changing technological world.
- e) Appreciate the use of computers in managing pertinent and contemporary issues in society.
- f) Promote an inquiry-based learning that provokes interest for further education and training in computing disciplines.

STRAND 1.0: FOUNDATION OF COMPUTER SCIENCE

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of Computer Science	1.1 Computer Concepts (3 Lessons)	By the end of the sub strand the learner should be able to; <ol style="list-style-type: none"> a) explain the characteristics of computer for awareness, b) use computers to perform daily life activities, c) Outline the stages of processing cycle in a computer, d) explore the advantages and disadvantages of using computers in data processing, e) appreciate analyzing the application areas of computers. 	The learner is guided to: <ul style="list-style-type: none"> ● Use digital devices to search for and present the definition of the terms; <i>computer, data and information</i>). ● Identify and develop signs for the different parts of the computer and computing systems. ● Search online or on print in groups and list examples of computers used in different settings for example, <i>Notebook, desktop, laptop, tablet, PDA (Personal digital assistant), server, iPad, MacBook, Smartphone, smart watch, workstation</i>). ● Observe, identify, and assign sign names to the given examples of computers presented as on charts or power point presentation of real images/pictures. ● Discuss in groups the characteristics of a computer for example, accuracy, diligence, versatility, reliability, memory, storage capacity, speed, working on command) and share with the class. ● Watch a signed or captioned video clip on the functions and uses of a computer in various settings. ● Discuss in pairs, the uses of a computing device for example to; <i>perform arithmetic</i> 	<ol style="list-style-type: none"> 1. Why do computers have different features? 2. How do you use computer in real life situation?

			<p><i>operations such as addition of numbers, search for information on business ideas, draw diagrams, listen for music.</i></p> <ul style="list-style-type: none"> ● Draw accurately and label correctly the computer processing cycle. ● Display an illustration that demonstrates a general model of a computer, Brainstorm in groups the advantages and disadvantages of using computers in data processing and share in plenary. ● In groups, debate the <u>advantages</u> and disadvantages of the traditional methods used in processing data before the use of computers. ● Visit various organizations or settings where computers are used to perform different tasks. ● Share experiences on the application and use of computers in various areas such as (<i>Education, Business, Banking, Military, Communication, Government, Home, Insurance, Marketing, Healthcare, Engineering Design, Manufacturing,</i>). 	
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> ● Communication and Collaboration is enhanced as the learner develops speaking/signing skills when using appropriate language and signs to share experiences clearly and effectively on the applications of computers in various areas. ● Digital literacy is developed as the learner interacts with technology and develops signs when searching for and presenting the definition of the terms computer, data, processing, and information. 				

<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Learner Support Programmes; peer education is enhanced when learners in groups use computing devices to perform arithmetic operations such as addition of numbers. 	<p>Link to Values:</p> <ul style="list-style-type: none"> ● Unity is promoted as learners discuss in groups the advantages and disadvantages of a computer. ● Responsibility is enhanced as the learner draws and labels the computer processing cycle.
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Mathematics as learners uses computing devices to perform arithmetic operations such as addition of numbers. ● English as learners use appropriate language and signs to share experiences clearly and effectively on the use of computers in real life situations. ● KSL as learners develop signs as they discuss the findings and definition of terms and presentations. 	
<p>Non formal Activities to support Learning: Assist members in the community to use computers in various areas such as (<i>Education, Business, Banking, Government, Healthcare, Home, Marketing, Engineering Design, manufacturing</i>).</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, computer hardware, manilla papers, Internet, video, audio/visual clips, models, checklists</p>	

Assessment Rubric Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Explaining the characteristics of a computer	Explains the characteristics of various types of computers and illustrates.	Explains the characteristics of a computer.	Explains some of the characteristics of a computer for awareness.	Explains some characteristics of a computer for awareness with prompts.
Using computers to perform daily life activities	Uses computers to perform daily life activities and supports others.	Uses computers to perform daily life activities.	Uses computers to perform some daily life activities.	Uses computers to perform some daily life activities with assistance.
Outlining the stages of processing cycle in a computer	Outlines the stages, draws, and correctly labels the processing cycle in a computer.	Outlines the stages of processing cycle in a computer.	Outlines some of the stages of processing cycle in a computer.	Outlines some of the stages of processing cycle in a computer with prompts.

Exploring the advantages and disadvantages of using a computer in data processing.	Explores the advantages and disadvantages of using a computer in data processing and compares it to the traditional ways of data processing.	Explores the advantages and disadvantages of using a computer in data processing.	Explores some advantages and disadvantages of using a computer in data processing.	Explore the advantages of using a computer in data processing assisted by peers leaving out the disadvantages.
Analysing the application areas of computers	Analyses the application areas of computers and shares experiences.	Analyses the application areas of computers.	Analyses some application areas of computers.	Analyses some application areas of computers with prompts.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of Computer Science	1.2 Evolution of Computers (3 Lessons)	By the end of the sub strand, the learner should be able to; a) identify evolution stages of computers from first mechanical device to modern electronic Digital devices, resource person, b) explain the tasks performed by computers at different evolution stages, c) distinguish between the difference engine and the analytical engine in relation to computer development, d) use computer that existed at different evolution stages to perform tasks, e) appreciate examining the sustained development of	The learner is guided to: <ul style="list-style-type: none"> ● Watch a video clip and learn about evolution stages of computers from abacus, mechanical devices, electromechanical devices to modern digital computers - video clip with captions to be used by learners with hearing impairment. ● In pairs categorize images/pictures provided into the different evolution stages of computer. ● Listen/observe keenly to a computer resource person when explaining the tasks performed by computers at different evolution stages of computers (<i>mechanical device, abacus, electromechanical modern electronic digital computers</i>). ● Brainstorm the relationship between the difference engine and the analytical 	<ol style="list-style-type: none"> 1. What role did the analytical engine play in development of computers? 2. How do you use computers that existed at different evolution stages?

		computers in respect to contemporary technology.	<p>engine in relation to computer development.</p> <ul style="list-style-type: none"> ● Take turn to discuss the difference engine and the analytical engine in relation to computer development, ● Share experiences on the use of computer that existed at different evolution stages, ● In turns discuss the development of computers in respect to contemporary technology. ● Debate on the development of computers comparing their functionalities throughout their evolution. 	
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> ● Learning to learn is promoted as learner learns from a computer resource person the tasks performed by computers at every stage in evolution of computers. ● Communication and collaboration are enhanced as learner shares experiences on the development of computers in respect to contemporary technology. 				
<p>Pertinent and Contemporary Issues (PCIs): Citizenship; social cohesion is promoted as learners shares experiences on the use of computer that existed at different evolution stages.</p>			<p>Link to Values:</p> <ul style="list-style-type: none"> • Respect is promoted as learner shares experiences on the development of computers in respect to contemporary technology. 	
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Social Studies as learner identifies the evolution stages of computers from the first mechanical device to the modern electronic digital devices ● KSL as learners develop signs and fingerspell terminologies encountered as they discuss the evolution stages of computers. 				
<p>Non formal Activities to support Learning: Discuss the development of computers in respect to contemporary technology during clubs.</p>			<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation. 	

Suggested Learning Resources:

Digital devices, resource person, reference materials, computer softwares , manilla papers, Internet, captioned video, audio /visual clips, models, checklists, images/pictures.

Assessment Rubric				
Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectations	Below Expectation
Identifying evolution stages of computers from first mechanical device to modern electronic digital devices	Identifies the evolution stages of computers from first mechanical device to modern electronic digital devices and categorizes different images of computer into their respective stages of computers.	Identifies evolution stages of computers from first mechanical device to modern electronic digital devices.	Identifies some of the evolution stages of computers from first mechanical device to modern electronic digital devices.	Identifies some of the evolution stages of computers from first mechanical device to modern electronic digital devices with prompts.
Explaining the tasks performed by computers at different evolution stages	Explains the tasks performed by computers at different evolution stages and performs some of the tasks.	Explains the tasks performed by computers at different evolution stages.	Explains some of the tasks performed by computers at different evolution stages.	Explains some of the tasks performed by computers at different evolution stages with prompts.
Distinguishing between the difference engine and the analytical engine in relation to computer development	Distinguishes between the difference engine and the analytical engine in relation to computer development and gives examples.	Distinguishes between the difference engine and the analytical engine in relation to computer development.	Distinguishes some of the difference between difference engines and the analytical engine in relation to computer development.	Distinguishes between the difference engine and the analytical engine in relation to computer development with assistance.

Using computers that existed at different evolution stages to perform tasks.	Uses computer that existed at different evolution stages to perform tasks and assists peers.	Uses computer that existed at different evolution stages to perform tasks.	Uses some computer that existed at different evolution stages to perform some tasks.	Uses computer that existed at different evolution stages to perform tasks when supported by peers.
Examining the sustained development of computers in respect to contemporary technology.	Examines the sustained development of computers in respect to contemporary technology and shares experiences.	Examines the sustained development of computers in respect to contemporary technology.	Examines some of the sustained development of computers in respect to contemporary technology.	Rarely examines the Sustained development of computers in respect to contemporary technology.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of Computer Science	1.3 Generations of computers (3 Lessons)	<p>By the end of the sub strand the learner should be able to;</p> <p>a) identify the generations of computers from first to the latest,</p> <p>b) describe the characteristics of different computer generations for awareness,</p> <p>c) apply technologies of different computers generations in daily life situation,</p> <p>d) match computer generations to their corresponding technologies,</p> <p>e) appreciates analysing the technological advancement of computers from one to the next generation.</p>	<p>The learner is guided to:</p> <ul style="list-style-type: none"> ● Search for information on the internet or on print materials on the generations of computers and their characteristics from first to the latest. ● Observe a video clip showing images of computers at different generations. ● Visit a computer user environment and find out the year of manufacture of the available computers and map them to their appropriate generation. ● In groups, share experiences on the characteristics of each generation of computers. ● Consult a computer resource person to discuss technologies used in different generations of computers. 	<p>1. Why are there different generations of computers?</p> <p>2. How do you apply different technologies of computers in daily life situation?</p>

			<ul style="list-style-type: none"> ● Use technologies of different computers generations in daily life situation; <i>search information on personal hygiene, prepare personal time table.</i> ● Take turns to match computer generations to their corresponding technologies. ● Actively participate in a debate on the technological advancement of computers from one to the next generation. ● Use computers of different generation to perform a task and compare their efficiency for example booting, processing, saving, retrieving, shutting down. 	
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> ● Self-efficacy is enhanced as the learner uses computers of different generations to perform a given task and compare their efficiency. ● Creativity and Imagination is developed as the learner matches computer generations to corresponding technologies. 				
<p>Pertinent and Contemporary Issues (PCIs): Learner Support Programmes; peer education, is promoted as learners assist one another on how to use computers of different generation to perform a task and compare their efficiency.</p>			<p>Link to Values:</p> <ul style="list-style-type: none"> ● Unity: learner shares experiences on the characteristics of each generation of computers. 	
<p>Link to other Subjects: Integrated Science: learner distinguishes the technologies used in different generations of computers.</p>				

<p>Non formal Activities to support Learning:</p> <ul style="list-style-type: none"> ● Participate in debates on technological advancement of computers during clubs. ● Prepare charts showing comparisons of technologies used in different computer generations and display in the learning environments. ● Discuss trends in the development of computers during club activities. 	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, Internet, captioned video, audio /visual clips, checklists</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying the generations of computers from first to the latest.	Identifies the generations of computers from first to the latest and maps different computers to appropriate generations by their year of manufacture.	Identifies the generations of computers from first to the latest.	Identifies some of the generations of computers from first to the latest.	Identifying the generations of computers from first to the latest with prompts.
Describing the characteristics of different computer generations for awareness.	Describes the characteristics of different computer generations for awareness and shares experiences.	Describes the characteristics of different computer generations for awareness.	Describes some of the characteristics of different computer generations for awareness.	Describe the characteristics of different computer generations for awareness with prompt.
Applying technologies of different computer generations in daily life situation.	Applies technologies of different computers generations in daily life situation and supports peers.	Applies technologies of different computer generations in daily life situation.	Applies some of the technologies of different computers generations in daily life situation.	Applies technologies of different computer generations in daily life situation with support from peers.

Matching computer generations to their corresponding technologies	Matches computer generations to their corresponding technologies and distinguish the technological advancement of the different computers.	Matches computer generations to their corresponding technologies.	Matches some computer generations to their corresponding technologies.	Matches computer generations to their corresponding technologies with prompt.
Analysing the technological advancement of computers from one to the next generation.	Analyses the technological advancement of computers from one to the next generation and uses computers of different generations to perform a task.	Analyses the technological advancement of computers from one to the next generation.	Analyses some technological advancement of computers from one to the next generation.	Analyses the technological advancement of computers from one to the next generation with prompt.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of Computer Science	1.4 Classification of Computers (3 Lessons)	By the end of the sub strand the learner should be able to; a) explain the types of computers in a computer user environment, b) apply appropriate criteria to classify computers, c) select appropriate types of computers for use in different situations, d) describe the use of embedded computers in daily life activities, e) appreciate the use of different types of computers in performing tasks.	The learner is guided to: <ul style="list-style-type: none"> ● Watch a captioned video of different classification of computers for example computers classified by size, functionality, purpose and develop signs for the terms. ● Participate actively in discussing and listing different types of computers in a computer user environment for example embedded computers, mobile devices, PCs, servers, mainframe computers, supercomputers. ● In groups search online and discuss the examples of the different types of computers. ● Discuss with the resource person the criteria used to classify computers. 	<ol style="list-style-type: none"> 1. How are different types of computers used? 2. Why do you use embedded computers?

			<ul style="list-style-type: none"> ● Take turns to match different types of computers to their respective classes. ● Take turns to assess user computing needs and select appropriate computers for different situations for example <i>a user on a fixed budget, a home business user, a gaming enthusiast, a photographer, a home video enthusiast, a distance education user, a human resources manager, some accountant CCTV security personnel.</i> ● Share experiences on the use of embedded computers for example <i>ATM machines, MP3 players, DVD players, Drones, Anti-lock braking system, Airbag control system, Digital watches, Microwaves, automated dispensers and elevators; fingerspell, develop and harmonize signs for the terms.</i> <ul style="list-style-type: none"> ● In groups, use different types of computers to perform tasks for example <i>draw images, write a letter, play games, watch a movie, project a lesson in class).</i> 	
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> ● Critical thinking and Problem solving is encouraged as learner intelligently assesses user computing needs and selects appropriate computers for different situations. ● Self-efficacy demonstrated as learner confidently performs tasks to demonstrate the uses of computer in daily life. ● Imagination and Creativity enhanced while learner create and draw images using a computer. ● Communication and Collaboration applied as learner discusses engagingly with the resource person the criteria to use when classifying computers 				

<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Education for sustainable development; Financial Literacy is demonstrated as learner assesses user computing needs and selects appropriate computers for different situations. ● Learners support programmes; peer education is promoted as learners share experience on the uses of embedded computers. 	<p>Link to Values:</p> <ul style="list-style-type: none"> ● Peace when taking turns to match different types of computers to their respective classes. ● Unity enhanced as learners work in groups to draw images using the different types of computers. ● Responsibility enhanced as learners independently connect and use computers to perform tasks. ● Respect demonstrated as learners work in turns to use computers
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Visual and performing Arts as learner shares experiences on the use of embedded computers such as MP3 and DVD players. ● Mathematics as learners enhances their arithmetic skills while using ATM (milk ATM, fuel ATMS) ● KSL as learner fingerspell, develop and harmonize signs for the terms. 	
<p>Non formal Activities to support Learning: Demonstrate how to use embedded computers (<i>ATM machines, MP3 players, DVD players, Drones, Anti-lock braking system, Digital watches, Microwaves</i>) during club tours.</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, computer software (<i>OS, Utility software and Application programs</i>), computer hardware, manilla papers, Internet, captioned video, images/pictures.</p>	

Assessment Rubric

Indicators	Exceeds Expectation	Meets Expectation	Approaches Expectations	Below Expectation
Explaining the types of computers in a computer user Environment.	Explains the types of computers in a computer user environment and gives examples.	Explains the types of computers in a computer user environment.	Explains some of the types of computers in a computer user environment.	Explains some of the types of computers in a computer user environment with prompts.
Applying appropriate criteria to classify computers.	Applies appropriate criteria to classify computers and matches different types of computers to their respective classes.	Applies appropriate criteria to classify computers.	Applies some of the appropriate criteria to classify computers.	Applies appropriate criteria to classify computers with prompt.
Assessing user computer needs in a computer user environment.	Assess user computer needs in a computer user environment and accurately selects appropriate types of computers for different situations.	Assess user computer needs in a computer user environment.	Assess some of the computer needs in a computer user environment.	Assess user computer needs in a computer user environment with cues.
Describing uses of embedded computers in daily life activities.	Describes uses of embedded computers in daily life and activities and shares experiences.	Describes uses of embedded computers in daily life activities.	Describes some uses of embedded computers in daily life activities.	Describes uses of embedded computers in daily life activities with assistance.
Using different types of computers in performing tasks.	Uses different types of computers in performing tasks and supports peers.	Uses different types of computers in performing tasks.	Uses different types of computers in performing some tasks.	Uses different types of computers in performing tasks with assistance.

Indicators	Exceeds Expectation	Meets Expectation	Approaches Expectations	Below Expectation
Explaining the types of computers in a computer user Environment.	Explains the types of computers in a computer user environment and gives examples.	Explains the types of computers in a computer user environment.	Explains some of the types of computers in a computer user environment.	Explains some of the types of computers in a computer user environment with prompts.
Applying appropriate criteria to classify computers.	Applies appropriate criteria to classify computers and matches different types of computers to their respective classes.	Applies appropriate criteria to classify computers.	Applies some of the appropriate criteria to classify computers.	Applies appropriate criteria to classify computers with prompt.
Assessing user computer needs in a computer user environment.	Assess user computer needs in a computer user environment and accurately selects appropriate types of computers for different situations.	Assess user computer needs in a computer user environment.	Assess some of the computer needs in a computer user environment.	Assess user computer needs in a computer user environment with cues.
Describing uses of embedded computers in daily life activities.	Describes uses of embedded computers in daily life and activities and shares experiences.	Describes uses of embedded computers in daily life activities.	Describes some uses of embedded computers in daily life activities.	Describes uses of embedded computers in daily life activities with assistance.
Using different types of computers in performing tasks.	Uses different types of computers in performing tasks and supports peers.	Uses different types of computers in performing tasks.	Uses different types of computers in performing some tasks.	Uses different types of computers in performing tasks with assistance.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of Computer Science	1.5 Computer User Environment (3 Lessons)	By the end of the sub strand the learner should be able to; a) explain factors to consider when setting up a computer user environment, b) identify appropriate resources for computer user environment, c) observe safety precautions and practices in the computer user environment, d) appreciate examining merging trends in computer user environment.	The learner is guided to: <ul style="list-style-type: none"> ● Watch a video about different computer user environments. ● Benchmark to compare various computer user environments. ● In groups, discuss their findings after the visit. ● Brainstorm on the factors to consider when setting up a computer user environment. ● Discuss the benefits of having a friendly computer user environment. ● Search from digital and printed materials for the resources required when setting up a computer user environment and list them. ● In groups, set rules to follow in a computer user environment. ● Practice observing safety precautions when in the computer user environment. ● Participate actively in setting up a computer user environment. ● Share ideas on emerging trends in computer user environment. 	1) Why do you set up a computer user environment? 2) How do you take care of computers?
Core Competencies to be Developed: <ul style="list-style-type: none"> • Critical Thinking and Problem Solving is enhanced as learners set rules to follow in a computer user environment. • Creativity and Imagination is developed as the learner intelligently sets up a computer user environment. • Citizenship is promoted as learners visit the National Library to observe safety precautions when in a computer user environment. 				

<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> • Safety education when observing safety precautions and practices in the computer user environment. • Education for sustainable development when learners develop financial literacy in setting up Cyber cafes for business. 	<p>Link to Values:</p> <ul style="list-style-type: none"> • Integrity is promoted as the learner genuinely identifies appropriate resources for computer user environment.
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> • Life Skills Education when setting up a computer user environment. • Health Education when observing safety precautions and practices in the computer user environment. 	
<p>Non formal Activities to support Learning: Sensitize community members on how to observe safety precautions using computers.</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, computer software, Internet, captioned video, audio/visual clips, checklists</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Explaining factors to consider when setting up a computer user environment.	Explains factors to consider when setting up a computer user environment and highlights the benefits of a friendly computer user environment.	Explains factors to consider when setting up a computer user environment.	Explains some of the factors to consider when setting up a computer user environment.	Explains factors to consider when setting up a computer user environment with assistance.
Identifying resources for a computer user environment	Identifies resources for a computer user environment and compares various computer user environment.	Identifies resources for a computer user environment.	Identifies some of the resources for a computer user environment.	Identify resources for a computer user environment with prompts.
Observing safety precautions and practices in the computer user environment.	Observes safety precautions and practices in the computer user environment and participates in setting rules to be followed.	Observes safety precautions and practices in the computer user environment.	Observes some safety precautions and practices in the computer user environment.	Observes safety precautions and practices in the computer user environment with prompts.
Examining emerging trends in computer user environment	Examines emerging trends in a computer user environment and actively participates in setting it up.	Examines emerging trends in computer user environment.	Examines some of the emerging trends in computer user environment	Examines emerging trends in computer user environment with prompt.

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Explaining factors to consider when setting up a computer user environment.	Explains factors to consider when setting up a computer user environment and highlights the benefits of a friendly computer user environment.	Explains factors to consider when setting up a computer user environment.	Explains some of the factors to consider when setting up a computer user environment.	Explains factors to consider when setting up a computer user environment with assistance.
Identifying resources for a computer user environment	Identifies resources for a computer user environment and compares various computer user environment.	Identifies resources for a computer user environment.	Identifies some of the resources for a computer user environment.	Identify resources for a computer user environment with prompts.
Observing safety precautions and practices in the computer user environment.	Observes safety precautions and practices in the computer user environment and participates in setting rules to be followed.	Observes safety precautions and practices in the computer user environment.	Observes some safety precautions and practices in the computer user environment.	Observes safety precautions and practices in the computer user environment with prompts.
Examining emerging trends in computer user environment	Examines emerging trends in a computer user environment and actively participates in setting it up.	Examines emerging trends in computer user environment.	Examines some of the emerging trends in computer user environment	Examines emerging trends in computer user environment with prompt.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of Computer Science	1.6 Physical Parts of a Computer (3 Lessons)	By the end of the sub strand the learner should be able to; a) identify the physical parts of a computer, b) explain the functions of the physical parts of a computer, c) connect the physical parts of a computer for use, d) utilize physical parts of a computer to minimize wastage, e) appreciate interacting with physical parts of a computer.	The learner is guided to: <ul style="list-style-type: none"> ● Visit a computer user environment and observe, identify and then list various physical parts of a computer including the peripheral for example school computer lab. ● In groups, complete a picture puzzle showing different physical parts of a computer and identify them. ● Take turns to match the physical parts of a computer to their respective functions. ● In groups connect physical parts of a computer for use. ● Take part in modeling interlinked. ● Take turns to talk/discuss about reusing or recycling the physical parts of a computer that are in good working condition to minimize wastage by properly disposing to avoid environmental pollution. ● In groups interact with physical parts of a computer. ● Draw and label the different parts of a computer. 	1. What are the physical parts of a computer? 2. How do you Connect physical parts of a computer?
Core Competencies to be Developed: <ul style="list-style-type: none"> ● Creativity and Imagination: learner takes part in modelling interlinked physical parts of a computer. ● Self-efficacy: learner connects physical parts of a computer appropriately and confidently. 				

<p>Pertinent and Contemporary Issues (PCIs): Education for sustainable development; Environmental Education as learners take part in reusing or recycling the physical parts of a computer that are in good working condition.</p>	<p>Link to Values: Responsibility: learner participates actively in connecting physical parts of a computer. Respect: learner takes turn to match the physical parts of a computer to their respective functions.</p>
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> • Visual Arts as learner takes part in modelling interlinked physical parts of a computer. • Creative arts is enhanced as the learner models the different computer part. 	
<p>Non formal Activities to support Learning:</p> <ul style="list-style-type: none"> • Assist in typing programs to be used during community activities. • Participate in a competition involving the use of computer keyboard and pointing devices: <i>typing a simple text, multiplying numbers,</i> • Complete picture puzzles of physical parts of a computer during club activities. 	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, compute software(<i>OS, Utility software and Application programs</i>), computer hardware, manilla papers, Internet, captioned video, audio/visual clips, checklists</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectations	Below Expectation
Identifying the physical parts of a computer	Identifies the physical parts of a computer and groups them and comes up with a fast way to complete a picture puzzle..	Identifies the physical parts of a computer.	Identifies some of the physical parts of a computer.	Identifies the physical parts of a computer with assistance.
Explaining the functions of the physical parts of a computer	Explains the functions of the physical parts of a computer and shows their relationship.	Explains the functions of the physical parts of a computer.	Explains some of the functions of the physical parts of a computer.	Explains the functions of the physical parts of a computer with prompt.
Connecting the physical parts of a computer for use	Connects the physical parts of a computer for use and assists peers.	Connects the physical parts of a computer for use.	Connects some of the physical parts of a computer for use.	Connects the physical parts of a computer for use with assistance.
Utilizing physical parts of a computer to minimize wastage	Utilizes physical parts of a computer to minimize wastage and ensures safe disposal.	Utilizes physical parts of a computer to minimize wastage.	Utilizes some physical parts of a computer to minimize wastage.	Utilizes physical parts of a computer to minimize wastage with assistance.
Interacting with physical parts of a computer	Interacts with physical parts of a computer and assists peers.	Interacts with physical parts of a computer.	Interacts with some of the physical parts of a computer.	Interacts with physical parts of a computer with prompt.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of Computer	1.7 Hands on skills Concepts (6 Lessons)	By the end of the sub strand the learner should be able to; a) apply the appropriate procedure to start and shut down a computer, b) explain the functions of the keys in a computer keyboard, c) categorize the keys in a computer keyboard, d) use pointing devices to manipulate objects in the computer, e) appreciate interacting with the keyboard and the pointing devices of a computer.	The learner is guided to: <ul style="list-style-type: none"> • Take turns in starting and shutting down a computer using appropriate procedure; saving documents, closing all running programs and finally shutting down the computer. • Take turns to locate different keys on the computer keyboards and demonstrate their functions. • In groups model or draw different categories of the keys on the computer keyboard. • Take part in manipulating objects in the computer using pointing devices skills. • Practice different ways of using the computer keyboard; <i>typing a simple text, multiplying numbers and drawing diagrams.</i> • Practice using a mouse to move the cursor and to highlight part of a typed text. • Practice typing using the home keys on the computer keyboard. • In groups, use computer keyboards and pointing devices to; <i>scroll up pages of a document, make corrections in a text document, draw diagrams.</i> 	1. Why are there different keys in a computer keyboard? 2. How do you use a computer keyboard?
Core Competencies to be Developed: <ul style="list-style-type: none"> • Digital Literacy is developed as the learner uses the computer keyboard and a pointing device to type simple text and manipulate objects on the screen. • Learning to learn is enhanced as the learner practices typing using the home keys on the computer keyboard. 				

<p>Pertinent and Contemporary Issues (PCIs): Learner Support Programmes; peer education as learners assist one another on how to use pointing devices to manipulate objects in the computer.</p>	<p>Link to Values:</p> <ul style="list-style-type: none"> ● Love is developed as learner cheerfully shares experiences on the use of the computer keyboard and pointing devices. ● Responsibility is promoted as learner shuts down a computer appropriately.
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Visual Arts as a learner creatively and correctly models or draws a well labelled computer keyboard showing the categories of the keys. ● KSL as learner develops and harmonizes signs for different output devices. 	
<p>Non formal Activities to support Learning:</p> <ul style="list-style-type: none"> ● Assist in typing programs to be used during community activities. ● Participate in a competition involving the use of computer keyboard and pointing devices: <i>typing a simple text multiplying numbers, drawing diagrams</i> 	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, compute software (<i>OS, Utility software and Application programs</i>), computer hardware, manilla papers, Internet, captioned video, audio/visual clips ,molding clay</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Applying the appropriate procedure to start and shut down a computer	Applies the appropriate procedure to start and shut down a computer by ensuring that all documents are saved and all programs are closed.	Applies the appropriate procedure to start and shut down a computer.	Applies some of the appropriate procedure to start and shut down a computer.	Applies some of the appropriate procedure to start and shut down a computer with assistance.
Explaining the functions of the keys in a computer keyboard	Explains the functions of the keys in a computer keyboard and can easily locate them.	Explains the functions of the keys in a computer keyboard.	Explains some of the functions of the keys in a computer keyboard.	Explains the functions of the keys in computer keyboard with prompts.
Categorizing the keys in a computer keyboard	Categorizes the keys in a computer keyboard and gives the functions of each category.	Categorizes the keys in a computer keyboard.	Categorizes some of the keys in a computer keyboard.	Categorizes the keys in a computer keyboard with prompts.
Using pointing devices to manipulate objects in the computer	Uses pointing devices to manipulate objects in the computer and assist peers.	Uses pointing devices to manipulate objects in the computer.	Uses some pointing devices to manipulate objects in the computer.	Uses pointing devices to manipulate objects in the computer with assistance.
Interacting with the keyboard and pointing devices of a computer	Interacts with the keyboard and pointing devices of a computer and assists peers.	Interacts with the keyboard and pointing devices of a computer.	Appropriately interacts with the keyboard and pointing device of a computer occasionally.	Interact with the keyboard and pointing devices of a computer with assistance.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of Computer Science	1.8 Computer Systems Overview (3 Lessons)	By the end of the sub strand the learner should be able to; a) identify the components of a computer system in a computer user environment, b) relate computer system components to their functions, c) use computer system components to perform tasks, d) describe the linkage among the components of a computer system, e) appreciate analysing the importance of computer systems in the society.	The learner is guided to: <ul style="list-style-type: none"> ● Search using digital devices or print materials for the meaning of the terms system and computer system, and share the findings with peers. ● Discuss engagingly the components of a computer system and develop signs for each part of a computer system for example <i>hardware, software, live ware</i> and list them. ● Take turns to match components of computer system to their functions. ● In groups use computer system components to perform a task; <i>draw diagrams and search for learning materials.</i> ● Take part in creating an illustration of the linkage among the components of a computer system. ● Shares experiences on the importance of computer systems in the society. 	1. Why do you use computer systems? 2. How do computer system components interact?
Core Competencies to be Developed: <ul style="list-style-type: none"> ● Learning to Learn is enhanced as the learner confidently shares experiences on the importance of computer systems in the society. ● Creativity and Imagination is developed as the learner creates an illustration of the linkage among the components of a computer system. 				
Pertinent and Contemporary Issues (PCIs): Learner Support Programmes; peer Education as learners take turns in matching components of the computer system to their corresponding functions during clubs.			Link to Values: Peace: learner remains calm when creating an illustration of the linkage among the components of a computer system.	
Link to other Subjects: Visual Arts as the learner creates an illustration of the linkage among the components of a computer system.				

<p>Non formal Activities to support Learning: Debate on the importance of computer systems in the society during clubs.</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, productivity, tools, compute software(<i>OS, Utility software and Application programs</i>), computer hardware, manilla paper</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying the components of a computer system in a computer user environment	Identifies the components of a computer system in a computer user environment and groups them.	Identifies the components of a computer system in a computer user environment.	Identifies some of the components of a computer system in a computer user environment.	Identifies some components of a computer system in a computer user environment with prompts.
Relating computer system components to their functions	Relates computer system components to their functions and illustrates.	Relates computer system components to their functions	Relates some computer system components to their functions.	Relate some of the computer system components to their functions with prompts
Using computer system components to perform tasks	Uses computer system components to perform tasks and assists others..	Uses computer system components to perform tasks.	Uses computer system components to perform some tasks.	Uses computer system components to perform tasks with assistance.
Describing the linkage among the components of a computer system	Describes the linkage among the components of the computer system and illustrates.	Describes the linkage among the components of a computer system.	Describes some linkage among the components of a computer system occasionally.	Describes some linkage among the components of a computer system with assistance.
Analyzing the importance of computer systems in the society	Analyses the importance of computer systems in the society giving examples.	Analyses the importance of computer systems in the society.	Analyses some of the importance of computer systems in the society.	Analyses the importance of computer systems in the society with prompts.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of ComputerScience	1.9 Computer Hardware Concepts (3 lessons)	By the end of the sub strand the learner should be able to; a) identify categories of hardware in a computer system, b) relate categories of computer hardware to their functions, c) select appropriate hardware for different situations, d) use different elements of computer hardware in performing daily life activities, e) appreciate examining the role of hardware elements in a computer.	The learner is guided to: <ul style="list-style-type: none"> ● Visit a computer user environment and in pairs list the hardware devices in use. ● Engage actively in group discussions on the categories of computer hardware for example <i>input devices, central processing unit, output devices and storage devices</i>. ● Search using digital devices or print material for the functions of computer hardware and make a presentation. ● Take turns to match categories of hardware to their functions. ● In pairs, draw diagrams of computer hardware devices. ● In groups, brainstorm on proper handling of hardware devices. ● In groups, assess user computing needs and select appropriate computer hardware for different situations. ● In groups, use different elements of computer hardware to input data, store, and output information. 	1. Why do you categorize computer hardware? 2. How do you use different elements of computer hardware?
Core Competencies to be Developed: <ul style="list-style-type: none"> ● Critical Thinking is developed as the learner assesses user computing needs and selects appropriate hardware for different situations. ● Communication and collaboration is enhanced as the learner engages actively in a discussion on the categories of computer hardware. 				
Pertinent and Contemporary Issues (PCIs): Education for sustainable development; Financial Literacy as a learner assesses			Link to Values:	

<p>user computing needs and select appropriate hardware for different situations.</p>	<ul style="list-style-type: none"> ● Integrity is promoted as the learner appropriately assesses user computing needs and selects appropriate computer hardware for different situations. ● Unity is cultivated as the learner engages actively in a discussion on the categories of a computer hardware.
<p>Link to other Subjects: Life Skills Education: learner uses different hardware of a computer to input data, store, and output information.</p>	
<p>Non formal Activities to support Learning: Sensitize community members on the uses of computer hardware.</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, computer hardware, manilla papers,</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying categories of hardware in computer system	Identifies categories of hardware in a computer system and gives examples.	Identifies categories of hardware in a computer system.	Identifies some categories of hardware in a computer system.	Identify categories of hardware in a computer system assisted by peers.
Relating categories of hardware to their functions.	Relates categories of hardware to their functions and groups them	Relates categories of hardware to their functions	Relates some categories of hardware to their functions.	Relates categories of hardware to their functions with assistance.
Selecting appropriate hardware for different situations	Selects appropriate hardware for different situations giving reasons.	Selects appropriate hardware for different situations.	Selects appropriately some hardware for different situations.	Selects appropriate hardware for different situations with prompts.
Using different elements of computer hardware in performing daily life activities	Uses different elements of computer hardware in performing daily life activities and assists peers.	Uses different elements of computer hardware in performing daily life activities.	Uses some different elements of computer hardware in performing daily life activities.	Uses different elements of computer hardware in performing daily life activities with assistance.
Examining the role of hardware elements in a computer.	Examines the role of hardware elements in a computer giving examples.	Examines the role of hardware elements in a computer.	Examines some of the role of hardware elements in a computer.	Examines the role of hardware elements in a computer with prompts.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
<p>1.0 Foundation of Computer Science</p>	<p>1.10 Input Devices (3 Lessons)</p>	<p>By the end of the sub strand the learner should be able to;</p> <ul style="list-style-type: none"> a) identify input devices in a computer system, b) categorize input devices based on their functionality, c) select appropriate input devices for different situations, d) use input devices to perform tasks, e) appreciate reusing input devices to minimize wastage. 	<p>The learner is guided to:</p> <ul style="list-style-type: none"> ● Identify and list input devices available in a computer use environment for example <i>barcode scanner, digital camera, keyboard, microphone, optical mouse, touch screen (resistive, capacitive and infra-red), two-dimensional (2d) and three-dimensional (3d) scanners</i>; fingerspell, develop and harmonize signs for the terms. ● Consult a computer resource person to demonstrate how different categories of input devices operate. ● Brainstorm ways to safely and appropriately handle input devices. ● Match input devices to their respective categories such as, <i>keying devices, pointing devices, scanning devices, voice input devices/gestures recognition input devices, touch screen, digitizer, digital cameras and other data capture devices.</i> ● In turns discuss factors to consider when selecting an input device. ● Assess user computing needs and select appropriate input devices for different situations for example <i>user on a fixed budget, a home user, business user, a gaming enthusiast, a photographer, a</i> 	<ul style="list-style-type: none"> 1. Why do computers have input devices? 2. How are input device used?

			<p><i>distance education user, a human resources manager, an accountant.</i></p> <ul style="list-style-type: none"> ● Use available input devices to perform tasks assigned by the facilitator. ● Shares experience on how to reuse ● input devices which are still in good condition to minimise wastage. 	
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> ● Critical Thinking and Problem Solving is developed as the learner assesses user computing needs and selects appropriate input devices for different situations. ● Communication and Collaboration is enhanced as the learner listens/observes keenly as they discuss on the factors considered when selecting an input device. ● Imagination and creativity is enhanced as the learners uses the input devices to scan and draw. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Environmental Education is promoted as learners practice reusing input devices to minimise wastage. ● Financial literacy is practiced when they re-use input devices. 			<p>Link to Values:</p> <p>Responsibility is enhanced as the learner uses available input devices to perform tasks.</p>	
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> • Integrated Science when participate in categorizing input devices based on their functionality. • KSL as learners develop signs as they discuss the findings and definition of terms and presentations. 				
<p>Non formal Activities to support Learning:</p> <p>Deliberate on the factors to consider when selecting an input device in different forums.</p>			<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation. 	
<p>Suggested Learning Resources:</p> <p>Digital devices, resource person, reference materials, computer hardware, manilla papers, Internet, signed/captioned video, audio/visual clips,</p>				

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying input devices in a computer system.	Correctly identifies various input devices in a computer system and groups them.	Identifies various input devices in a computer system.	Identifies some of the input devices in a computer system.	Identifies various input devices in a computer system with assistance.
Categorizing input devices based on their functionality.	Categorizes input devices to their functions and gives examples.	Categorises input devices to their functions.	Categorizes some input devices to their functions.	Categorises input devices to their functions.
Selecting input devices for different situations.	Selects input devices for different situations giving reasons.	Selects input devices for different situations.	Selects some input devices for different situations.	Select input devices for different situations with assistance.
Using input device to perform tasks.	Uses input device to perform tasks and assists others.	Uses input device to perform tasks.	Uses some of the input device to perform tasks.	Uses input device to perform tasks with prompts.
Reusing input devices to minimize wastage.	Reuses input devices to minimize wastage and creates awareness.	Reuses input devices to minimize wastage.	Reuses some of the input devices to minimize wastage.	Reuses some of the input devices to minimize wastage with prompts.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of Computer Science	1.11 Central Processing Unit (CPU) (4 Lessons)	By the end of the sub strand the learner should be able to; a) locate the CPU in a computer system, b) explain functional elements of the CPU in a computer system, c) explore different types of processors used in computing devices, d) use computers with different types of processors to perform tasks, e) appreciate analyzing the role of processors in computers.	The learner is guided to: <ul style="list-style-type: none"> ● Use digital devices or printed material to search for the meaning of the term CPU and motherboard. ● In groups watch a signed/captioned video that shows the location of the CPU in a computer. ● Watch a video simulation of the functional organization of the CPU. ● Consult a computer resource person to discuss the functional elements of a CPU for example <i>arithmetic and logic unit, control unit and the special memory</i> and report their findings. ● Fingerspell, develop and harmonize signs for the terms. ● Debate on the evolution of CPU technology. ● In turns navigate computer system specifications to determine the type of processor in a computer and list them. ● Use computers with different types of processors to perform tasks. <i>draw diagrams, type words and add numbers</i> 	1. How does a computer system use the CPU? 2. Why do computers have processors?

			<p>and identify the difference in processing speed.</p> <ul style="list-style-type: none"> ● In groups discuss the role of processors in computers and factors to consider when purchasing. 	
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> ● Self-efficacy is developed as the learner independently and confidently navigates through computer system specifications to determine the type of processor. ● Creativity and imagination is enhanced as the learner creates illustrations showing the functional elements of the CPU and display in the learning environment. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Life skills: learner navigates through computer system specifications to determine the type of processor. ● Analytical thinking skills (decision making) are enhanced as the learner makes decisions on suitable processors. 			<p>Link to Values:</p> <ul style="list-style-type: none"> ● Unity is promoted as learners work together to achieve a common goal when searching for the technological trends in the development of the CPU. ● Respect is promoted when learners take turn to explore the properties of a computer. 	
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Life Skills Education: learner confidently navigates through computer system specifications to determine the type of processor. ● KSL as learner fingerspell, develop and harmonize signs for the terms. 				
<p>Non formal Activities to support Learning:</p> <ul style="list-style-type: none"> ● Share a video simulation of the functional organization of the CPU during computer club activities. ● Debate on the evolution of CPU technology. 			<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation. 	
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, computer hardware, manilla papers, Internet, signed/captioned video, audio/visual clips,</p>				

Assessment Rubric

Indicators	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Locating the CPU in a computer system.	Locates the CPU in a computer system giving reasons.	Locates the CPU in a computer system.	Locates the CPU in some computer system.	Locates the CPU in a computer system with prompts.
Explaining functional elements of CPU in a computer system.	Explains functional units of CPU in a computer system and illustrates.	Explains functional units of CPU in a computer System.	Explains some functional units of CPU in a computer system.	Explains functional units of CPU in a computer system with cues.
Exploring different types of processors used in computing devices.	Explores different types of processors used in computing devices and shares them with peers.	Explores different types of processors used in computing devices.	Explores the processors used in some of the computing devices.	Explores different types of processors used in computing devices with cues.
Using computers with different types of processors to perform tasks.	Uses computers with different types of processors according to the tasks and identifies the difference in processing speeds.	Uses computers with different types of processors to perform tasks.	Uses computers with different types of processors to perform some tasks.	Uses computers with different types of processors to perform tasks with assistance.
Analyzing the role of processors in computers.	Analyses the role of processors in computers and gives factors to consider when purchasing..	Analyses the role of processors in computers.	Analyses some roles of processors in computers.	Analyses the role of processors in computers with assistance.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
<p>1.0 Foundation of Computer Science</p>	<p>1.12 Output Devices (3 Lessons)</p>	<p>By the end of the sub strand the learner should be able to;</p> <ol style="list-style-type: none"> a) identify output devices of a computer system, b) describe the functions of output devices in a computer system, c) categorize computer output devices based on the output generated, d) select appropriate output devices for different situations, e) use output devices to perform daily life activities, f) appreciate examining the technological trends in the development of output devices. 	<p>The learner is guided to:</p> <ul style="list-style-type: none"> ● Observe and list available output devices in the computer user environment, for example <i>printers, monitors, speakers, projectors, plotters and actuators.</i> ● Discuss the terms, develop and harmonize appropriate signs for them. ● Consult a computer resource person to discuss and demonstrate the various functions of output devices. ● Visit a computer user environment, identify the output devices and describe their functions. ● Watch a video/signed clip on categories of output devices and list them for example visual, data, print and sound. ● In turns participate in matching output devices into their appropriate categories. ● In groups, compare hardcopy output and softcopy output outlining their advantages and disadvantages. ● Debate on the evolution of computer output devices. ● In turns discuss the factors considered when selecting output device. ● Take turns in selecting appropriate output devices for different situations, ● Share experiences on safe use and care of output devices, 	<ol style="list-style-type: none"> 1. Why are there different output devices? 2. How do you use output device?

			<ul style="list-style-type: none"> ● In groups perform a task assigned by the facilitator using available output device. ● Develop and harmonize signs for different output devices. 	
Core Competencies to be Developed: <ul style="list-style-type: none"> ● Critical Thinking and Problem Solving is developed as the learner uses evaluation and decision-making skills as they compare softcopy and hardcopy output. ● Citizenship is encouraged as the learner participates engagingly in a discussion on the factors considered when selecting output device. 				
Pertinent and Contemporary Issues (PCIs): Safety and security: learner practices safe use and care of output devices.			Link to Values: <ul style="list-style-type: none"> ● Responsibility is nurtured as the learner practices safe use and care of output devices. ● Unity is promoted as the learner participates engagingly in a discussion on the factors considered when selecting output device 	
Link to other Subjects: <ul style="list-style-type: none"> ● Health Education: learner practices safe use and care of output devices. ● KSL as learner develops and harmonizes signs for different output devices. 				
Non formal Activities to support Learning: <ul style="list-style-type: none"> ● During social gatherings share ideas on how to assess user computing needs and select appropriate input devices for different tasks. ● Debatig on the evolution of computer output devices during club meetings. 			Suggested Modes of Assessment <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation. 	
Suggested Learning Resources: Digital devices, resource person, reference materials, computer hardware, manilla papers, Internet, video, audio/signed clips, adaptable locally available materials, checklists.				

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying output devices of a computer system.	Identifies output devices of a computer system and gives advantages.	Identifies output devices of a computer system.	Identifies some output devices of a computer system.	Identifies output devices of a computer system with prompts.
Describing the functions of output devices in computer system.	Describes through analysis the functions of output devices in a computer system .	Describes the functions of output devices in a computer system.	Describes some of the functions of output devices in a computer system.	Describe some functions of output devices of a computer system with assistance.
Categorizing computer output devices based on the output generated.	Categorizes computer output devices based on the output generated and their advantages and their disadvantages.	Categorizes computer output devices based on the output generated.	Categorizes some of the computer output devices based on the output generated.	Categorizes computer output devices based on the output generated with prompts.
Selecting appropriate output devices for different situations.	Selects appropriate output devices for different situations giving reasons.	Selects appropriate output devices for different situations.	Selects some of the appropriate output devices for different situations.	Selects some appropriate output devices for different situations with assistance.
Using output devices to perform daily life activities.	Uses output devices to perform daily life activities with reasons.	Uses output devices to perform daily life activities.	Uses some output devices to perform daily life activities creatively.	Uses output devices to perform daily life activities with prompts.
Examining the technological trends in the development of output devices.	Examines the technological trends in the development of output devices giving examples.	Examines the technological trends in the development of output devices.	Examines some technological trends in the development of output devices.	Examines the technological trends in the development of output devices with cues.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation of Computer Science	1.13 Ports and Cables (3 Lessons)	By the end of the sub strand the learner should be able to; a) identify cables and ports in computer systems, b) explain the types of cables used in computer systems, c) relate cables to their corresponding ports in computer systems, d) connect cables to ports in computer systems, e) appreciate the use of cables and ports in computer systems.	The learner is guided to: <ul style="list-style-type: none"> ● Use digital devices or print materials to search for information on different cables and ports used in computer systems. ● Consult a computer resource person to engage in a discussion on the types of cables and ports used in computer systems. ● In groups identify different cables provided for example USB, HDMI, DVI, Game port, VGA cables, power cable, PS2 and Ethernet cable, serial port and parallel port. ● Take turns to match ports to their corresponding cables. ● Participate actively in communal activities which deal with reusing or recycling the cables to minimize wastage. ● Consult a computer user to discuss and demonstrate how to use cables and ports appropriately. ● Debate on safe handling and connections of cables to their respective port. ● In groups connect cables to their corresponding ports in computer systems. ● Develop and harmonize signs for different ports and cables. 	1 Why do computer systems have ports? 2. How do you use cables?
Core Competencies to be Developed: <ul style="list-style-type: none"> ● Self-efficacy is developed as a learner takes turns to match ports to their corresponding cables. ● Communication and collaboration is enhanced as a learner consults a computer specialist to engage in a discussion and demonstration on the types of cables and ports used in a computer. 				

<ul style="list-style-type: none"> ● Citizenship is promoted as a learner participates in communal activities which deals with reusing or recycling cables to minimize wastage. 	
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Learner Support Programme: peer education is enhanced as learners in groups discuss and demonstrate how to use cables and ports appropriately during clubs. ● Education for Sustainable Development; safety issues as Learners engage in cleaning the environment while reusing and recycling cables. 	<p>Link to Values:</p> <ul style="list-style-type: none"> ● Patriotism is promoted as the learner participates actively in communal activities which deals with reusing or recycling of cables to minimize wastage. ● Responsibility is nurtured as a Learner exercise reusing cables, hence cleaning their environment.
<p>Link to other Subjects:</p> <p>Integrated Science as learner relates ports to their corresponding cables.</p> <p>KSL as learner develop and harmonize signs for different ports and cables.</p>	
<p>Non formal Activities to support Learning:</p> <p>Demonstrate to community members how to connect cables to their respective ports.</p>	<p>Suggested Modes of Assessment:</p> <ul style="list-style-type: none"> ● Written tests. ● Oral/signed expressed questions. ● Observation.
<p>Suggested Learning Resources:</p> <p>Digital devices, resource person, reference, materials, computer, hardware, manilla papers, Internet, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying cables and ports in computer systems	Identifies and names cables and ports in computer systems.	Identifies cables and ports in computer systems.	Identifies some cables and ports in computer systems.	Identifies cables and ports in computer systems with prompts.
Explaining the types of cables used in computer systems	Explains and groups the types of cables used in computer systems.	Explains the types of cables used in computer systems.	Explains some types of cables used in computer systems.	Explains the types of cables used in computer systems with guidance.
Relating ports to their corresponding cables in computer systems	Relates ports to their corresponding cables in computer systems and assists others.	Relates the ports to their corresponding cables in computer systems.	Relates some ports to their corresponding cables in a computer	Relates ports to their corresponding cables in computer systems with clues.
Connecting cables to ports in computer systems	Connects cables to ports and confirms their functionality in computer systems.	Connects cables to ports in computer systems.	Connects some of the cables to ports in computer systems.	Connects cables to ports in computer systems with prompts.
Using cables and ports in computer systems	Uses cables and ports in computer systems and safely ejects.	Uses cables and ports in computer systems.	Uses some of the cables and ports in computer systems.	Uses cables and ports in computer systems inappropriately.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Foundation Of Computer Science	1.14 Computer Setup (3 Lessons)	By the end of the project the learner should be able to: a) identify problems experienced when setting up computers, b) describe different ways of setting up computers,	The learner is guided to: ● Watch a captioned video of a computer system being assembled. ● Visit a computer user environment, discuss engagingly with the users, and list the challenges they experience when setting up computers.	1. How do you set up a computer? 2. Why are safety Precautions observed when setting up a computer?

		<p>c) apply appropriate instructions to set up computers,</p> <p>d) set up computers for use,</p> <p>e) explore ways to overcome the challenges experienced when setting up computers,</p> <p>f) enjoy booting computers successfully for use.</p>	<ul style="list-style-type: none"> ● In groups, search for different ways of setting up computers. ● Share experiences on precautions to follow when setting up computers. ● Consult a computer resource person to guide on tools and requirements needed when setting up computers, and to demonstrate how to setup computers. ● Take part in setting up computers appropriately. ● Consult a computer resource person to assist in identification of computers which are not functioning, select the parts which are still in good condition and are suitable to be reused or recycled, and make use of them when setting up computers. ● Take turns to share the benefits and challenges experienced when setting up computers. ● In turn, devise ways to overcome the challenges experienced when setting up computers. ● In turns enjoy booting computers successfully for use. ● In groups, participate actively in communal activities which involve setting up computers. 	
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			<p>challenges experienced when setting up computers.</p> <ul style="list-style-type: none"> ● In turns device ways to overcome the challenges experienced when setting up computers, ● In turns enjoy booting computers successfully for use. ● In groups, participate actively in communal activities which involve setting up computers. 	
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> • Communication and Collaboration is enhanced as a learner actively contributes to group discussions and participates in setting up computers • Citizenship is demonstrated as a learner discusses engagingly with the users in the community and list the challenges they experience when setting up computers. • Creativity and Imagination is developed as a learner creatively devices ways to overcome the challenges experienced when setting up computers. 				
<p>Pertinent and Contemporary Issues (PCIs): Learner Support Programmes is promoted as learners share experiences on precautions to follow when setting up computers during society and clubs.</p>			<p>Link to Values:</p> <ul style="list-style-type: none"> • Unity is promoted as a learner team up with others in setting up computers. • Respect is enhanced as a learner recognizes the input of every member of the team when connecting the devices to the system unit. • Love is expressed as learners engage themselves in setting up computers in the community 	
<p>Link to other Subjects: Pre-Technical and Pre-Career Education: learner demonstrates ability to apply appropriate instructions when setting up computers.</p>				
<p>Non formal Activities to support Learning: Educate community members on how to setup computers.</p>			<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests • Oral/signed expressed questions. • Observation. 	

Suggested Learning Resources:

Rating scales, rubrics, questionnaires, projects, journals, portfolios, oral/signed expressed questions, aural/signed expressed questions, interview schedules, learner's tests, anecdotal records, profile, written observation schedules, checklists.

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying challenges experienced when setting up computers	Identifies challenges experienced when setting up computers and gives possible solutions.	Identifies challenges experienced when setting up computers.	Identifies some of the challenges experienced when setting up computers.	Identifies challenges experienced when setting up computers. with prompts
Applying appropriate instructions to set up computers	Applies appropriate instructions to set up computers and assists peers.	Applies appropriate instructions to set up computers.	Applies some of the appropriate instructions to set up computers.	Applies appropriate instructions to set up computers with prompts.
Setting up computers for use	Sets up computers for use and connects other peripheral devices.	Sets up computers for use.	Sets up some parts of the computers for use.	Sets up computers for use with assistance.
Exploring ways to overcome the challenges experienced when setting up a computer	Explores ways to overcome the challenges experienced when setting up a computer and shares the experiences.	Explores ways to overcome the challenges experienced when setting up a computer.	Explores some ways to overcome the challenges experienced when setting up a computer.	Explores ways to overcome the challenges experienced when setting up a computer with prompts.
Booting computers successfully for use	Boots computers successfully for use in the correct procedure.	Boots computers successfully for use.	Boots some computers devices for use.	Boots computers successfully for use with assistance.

STRAND 2.0: COMPUTER AND SOCIETY

b

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
2.0 Computer and Society	2.1 Physical Safety of Computers (2 Lessons)	By the end of the sub strand the learner should be able to; a) identify physical threats to computers, b) explore ways of mitigating physical threats to computers, c) apply appropriate control measures to minimize physical threats to computers, d) appreciate using computers in a physically secured computer user environment.	The learner is guided to: <ul style="list-style-type: none"> Observe images of computers exposed to threats for example computer placed at the edge of a table, piled up CPUs, naked cables used for connecting power. Engagingly discuss and list physical threats to computers for example <i>theft, natural disasters, hardware failure</i> in a computer user environment. Consult a computer resource person to discuss ways of mitigating physical threats to computers in a computer user environment and list them down. Participate in using appropriate control measures to minimize physical threats to computers in a computer user environment and create awareness to others on the same. In groups use computers in a physically secured user environment. 	<ol style="list-style-type: none"> What physical threats have encountered when using computers? How do you secure computers from physical threats?
Core Competencies to be Developed:				
Critical Thinking and Problem Solving as learner explores ways of mitigating physical threats to computers in a computer user environment.				
Pertinent and Contemporary Issues (PCIs): <ul style="list-style-type: none"> Safety and security as learner apply physical mitigation measures to secure computers in a computer user environment. 			Link to values: <ul style="list-style-type: none"> Responsibility as learner participates in securing computers in a computer user environment. 	
Link to other Subjects: <ul style="list-style-type: none"> Health Education as learner applies physical mitigation measures to secure a computer user environment. 				
Non formal Activities to support Learning: <ul style="list-style-type: none"> Educate the society on physical threats to computers and ways of mitigating the threats in a computer user environment 			Suggested Modes of Assessment <ul style="list-style-type: none"> Written tests. Oral/signed expressed questions. Observation. 	
Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software(<i>OS, Utility software and Application programs</i>), computer hardware, manilla papers, Internet, captioned video, audio/visual clips, adaptable locally available materials, models, checklists				

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying physical threats to computers.	Identifies and explains physical threats to computers.	Identifies physical threats to computers.	Identifies some of the physical threats to computers.	Identify physical threats to computers with assistance.
Exploring ways of mitigating physical threats to computers.	Explores ways of mitigating physical threats to computers and sensitizes others.	Explores ways of mitigating physical threats to computers.	Explores some ways of mitigating physical threats to computers.	Explores ways of mitigating physical threats to computers with prompts.
Applying appropriate control measures to minimise physical threats to computers.	Applies appropriate control measures to minimise physical threats to computers giving examples.	Applies appropriate control measures to minimise physical threats to computers.	Applies some appropriate control measures to minimise physical threats to computers.	Applies appropriate control measures to minimise physical threats to computers with prompts.
Using computers in a physically secured computer user environment.	Uses computers in a physically secured computer user environment and observes safety.	Uses computers in a physically secured computer user environment.	Uses computers in a physically secured computer user environment appropriately sometimes.	Uses computers in a physically secured computer user environment with prompts.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
2.0 Computer and Society	2.2 Health and Safety (2 Lessons)	By the end of the sub strand the learner should be able to; a) identify health complications associated with the use of computers, b) apply appropriate techniques to mitigate health complications associated with the use of computers,	The learner is guided to: <ul style="list-style-type: none"> ● Discuss in groups health complications associated with the use of computers. ● Discuss in groups situations/factors that can lead to health complications when using the computers (teacher guide learner to sit in different postures, distance from the screen, 	<ol style="list-style-type: none"> 1. Why is your health at risk when using a computer? 2. How do you minimise health complications associated with the use of computers?

		<p>c) observe safe use and best practices when using computers,</p> <p>d) appreciate organising workstation to minimise health complications when using computers.</p>	<p>varying screen brightness and resolution, varying font size).</p> <ul style="list-style-type: none"> ● In turns discuss techniques to mitigate health complications associated with the use of computers. ● Independently use appropriate techniques to mitigate health complications. ● Share experiences on the safety practices to be observed when using computers. ● Always observe safety precautions and best practices when using a computer. ● Visit organizations and educate them on the safe use and best practices while using computers. ● Take turns to organise workstation to minimise health complications when using computers. 	
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> ● Critical Thinking and Problem Solving as learner explores techniques to mitigate health complications associated with the use of computers. ● Communication and Collaboration as learner shares experiences on the safety practices to be observed when using a computer. ● Learning to learn as learners share experiences on the effects encountered while sitting at different postures and distances from the screen while using computer of different screen brightness. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Health issues as learner observes safe use and best practices when using a computer in a computer user environment 		<p>Link to values:</p> <ul style="list-style-type: none"> ● Respect is promoted learner accommodates others opinion when discussing techniques to mitigate health complications associated with the use of computers in a computer user environment. ● Responsibility is enhanced as learners observe safe use and best practice when using computers to avoid health complications. 		
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Health Education as learner observes safe use and best practice when using computers in a computer user environment. 				
<p>Non formal Activities to support Learning:</p>		<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> ● Written tests. 		

Participate actively in communal activities which educate the society on health and safety of computer use.	<ul style="list-style-type: none"> • Oral/signed expressed questions. • Observation.
Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software, computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists.	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying health complications associated with the use of computers.	Identifies health complications associated with the use of computers and mentions factors that can lead to the health complications.	Identifies health complications associated with the use of computers.	Identifies some of the health complications associated with the use of computers.	Identifies health complications associated with the use of computers with assistance.
Applying appropriate techniques to mitigate health complications associated with the use of computers.	Applies appropriate techniques to mitigate health complications associated with the use of computers by accurately relating them to the factors that causes the health complications	Applies appropriate techniques to mitigate health complications associated with the use of computers.	Applies some of the appropriate techniques to mitigate health complications associated with the use of computers.	Applies some appropriate techniques to mitigate health complications associated with the use of computers with prompts.
Observing safe use and best practice when using computers	Observes safe use and best practices when using computers and create awareness.	Observes safe use and best practices when using computers.	Observes some safe use and practices when using computers correctly.	Observes safe use and best practices when using computers with assistance.
Organising workstation t minimise health complications when using computers	Organises workstation to minimise health complications when using computers and assists others.	Organises workstation to minimise health complications when using computers.	Organises workstation to minimise health complications when using computers correctly occasionally.	Organises workstation to minimise health complications when using computers with assistance.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
2.0 Computer and Society	2.3 Repetitive Strain Injury (RSI) (2 Lessons)	By the end of the sub strand the learner should be able to: a) identify the symptoms of repetitive strain injury for awareness, b) explain the causes of repetitive strain injury for consciousness when using a computer, c) apply appropriate strategies to prevent repetitive strain injury when using a computer, d) appreciate using computers safely to minimising the repetitive strain injury.	The learner is guided to: • Share experiences on common symptoms of repetitive strain injury (<i>upper limb disorders, eye strain, stress and fatigue</i>) for awareness. • Consult a resource person and ask questions for clarity on the causes of repetitive strain injury. • Watch a video about the causes of repetitive strain injury and list them. • In groups discuss the strategies for preventing repetitive strain injury when using a computer. • Use the appropriate strategies to prevent repetitive strain injury when using a computer for example correctly placing fingers on the keyboard while typing. • Practice observing safe ways when using computers for a longer period.	1. What are the consequences of prolonged use of a computer? 2. How does repetitive strain injury affect your health?
Core Competencies to be Developed: • Critical Thinking and Problem Solving as learner asks questions for clarity on the causes of repetitive strain injury. • Communication and collaboration as learner shares experiences on the symptoms of repetitive strain injury.				
Pertinent and Contemporary Issues (PCIs): • Health issues as learner observes safe use and best practices when using a computer for a longer period.			Link to values: • Responsibility is enhanced as learner observes safe use and best practices when using a computer for a longer period.	
Link to other Subjects: • Health Education as learners observes safe use and best practice when using computers.				
Non formal Activities to support Learning: Sensitize peers on the appropriate strategies of preventing repetitive strain injury when using a computer.			Suggested Modes of Assessment • Written tests. • Oral/signed expressed questions. • Observation.	
Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software(<i>OS, Utility software and Application programs</i>), computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists.				

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying the symptoms of repetitive strain injury for awareness	Identifies the symptoms of repetitive strain injury for awareness and state the causes.	Identifies the symptoms of repetitive strain injury for awareness.	Identifies some of the symptoms of repetitive strain injury for awareness.	Identifies the symptoms of repetitive strain injury for awareness with assistance.
Explaining the causes of repetitive strain injury for consciousness when using a computer	Explains the causes of repetitive strain injury for consciousness when using a computer and highlights the preventive measures..	Explains the causes of repetitive strain injury for consciousness when using a computer.	Explains some causes of repetitive strain injury for consciousness when using a computer.	Explains the causes of repetitive strain injury for consciousness when using a computer with prompts.
Applying appropriate strategies to prevent repetitive strain injury when using a computer	Applies appropriate strategies to prevent repetitive strain injury when using a computer and sensitize others.	Applies appropriate strategies to prevent repetitive strain injury when using a computer.	Applies some of the appropriate strategies to prevent repetitive strain injury when using a computer.	Applies appropriate strategies to prevent repetitive strain injury when using a computer with assistance.
Using computers safely to minimizing the repetitive strain injury	Uses computers safely to minimize the repetitive strain injury and creates awareness..	Uses computers safely to minimize the repetitive strain injury.	Uses some computers safely to minimize the repetitive strain injury occasionally.	Uses computers safely to minimize the repetitive strain injury with prompts.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
2.0 Computer And Society	2.4 Data Safety in Computers (2 Lessons)	By the end of the sub strand the learner should be able to; a) explain threats to data in a computer, b) identify the control measures for securing data in a computer, c) apply the control measures to secure data in a computer,	The learner is guided to: <ul style="list-style-type: none"> Brainstorm on the meaning of the terms data safety, data privacy, and data threats, fingerspell, develop and harmonise signs for each term. Consult a computer resource person to discuss data threats and their control measures and share their findings. 	<ol style="list-style-type: none"> How is data in a computer exposed to threats? Why do you secure data in a computer?

		d) appreciate securing data in a computer.	<ul style="list-style-type: none"> • In groups watch/observe a signed/captioned video on control measures for securing data in a computer. • In turns discuss ways of securing data stored in a computer for example <i>use of passwords, backup, anti-viruses, user access level, and user logs.</i> • Brainstorm on the factors to consider when setting up a password to secure data for example strength, unique, easy to remember. • Share ideas on how to secure data in a computer. 	
Core Competencies to be Developed: <ul style="list-style-type: none"> • Communication and Collaboration; peer education as learner discusses ways of securing data stored in a computer. • Critical Thinking and Problem Solving as learner intelligently applies the control measures to secure data in a computer. 				
Pertinent and Contemporary Issues (PCIs): <ul style="list-style-type: none"> • Safety and Security as learner uses data safety measures to secure data in a computer. 		Values: <ul style="list-style-type: none"> • Peace is promoted as learner calmly watches a video on control measures for securing data in a computer. • Integrity is portrayed by restricting unauthorised persons from accessing confidential data. 		
Link to other Subjects: <ul style="list-style-type: none"> • Life Skills Education as learner uses appropriate data safety measures to secure data in a computer. • KSL as learner develop and harmonize signs for different ports and cables. 				
Non formal Activities to support Learning: Sensitize community members on data safety and best practices that ensures security of data in a computer.		Suggested Modes of Assessment <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation. 		
Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software(<i>OS, Utility software and Application programs</i>), computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists.				

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Explaining threats to data in a computer	Explains threats to data in a computer and the negative effects.	Explains threats to data in a computer	Explains some of the threats to data in a computer	Explains threats to data in a computer with prompts.
Identifying the control measures for securing data in a computer	Identifies the control measures for securing data in a computer and gives examples.	Identifies the control measures for securing data in a computer.	Identifies some control measures for securing data in a computer.	Identifies the control measures for securing data in a computer with prompts.
Applying the control measures to secure data in a computer	Applies the control measures to secure data in a computer and sensitize others.	Applies the control measures to secure data in a computer.	Applies some of the control measures correctly to secure data in a computer.	Applies the control measures to secure data in a computer with assistance.
Securing data in a computer	Secures data in a computer. using appropriate methods.	Secures data in a computer	Secures some data in a computer.	Secures data in a computer with assistance.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
2.0 Computer and Society	2.5 Online Safety Concepts (3 Lessons)	By the end of the sub strand the learner should be able to; a) explain online threats to a computer user, b) identify online safety measures to observe when using a computer, c) apply online safety measures when using a computer,	The learner is guided to: <ul style="list-style-type: none"> ● Brainstorm on the meaning of the terms online safety, and online safety risks; develop and harmonize signs for different ports and cables. ● Take turns to share the online threats experienced when using a computer, for example. Twitter, Facebook and Whatsapp. ● Consult a computer resource person to discuss online threats <i>such as cyber bullying, phishing, online fraud, friend</i> 	<ol style="list-style-type: none"> 1. What data do you share when online? 2. How do you protect yourself from cyber bullying?

		<p>d) appreciate examining the importance of online safety when using a computer.</p>	<p><i>requests from unknown people to a computer user.</i></p> <ul style="list-style-type: none"> ● Observe/watch a captioned /signed video on safety measures to observe when online for example <i>not sharing pictures, location, securing profiles.</i> ● Engagingly discuss with a resource person how to solve online safety issues for example <i>cyber bullying, phishing, online fraud and friend requests from unknown people.</i> ● Always practice observing online safety measures when using a computer. ● Share experiences about the importance of online safety when using a computer. 	
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> • Communication and Collaboration as learner take turns to share the online threats experienced when using a computer • Learning to Learn as learner shares experiences about online safety. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> • Security Issues as learner applies safety measures when online. 			<p>Link to values:</p> <ul style="list-style-type: none"> • Responsibility is enhanced as learner applies safety measures when online. 	
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Life Skills Education as learner always practice observing online safety measures when using a computer ● KSL as learner develop and harmonize signs for different ports and cables. 				
<p>Non formal Activities to support Learning: Discuss in a forum safety measures to observe when online <i>for example not sharing, pictures, location, securing profiles.</i></p>			<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation. 	

Suggested Learning Resources:

Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software(*OS, Utility software and Application programs*), computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists.

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Explaining online threats to a computer user	Explains online threats to a computer user citing examples.	Explains online threats to a computer user.	Explains some of the online threats to a computer user.	Explains online threats to a computer user with prompts.
Identifying online safety measures to observe when using a computer	Identifies online safety measures to observe when using a computer and creates awareness.	Identifies online safety measures to observe when using a computer.	Identifies some online safety measures to observe when using a computer.	Identifies online safety measures to observe when using a computer with cues.
Applying online safety measures when using a computer	Applies online safety measures when using a computer with reasons.	Applies online safety measures when using a computer.	Applies some online safety measures appropriately when using a computer.	Applies online safety measures when using a computer with assistance.
Examining the importance of online safety when using a computer	Examines the importance of online safety when using a computer and assist others.	Examines the importance of online safety when using a computer.	Examines some of the importance of online safety when using a computer.	Examines the importance of online safety when using a computer with prompts.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
2.0 Computer and Society	2.6 Online Identity Safety (3 Lessons)	By the end of the sub strand the learner should be able to; a) analyse the characteristics of personal data for protection from online identity theft,	The learner is guided to: • Share the online identity threats experienced when using a computer. • Engagingly discuss the characteristics of personal and sensitive data for example	1. Why do you post personal information online? 2. How is online identity theft protected?

		<ul style="list-style-type: none"> b) describe techniques that protect personal data from online disclosure, c) apply appropriate methods to protect personal data from online disclosure, d) adhere to rules associated with online etiquette when interacting with computers, e) appreciate the use of computers responsibly to safeguard digital footprint. 	<p><i>personal name, address, family details, images, date of birth, a photograph in school uniform, medical History.</i></p> <ul style="list-style-type: none"> • Take turns to share ideas and illustrations on how to keep personal and sensitive data from the public when online. • Consult a resource person to discuss the use of social media including knowing how to block and report unwanted users. • Brainstorm on issues that can lead to a user being blocked or reported. • Discuss awareness of potential dangers of meeting an online contact face to face. • Discuss possible signs of identity threats for example identity theft, pseudo account. • Take turns to elaborate on rules associated with online etiquette for example <i>avoid distribution of inappropriate images, avoid use of inappropriate language, respecting confidentiality of personal data of other people.</i> • Share experiences on responsible use of computers when online to safeguard digital footprint. 	
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> • Communication and Collaboration as learner takes turns to elaborate on rules associated with online etiquette. • Learning to Learn as learner shares experiences on responsible use of computers to safeguard digital footprint. 				

<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Safety issues as learner shares experiences about online identity safety. 	<p>Link to values:</p> <ul style="list-style-type: none"> ● Integrity is enhanced as learner uses computers responsibly to safeguard digital footprint. ● Respect is promoted as learner takes turns to elaborate on rules associated with online etiquette. ● Love is promoted as learner shares experiences on responsible use of computers to safeguard digital footprint.
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Social Studies as learner shares experiences on responsible use of computers to safeguard digital footprint. 	
<p>Non formal Activities to support Learning: Educate community members how to keep personal and sensitive data from the public when online.</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software, computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists.</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Analysing the characteristics of personal and sensitive data for protection from online identity theft	Analyses the characteristics of personal and sensitive data for protection from online identity theft and creates awareness to peers.	Analyses the characteristics of personal and sensitive data for protection from online identity theft.	Analyses some characteristics of personal and sensitive data for protection from online identity theft.	States the characteristics of personal and sensitive data for protection from online identity theft.
Describing the techniques of protecting personal data from online disclosure	Describes the techniques of protecting personal data from online disclosure and gives examples of risks involved.	Describes the techniques of protecting personal data from online disclosure.	Describes some of the techniques of protecting personal data from online disclosure.	Describes the techniques of protecting personal data from online disclosure with assistance.
Applying appropriate methods to protect personal data from online disclosure	Applies appropriate methods to protect personal data from online disclosure and gives reasons.	Applies appropriate methods to protect personal data from online disclosure.	Applies appropriate methods to protect personal data from online disclosure occasionally.	Applies appropriate methods to protect personal data from online disclosure with assistance.
Adhering to rules associated with online etiquette when interacting with computers	Adheres to rules associated with online etiquette when interacting with computers and supporting peers.	Adheres to rules associated with online etiquette when interacting with computers.	Adheres to some rules associated with online etiquette when interacting with computers.	Adheres to rules associated with online etiquette when interacting with computers with prompts.
Using computers responsibly when online to safeguard digital footprint	Uses computers responsibly when online to safeguard digital footprint and creates awareness.	Uses computers responsibly when online to safeguard digital footprint.	Uses some computers responsibly when online to safeguard digital footprint.	Uses computers responsibly when online to safeguard digital footprint with prompts.

STRAND 3.0: COMPUTER NETWORKS

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
3.0 Computer Networks	3.1 Computer Network Concepts (3 Lessons)	<p>By the end of the sub strand the learner should be able to;</p> <p>a) relate computer networks to available types of networks,</p> <p>b) use locally available materials to model computer networks,</p> <p>c) explain the benefits of computer networks in the society,</p> <p>d) identify the challenges of computer networks in the society,</p> <p>e) appreciate examining the purpose of computer networks in the society.</p>	<p>The learner is guided to:</p> <ul style="list-style-type: none"> ● Observe images that simulate computer network. ● Watch a captioned video clip simulating a computer network. ● Identify different networking devices from the images and the video. ● Brainstorm the definition of the term network and computer network, develop and harmonize signs for the terms. ● Share ideas on available networks in the society such as road network and then relate them to computer networks. ● In groups use locally available materials to model computer networks. ● Debate on the benefits of computer networks in the society (in communication, in banking, business, social media, education, security). ● Share experiences on the challenges of computer networks in the society (e.g. slow connectivity, skills required to use a network, ignorance). ● In turns discuss the purpose of Computer networks in the society with members of the society. 	<ol style="list-style-type: none"> 1. Why do you use computer networks? 2. How do you form computer networks?
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> • Self-efficacy as learner shares ideas on available networks in the society. • Creativity and Imagination as learner creatively and innovatively uses locally available materials to model a computer network. • Effective communication as learner debates on the benefits of computer networks in the society. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Life skills as learner debates on the benefits of computer networks in the society. 			<p>Link to values:</p> <ul style="list-style-type: none"> ● Respect is enhanced as learner accommodates others ideas on available networks in the society. 	
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Visual Arts as learner uses locally available materials to model computer networks. ● KSL as learner develop and harmonize signs for different ports and cables. 				

<p>Non formal Activities to support Learning: Sensitise community members the benefits of computer in the society networks.</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software(<i>OS, Utility software and Application programs</i>), computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists.</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Relating computer networks to available types of Networks in society	Relates computer networks to available types of networks in society and shares ideas.	Relates computer networks to available types of networks in society.	Relates some of the computer networks to available types of networks in society.	Relates computer networks to available types of networks in society with assistance
Using locally available materials to model computer networks	Uses locally available materials to model computer Networks and support others.	Uses locally available materials to model computer networks.	Uses some locally available materials to model computer networks.	Uses locally available materials to model computer networks with assistance.
Explaining the benefits of computer networks in the society	Explains benefits of computer networks in the society with clear examples.	Explains the benefits of computer networks in the society.	Explains some of the benefits of computer networks in the society.	Explains the benefits of computer networks in the society with assistance.

Identifying the challenges of computer networks in the society	Identifies challenges of computer networks in society and shares experiences.	Identifies the challenges of computer networks in the society.	Identifies some challenges of computer networks in the society.	Identifies the challenges of computer networks in the society with prompts.
Examining the purpose of computer networks in the society	Examines purpose and benefits of computer networks in the society.	Examines the purpose of computer networks in the society.	Examines some purpose of computer networks in the society.	Examines the purpose of computer networks in the society with support.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
3.0 Computer Networks	3.2 Connecting to Computer Network (3 lessons)	By the end of the sub strand the learner should be able to; a) identify available computer networks in the immediate environment, b) connect to the available computer networks in the immediate environment, c) use the available computer network in the immediate environment, d) appreciate sharing resources through computer networks in the immediate environment.	The learner is guided to: <ul style="list-style-type: none"> ● Visit a computer user environment and list the type of available computer network for example <i>wireless or cabled networks</i> and identify the different types of networks used. ● Watch a video clip simulating how to connect to an available computer network in the immediate environment for example <i>wireless or cabled network</i>. ● In groups, connect to a computer network in the immediate environment and share resources for example a printer. ● Use digital devices such as phones, tablets, computers to share data files, photos with peers through computer networks in the immediate environment. ● Share positive/ negative experiences of using a computer network. 	<ol style="list-style-type: none"> 1. Why do you connect to a computer network? 2. What is the purpose of connecting to a computer network?
Core Competencies to be Developed:				
<ul style="list-style-type: none"> • Digital Literacy as learner connects to a computer network in the immediate environment. • Self-efficacy as learner connects to computer networks in the immediate environment and shares resources with peers. • Education for sustainable Development as Learners connects to a computer network in secure manner. 				

<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Life Skills as learner connects to and uses available computer networks in the immediate environment to share resources with peers. 	<p>Link to values:</p> <ul style="list-style-type: none"> ● Unity is promoted as learner shares resources with peers through computer networks in the immediate environment.
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Social Studies: learner uses digital devices such as phones, tablets, computers to share a data files, photos with peers through computer networks in the immediate environment 	
<p>Non formal Activities to support Learning: Demonstrate to social gatherings how to connect to computer network.</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software(<i>OS, Utility software and Application programs</i>), computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists.</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying available computer networks in the immediate environment	Identifies available computer networks in the immediate environment and lists the types.	Identifies available computer networks in the immediate environment.	Identifies some of the available computer networks in the immediate environment.	Identifies available computer networks in the immediate environment with assistance.
Connecting to the available computer networks in the immediate environment	Connects to the available computer networks in the immediate environment and supports others.	Connects to the available computer networks in the immediate environment.	Connects correctly to some of the available computer networks in the immediate environment.	Connects to the available computer networks in the immediate environment assisted by peers.
Using the available computer network in the immediate environment	Uses the available computer network in the immediate environment and shares experiences.	Uses the available computer network in the immediate environment.	Uses creatively the available computer network in the immediate environment occasionally.	Uses the available computer network in the immediate environment with assistance.

Sharing resources through computer networks in the immediate environment	Shares resources through computer networks in the immediate environment and states its importance.	Shares resources through computer networks in the immediate environment.	Shares some resources through computer networks in the immediate environment.	Shares resources through computer network in the immediate environment with assistance.
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Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
3.0 Computer Networks	3.3 Internet Concepts (4 Lessons)	By the end of the sub strand the learner should be able to: a) describe the internet as a resource that runs on a global network of computers, b) explain benefits and challenges of internet in the immediate environment, c) explore ways of overcoming challenges of internet in the immediate environment, d) identify basic requirements for internet connectivity, e) connect to the internet to search for a topical issue, f) appreciate the use of internet as a computer network resource.	The learner is guided to: <ul style="list-style-type: none"> • Use digital devices or print material search for the meaning of the term internet and present to peers. • Debate on the benefits and challenges of the internet. • In groups, discuss ways of overcoming challenges of the internet in the immediate environment and present their findings. • Discuss the basic requirements for internet connectivity for example <i>Internet Service Provider (ISP), Internet software, communication media and communication device.</i> • Share experiences on interaction with the internet and list the services available for example in entertainment, banking, communication, online business and advertisement. • In turns select service available on the internet and use it to search for a relevant topical issue. • Use the internet to search for a topical issue. 	1. Why do you use internet? 2. How do you connect to internet?

Core Competencies to be Developed:

- **Citizenship** as learner connects and shares ideas worldwide through the internet.
- **Digital Literacy** as learner accesses the internet and searches for a relevant topical issue.

<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Peer Education as learner shares experience on the use of the internet to search for a topical issue. 	<p>Link to values:</p> <ul style="list-style-type: none"> ● Respect is cultivated as learner accommodates others' views when debating on the benefits and challenges of the internet. ● Responsibility is enhanced when learners independently search for topical issues.
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> ● Social Studies as learner connect to and use the internet to search for a relevant topical issue. 	
<p>Non formal Activities to support Learning:</p> <p>Debate on the uses of the internet during clubs.</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation.
<p>Suggested Learning Resources:</p> <p>Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software(<i>OS, Utility software and Application programs</i>), computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists.</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Describing the internet as a resource that runs on a global network of computers	Describes the internet as a resource that runs on a global network of computers and list the services available.	Describes the internet as a resource that runs on a global network of computers.	Describes the internet as a resource that runs on a global network of computers occasionally.	Describe the internet as a resource that runs on a global network of computers with assistance.
Explaining benefits and challenges of internet in the immediate environment	Explains benefits and challenges of internet in the immediate and explains ways of overcoming such challenges.	Explains benefits and challenges of internet in the immediate environment.	Explains some of the benefits and challenges of internet in the immediate environment.	Explains benefits and challenges of internet in the immediate environment with assistance.
Identifying basic requirements for internet connectivity	Identifies basic requirements for internet connectivity and shares experiences on interaction with the internet.	Identifies basic requirements for internet connectivity.	Identifies some of the basic requirements for internet connectivity.	Identifies basic requirements for internet connectivity with prompts.
Exploring ways of overcoming challenges of internet in the immediate environment	Explores ways of overcoming challenges of internet in the immediate environment and creates awareness.	Explores ways of overcoming challenges of internet in the immediate environment.	Explores some of the ways of overcoming challenges of internet in immediate environment.	Explore ways of overcoming challenges of internet in the immediate environment with assistance.
Connecting the internet to search for a topical issue	Connects the internet to search for a topical issue and supports others.	Connects the internet to search for a topical issue.	Connects the internet to search for a topical issue with prompts.	Connect the internet to search for a topical issue with assistance.
Using the internet as a computer network resource	Uses the internet as a computer network resource and searches for relevant topical issues.	Uses the internet as a computer network resource.	Uses the internet as a computer network resources with prompts.	Uses the internet as a computer network resources with assistance.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
3.0 Computer Networks	3.4 World Wide Web (WWW) (5 Lessons)	By the end of the sub strand the learner should be able to; a) explain the importance of WWW as used in computer networks, b) identify the features of a web browser, c) describe the components of a uniform resource locator (URL) used to access resources in the internet, d) use a web browser to locate resources in the WWW, e) appreciate the use of WWW as a repository of information.	The learner is guided to: <ul style="list-style-type: none"> ● Use available learning resources to search for the meaning of the terms World Wide Web (WWW), web browsers, uniform resource locator (URL). ● In turns discuss examples of web browsers for example <i>explorer, Firefox, Chrome, Netscape, Opera, Safari.</i> ● Launch and navigate a web browser to identify its features,(Address bar, Refresh, Bookmark, Navigation, History, Homepage). ● Take turns to write URL format: protocol://hostname/other information. ● Open the URL; https://www.wikipedia.org and search for a topical issue. ● Participate in giving more examples of URL. ● Type a web resource Uniform Resource Locator (URL), and discuss its components. ● Take turns to demonstrate how web browsers work. ● Practice using a web browser to locate relevant internet resources. 	1.How do you access internet resources? 2.Why do you use a web browser ?
Core Competencies to be Developed: <ul style="list-style-type: none"> ● Learning to Learn as learner wisely uses the acquired knowledge, skills and attitude to search for relevant resources using a web browser. ● Digital Literacy: learner develops connecting skill when using a web browser to search for and share information. 				
Pertinent and Contemporary Issues (PCIs): <ul style="list-style-type: none"> ● Citizenship as learner connects to the rest of the world through WWW. 			Link to values: <ul style="list-style-type: none"> ● Peace is promoted as learner take turns to demonstrate how web browsers work. 	
Link to other Subjects: <ul style="list-style-type: none"> ● Life Skills Education as learner uses a web browser to search for relevant topical issues. 				

Non formal Activities to support Learning: Demonstrate how web browsers work to congregations of community members	Suggested Modes of Assessment <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation.
Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software(<i>OS, Utility software and Application programs</i>), computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists.	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Explaining the importance of WWW as used in computer networks	Explains the importance of WWW as used in computer Networks and lists examples of web browsers.	Explains the importance of WWW as used in computer networks.	Explains some of the importance of WWW as used in computer networks.	Explain the importance of WWW as used in computer networks with prompts.
Launching and navigating a web browser to identify its features	Launches and navigates a web browser to Identify it's features and assists others.	Launches and navigates a web browser to identify its features.	Launches and navigates a web browser to identify some of it's features.	Launches and navigates a web browser to identify it's features with support from peers.
Describing the components of a URL	Describes the components of a URL and gives examples of a URL.	Describes the components of a URL.	Describes some of the components of a URL.	Attempts to describe the components of a URL.
Using a web browser to locate resources in the WWW	Uses a web browser to locate resources in the WWW and demonstrates to others.	Uses a web browser to locate resources in the WWW.	Uses a web browser appropriately to locate some resources in the WWW.	Uses a web browser to locate resources in the WWW with prompts.
Using the WWW as a repository of information	Uses the WWW as a repository of information and shares with peers.	Uses the WWW as a repository of information.	Uses the WWW sometimes as a repository of information.	Uses the WWW as a repository of information with prompts

STRAND 4.0: COMPUTER PROGRAMMING

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
4.0 Computer Programming	4.1 Computer Programming Concepts (3 Lessons)	By the end of the sub strand the learner should be able to: a) explain the importance of programming as used in computing, b) identify areas where computer programs are used in daily life, c) launch and interact with a computer program for awareness, d) appreciate using computer programs in performing daily life activities.	The learner is guided to: <ul style="list-style-type: none"> Use available learning resources to search for the meaning of the term programming and programs, and develop signs. In groups discuss the importance of computer programs. Take turns to discuss areas where computer programs are used in daily life and list them. Share ideas on the use of programming in daily life activities. In groups, start and interact with a computer program accessory such as, a computer game, calculator, paint, snipping tool, media player and note notepad. Share experience on performing daily life activities (<i>playing computer games, listening to music/watch a signed song, performing mathematical operations, drawing objects, type text</i>) using available computer programs accessories. 	<ol style="list-style-type: none"> Why do computers Have programs? How do you use computer programs?
Core Competencies to be Developed:				
<ul style="list-style-type: none"> Learning to Learn as learner launches and interacts with a computer program for exposure to programming. Communication and Collaboration as learner engagingly shares ideas on the use of programming in daily life activities. 				
Pertinent and Contemporary Issues (PCIs):			Link to values:	
<ul style="list-style-type: none"> Self-esteem as learner launches and interacts with computer programs. 			<ul style="list-style-type: none"> Unity is enhanced as learner shares ideas on the use of programming in daily life. 	
Link to other Subjects:				
<ul style="list-style-type: none"> Integrated Science as learner interacts with computer programs. Visual Arts as learner plays computer games and draws objects using computer program accessories. 				

<p>Non formal Activities to support Learning: Share experience with the community members on how to perform daily life activities (<i>playing computer games, listening to music/watching a signed song, performing mathematical operations, drawing objects, type text</i>) using available computer program accessories</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation.
<p>Suggested Learning Resources: Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software(<i>OS, Utility software and Application programs</i>), computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Explaining the importance of programming as used in computing	Explains the importance of programming as used in computing and creates awareness.	Explains the importance of programming as used in computing.	Explains some of the importance of programming as used in computing.	Explain the importance of programming as used in computing with assistance.
Identifying areas where computer programs are used in daily life	Identifies areas where computer programs are used in daily life with clear examples.	Identifies areas where computer programs are used in daily life.	Identifies some areas where computer programs are used in daily life.	Identify areas where computer programs are used in daily life with prompts.
Launching and interact with a computer program for exposure to programming	Launches and interacts with a computer program for exposure to programming and assists peers.	Launches and interacts with a computer program for exposure to programming.	Launches and interacts with some computer program for exposure to programming.	Launch and interact with a computer program for exposure to programming with assistance.
Using computer programs to perform daily life activities	Uses computer programs to perform daily life activities and solves real life problems.	Uses computer programs to perform daily life activities.	Uses some computer programs to perform some daily life activities.	Uses computer programs to perform daily life activities with prompts.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
4.0 Computer Programming	4.2 Visual Programming Concepts (3 Lessons)	<p>By the end of the sub strand the learner should be able to;</p> <ul style="list-style-type: none"> a) identify types of visual programming applications for use, b) explain the procedure of launching a visual programming application, c) launch a visual programming application in a computer, d) appreciate navigating a visual programming application interface. 	<p>The learner is guided to:</p> <ul style="list-style-type: none"> • Use digital devices or print materials available resources to search for the meaning of the term visual programming and develop signs. • In pairs brainstorm and list examples of visual programming applications used in computer programming. • In groups discuss the procedure of launching a visual programming application and list the steps. • Consult a computer resource person to demonstrate how to launch visual programming applications used in computer programming. • In groups, launch a visual programming application such as Microsoft MakeCode, Scratch, Code.org, Sprite box. • Share experiences on navigating the visual programming application interface with peers. 	<ul style="list-style-type: none"> 1. Why do you use Visual programming applications? 2. How do you launch visual programming application?
<p>Core Competencies to be Developed:</p> <ul style="list-style-type: none"> • Self-efficacy as learner navigates a visual programming application interface. • Learning to Learn as learner launches and interacts with a visual programming application. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> • Peer Education as learner consults a computer specialist to demonstrate how to launch visual programming applications used in computer programming. 			<p>Link to values:</p> <ul style="list-style-type: none"> • Peace is promoted as learner calmly shares experiences on navigating the visual programming application interface with peers. 	
<p>Link to other Subjects:</p> <ul style="list-style-type: none"> • Pre-Career and Pre-Technical Education as learners follow instructions when launching visual programming applications used in computer programming 				
<p>Non formal Activities to support Learning: Demonstrate how to navigate the visual programming application interface with community members in the society</p>			<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation. 	

Suggested Learning Resources:

Digital devices, resource person, reference materials, productivity tools, visual programming tools, computer software(*OS, Utility software and Application programs*), computer hardware, captioned video, audio/ visual clips, adaptable locally available materials, models, checklists

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying types of visual programming applications for use	Identifies types of visual programming applications for use with reasons.	Identifies types of visual programming applications for use.	Identifies some of the types of visual programming applications for use.	Identifies types of visual programming applications for use with assistance.
Explaining the procedure of launching a visual programming application	Explains the procedure of launching a visual programming application in the correct order.	Explains the procedure of launching a visual programming application.	Explains some of the procedure of launching a visual programming application.	Explain the procedure of launching a visual programming application with prompts.
Launch a visual programming application in a computer	Launches a visual programming application in a computer and assists peers.	Launches a visual programming application in a computer.	Launches some of visual programming application in a computer.	Launches a visual programming application in a computer with prompts.
Navigating a visual programming application interface	Navigates a visual programming application interface and supports peers.	Navigates a visual programming application interface.	Navigates some visual programming application interface.	Navigates a visual programming application interface with prompts.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
4.0 Computer Programming	4.3 Visual Programming Features (9 Lessons)	By the end of the sub strand the learner should be able to; a) explore features of a visual programming application, b) relate the features of a visual programming application to their function, c) describe terminologies used in a visual programming application d) use the features of a visual programming application to create a sequence of instructions e) appreciate the application of the features of a visual programming application to create a sequence of instructions	The learner is guided to: <ul style="list-style-type: none"> • Brainstorm the features of a visual programming application • In groups discuss the functions of the features of a visual programming application. • Match the functions of the features of a visual programming application to their functions. • In turns discuss and demonstrate the use of visual programming terms for example <i>reserved words, syntax, variables, input output statements, control structures, variable declarations; fingerspell, develop and harmonize signs for the terms.</i> • In groups, create a sequence of actions using the features of a visual programming application for example <i>animations and sound/signs.</i> • Share experience on the use of the features of a visual programming application. 	1. Why is visual programming popular in introducing computer programming? 2. How do you use visual programming application features?
Core Competencies to be Developed: <ul style="list-style-type: none"> • Learning to Learn as the learners shares experience on the use of the features of a visual programming application. • Creativity and Imagination as learner creates animations and sounds using the features of a visual programming application 				
Pertinent and Contemporary Issues (PCIs): <ul style="list-style-type: none"> • Peer Learning as learner uses features of visual programming application to create animations and sound. 			Link to values: <ul style="list-style-type: none"> • Unity is enhanced as learner discusses the features of the visual programming application with peers. 	
Link to other Subjects: <ul style="list-style-type: none"> • Pre Technical and Pre Career Education: learner uses the features of visual programming applications to create animations and sounds. 				

- **KSL as learner develops and harmonizes signs for different output devices.**

<p>Non formal Activities to support Learning: Create a sequence of actions using the features of a visual programming application(<i>animations, sound</i>) during club activities</p>	<p>Suggested Modes of Assessment</p> <ul style="list-style-type: none"> • Written tests. • Oral/signed expressed questions. • Observation.
<p>Suggested Learning Resources: Reference materials, productivity tools, visual programming tools, compute software computer hardware, Internet, signed/video, audio/ visual locally available materials, clips, adaptable models, checklists.</p>	

Assessment Rubric

Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Exploring features of a visual programming application	Explores features of a visual programming application procedurally.	Explores features of a visual programming application.	Explores some features of a visual programming application.	Explores features of a visual programming application with prompts.
Relating the features of a visual programming application to their function	Relates the features of a visual programming application to their function appropriately.	Relates the features of a visual programming application to their function.	Relates some features of a visual programming application to their function.	Relates the features of a visual programming application to their function with assistance.
Describing terminologies used in a visual programming application	Describes terminologies used in a visual programming application giving examples.	Describes terminologies used in a visual programming application.	Describes some terminologies used in a visual programming application.	Describe terminologies used in a visual programming application with assistance.
Using the features of a visual programming application to create a sequence of instructions	Uses the features of a visual programming application to create a sequence of instructions and assists peers.	Uses the features of a visual programming application to create a sequence of instructions.	Uses some features of a visual programming application to create a sequence of instructions.	Uses the features of a visual programming application to create a sequence of instructions with support from peers.

Applying the features of a visual programming application to create a sequence of instructions	Applies the features of a visual programming application to create a sequence of instructions and creates awareness.	Applies the features of a visual programming application to create a sequence of instructions.	Applies some of the features of a visual programming application to create a sequence of instructions.	Applies the features of a visual programming application to create a sequence of instructions with assistance.
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COMMUNITY SERVICE-LEARNING CLASS ACTIVITY

Community Service Learning (CSL) is an experiential learning strategy that integrates classroom learning and community service to enable learners reflect, experience and learn from the community. The CSL project is expected to benefit the learner, the school and local community. Knowledge and skills on how to carry out a CSL project have been covered in Life Skills Education (LSE).

All learners with Hearing Impairment in Grade 7 will be expected to participate in a CSL class activity. The activity will give learners an opportunity to practise the CSL Project skills covered under LSE. This activity will be undertaken in groups where learners who are Deaf will be grouped with those who are Hard of Hearing (those with residual speech or hearing). Learners will be expected to apply the steps provided to carry out the CSL project.

The activity will take the form of a whole school approach, where the entire school community will be engaged in the learning process. Teachers will guide learners with Hearing Impairment to execute a simple school based CSL class activity. This activity can be done in 4-6 weeks outside the classroom time. The duration may be adjusted accordingly to accommodate learners with hearing impairment who may require more time to implement the CSL project.

CSL SKILLS TO BE COVERED

Research: Learners will develop research skills as they investigate PCIs to address, ways and tools to use in collecting data, analysing information and presenting their findings.

Communication: Learners will develop effective communication skills as they engage with peers and school community members. These will include listening actively and observing keenly, asking questions, and presentation skills using varied modes.

Citizenship: Learners will be able to explore opportunities for engagement as members of the school community and provide a service for the common good.

Leadership: Learners will develop leadership skills as they take up various roles within the CSL activity.

Financial Literacy Skills: Learners will consider how to source and utilise resources effectively and efficiently.

Entrepreneurship: Learners will consider ways of generating income through innovation for the CSL class activity.

Suggested PCIs	Specific Learning Outcomes	Suggested Learning Experiences (Customise to the focus of the grade)	Key Inquiry Questions
<p>Learners will be guided to consider the various PCIs provided in the subject in Grade 7 and choose one suitable to their context and reality.</p>	<p>By the end of the CSL class activity, the learner should be able to;</p> <ol style="list-style-type: none"> a) identify a problem in the school community through research, b) develop a plan to solve the identified problem in the community, c) design solutions to the identified problem, d) implement solution to the identified problem, e) share the findings to relevant actors, f) reflect on own learning and relevance of the project, g) appreciate the need to belong to a community. 	<ul style="list-style-type: none"> ● In groups, learners brainstorm on pertinent and contemporary issues in the community that need attention. ● In groups, learners discuss various PCIs within the school community and identify the one that requires immediate attention giving reasons for their choice. ● In groups, learners discuss possible solutions to the identified issue and propose the most appropriate solution to the problem. ● Learners brainstorm on the resources needed for the activity and source for them. ● In groups, learners discuss different methods and tools of collecting data and determine the ones suitable for the selected project. Learners with hearing impairments to be supported in preparation and selection of data collection methods and tools (questionnaires, focus group discussions and interviews). ● In groups, learners to develop appropriate tools for collecting data with the guidance of the teacher. ● In groups, learners collect data and record findings. Pair a learner who is deaf with a learner who is hard of hearing. In situations where learners cannot be paired, they should be supported by a sign language interpreter. Before realising the learners to the field, the teacher should brief the learners on social etiquette and safety. ● In groups, learners discuss their findings, develop various reporting documents, and use them to report on their findings. ● Based on the research report, learners implement a project to get solutions to the identified problem (Learners to be guided to adhere to safety precautions). ● Learners use feedback from peers and the school community to improve on the implementation of the project. 	<ol style="list-style-type: none"> 1. How does one determine community needs? 2. Why is it necessary to be part of a community?

		<ul style="list-style-type: none"> ● In groups, learners discuss the successes, challenges faced while implementing the project activities and lessons learnt; write a report and share through various media to peers and the school community. ● Learners reflect on how the project enhanced learning while at the same time facilitating service to the school by providing solutions to the identified issue(s). 	
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SUGGESTED MODES OF ASSESSMENT	SUGGESTED LEARNING RESOURCES
<ul style="list-style-type: none"> ● Observation ● Oral/signed question 	<ul style="list-style-type: none"> ● Notebooks ● Pens ● Digital devices ● Written questionnaires ● Cameras ● Sign language interpreter ● Portfolio <p>NB: Depending on the PCI the learners choose to address, they should be guided on learning resources specific to the PCI.</p>

Assessment Rubric				
Criteria	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Identifying a problem in the school community through research.	Identifies a problem in the school community through research and seeks for solutions.	Identifies a problem in the school community through research.	Identifies a problem in the school community.	Identifies a problem in the school community with prompts.
Planning to solve the identified problem.	Plans to solve the identified problem through generated data and support peers.	Plans to solve the identified problem.	Plans to solve the identified problem with prompts.	Plans to solve the identified problem with support.

Designing solutions to the identified problem.	Designs solutions to the identified problem using relevant strategies.	Designs solutions to the identified problem.	Designs solutions to the identified problem with guidance.	Has challenges designing solutions to the identified problem.
Implementing solution to the identified problems	Implements solution to the identified problem observing the necessary safety precautions.	Implements solution to the identified problem	Implements solution to the identified problems with guidance.	Implements solution to the identified problems with support
Sharing the findings to relevant actors	Shares the findings to relevant actors recommending sustainable solutions.	Shares the findings to relevant actors.	Shares some findings with relevant actors	Shares some findings to relevant actors with prompts.