REPUBLIC OF CAMEROON
Peace-Work-Fatherland
****
MINISTRY OF SECONDARY EDUCATION
****
INSPECTORATE GENERAL OF EDUCATION
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REPUBLIQUE DU CAMEROUN
Paix-Travail-Patrie
****
MINISTERE DES ENSEIGNEMENTS SECONDAIRES
****
INSPECTION GENERALE DES ENSEIGNEMENTS
****

SECONDARY EDUCATION CURRICULUM FOR THE

<< OBSERVATION SUB-CYCLE >>

(Form 1, Form 2)

SUBJECT AREA:

MATHEMATICS

SCIENCES

INFORMATION AND COMMUNICATION TECHNOLOGY

Subject: MATHEMATICS

Weekly workload: 4 hours

Annual workload: 100 hours

Coefficient: 4

GENERAL PRESENTATION

Mathematics is a human activity that involves observing, representing and interpreting quantities, patterns, random phenomena, space and shape using its own specialized language (symbols, operations, patterns, graphs . …), in describing numerical, geometrical and graphical relationships. Each citizen needs to possess a basic knowledge of Mathematics to function efficiently in life.

The omnipresent within learners' environment of Mathematical situations, inter action with other subjects within the Mathematics, Sciences and Technology learning area and the challenge of globalization within the Science domain in general has made Mathematics one of the fundamental subjects taught in all the classes of Secondary General Education.

This present Mathematics syllabus is elaborated using the Competency – Based –Approach from a situated perspective (through real life situations). This approach makes functional within the situations, Mathematical knowledge and skills learned in class. These knowledge and skills act as tools for the students to solve problems in real life situations. This orientation is to meet up with the evolution in pedagogy or change of paradigm and it is aimed at producing a citizen who is autonomous in exercising his/her role in the society and who is self reliant (law of Orientation 1998, article 4)

The law to lay down guidelines for education in Cameroon provides among others as general objectives of education to:

- Train citizens who are firmly rooted in their cultures **but open to the world)**;
- Develop **creativity, sense of initiative…)**;
- Cultivate the **love of effort and work well done, the quest for excellence…)**;
- Ensure the constant adaptation of the educational system to the international environment, especially through the **promotion of teaching of sciences and technology.)**

In this regard, teaching Mathematics has a double goal.

- The first goal is the intellectual training of the Learner where he progressively develops abilities for experimentation, creativity and critical analysis so that he is capable to take up fully, his role as a citizen.
- The second goal is utilitarian; here it envisages the adaptation of scientific knowledge to international economic and environmental context.

The Mathematics teaching syllabus for forms 1 and 2 is designed so that teaching/learning at this level will handle these two goals and will develop in learners three fundamental competencies which are:

- Solve a problem within a situation (solve problems encountered within real life situations) so as to fully and autonomously assume role as a citizen);
- Display a logical reasoning (show a coherent logical reasoning, spirit of curiosity, spirit of critical thinking and initiative);
- Communicate using Mathematical language (communicate in an intelligent, clear and concise language).

These three competencies are developed progressively at all stages of secondary education through some real life activities.

I – THE PLACE OF MATHEMATICS IN THE CURRICULUM AND ITS CONTRIBUTION TO THE LEARNING AREA.

A curriculum defines the broad orientations that guide an educational system. A program of study is a component of a curriculum and specifies learning content in a particular domain. In any educational system, there can be as many programs of study as there are subject areas. Each program of study offers a 'menu' for learning in the form of organized body of school subject matter, techniques and methods.
The curriculum of the Ministry of Secondary Education has grouped programs of study in six learning areas which are: Language and literature; Human Sciences; Mathematics, Science and Technology; Personal development, Arts and Culture; Industrial and commercial techniques. Mathematics belongs to the 'Mathematics, Sciences and Technology' learning area.

Mathematics, offers different models and structures that constitute the framework of service tools in the Mathematics, Science and Technology learning area as well as in other learning areas through its own language. Mathematics in itself, contributes to the development of rigorous and logical reasoning, spirit of creativity and critical thinking. All these contribute to create, manage and exploit learning situations which help us to understand and master nature and laws of nature. Mathematics is at the root of all technological evolution of today's world as such, it contributes significantly towards the modification of our environment, our life style and our thinking process. Mathematical concepts form the bases of the evolution of the computer that has improved considerably our work habits and communication.

II- DOMAINS OF LIFE AND CONTRIBUTION OF SYLLABUS TO DOMAIN OF LIFE:

The teaching/learning are constructed within five domains of life which are: Family and social life, Economic life; the environment, well- being and health; Media and communication, Citizenship. Mathematical skills help in developing competencies in commercial transactions, games, planning expenditure, energy consumption, decision making, environmental protection, health, politics etc. As earlier mentioned, Mathematics is at the root of all technological evolution of today's world as it contributes significantly towards the modification of our environment, our life style and our thinking process. Some application of

Mathematics can be seen in physical sciences, business, trades etc. Thus, be it in the domain of family and social life, economic life, the environment, well-being and health, media and communication and even citizenship, Mathematics plays a significant role.

III- FAMILIES OF SITUATIONS COVERED IN THIS PROGRAM OF STUDY

A life situation can be considered as a circumstance or action and/or reflection, for which a learner can construct, transform or apply the knowledge and competencies associated with the content learned. A family of situations refers to a group of life situations that share at least a common property.

For these first two years of secondary education five families of situations have been identified which are:

- Representation, determination of quantities and identification of objects by numbers;
- Organization of information and estimation of quantities in the consumption of goods and services;
- Representations and transformations of plane shapes within the environment;
- Usage of technical objects in every day life;
- Description of patterns and relationships between quantities using symbols.

These five families of situations permit the experiencing of all possible daily life activities of learners at this level such as Commercial transactions, games, planning expenditure, energy consumption, just to name a few. These are the areas to develop the envisaged competencies.

COMPREHENSIVE TABLE SHOWING THE DIFFERENT MODULES FOR THIS LEVEL

This paradigm requires that the syllabus be written in models. As such the syllabus is divided into nine (9) modules.

a) The modules

Cycle	Level	Title of module	Family of situations	Duration
Junior Secondary	Form 1	Numbers, Fundamental operations and relationships in the sets of numbers	Representation, determination of quantities and identification of objects by numbers	30hrs
		Introduction to Plane Geometry	Representations and transformations of plane shapes within the environment	45hrs
		Solid figures	Usage of technical objects in every day life	15hrs
		Elementary statistics and probability	Organisation of information and estimation of quantities in the consumption of goods and services	10hrs
		Numbers, Fundamental operations and	Representation, determination of quantities and	30hrs

	Form 2	relationships in the sets of numbers	identification of objects by numbers	
		Introducing Plane Geometry	Representations and transformations of plane shapes within the environment	40hrs
		Solid figures	Usage of technical objects in every day life	15hrs
		Elementary statistics and Probability	Organisation of information and estimation of quantities in the consumption of goods and services	10hrs
		Basic Algebra	Description of patterns and relationships between quantities using symbols	5hrs

b) Presentation of modules.

Each module has two main parts: the introduction of the module and the table.

The introduction has the presentation of the module; the contribution of the module to outcome and curriculum goals, contribution of module to learning area and contribution of module to areas of living.

The table on the other hand, is made up of seven columns:

- The contextual framework embodies the families of situations and examples of real life situations where the knowledge and skills (competencies) can be applied.
- The competent actions made up of categories of actions and examples of actions: These are groups of some actions which are related to the mastery of the competencies expected for the module.
- The Resources have the essential or core knowledge which gives all the set of cognitive and affective resources which the learner needs to mobilize to successfully treat a family of situations. It is divided into four components: the mathematical notions, the skills or know-how, attitudes to be disposed or to be acquired as well as other resources (material) necessary for the acquisition of these competencies.

VII- PEDAGOGIC ORIENTATIONS.

a- Recommendated Methodology:

The Competency-Based – Approach is based on the Socio-Constructivist view of learning which postulates that learners actively construct new learning onto old learning through an action in a given situation. In this light, the Mathematics lesson should have teaching/ learning activities and the teaching method being centered on the learner. Each teaching/learning sequence or lesson should include:

- An introduction that will captivate and sustain the interest of the learners ;

- One or two learning activities that will facilitate the acquisition of new knowledge and new skills. An activity that will consolidate old knowledge with new knowledge;
- The essential knowledge is given as notion or methods;
- Application exercises;
- Activities for integration whenever it is possible, which should be well planned so that it should force students to mobilize many skills learned to solve a real life problem. These activities for integration are aimed at making the students to employ and use the learned mathematical skills necessary to competently handle life situations related to the family of situations for the module. These activities should not center on a particular concept, rather it should provide the learner with opportunity to explore, apply or relate several different Mathematical concepts at the same time.

b- Evaluation.

In order to determine where a learner is in the learning process, the teacher must regularly carry out assessment of learning. Each assessment instrument should assess the Mathematical concepts, skills and attitudes (competencies) acquired.

Oral questioning of students during lessons is highly encouraged. It permits the teacher to assess the skill of communicating Mathematically which is one of the fundamental competencies. It is also a source of motivation for students.

c- Notations and symbols

Teachers should teach for accuracy and should at each time ensure that students use notations and symbols encountered at this level, accurately. No misuse of words, notations and symbols by learners should be tolerated.

The cognitive levels for junior secondary should not be above the first three levels of Bloom's taxonomy (Knowledge or remember, Comprehension or Understanding and simple cases of Application).

d- Set language

The teacher introduces progressively and whenever necessary the corresponding symbol for each set of numbers such as $\mathbb{R}$, $\mathbb{N}$, $\mathbb{Z}$, $\mathbb{Q}$.

e- Calculators

A calculator is a tool that is now very common among students. It fascinates and exercises an attraction that no other instrument seem to have had. Students use it even for the simpliest operations. It is only a tool, and, is no substitute for the knowledge of its user. It is for the teacher to take note of this and encourages or discourages its use, as the case may be.

f- Geometry

The modules on geometry should not be left to be treated at the end of the academic year. The lessons on these modules will require a lot of well prepared students' activities. Accurate drawing using geometrical instrument is highly recommended. Correct use of notations and geometrical properties should be emphasized.

g- Management of modules

Each module is considered as a whole for that level. Teachers are adviced to alternate numerical activities with geometrical activities.

MATHEMATICS TEACHING SYLLABUS FOR FORM 1 AND FORM 2

MODULE N° 1

NUMBERS, FUNDAMENTAL OPERATIONS AND RELATIONSHIPS IN THE SETS OF NUMBERS.

CREDIT: **30 hours** / 4 teaching hours a week

PRESENTATION OF MODULE

This module is aimed at making the learner competent within the families of situations '**Representation, determination of quantities and identification of objects by numbers'**. It has the following as categories of action: Determination of a number, reading and writing information using numbers, verbal interaction on information containing numbers and estimation and treatment of quantities.

This module will permit the learner to recognize, describe and represent numbers and their relationships. Learners will also carry out fundamental operations with numbers, count, estimate, calculate and check with competence and confidence results of problems. In so doing they will be able to:

- ✓ Solve problems related to life situations such as: buying and selling of consumable goods, division of objects, verification of bills, and comparison of prices of the same article. …
- ✓ Communicate information containing numbers or digits (telephone numbers, registration numbers, car matriculation numbers etc);

This module is introduced by numbers and numerals through some ancient systems of numeration, some sets of numbers ($\mathbb{N}$, $\mathbb{Z}$, $\mathbb{Q}$) and the basic operations in these sets. It extends to fractions and decimals while Arithmetic Processes brings out some relationships between numbers and their various interpretations. The cognitive levels for this module are knowledge and comprehension.

CONTRIBUTION OF MODULE TO OUTCOME AND CURRICULUM GOALS

This module contributes to a good mental structure that will permit the learner to react competently in different life situations as well as be able to communicate concisely and precisely using numbers.

CONTRIBUTION OF MODULE TO LEARNING AREA

The mastery of this module equips the learner with basic knowledge and skills (know -how) on which further learning in Mathematics and other science subjects will be based. Decimal numbers are used in the sciences for measuring, weighing and also for the evaluation of quantities.

CONTRIBUTION OF MODULE TO AREAS OF LIVING

This module provides the opportunities for the learners to engage with the historical development of numerical counting and writing system. Mastery of the concepts of equality, inequality, the basic operations (+, -, ×, ÷) and their effects on numbers, percentages and situations of proportionality are fundamental tools a learner will need in real life and throughout life. These skills will contribute in the management of family finances, implication in different monetary transactions, justifies its importance in consumption and production of goods and services, social, economic and environmental issues, welfare and health, citizenship, media and communication.

TABLE 1: NUMBERS, OPERATIONS AND RELATIONSHIP BETWEEN NUMBERS. FORM 1

Contextualized framework		**Competent Action**		**Resource**			
Families of situations	**Examples of situations**	**Categories of actions**	**Examples of actions**	**Core knowledge**	**skills**	**Attitudes**	**other resources**
Representation, determination of quantities and identification of objects by numbers.	-Buying and selling of goods; -Daily movements; -Planning a meal; -Use of public and private services; -Communication using numbers (tel numbers, car number plates ..	Determination of a number Reading and writing information using numbers Verbal interaction on information containing numbers Estimation and treatment of quantities	-Count number of points in sporting activity; -Determine the amount at stake for a transaction; -Find number of bags of farm products Read results (election, examination etc) Read addresses, telephone numbers, car number plates) Read consumption of electricity and water -Give date of birth -Give the telephone number. -Relate time to historical event -Situate an event	**Numbers & Numerals** -Egyptian, Roman and Hindu-Arabic numerals; -Place value; **The set $\mathbb{N}$ of Natural Numbers** -The elements of the set $\mathbb{N}$; -Ordering in the set $\mathbb{N}$; -Whole number powers **The set $\mathbb{Z}$ of integers** -The set of integers -Elements of $\mathbb{Z}$ -Operations (+, -, ×, ÷) in $\mathbb{Z}$ -The integral number line **Time**	-Count and write numbers in base 10 and other bases; -Read and write whole numbers; -Compare natural numbers using < and > signs; -Add and multiply in the set $\mathbb{N}$; -Order of operation (BODMAS); Ordering in $\mathbb{Z}$; Order of operations in $\mathbb{Z}$ -Read, write and narrate historical event using AD and BC -Describe time of the day using a.m and p.m -Order events that	-Accurate; -Good sense of numbers; -Confident; -Good sense of estimation and approximation -Good sense of orderliness	Documentation Calculator Material for low scale activity Thermometer

			using time	-Historical time, 12 hours and 24 hours system (analogue/digital) Units of measuring time, Temperature, Units of measuring temperature.	occurred in sequence		

TABLE 1 (CONT) **FORM 1**

Contextualized framework		**Competent Action**		**Resource**			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Representation, determination of quantities and identification of objects by numbers.	-Buying and selling of goods; -Daily movements; -Planning a meal; -Use of public and private services; Communication using numbers (tel numbers, car number plate . . .)	Determination of a number Reading and writing information using numbers Verbal interaction on information containing	-Count number of points in sporting activity; -Determine the amount at stake for a transaction; -Find number of bags of farm products -Read results (election, examination etc) -Read addresses, telephone numbers, car number plates) -Read consumption of electricity and water -Give date of birth -Give the telephone	**Number Patterns** -Dot representation of numbers; -Factors -Even and odd numbers **The set $\mathbb{Q}$ of Rational numbers** Introduce $\mathbb{Q}$ **Fractions** -Vulgar fractions -Proper, improper and mixed fractions **Decimal** -Decimal fractions, -Fractions as decimals -Recurring and non-recurring	-Prime factorization HCF and LCM -Square roots and cube roots using prime factorization -Divisibility by 2, 3, 4, 5, 6, 10, 12. 25, 50, 100 -Addition and subtractions of fractions; -Equivalent fractions -Ordering fractions, -Comparing fractions	Accurate; -Good sense of numbers; Confident; Good sense of estimation and approximation Good sense of orderliness	Documentation Calculator Material for low scale activity Thermometer

		numbers Estimation and treatment of quantities	number. -Relate time to historical event -Situate an event using time;	decimals -Decimal places, -Standard form **Arithmetic processes** -Ratio, percentages and proportions, -Coefficient of proportionality.	-Operations (+, -, ×, ÷) with decimals -Express whole numbers and decimals in Standard form -Represent and interpret proportional parts		

MODULE N° 2

INTRODUCTION TO PLANE GEOMETRY .

CREDIT: **45 hours** / 4 teaching hours a week

GENERAL PRESENTATION

This module begins with description, recognition, representation and identification of plane figures. It extends to measuring and calculating lengths and areas of these common plane figures as well as measuring and drawing angles. The basic notion of symmetry and coordinate geometry are also introduced. This module is within the families of situations: **Representations and transformation of plane shapes within the environment.** Three categories of actions are involved namely: Perception of the physical environment, production of plane shapes and transformation of the physical environment and determination of measures and positions within the environment.

CONTRIBUTION OF MODULE TO OUTCOME AND CURRICULUM GOALS

This module will develop in learners the sense of order, rigour in working, sense of precision and initiation to scientific method in handling life situations. Learners will also develop the ability to measure, represent, describe distances and plane figures in the environment and also make estimates and approximations of distances and areas. The ability to construct will help learners to be able to represent and interpret the physical environment and also be able to investigate and compare properties and model situations in the environment. As a result, they will be able to make sensible estimates, verify results, measure accurately, locate positions in real life as well as be alert to the reasonableness of measurements and calculation results.

Critical thinking, creativity and sense of initiative that learners will also develop are attitudes that will contribute to make a citizen autonomous and responsible in carrying out his social roles.

CONTRIBUTION OF MODULE TO LEARNING AREA

Plane geometry is one of the main parts of the Mathematics syllabus due to the expected learning outcome. Measuring in general relates directly to the scientific, technological and economic world of the learner. Accurate measuring and calculations involving lengths, distances and areas, representations and descriptions are an integral part of chemistry, Biology, Physics and other parts of Mathematics. Situations of symmetry are seen in Biology, Chemistry and also in the cultural environment of the learners. The third category of actions shows interaction between numerical activities and geometrical activities.

CONTRIBUTION OF MODULE TO AREAS OF LIVING

The areas of living for which knowledge and skills from this module are directly applied are: Family and social life, Economic life, Environment, welfare and health, citizenship, media and communication. The learner each uses or comes across objects from which geometrical shapes can be identified. The outline of figures which are the lines, angles, planes and their intersections are what constitute the physical environment for they are the bases for which real life subjects are constructed.

The study of size, distances, and position of objects in the environment is important since it will provide a language for describing and representing the physical environment and methods for analyzing and drawing conclusions about real life phenomena.

Symmetry contributes in the study of the rules and principles of art and the appreciation of the beauty and taste.

TABLE 2: INTRODUCING PLANE GEOMETRY. FORM 1

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Representations and transformation of plane shapes within the environment	-Travelling -Demarcation of land boundaries -Putting a ceiling -Art or design -Design of clothing -Map of a town -Building -Survey	Recognition of plane shapes and transformation within the environment Production of plane shapes Determination of measures and position	-Detect the repetition of a pattern on a painting; -Identify objects using shape and size -Draw a motive for decoration -Draw the plan for a house -Locate one self in an area -Follow up a plan for the construction of a	**PLANE FIGURES** **Points and lines** -Points and lines -Notations of lines (AB), line segment [AB], half lines (AB] and [AB) -Points on the same line, points on the same plane **Line segment** -Length of a line segment, units of measuring length and distance -Midpoint of a line segment, -Perpendicular bisector	-Construct a bisector of a line, line passing through two given points; a line passing by a point and parallel to a given line, a line passing through a point and perpendicular to a given line. -Construct a given segment, -Construct the midpoint of a line segment	-Sense of order -Precision in calculation -Critical thinking -Scientific method -Ability to visualize -Ability to reason and justify -Sense of	-Metre -Tape measure -geometrical instrument

	-Pegging out a piece of land -weaving Clock		ware house or house; -Associate figures and measures to objects observed; -Design a dress	The property: if M $\in$ [AB] such that MA + MB = AB then M is the midpoint of [AB]. Conversely if M is the midpoint of [AB], then MA = MB =AB/2 -Parallel lines, perpendicular lines, orthogonal lines -Notations and properties.		appreciation	

TABLE 2: INTRODUCING PLANE GEOMETRY CONTINUES. FORM 1

Contextualized framework		**Competent Action**		**Resource**			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Representations and transformation of plane shapes within the environment	-Travelling -Demarcation of land boundaries -Putting a ceiling -Art or design -Design of clothing -Map of a town -Building -Survey	Recognition of plane shapes and transformation within the environment Production of plane shapes Determination	-Detect the repetition of a pattern on a painting; -Identify objects using shape and size -Draw a motive for decoration -Draw the plan for a house -Locate one self in an area	**Circle** -Vocabularies: Centre, disc, radius, diameter, sector, segment, circumference, chord, arc of a circle, secant **Angles** -Notations -Units of measuring angles; -Types of angles acute, right, obtuse, straight,	-Draw a circle of a given radius, calculate circumference and area of a circle, -Discuss relative position of two circles -Measure angles (clockwise and anti-clockwise) -Construct bisector of an	-Sense of order -Precision in calculation -Critical thinking -Scientific method -Ability to visualize -Ability to reason and	-Metre -Tape measure -Geometrical instrument

	-Pegging out a piece of land -weaving Clock	of measures and position	-Follow up a plan for the construction of a ware house or house; -Associate figures and measures to objects observed; -Design a dress	reflex) -Notation of angle, -Angles at a point and angles on a straight line (adjacent angles, opposite angles)	angle -Draw angles at a point and indicate adjacent angles	justify -Sense of appreciation	

TABLE 2: INTRODUCING PLANE GEOMETRY CONTINUES. FORM 1

Contextualized framework		**Competent Action**		**Resource**			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Representations and transformation of plane shapes within the environment	-Travelling -Demarcation of land boundaries -Putting a ceiling -Art or design -Design of clothing -Map of a town -Building	Recognition of plane shapes and transformation within the environment Production of plane shapes	-Detect the repetition of a pattern on a painting; -Identify objects using shape and size -Draw a pattern for decoration -Draw the plan for a house	**Triangle** **Triangles** -Naming of triangles -Some particular types triangles (right, isosceles, equilateral) -Angle property of a triangle, Height, median of a triangle, perpendicular bisector of a side	-Construct triangle of given sides and angles -Construct height, median, orthocenter of a triangle and perpendicular bisector of a side -Calculate perimeter and area of some triangles	-Sense of order -Precision in calculation -Critical thinking -Scientific method -Ability to visualize -Ability to	-Metre -Tape measure -geometrical instrument

	-Survey -Pegging out a piece of land -weaving Clock	Determination of measures and position	-Locate one self in an area -Follow up a plan for the construction of a ware house or house; -Associate figures and measures to objects observed; -Design a dress	**Quadrilaterals** Parallelograms (properties) Special parallelograms (square, rectangle, rhombus, trapezium, kite)	Calculate Perimeter and area of a square, rectangle, rhombus, trapezium. Construction of quadrilaterals	reason and justify -Sense of appreciation	

TABLE 2: INTRODUCING PLANE GEOMETRY CONTINUES. FORM 1

Contextualized framework		**Competent Action**		**Resource**			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Representations and transformation of plane shapes within the environment	-Travelling -Demarcation of land boundaries -Designing a ceiling -Designing a work of art -Designing a of dress -Mapping of a football field	Recognition of plane shapes and transformation within the environment Production of plane shapes	-Detect the repetition of a pattern on a painting; -Identify objects using shape and size -Draw a motive for decoration -Draw the plane for a house	**Symmetry** -Point symmetry(central) : properties and image of an object by a point symmetry -Line (orthogonal) symmetry: properties and image of an object by a point symmetry	-Produce the image of an object by central or line symmetry -Draw and label Cartesian plane -Choose and use appropriate scale -Plot points on the Cartesian	-Sense of order -Precision in calculation -Critical thinking -Scientific method -Ability to visualize -Ability to	-Metre -Tape measure -geometrical instrument

	-Survey -Pegging out a piece of land -weaving Clock	Determination of measures and position	-Locate one self in an area -Follow up a plan for the construction of a ware house or house; -Associate figures and measures to objects observed; -Design a dress	**Co-ordinate geometry** -Cartesian plane (origin, x-y plane) -Cartesian coordinate (abscissa, ordinate), points in the plane	plane	reason and justify -Sense of appreciation	

MODULE N° 3

SOLID FIGURES.

CREDIT: **15 hours** / 4 teaching hours a week

GENERAL PRESENTATION

This module deals with description, recognition, identification and representation of some common solids (cubes, cuboids, cones and cylinders) which are found within the learners' environment. This module is within the family of situations: **Usage of technical objects in every day life**. The categories of actions identified for this module are: Recognition of objects; production of objects; determination of measures.

In school as well as at home, in the market place or on a journey, students encounter different shapes, as such the description and representation of these shapes throughout the module are expected to be treated in context.

CONTRIBUTION OF MODULE TO OUTCOME AND CURRICULUM GOAL

The study of geometry and 3-dimensional geometry in particular helps in the construction of reasoning and familiarity with calculation techniques. The study of these solids will enable the learner to develop the ability to visualize, interpret, justify, classify, appreciate and describe the world through 3-dimensional objects. Their location and relationships will also develop in students the spirit of initiative, creativity and enterprise. All these competencies contribute in becoming autonomous and independent in carrying out different activities in the environment which is full of manmade and natural objects.

CONTRIBUTION OF MODULE TO LEARNING AREA

Measuring in general relates directly to the scientific, technological and economic world of the learner. Accurate measuring and calculations involving volume or quantity in general, are part of real life. The competencies developed by learners here are fundamental to the mastery of other science subjects such as Biology, Physics, Chemistry etc as well as other parts of Mathematics. It contributes highly to the development of arts such as painting and drawing as well as the development of aesthetic values.

CONTRIBUTION OF MODULE TO AREAS OF LIVING

The different areas of living for which we see direct application of the competencies from this module are: Family and social life, Economic life, Environment, welfare and health as well as Media and communication.

The contribution of this module in technological development has just been mentioned. The study of this module also provides a language for describing the physical world and gives the methods for analyzing and drawing conclusions about real world phenomena which subsequently go to improve understanding of the patterns, precision, achievement and beauty in natural and cultural forms.

TABLE 3: SOLID FIGURES. FORM 1

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Usage of technical objects in every day life.	-Box of chalk or matches -Tablet of soap -Packet of sugar -Trunk -Works of arts -Plumbing -Cartoons -Form for moulding -Baking dishes -Digging a well -Movable TV stand	**Recognition of objects** **Productions of objects** **Determination of measure**	-Describe solids in the environment -Identify objects described by somebody -Make a box of match or a box to contain chalk -Produce cartoons for packaging or baking tins -Make postal boxes, make drums, cakes, cut logs of wood. … -Determine the number of pieces soap in a cartoon -Determine the volume of water a tank can contain	**Cubes, cuboids and cone** -Vocabularies (faces, edges, vertices, height, slant height) -Properties of each solid -Nets of each -Unit of measuring volume -Capacity in real life, units (litres, n° of places or seats in a hall, bus, etc) -Relationship between volume and capacity **Right circular cylinders** -Vocabularies (base, curve surface, height, axis) -Net of a right circular cylinder	-Describe each solid -Recognise and identify each solid -Sketch each solid -Make models from nets and use the various parts to re-establish the original figure -Calculate total surface area and volume -Observe and describe a cylinder -Recognize and identify a right cylinder -Sketch a right cylinder -Make models from nets -Calculate total surface area A =	-Sense of organization -Sense of initiative -Precision in calculation -Ability to visualize -Sense of appreciation -Creativity -Spirit of enterprise	-Calculator -measuring instrument -concrete objects -Models of the different shapes -Cardboard -Containers Geometrical instrument

					$2\pi rh + 2\pi r^2$ and volume $V = \pi r^2 h$		

MODULE N° 4

ELEMENTARY STATISTICS.

CREDIT: **10 hours** / 4 teaching hours a week

GENERAL PRESENTATION

This module deals with collection of simple data from real life situations such as students' ages, Regions of origin, shoe sizes, heights of students, weights, scores etc, then organizing and presenting or displaying these data in different forms (frequency table, pictogram, bar chart, pie chart). As such with the study of data handling, the learners will develop the skills to collect, organize and display information. This model is within the family of situations '**Organization of information and estimation of quantities'** and has as categories of actions: Collection, organization and exploitation of information; Interpretation of results.

CONTRIBUTION OF MODULE TO OUTCOME AND CURRICULUM GOALS

This module will develop in learners the sense of organization, precision and good judgment. These attitudes will help the learner to be able to take up duties as a member of the family, make informed decisions, and develop autonomy in the production and consumption of goods and services.

CONTRIBUTION OF MODULE TO LEARNING AREA.

A familiarity with statistical methods is a very valuable tool when dealing with other school subjects as there is an increase in emphasis on work of an investigative nature or research. Great deal of research work in science and technology (health and technological products etc) and other learning areas such as Economics and Geography are represented in statistical form.

CONTRIBUTION OF MODULE TO AREA OF LIVING

Information in statements, tables and charts are presented to us daily through television, radio, news papers or any other form of communication. Applications of competencies within this module are found in the areas of living: Family and social life, Economic life, citizenship, media and communication. Within these areas, collection, organization and displaying of simple data by the learners are essential skills that will help them to assume their positions as responsible members of a family, make good choices on what to consume (information, goods, services), participate meaningfully in basic economic activities, be able to show high level of responsibility towards the environment and health of others, be able to provide solutions that can sustain or destroy the environment, promote or harm the health of others, and will be able to judge economic trends and patterns.

TABLE 4: ELEMENTARY STATISTICS. FORM 1

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Organization of information and estimation of quantities	-Census of a population by sex, age group, profession, religion -Demographic growth -Classification of football teams -Opinion polls on a new product or new policy -Evolution of the budget of a country due to economic growth	**Collection, organization and exploitation of information** **Interpretation of results**	-Record yearly rainfall -Record production of crude oil by some countries -Compile results -Forecast weather or election result -Choose a brand of car -Choose a career, -Draw up a budget	**Collection of simple data** -Different ways of data collection -Types of data (discrete and continuous) **Representation of data** Pictograph Frequency table Bar charts Pie charts	-Collect data within the environment -Choose best method for the collection of a given data -Display collected data using different representations;	-Sense of organization; -Precision -Sense of good judgment -Critical thinking -Vigilant -Patient -Politeness	Calculator Graph board Data from environment charts illustrating various data News paper Computer National department of statistics Students

MODULE N° 5

NUMBERS, FUNDAMENTAL OPERATIONS AND RELATIONS IN THE SET OF NUMBERS.

CREDIT: **30 hours** / 4 teaching hours a week

GENERAL PRESENTATION

This module is an extension of what was done in module 1, now to the set $\mathbb{R}$ of real numbers. It extends to properties of numbers and of operations within each set. Calculation of simple and compound interest and currency exchange is done here.

It is within the families of situations **'Representation, determination of quantities and identification of objects by numbers'** and has the following as categories of action: Determination of a number, reading and writing information using numbers, verbal interaction on information containing numbers and estimation and treatment of quantities.

CONTRIBUTION OF MODULE TO OUTCOME AND CURRICULUM GOALS

This module contributes to the acquisition of a good mental structure that will permit the learner to react competently in an autonomous manner under different life situations that require the use of numbers as well as be able to communicate concisely and precisely in symbolic form. Learners will acquire the ability to recognize, describe and represent numbers and their relationships, count, estimate, calculate with accuracy and confidence, have a good sense of estimation and approximation as well as sense of order in representing results.

CONTRIBUTION OF MODULE TO LEARNING AREA

The mastery of this module equips the learner with the basic knowledge and skills on which further learning in Mathematics and other science subjects will be based, such as measuring and comparing in Natural sciences and in technology.

CONTRIBUTION OF MODULE TO AREAS OF LIVING

The areas of living that knowledge, skills and attitudes acquired here, are immediately employed are: Family and social life, Economic life, Environment, Welfare and health, Citizenship, Media and Communication.

Mastery of concepts of equality and inequality, the basic operations +, -, × and ÷ and their effects on numbers, percentages and situations of proportionality are fundamental tools a learner will need in real life. Managing the family finances, implication in different monetary transactions,

justifies its importance in consumption and production of goods and services. With globalization of trade, knowledge of currency exchange is very fundamental. Learners will solve problems in context including context that may be used to build awareness of other learning areas, as well as human rights, social, economic and environmental issues such as financial (including buying and selling, simple budget), measuring in Natural sciences and in technology.

TABLE 5: NUMBERS, FUNDAMENTAL OPERATIONS AND RELATIONS N THE SET OF NUMBERS. FORM 2

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Representation, determination of quantities and identification of objects by numbers	-Census of a population by sex, age group, profession, religion -Demographic growth -Classification of football teams -Opinion polls on a new product or new policy -Evolution of the budget of a country due to economic growth	**Determination of a number** **Reading and writing information using numbers** **Verbal interaction on information containing numbers**	-Estimate the cost of an activity -Determine monthly expenditure on tobacco -Verify amount reduced after a transaction -Divide the refund of a debt in installments -Read the entry fee for a concert -Give an estimate of the total cost of an activity -Write down amount received from each income generating activity -Be informed on the salary for a job proposal -Negotiate the terms of payment of an item, -Draw up a budget	**The set $\mathbb{Z}$ of integers** -Whole number powers -Negative powers -Laws of indices **Number Patterns** -Square roots and cube roots -Elementary sequences **Fractions and decimals** -Estimation and approximations -Significant figures	- Determine the value of a number expressed using powers -Determine number of decimal places, -Round-up to nearest: whole number, ten, hundred, thousand or round-down of least whole number. -Write a number to a given number of significant figures Apply the knowledge of fractions and decimals to real life	Good sense of numbers; -Confident -Good sense of estimation and approximation -Accurate -Sense of orderliness	Documents Calculator Graph board chalk board Material for experimentation Thermometer

TABLE 5: NUMBERS, FUNDAMENTAL OPERATIONS AND RELATIONS N THE SET OF NUMBERS (CONT). FORM 2

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Representation, determination of quantities and identification of objects by numbers	-Census of a population by sex, age group, profession, religion -Demographic growth -Classification of football teams -Opinion polls on a new product or new policy -Evolution of the budget of a country due to economic growth	**Determination of a number** **Reading and writing information using numbers** **Verbal interaction on information containing numbers**	-Estimate the cost of an activity -Determine monthly expenditure on tobacco -Verify amount reduced after a transaction -Divide the refund of a debt in installments -Read the entry fee for a concert -Give an estimate of the total cost of an activity -Write down amount received from each income generating activity -Be informed on the salary for a job proposal -Negotiate the terms of payment of an item,	**The set $\mathbb{Q}$ Rational numbers** Definition of the set of rational numbers **Arithmetic Processes Proportions** -Direct and inverse proportions -Profit and loss -Simple interest, Compound interest -Currency exchange **Real numbers** -The set $\mathbb{R}$ of real numbers -Radicals -Irrational numbers -The real number line -Intervals	-Solve problems involving direct and inverse proportions in real life situations -Calculate profit or loss after selling an article -Calculate the amount in CFA francs for some common currencies such as Dollars, pound sterling, Euro, Naira etc -Define and represent the set of real number -Carry out operations in $\mathbb{R}$ -Compare real numbers using < and > -Represent numbers on the real number line -Represent finite and infinite	Good sense of numbers; -Confident -Good sense of estimation and approximation -Accurate -Sense of orderliness	Documents Calculator Graph board chalk board Material for experimentation Thermometer

			-Draw up a budget		intervals, closed intervals, open intervals, half intervals		

MODULE N° 6

INTRODUCING PLANE FIGURES.

CREDIT: **40 hours** / 4 teaching hours a week

GENERAL PRESENTATION

This module uses notions and skills acquired in module 2 as the starting point. It then extends to angle properties in a triangle, advanced notions of angles, congruency of triangles, Pythagoras theorem, circumscribed and inscribed circle, scale and similarity. This module is made up of the families of situations: **Representations and transformation of plane shapes within the environment,** with three categories of action namely: Recognition of plane shapes within the physical environment; Production of plane shapes and transformation of the physical environment and determination of measures and position within the physical environment.

CONTRIBUTION OF MODULE TO OUTCOME AND CURRICULUM GOALS

This module will help Learners to develop the ability to measure appropriately, represent and describe plane figures in the environment, make estimates and approximations of distances and areas, represent and interpret the physical environment, investigate and compare properties and locate positions in real life. Learners will develop the spirit of critical thinking, creativity and sense of initiative that will all contribute in making a citizen autonomous and responsible in carrying out his social roles.

CONTRIBUTION OF MODULE TO LEARNING AREA

Plane geometry is one of the main parts of Mathematics due to its learning outcomes. Measuring relates to all scientific, technological and economic world of the learner. Accurate measuring and calculations involving lengths, distances and areas, representations and descriptions are an integral part of Chemistry, Biology, Physics and other parts of Mathematics. Scaling and similarity can be seen in Biology, Chemistry and the cultural environment of the learner.

CONTRIBUTION OF MODULE TO AREAS OF LIVING

The areas of living that knowledge, skills and attitudes acquired here, are employed are: Family and social life, Economic life, Environment, Welfare and health, Citizenship, Media and Communication.

The concepts of parallelism, perpendicularity, similarity, measurements of lengths and areas, the study of size, distance, position of objects in the real world provides a language for describing and representing the learner's environment. Scale and similarities contribute in the study of the rules and principles of art and the appreciation of beauty and taste.

TABLE 6: INTRODUCING PLANE FIGURES. FORM 2

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Representations and transformation of plane shapes within the environment,	-Demarcation of land boundaries, -Design of clothing -Building -Drafting -Tilling -Designing a parking -Drawing up the plan of a house to be constructed -Make an object of art or the pattern of a dress.	**Recognition of plane shapes within the physical environment** **Production of plane shapes and transformation of the physical environment** **Determination of measures and position within the physical environment**	-Identify an object describe by some one -Estimate the length of an object -Build support for a bridge -Plant telephone poles -Draw the plan of a football pitch, a garden -Find the perimeter of a piece of land to be enclosed -Estimate the length of an object	**Distances** -Mediator -Distance between two horizontal or vertical points **Angles** -Angles in intersecting lines -Angles formed by two lines and a transversal -Angles formed by parallel lines and a transversal	-Construct the mediator of a line segment -Determine the distance between two points on the number line. -Determine vertically opposite angles, corresponding angles, alternate angles -Determine the properties of alternate angles	-Sense of order; -Being concise -Precision in calculation -Critical thinking -Scientific method -Ability to visualize -Ability to reason and justify -Sense of appreciation	Documents Calculator Graph board Measuring instrument Material for experimentation Metre rule

MODULE 6 (CONT) **FORM 2**

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Representations and transformation of plane shapes within the environment,	-Demarcation of land boundaries, -Design of clothing -Building -Drafting -Tilling -Designing a parking -Drawing up the plan of a house to be constructed -Make an object of art or the pattern of a dress.	**Recognition of plane shapes within the physical environment** **Production of plane shapes and transformation of the physical environment** **Determination of measures and position within the physical environment**	-Identify an object describe by some one -Estimate the length of an object -Build support for a bridge -Plant telephone poles -Draw the plan of a football pitch, a garden -Find the perimeter of a piece of land to be enclosed -Estimate the length of an object	**Triangles** -Angles in a triangles -Interior angle sum -Exterior angle and corresponding opposite interior angles -Congruent triangles Pythagoras theorem and its converse **Circles** Arc length Sector Segment **Polygons** -Regular polygons -Sum of interior angles of a convex polygon	-Solve a right angle triangle using Pythagoreans triples -Determine the sum of the interior angles in a triangle -Find arc length -Determine area of sector -Recognize circumscribed circle on a triangle and an inscribed circle in a triangle -Construct some regular polygons -Find the sum of the internal angles in a regular polygon	-Sense of order; -Being concise -Precision in calculation -Critical thinking -Scientific method -Ability to visualize -Ability to reason and justify -Sense of appreciation	Documents Calculator Graph board Measuring instrument Material for experimentation Metre rule

MODULE 6 (CONT)

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Representations and transformation of plane shapes within the environment,	-Demarcation of land boundaries, -Design of clothing -Building -Drafting -Tilling -Designing a parking -Drawing up the plan of a house to be constructed -Make an object of art or the pattern of a dress.	**Determination of measures and position within the physical environment**	-Identify an object describe by some one -Plant seedlings -Construct new roads -Find actual length of one town from another -Situate the position of a house or a tree on the plot -Locate a place in town -Locate oneself in a building -Plot out a piece of land -Carpet a floor piece of land to be enclosed -Design a work of art -Draw plan for a house	**Symmetry** -Point symmetry -Line symmetry -Symmetrical properties of some plane figures (trapezium, regular pentagon, Hexagon, Octagon) **Coordinate Geometry** -Cartesian plane -Midpoint -Coordinates of points -Distance between two points **Scale and similarity** -Types of scale, choice of appropriate scale -Similar figures and their properties Congruent plane figures	Identify objects with point or line symmetry; Explain and give properties of point and line symmetries -Plot points on the Cartesian plane -Find distance between two given points in the plane; -Draw graphs of linear and affine functions Scale drawing Construction of similar figures Identify congruent plane figures	-Sense of order; -Being concise -Precision in calculation -Critical thinking -Scientific method -Ability to visualize -Ability to reason and justify -Sense of appreciation	Documents Calculator Graph board Measuring instrument Material for experimentation Metre rule -Charts illustrating similarities -Similarities in nature

MODULE N° 7

SOLID FIGURES.

CREDIT: **15 hours** / 4 teaching hours a week

GENERAL PRESENTATION

This module deals with description, recognition, identification and representation of prisms and pyramids. The study of these solids extends to measuring and calculating their sides, surface areas and volumes. It is within the family of situations: **Usage of technical objects in every day life**. The categories of actions that are within this module are: Production of commodities or provisions for daily consumption, production of parts for industrial use, production of materials for work of art and construction.

CONTRIBUTION OF MODULE TO OUTCOME AND CURRICULUM GOALS

The study of these solids enable the learner to develop the ability to visualize, interpret, justify, classify, appreciate and describe the world around him, through three-dimensional objects, their location and relationships and develop the spirit of initiative, critical thinking, creativity and enterprise and be precise in calculations. All these competencies contribute in making a learner to become autonomous and independent in carrying out different activities in the environment full of manmade and natural objects of different shapes.

CONTRIBUTION OF MODULE TO LEARNING AREA

The competencies developed here are fundamental in the mastery of other science subjects such as Biology, Chemistry, Physics etc as well as the other parts of Mathematics. It contributes highly to the development of arts such as painting and architecture as well as the development of aesthetic values. Measuring in general relates to the scientific, technological and economic world of the learner. Accurate measuring and calculations involving volume or quantity in general, are an integral part of sciences.

CONTRIBUTION OF MODULE TO AREAS OF LIVING

The areas of living that knowledge, skills and attitudes acquired here, are immediately employed are: Family and social life, Economic life, Environment, Welfare and health.

In addition to the importance of this module to technological development, this module also provides a language for describing the physical world and methods of analyzing and drawing conclusions about real world phenomena which subsequently goes to improve understanding and

appreciation of the pattern, precision, achievement and beauty in natural and cultural forms. Accurate measuring and calculations involving volume or quantity in general, are an integral part of sciences.

TABLE 7: SOLID FIGURES. FORM 2

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Usage of technical objects in every day life	-Roofing a house, -Well, water tank -Building Bridges -Tent -Ladder -Slice of cheese -Artistic work -Electricity stabiliser	**Production of commodities or provisions for daily consumption**: **Production of parts for industrial use** **Production of materials for work of art and construction work**:	-Make baking dishes of different shapes, -Produce casing for storage -Produce mechanical parts, -Make objects for decoration, -Mould blocks -Make burnt bricks -Constructing temples and mosque; -Putting the roof of a house	**PRISMS** **Right prisms** -Observation and description of solid -Vocabularies (apex, lateral surface, lateral edge, altitude) -Recognition and identification of right prisms -Net of a right prism **REGULAR PYRAMID** -Observation and description -Vocabularies (apex, lateral surface, lateral edge, altitude) -Properties -Regular tetrahedron as a special pyramid	-Make sketches of right prism -Make models from net and -Use the various parts of the net to re-establish the original figure -Calculate total surface area and volume of a right prism -Make sketches and nets of a regular pyramid -Make models from net and use the various parts of the net to re-establish the original figure -Calculate total surface area and volume of a pyramid	-Sense of initiative; -Critical thinking -Precision in calculation -Creative -Ability to visualize -Develop spirit of enterprise -Sense of appreciation	Documents Calculator Graph board Measuring instrument Concrete objects Metre rule -Card board -Containers -Geometrical instruments

MODULE N° 8

ELEMENTERY STATISTICS AND PROBABILITY.

CREDIT: **10 hours** / 4 teaching hours a week

GENERAL PRESENTATION

This module revises notions and skills of data collection and representation treated in module 4. It extends to determination of measures of central tendency (mode, mean and median). Some very basic interpretations is handled here. The module ends with basic probability. This module is within the family of situations: **Organization of information and estimation of quantities**. It is made up of the following categories of action: Collection and organization of data; Interpretation of information; Prediction and making informed decisions.

CONTRIBUTION OF MODULE TO OUTCOME AND CURRICULUM GOALS

The knowledge, skills learned here will develop in learners the sense of organization, precision, good judgment, critical and logical thinking, vigilance and patience. The learner will also be able to predict the likelihood of an event taking place based on previous information and their interpretation. Learners will be able to take up duties as a member of the family, make informed decisions, develops autonomy in the production and consumption of goods and services.

CONTRIBUTION OF MODULE TO LEARNING AREA

A familiarity with statistical methods is a very valuable tool when dealing with other school subjects as there is an increase in emphasis on work of an investigative nature or research. Most research work in science and technology (health and technological products) and other learning areas such as Economics and Geography are represented in statistical form while Probability is used in Science and eventually in sociology and economics.

CONTRIBUTION OF MODULE TO AREAS OF LIVING

The areas of living that knowledge, skills and attitudes acquired here, are employed are: Family and social life, Economic life, Environment, Welfare and health, Citizenship, Media and Communication. The ability to calculate the measures of position and interpret results are essential to assume position as a responsible member of a family, make good choices on what to consume (information, goods, services), participate meaningfully in basic economic activities, be able to show a high level of responsibility towards the environment and health of others, be able to provide solutions that can sustain or destroy the environment,

promote or harm the health of others and will be able to judge economic trends and patterns. Through the study of probability, the learners will develop skills and techniques for making informed choices or worthwhile decisions and predictions on related aspects of real life situations.

TABLE 8: ELEMENTARY STATISTICS AND PROBABILITY. FORM 2

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Organisation of information and estimation of quantities	-Analysis of school performance -Report on birth and death rates -Economic growth -The effectiveness of a new drug -Horse racing -Fluctuation in prices of goods and services -Natural resources -Gambling -Scientific research	**Collection and representation of data:** **Interpretation of information, Prediction and making informed decisions**	-Reporting on number of road accidents -Sampling opinion on the effect of a new product -Classifying football teams -Analyze sequence result -Report on birth and death rate -Choosing a brand of car -Choosing a career -Choosing a sample for trial -Predicting the result of a match or a competition	**REPRESENTATION OF DISCRETE DATA** -Frequency distribution table -Bar charts, pie chart, line graphs and histogram **MEASURES OF CENTRAL TENDERCY** Mode, mean and median **PROBABILITY** -Vocabularies: events, data, likely, certain, uncertain, possible outcome, impossible, bias, trial fair, equally likely chance, sample space, population probability -Probability scale	-Represent given ungrouped data using any of the above representation -State mode, determine mean and median for a given data -Interpret information and make predictions List all possible outcomes or sample space Calculate simple probably for an event	-Sense of organization; -Critical thinking -Precision in calculation -vigilance -Ability to visualize -Patience -Sense of appreciation	Documents Calculator Graph board Data from the environment Charts illustrating various presentation of data Computer -News paper -National department for statistics

MODULE N° 9

BASIC ALGEBRA.

CREDIT: **5hours** / 4 teaching hours a week

GENERAL PRESENTATION

This module introduces the learner to the use of letters or symbols to represent first objects, then to represent numbers. It extends to symbolic expressions of real life situations. It is made up of the families of situations: **Describing patterns and relationships between quantities using symbols**. They fall under three categories of action namely: Interpretation of algebraic models; determination of quantities from algebraic models; representation of quantities and relationships.

CONTRIBUTION OF MODULE TO OUTCOME AND CURRICULUM GOALS

The mastery of this module will help the learner to solve problems using algebraic language and skills and also to examine and study relationships between real life situations. Through the use of symbolic expressions, graphs and tables, learners will be able to describe patterns and relationships.

CONTRIBUTION OF MODULE TO LEARNING AREA

Algebra is the language for investigating and communicating most of Mathematics, sciences and technological work. Formulae are highly used in natural sciences (calculating air pressure, resistance, voltage), and in economic growth such as calculating pension for those on retirement etc. A thorough understanding of the basic notions here is essential for understanding any field of elementary mathematics and many technical areas where mathematics may be applied. This module is a foundation for more advanced mathematics, science and technology in general.

CONTRIBUTION OF MODULE TO AREAS OF LIVING

The areas of living where this module is employed are: Family and Social life, Economic life, Environment, Welfare and health; Citizenship, Media and Communication. Learners develop the competencies of using algebraic language and skills to describe patterns and relationships in a way that builds awareness of other learning areas as well as issues related to human rights, social economic life, political and environmental life. In other subject areas, as well as in real life, connections are made between algebraic representations and the problem situations so as to provide better understanding about Mathematical concepts and the different problem situations.

TABLE 9: BASIC ALGEBRA. FORM 2

Contextualized framework		Competent Action		Resource			
Families of situations	**Examples of situations**	**Categories of actions**	**Actions**	**Core knowledge**	**Skills**	**Attitudes**	**Other resources**
Describing patterns and relationships between quantities using symbols.	-Travelling -Marketing -Construction -Hiring -Currency exchange -Planning a meal -Agriculture -Politics	**Interpretation of algebraic models Predict the next electricity bill;** **Determination of quantities from algebraic models** **Representing quantities and relationships**	Make a choice Determine the relationship the area of a rectangular garden and its sides Calculate salary for workers Find profit on a given sale Find income for a given business enterprise Determine the number of article bought from the total cost; Determine the number of teaching weeks for a given year Express the cost of renting a car in terms of number of hours or days and caution; Write total amount spent in terms of unit cost and number of articles; Indicate the distance covered by a car in terms of speed and time.	**ALGEBRAIC EXPRESSIONS** -Symbolic expressions -Vocabularies: terms, coefficients, variables, like terms **EQUATIONS** -Simple linear equations -Inequalities -Inequalities on the number line	-Simplify algebraic expressions -Find the value of an expression by substituting numerical values -Expand expressions with brackets -Factorize simple expressions -Solve simple linear equations in one unknown -Solve linear inequality in one unknown -Solve real life problems that lead to linear equations -Represent linear equations on a straight line	-Awareness; -Sense off generalisation -Ability to infer -Ability to justify -Creativity -Sense of representing	Documents Calculator overhead projector flash cards micro computer

Subject: sciences

Weekly workload: 2 hours

Annual workload: 50 hours

Coefficient: 2

1. GENERAL INTRODUCTION

Science and Technology plays an important role in Cameroon, which is in the full process of development. The training of the Cameroonian citizen in this subject is intended to equip her/him with the relevant knowledge needed to understand and manage in a competent manner the new challenges that affect her/him: make informed decisions, foresee and make provisions for the future.

In the junior secondary phase, this discipline is expected to be a continuation and deepening of the knowledge (scientific notions) and know-how (improve methods and techniques) and develop attitudes acquired in the primary school. Science and Technology is a discipline that en-globes Physics, Chemistry, Technology and the Life and Earth Sciences.

It has as main aim to inculcate (promote) in the learner responsible behaviour, knowledge and competencies, which should enable them to be able to:

- explain natural phenomena,
- meet with the challenges of life, through the use of scientific approach in problem solving
- manage the environment in a sustainable manner
- safeguard their health and that of all others in their surrounding,
- imbibe the scientific method
- use process skills to acquire knowledge
- read security notices.

This syllabus which will be done 100 hours and in two consecutive school years consists of six (06) modules divided as follows:

CLASS	TITLE OF MODULE	DURATION
Form 1 / 6ème / 1ère année	1. The Living World	10 hours
	2. Matter: Properties and transformations	06 hours
	3. Energy: some applications and uses	12 hours
	4. Health Education	06 hours

	5. Elements of engineering	10 hours
	6. Environmental Education	06 hours
Form 2 / 5ème / 2ème année	1. The Living World	10 hours
	2. Matter: Properties and transformation	06 hours
	3. Energy: Some applications and uses	12 hours
	4. Health Education	06 hours
	5. Elements of Engineering	10 hours
	6. Environmental Education	06 hours

2 PLACE OF THIS PROGRAMME IN THE CURRICULUM

This programme of study would contribute to:

- enabling the learner acquire a scientific and technological culture in doing things,
- enabling the learner acquire the knowledge to explain the laws that govern natural phenomena
- give the abilities to the learner to utilize technological instruments and tools
- develop their capabilities of observation, integration, creativity and autonomy
- awaken in the learner the spirit of research and team work.

3- CONTRIBUTION OF THE PROGRAMME TO LEARNING

Science and Technology should be the crucible for experimentation; an experimental practice that will enable learners to acquire:

- observational skills
- investigative skills,
- manipulative skills,

- creative skills
- critical and scientific thinking skills, and
- the spirit of autonomy, self-reliance and team work.

It constitutes the domain of experimentation and the application of the simple theoretical results of research conducted in Mathematics and Informatics and scientific studies.

4- CONTRIBUTION OF THE PROGRAMME TO REAL LIFE SITUATIONS

In the fields of social and family life, the programme will contribute to the development of life and bring technical ways which ease and improve on daily life.

In the economic domain, its applications will help in the production of consumer goods necessary for good health, wellbeing and comfort.

In the field of environmental studies the competencies acquired in studying the consequences of overexploitation of technological and natural resources will be reinvested in proposing necessary remedies: protection of the environment and sustainable management of biodiversity.

In the media landscape Science and Technology by its very nature is an invaluable support for communication and will contribute in the production of materials that facilitate information transfer and exchange such as computers, satellites, telephones, televisions, paper, ink, photocopiers, etc.

Science and Technology via the different opportunities it offers learner would transform her/him into a responsible citizen.

5- PRESENTATION OF THE FAMILIES OF SITUATIONS COVERED BY THE SYLLABUS

THEMES/STRAND		FAMILIES OF SITUATIONS	REMARKS
N°	**Description**	**Description**	

I	The living world	Provision of Mans needs in terms of animal and plant resources	Major subject area: Life and Earth Sciences.
II	Matter: Properties and transformations	Utilization of products and consumer goods.	Major subject area : Chemistry
III	Energy: some applications and uses	Utilization of energy in daily life.	Major subject area: Physics and Technology.
IV	Health Education	Body and environment hygiene: Improvement in reproductive health, nutrition, sensitivity and movement.	Major subject area: Life and Earth Sciences.
V	Technologies (Elementary Engineering)	Inaccessibility and the malfunctioning of common tools	Major subject area: Life and Earth Sciences and SPT
VI	Environmental Education	Management of water, air and soils (natural resources management)	Major subject area : Life and Earth Sciences

CYCLE	SUB-CYCLE	TITLE OF MODULE	CATEGORIES OF ACTION	LEVEL	DURATION-H
First	Observation		Agro-pastoral practice		04
			Sustainable management of resources	1	04
		The Living World	Agro-pastoral practice		04
			Fight against animal and plant diseases	2	04
			Protection of biodiversity		04
		Matter: Properties and transformations	Determination of physical and chemical characteristics of an object		04
			Preparation of water for a given use	1	04
			Reading and exploiting the labels of products of consumption	2	04
		Energy: some applications and uses	Use of electrical energy		04
			Use of chemical energy	1	04
			Organisation of a trip		08
			Use of solar energy		04
			Management of sound and noise	2	04
		Environmental Education and Sustainable Development	Fight against air pollution		02
			Fight against degradation of the soil	1	02
			Fight against water pollution		02
			Limitation of global warming		02
			Reducing the destruction of the ozone layer	2	02
			Fight against soil/land pollution		02
		Health Education	Fight against early pregnancies		1.5
			Fight against cultural practices harmful to health & reproduction	1	1.5
			Hygiene of the reproductive organs		01
			Fight against deficiency and over feeding diseases		1.5
			Hygiene of the skin and First Aid		01
			Fight against emergent behavior harmful to health & reproduction		1.5
			Fight against food poisoning		02
			Hygiene of the eye	2	01
			Hygiene of the nervous system		01

I- TITLE **OF MODULE:** *THE LIVING WORLD*

II- TIME ALLOCATION: 20 (10 + 10) HOURS

III-INTRODUCTION TO THE MODULE

Man is an integral part of the living world. Man therefore has to provide his needs (air, food and shelter) which are obtained from plant and animal resources by exploiting the natural world through the practice of agriculture, animal husbandry, and the transformation of products in such a way as to maintain the delicate ecological equilibrium.

It is therefore, important for man to discover and identify the different ecosystems as well as the nutritional relationships between the living organisms and their conditions of adaptability to the different milieu in order to better invest in the proper utilization of various resources..

From this point of view the learner ought to be guided to acquire a set of notions, methods, techniques, and attitudes linked to life and interrelationships.

This module therefore enables learner through significant situations and the teaching / learning activities to:

- reinforce the fundamentals of the scientific processes;
- develop abilities on improved and sustainable management of the environment.

IV- CONTRIBUTION OF THE MODULE TO THE GOALS OF THE CURRICULUM:

- The competencies that the learner will develop from this module will enable her/him clarify, consolidate and organize the learning acquired at the primary school level in order to better exploit them in the latter cycles of study and to better manage her / his environment.
- This module could provide future career in the fields of biomedicines, agronomy, environmental education, teaching...

V- CONTRIBUTION OF THE MODULE TO THE PROGRAMME OF STUDY AND TO LIFE:

- This module develops in the learner the scientific spirit, self-reliance and team work. These skills are indispensable in scientific disciplines as well as in those linked to other fields of study.
- At the same time it provides the learner with the indispensable resources for a better appropriation of the natural resource management and health education modules.
- The importance of this module resides in the fact that the learner who lives permanently in a more or less hostile environment, ought to understand her/his milieu in order to exploit it in a sustainable way for her/his needs and survival without rupturing its delicate equilibrium and wasting. Family, social and economic life, the environment, wellbeing and health all depend on man’s behaviour in the living world.

CONTEXTUALISATION FRAMEWORK		COMPETENCE		RESOURCES			
Family of situations	Examples of situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources
SUPPLY OF MAN'S NEEDS IN ANIMAL AND PLANT RESOURCES	Insufficient consumable resources	Practice of agriculture and animal breeding	-Explain the influence of the environment on the production of animals and plants -Plant crops &breed animals as a function of characteristic of the environment	**1. Environmental factors affecting plant growth** **1.1** Influence of climatic factors (sunlight, rainfall, wind, CO_2 content); 1.2 Influence of edaphic factors (soil water content, mineral salts, organic matter & soil microorganisms); 1.3 Influence of other living organisms: competition for light, soil nutrients, CO_2, food & reproductive mates).	Choice of crops and animals according to seasons and soils	-Curiosity and sense of observation -Respect of others opinions -Interest in scientific advancement -Open-mindedness -Patience -Love for nature -Team spirit and cooperation -Decision making and critical spirit -Creative thinking -Logical reasoning -Methodological action -Problem solving -Management and respect for the environment -Effective communication	Agriculture technician Animal breeding technician
			– Cultivate plants for their fruits, seeds, leaves, roots -Breed birds, fish, small ruminants -Select good varieties and disseminate the seeds.	**2-Need for Reproduction** **2.1 Reproduction in plants** – Sexual reproduction in plants; from the flower to the seed and fruit ; qualities of a good grain: germination – Vegetative multiplication: * natural (plantains, sugar cane, onion, potato, cocoyam, etc * artificial (rafting, marcotting, cutting..); – Other forms of asexual reproduction: budding in brewer's yeast, fission in bacteria. 2.2 **Reproduction in animals**: -sexual reproduction: ▪ fertilization ▪ development (a few cycles of development - change of form/ morphology in animals, metamorphosis in insects & amphibians - Impact of larval forms on plant yield).	*Dissection of a flower or grain *Observation of food reserves (tubers, fruits, grain *Manipulation of the microscope and lens *Choice of seeds		

CONTEXTUALISATION FRAMEWORK		COMPETENCE		RESOURCES			
Family of situations	Examples of situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources
SUPPLY OF MAN'S NEEDS IN ANIMAL AND PLANT RESOURCES	Insufficient consumable resources	Fight against animal and plant diseases	– Treating animals and plants	**3. Improving the Quality and Quantity of Production** 3.1 Treatment of animals and plants, and fight against parasites: animal parasites (ecto - parasites- lice, ticks, jiggers); endo-parasites- intestinal worms; plant parasites: (semi parasites-African mistletoe; complete parasites-mildew, rust, corn smut) 3.2 Biological and control	-Identification and destruction of animal and plant parasites. -Identification and treatment of animal and plant diseases -Prevention of animal and plant	-Curiosity and sense of observation -Respect of others opinions -Interest in scientific advancement -Open-mindedness	Agriculture technician

					diseases (vaccination of animals, use of pesticides on plants) -Choice of predator species for biological control.	-Patience -Love for nature -Team spirit and cooperation -Decision making and critical spirit -Creative thinking -Logical reasoning -Methodological action -Problem solving -Management and respect for the environment -Effective communication	Animal breeding technician
		Exploitation of the soil	-Improve soil quality by use of manure, fertilizers, crop rotation and association, irrigation, drainage, contour faming, terracing	**4. Improving Soil Quality** 4.1 Qualities of a good soil 4.2 Responsible farming practices (crop rotation and association, irrigation, drainage, contour faming, terracing….)	-Careful choice of chemical fertilizers		Agriculture technician

CONTEXTUALISATION FRAMEWORK		COMPETENCE		RESOURCES			
Family of situations	Examples of situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources
SUPPLY OF MAN'S NEEDS IN ANIMAL AND PLANT RESOURCES	Insufficient consumable resources	-Collection of natural resources (food and medicinal plants)	-Research of information on: *edible species *endangered species -Classify the species identified (summary) -Carryout hunting, fishing and harvest.	**5.Practice of hunting, fishing and harvest** 5.1-Census of edible species of our environment 5.2-Census of endangered species 5.3-Classification of identified species		-Curiosity and sense of observation -Respect of others opinions -Interest in scientific advancement -Open-mindedness -Patience -Love for nature -Team spirit and cooperation -Decision making and critical spirit -Creative thinking -Logical reasoning -Methodological action -Problem solving -Management and respect for the environment -Effective communication	Personnel from Forestry department
			Cultivate medicinal plants	**6.Role of some medicinal plants**	Growing and use of some medicinal plants		Herbalists, traditional healers,
			-Transform products of animal and plant origin (flour, making of puff-puff, cake, bread, yogurt, cheese, butter, extraction of palm oil, shear nut oil..) -Preserve food by drying, salting, smoking, icing, freezing canning, pasteurization, irradiation, curing, etc	**7.Transformation of foodstuffs** 7.1-Role of microorganism in the transformation of foods: fermentation (alcohol, lactic and butyric acid), 7.2-Principle of animal and plant products			

1 MODULE: MATTER, ITS PROPERTIES AND ITS TRANSFORMATION

2 TIME ALLOCATION: 10 HOURS

3 GENERAL PRESENTATION:

This module consists of three parts:

- Characteristics of matter.
- Properties of matter

- Transformation of matter

This module introduces the learner to develop an awareness of the types of matter in his/her immediate material environment and for him/her to explore the useful relationship that exist between him/her and the physical world. To achieve this, the teacher has to sharpen the curiosity of the learner of the observatory sub-cycle in such a way as to permit the learner to recognize, describe and interpret labels and symbols on objects and tools with which the learner is in contact on a daily basis.

4 CONTRIBUTION OF THE MODULE TO THE GOALS AND OBJECTIVES OF THE CURRICULUM

This module seeks to help learners improve their relationship with and knowledge of the material world by deepening the learner's knowledge acquired in the primary school.

5 CONTRIBUTION OF THE MODULE TO THE CURRICULUM AND TO AREAS OF LIFE.

To enable learners improve on their relationship with the material world, the teacher should stimulate the learner so as to tap from him/her the ability to read, calculate, manipulate, estimate and interpret.

To achieve this, the learner need skills in languages (English and French), Mathematics, Chemistry, Physics, Technology and Biology.

In this module, the learner is required to take informed decisions that affect his/her health, physical and social environments (i.e the consumption and production of consumer goods).

CONTEXTUALISATION FRAMEWORK		EXPECTED COMPETENT		RESOURCES			
FAMILIES OF SITUATIONS	**EXAMPLES OF SITUATIONS**	**CATEGORIES OF ACTIONS**	**EXAMPLES**	**CONTENT (CORE KNOWLEDGE)**	**APTITUDE**	**ATTITUDES**	**OTHER RESOURCES**
Commonly consumed and used products.	-Buying and selling of cleaning product. -Buying and selling of fish and meat. -Buying and selling of grains and liquids. -Buying of domestic gas - Choice of foodstuff and drinks based on their acidic or basic content. - Knowledge of the components that made up a homogenous or heterogeneous mixture. - Communication and information on consumptions.	Food conservation Determination of the mass of a body Determination of the volume of a body Thermal and electrical insulation Determine the physical or chemical characteristic (properties) of an object.	- Drying of food - Freezing of food - Read and respect the prescription on the labels of food products. - Use of balance - Measure and calculate the volume of a given object. - Use of litmus paper or pH paper. - Preparation of a solution from a given mass.	**-Properties of matter and their characteristics** • Temperature • Physical states: forms (constituent), permeability, impermeability, solubility, acidity, basicity. • Volume, mass, density, concentration. **Transformation of matter (Change of state)** • Temperature: melting point; boiling point • Change of state of water. Vaporization, condensation, liquefaction, sublimation. (Indicate that the temperature stays constant during change of state.) • Mixtures and pure substances: water, air, solutions (solute, solvent, concentration)	• Separation of heterogeneous and homogenous mixtures: sedimentation, distillation, sieving, filtration, floatation. • Measurement and calculation of the mass and volume of an object. • Determination of the acidic and basic nature of a foodstuff and a liquid. • Show practically that the temperature of melting ice is constant.	-Great care should be taken when handling doubtful products. • Always think of reading the information and labels on the bodies of consumable products before using them.	-Balance - Metre -Bathroom scale - litmus paper - pH paper - glassware (beaker, flask, measuring cylinder, test tube, etc.) - sieve • Kit to analyses water.
		Interpret and exploit the inscriptions on the body of consumed products.	-Interpret and exploit enclosed leaflet. - Read and interpret diagram.				

CONTEXTUALISATION FRAMEWORK	EXPECTED COMPETENT	RESOURCES

FAMILIES OF SITUATIONS	EXAMPLES OF SITUATIONS	CATEGORIES OF ACTIONS	EXAMPLES OF ACTIONS	CONTENT (CORE KNOWLEDGE)	APTITUDE	ATTITUDES	OTHER RESOURCES
	-Making choices of food and drinks with respect to acidity or basicity of substances - Separation of the components of a heterogeneous mixture. - Separation of the components of a homogenous mixture.	-Determination of the acidic and basic content of food substances and liquids. - Identification of some ions in potable water. -Treatment of drinking water - Obtaining varieties of sand. - Obtaining a good mixture. (flour) Use of stain remover Protecting metallic objects from corrosion Safety measures when using these common objects.	-Read the label on the bottle of potable water; advert, or food packages -make a test to identify some ions found in mineral water. - Drying and smoking of food. -Food storage -use of litmus – papers -filtering water. -procedure for separating a mixture of liquids. - distillation - Separating different solids. - Boiling a mixture of liquids. Re-oxidation of water Preparation of a solution of given	Physical states:; structure of matter. Permeability, impermeability, solubility, acidity and basicity. Chemical change: (fast and slow combustion with their products. Corrosion and the protection of metals: simple equations) Mixtures and pure substances (water, air , and solutions) Separation of mixtures. -**Structure of matter** Atom (nucleus, electrons) -Chemical elements; symbols of the first twenty elements and common metals. -Ion. molecules.[2]		Ability to visualize Ability to draw Sense of appreciation Ability to reason and justify.	Litmus paper Paper funnel pH – meter glass ware test tubes beakers Volumetric flasks measuring cylinders.

			concentration Procedure of separation of different solids by method of floatation. Communicate by writing or in oral form the preparations or separation of mixtures.				

1 MODULE/ ENERGY: APPLICATIONS AND USES

2 TIME ALLOCATION: 24 HOURS

3 GENERAL PRESENTATION:

This module present energy concept studied already at the primary school level. It is subdivided into two units as follows:

- Types, sources and uses of energy; for consolidation of concepts;
- Energy exchanges.

This last unit will consist of:

- Heat as a means of transmitting energy from one system to another. (conduction, convection)
- Electricity as a means of transferring energy with in systems by electrical generators
- Sound and light as a common mode of propagation of energy. (Sources of sound and light, vision and light, the path of light).

- Forces and their effects: introduce the relationship between force, work and energy.
- Motion: State some direct and indirect applications of energy.

4 CONTRIBUTION OF THE MODULE TO THE GOALS AND OBJECTIVES OF THE CURRICULUM

The study of energy helps in the construction of reasoning and familiarity with resources around us. The study of energy will enable the learner to develop the ability to visualize, interpret, justify, classify, clarify, appreciate, quantify, project, and describe the world through the availability of the different energy resources, their location, and relationships. This will also develop in the learner the spirit of initiative, creativity and enterprise. All these competences contribute in the learner becoming autonomous and independent to carryout different activities in the environment.

5 CONTRIBUTION OF THE MODULE TO THE PROGRAMME OF STUDY AND TO THE AREAS OF LIFE.

The content of this module have as objective to reinforce the capacity of the learner in carrying research and integrating himself/herself into the social milieu. On the other hand, this module initiates the learner into project development and enables him/her to acquire knowledge of technological and methodological approaches. The acquisition of this scientific knowledge will need aspects of Mathematics, Geography, Information / Computer technology, etc.

In this module the basic knowledge of energy are handled, how it is handled and used. This calls on the learner to make reference to daily actions vis –a – vis the energy in the following areas of life: media and communication, social and family life, citizenship, health care, environmental protection, welfare and economic life.

CONTEXTUALISATION FRAMEWORK		**EXPECTED COMPETENCE**		**RESOURCES**			
FAMILIES OF SITUATIONS	**SITUATIONS**	**CATEGORIES OF ACTIONS**	**ACTIONS**	**CONTENT (CORE KNOWLEDGE)**	**APTITUDE**	**ATTITUDES**	**OTHER RESOURCES**
Everyday use of energy	-Functioning of a radio using batteries. -cooking with fire wood. -cooking with gas. -cooking with kerosene cooker.	Use of electrical energy.	-Feed a radio with a battery. –Exploit the characteristics of a lighted lamp. -Feed and light an electrical lamp. -Protection from risks connected with the use electricity. -Read and respect the notices on electrical appliances.	-**The types, the sources, the usage of energy.** • Types of energy(heat electrical, mechanical, chemical) • Chemical transformation. (Combustion, identification of products and their reactants, word equations) • Sources of energy: solar, wood, fossil (petrol, gas, charcoal). • Renewable energy (Water, wind, geothermal, biomas).	• Identification of a conductor, an electrical and thermal insulator. • Product thermal and electrical insulation. • Protection of persons against electrical hazards.	-Respect of roles and security majors including schedules. - Be economically conscious when using energy.	-Home electrician -Lighting a cinema hall or Stage management of light.

Everyday use of energy	- Cooking with electricity. -Protection against heat. -Ironing -Drying of dresses in air. -Handling of fire. -House lighting. -Regulating the volume of an electrical appliance	Use of solar energy.	-Drying of food in the sun -Self protection or protection of vision from sun rays. -Explain global warming and its consequences. -Use of solar panel/oven.	• Daily use of energy The transmission of energy • Heat: conduction of heat, convection and radiation. • Electricity: Basic idea on electrical circuit, electric current, conductor and insulator. • Light: sources, receivers, medium of propagation, speed, light beam, light ray, shadows. **Forces and their effects**. • Identification of mechanical action and magnetic interaction from environmental situations. • Determination of their effects. • Deduce simple examples of forces from the effects. **Motion** • Movement with respect to space – (distance) and time. • Average velocity. Instantaneous velocity. Simple presentation of distance and time. (Simple graphs).		-Respect of environment. –Responsible attitude toward the use of fire.	-Sound management - Transport agency(CAMRAIL …) -Material for the production of solar ovens. -Thermal and electrical insulation.

		Use of chemical energy. Organize Field trip.	-Use of gas cooker, kerosene cooker or firewood. -Use of kerosene lamp. -Protection against combustion risks. -Use of improve cooker. -Use of oven/kiln. - Exploit a road map. -Use of a compass to find one's way. -Read schedules for train, airplane, and express bus services, -Supply of fuel				

I- MODULE: HEALTH EDUCATION

II- TIME ALLOCATION: 12 (6+6) HOURS

III- INTRODUCTION TO THE MODULE

This module consists of two parts:

- reproductive health,
- nutritional health.

Reproduction and nutrition are necessary and indispensable functions for the continuity of the human species. It is therefore necessary to help the learner to construct knowledge and develop essential resources (concept, techniques, and methods) and attitudes linked to the proper functioning these vital life functions. This would enable the learner to appreciate the importance and the fragility of life in order to adopt behaviours that would safeguard, protect, conserve and perpetuate the human species.

Through the learning activities and significant situations, this module will also

- reinforce the basic elements of experimentation in the learner,
- develop skills linked to the conservation of physical, physiological and mental health of the individual and her/his environment, and
- help her/him find solutions to daily life health challenges.

IV- CONTRIBUTION OF THE MODULE TO THE GOAL AND OBJECTIVES OF THE CURRICULUM:

- ✓ The competences acquired would enable the learner to be well equipped for latter cycles and better manage her/his environment.
- ✓ This module could invoke vocations in the fields of agronomy, biomedical sciences, teaching, etc...

V- CONTRIBUTION OF THE MODULE TO THE PROGRAMME OF STUDY AND TO LIFE:

- ✓ This module will develop in the learner skills in communication and interpersonal relationship, decision making critical and scientific spirit, self esteem. These skills are important for the rest of the science subjects and even other learning areas.
- ✓ At the same time it provides important resources for a more efficient and global solving of daily life problems.

CONTEXTUALISATION FRAMEWORK		COMPETENCE		RESOURCES			
Family of situations	Examples of situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources
IMPROVEMENT OF REPRODUCTIVE HEALT	Early Pregnancies	Prevent early pregnancies	Identify signs of puberty	**I. Reproductive health** **1.Puberty** -Primary and secondary sexual characteristics -Fertilisation and pregnancy	-Dissection of a small mammal to display the reproductive organs.	-Self respect and respect for others. -Respect of different opinions. -Interest in scientific progress	-Personnel from the medical corps . -Social workers -Dissecting kit
			-Practice of abstinence -Regular use of contraceptives during sexual intercourse -Avoid sexual promiscuity - Write out slogans	**2.Consequences of early pregnancies** **3.Methods of prevention of early pregnancies**	Choice and use of contraceptives	- Practice abstinence -Self respect and respect for others. -Respect for the opinion of others -Develop interest in scientific and technological	-Personnel from the medical corps . -Social workers

						advancements	
	Cultural practices harmful to reproductive health (taboos, sex mutilation, ironing of breasts, rape..)	-Advocacy to stop the harmful practices -Conservation of the reproductive organs in good health	-Participate in talks on health education -Denounce these harmful practices	**4.Practices Harmful to adolescent reproductive health**	-Writing out of slogans and posters -Preparation of session of educative talks -Healthy courtship	Communication and sensitization.	-Personnel from the medical corps . -Social workers -Peer educators
	Emergent harmful behaviour to reproductive health	-Advocacy to stop the harmful emergent behaviour	-Denounce emergent sexual behaviour	**5. Emergent behaviour harmful to reproductive health** (homosexuality, zoophily, pornography,..)	Avoiding deviant sexual practices which are against nature.	Abstinence from sex	
	-Prevalence of STIs and HIV/AIDS	Hygiene of the reproductive organs	-Practice of hygiene rules -Screening with or without a partner.	**6. STI, HIV/AIDS** -Gonorrhea, syphilis, Chlamydia, hepatitis B -HIV/AIDS	-Practice hygiene rules -Seek the serological status	Respect of hygiene rules	-Social workers

CONTEXTUALISATION FRAMEWORK		**COMPETENCE**		**RESOURCES**			
Family of situations	Examples of situations	Category of actions					Other resources

			Actions	Essential Knowledge	Aptitudes	Attitudes	
			-Seek medical attention with or without sex partner -Get complete treat if sick. -Go for screening regularly to know status.	-Prevention against STI, HIV/AIDS -Hygiene of the reproductive organs.	-Seek medical treatment if sick. -Stick to one partner	-Respect medical prescriptions	- medical personnel
IMPROVEMENT OF NUTRITION	Prevalence of nutritional diseases	Fight against deficiency and overfeeding diseases	-Plan a balanced diet -Consume protein-rich foods against kwashiorkor; -Eat a sufficient and balanced meal (or quantities appropriate to fight marasmus) -Eat meals rich in vitamin s to vitamin deficiency diseases -Avoid the consumption of fatty and starchy foods -Do sports in the case of obesity.	**II. Quality Nutrition** **1.Types and sources of foods** **2.Nutritional diseases:** -due deficiency (kwashiorkor, rickets..) -due to overfeeding (obesity ..) **3.Balanced diet** -food ration	-Draw up appropriate menu to prevent deficiencies and excess / over feeding. -Do regular sports or physical exercises	-Adopt good feeding habits; -Observe hygiene rules for feeding	-Dieticians
	Food poisoning	Fight against food poisoning	-Practice hygiene rules -Preserve food properly	**4.Food Hygiene**	-Practice some methods of food preservation -Practice good hygiene of food	Observe hygiene of food and digestion	-Medical personnel -Social workers

I- TITLE OF MODULE: ENVIRONMENTAL EDUCATION AND SUSTAINABLE DEVELOPMENT

II-TIME ALLOCATION: 14 (7+7) hours

III- INTRODUCTION TO THE MODULE

This module takes into consideration the management of the following three components of the environment: water, air and soil. These three elements are the physical and natural resources of the immediate environment of the learner.

Considering the importance of these resources in the maintenance of life, it is necessary to create awareness in learners as to their values and interdependence, as well as to sensitize them on the challenges of their sustainable management.

The proposed strands to be treated in this module should help learners acquire investigative skills, refine their observation skills, implement techniques of data collection and organization, as well as methods of quantitative and qualitative data analysis, to help them adopt responsible behavior concerning the protection of their environment.. The strands should also help learners to take note of the evolving character of solutions related to the challenges faced in our environment.

IV- **CONTRIBUTION OF THE MODULE TO THE GOAL AND OBJECTIVES OF THE CURRICULUM:**

- ✓ The skills the learner will acquired in this module will better equip her/him to sustainably manage their environment.
- ✓ This module would also invoke the love for careers like medicine, agronomy, teaching environmental education etc.

V- CONTRIBUTION OF THE MODULE TO THE PROGRAMME OF STUDY AND TO LIFE

- ✓ This module will develop in the learner skills linked to communication and interpersonal relations, decision making, critical thinking, scientific mind, self esteem. These skills are indispensible in all the science subjects and other areas of learning.
- ✓ This module also provides essential resources for the appropriation of the content on environmental education and sustainable development, and health education.
- ✓ The importance of this module lies in the fact that the learner who permanently lives in a more or less hostile environment whereby the different natural resources are a source of socio-economic challenges , should know that only sustainable management of these resources can lead not only to a comfortable life but also to social peace. The family, social and economic life, the environment, well-being and health depend on man's behavior in his environment.

CONTEXTUALISATION FRAMEWORK		COMPETENCE		RESOURCES			
Family of situations	Situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources
MANAGEMENT OF NATURAL RESOURCES: WATER, AIR, SOIL	-Pollution of water -Air pollution -Global warming -Destruction of the ozone layer. -Soil degradation	-Fight against water pollution -Fight against air pollution -Limitation of global warming -Limitation of ozone layer destruction Fight against soil degradation	-Identification of water sources -Construction and use of latrines, septic tanks -Communication and education (placement of factories, waste management by industries) -Purify used or polluted water	1. Water Management 1.1 Natural water sources 1.2.Water pollution 1.2.1-Different type and sources of water pollutants 1.2.2-Effects of polluted water on human health: water borne diseases 1.2.3-Effects of water pollution on aquatic life 1.2.4-Epuration of used water			

CONTEXTUALISATION FRAMEWORK		EXPECTED COMPETENT		RESOURCES			
FAMILIES OF SITUATIONS	**SITUATIONS**	**CATEGORIES OF ACTIONS**	**ACTIONS**	**CONTENT (CORE KNOWLEDGE)**	**Aptitude**	**ATTITUDES**	**OTHER RESOURCES**
Amelioration of living condition.	- Production of plant and animal resources - Fabrication and maintenance	-Gardening; -Animal husbandry; -Maintenance of simple mechanical systems. -Fabrication of tools. -Maintenance of simple objects.	-Identification of needs; -Seek solutions to the needs -Conception: -Make a case study of the feasibility -Choose suitable materials for the fabrication of an object and properly use. -Choose the right tools to realize a given task and properly use. -Create green spaces (gardens). -Cultivate plants. -Raise up animals. - Transform and conserve animal and plant products.	**Projects:** -Definition -Levels involved: - identification of the problem/need - Conception: Choosing a solution, study its feasibility (material and human resources, design, realization plan, site plan, financial estimates…..) -Finishing touches. • **Example:** The case of water filter. Its upkeep and maintenance. -Lubrication; -Cleaning The principles of functioning of an appliance.	Use of the following tools: screwdriver and tester, Wood and Metal saws, glue, hammer, pliers, sand papers, multimetre. -Look for a fault on a simple object. -Repair a simple object: example a touch light. -Realisation of a project by the learners: -Planting techniques -Rearing techniques -conservation techniques for foodstuffs -Fabrication and use of tools for rearing and agriculture. -Techniques of transformation and conservation of plant and animal products. -Extraction of natural products from plants and animals. -Organic fertilizers: -Fabrication of compost. -Use of fertilizers. -Techniques of fishing, hunting and harvesting. -Fabrication of a water filter.	-Team spirit -Sense of direction -Curiosity -Act with rigour -Patience -Perseverance -Preservation of the environment -Respect of the principle of operation of an appliance. -	-Screwdriver -Saw -Hammer -Plier -Glue -Sand paper -Scissors -Binding paper -Computer -Internet -Other material or materials necessary to realize a project. - Technician to realize the project. -Lubricants. -Touch light -Agricultural technician -Veterinary technician -Forestry and water technician.

1 MODULE: TECHNOLOGY

2 TIME ALLOCATION: 20 (10 + 10) HOURS

3 GENERAL PRESENTATION:

This module consists of three parts. The fabrication and use of some common tools; concepts involved in projects; repairs and maintenance. The introduction of the learner to the use of the tools prescribed in the module, that would help him/her in the realization of project conceived as well as in the repairs and maintenance of objects obtained in the physical environment found in everyday life.

4 CONTRIBUTION OF THE MODULE TO THE GOALS AND OBJECTIVES OF THE CURRICULUM

The mastery of basic concepts and techniques that this module provides the learner, helps in the production or in ameliorating and regulating house whole consumption and services or a better life style. Furthermore, it permits the learner to have the prerequisites to better orientate his/her self towards secondary general education or secondary technical education.

5 CONTRIBUTION OF THE MODULE TO THE PROGRAMME OF STUDY AND TO AREAS OF LIFE.

The module helps to reinforce the technological education started at the primary level by the learner and their eventual preparation to realize economic or technical projects. It reinforces on the other hand his/her analytical capacities and the ability to produce the objects prescribed in the other modules of this syllabus.

This module would enable the learner to take informed decisions as a producer /consumer of goods and services in his/her environment and to open up to the world of work.

Subject: information and communication technology

Weekly workload: 2 hours

Annual workload: 50 hours

Coefficient: 2

I. OUTLOOK OF THE ICT TEACHING SYLLABUS

The rapid growth of Information and Communication Technology (ICT) has within the past decade, made remarkable progress of applications in everyday life and in professional arena. Be it in social life or in education, every aspect of society is today impacted by the use of materials based on information and communication technology.

The ICT growth-coverage cannot be mentioned without involving the practice of pedagogy for its continuous existence. Hence to foster understanding and use of ICT materials in our daily life or for a living, we need to promote the teaching and learning of ICT in schools.

The necessary technological materials are composed of among others computers, servers, video projectors, interactive white boards, cameras, storage devices, ... endow with productivity software (word processing, spreadsheets, didactic, graphic and presentation packages, ...). The use of these technological tools and interaction with digital contents as integral parts of activities to be done would propel learner intelligence and creativity in the development and use of information in the society. This of course, necessitates proper design and implementation of the ICT syllabus.

In this perspective, the Information and Communication Technology syllabus of the Observation Sub-Cycle of the First Cycle of Secondary Education is composed of four modules. The syllabus outlines the essential competencies to be attained by the learner during the first two years of secondary education.

For the teacher, the workload for the 2-year observation sub-cycle is 100 hours of teaching, making 50 hours of teaching for Form 1 and also 50 hours of teaching for Form 2. In essence, each school must schedule ICT on their timetable in two 1 hour periods on different days for Forms 1 and 2.

II. SITUATION OF THE ICT SYLLABUS IN THE SECONDARY SCHOOL CURRICULUM

Considering the growing importance of computers in everyday life whose use extends to every sectors of the society, the government has opted to introduce Computer Science as an integral discipline in secondary schools following inception of the Inspectorate of Pedagogy for Computer Science Education in the organizational structure of the Ministry of National Education in 2002. To support the implementation of this text, some important actions have been realized including the setting up of Multimedia Resource Centres in secondary schools, the creation and effective take off of the Computer Science and ICT Series in Higher Teacher Training Colleges, the creation of the Information Technology field as an integral subject in secondary schools, and so on all geared towards developing the integration of information and communication technology and their uses as tools to ameliorate the quality of teaching and learning. Of course, Computer Science is now seen as an integral subject in the Cameroon education system.

Considering its scope, the Information and Communication Technology syllabus may be taken as tools in the sense that the objective is not to train technicians but rather to render learners apt in their use of the computer tool for teaching and learning among other disciplines in the curriculum. It is of course a transversal discipline whose use in all aspects of knowledge searching need not be over emphasized.

The Information and Communication Technology syllabus for the Observation Sub-Cycle in Secondary Schools has been designed to initiate the learner to basic concepts of Computer Science by introducing a collection of essential knowledge, skills and attitudes which would permit the learner to progressively discover the world of computers.

III. CONTRIBUTION OF THE ICT SYLLABUS TO LEARNING

The ICT syllabus for the Observation Sub-Cycle of the First Cycle of Secondary Education is within the learning domain « Sciences and Technology », which regroup other subjects including the following disciplines:

- Mathematics,
- Natural and Earth Sciences,
- Physics,
- Chemistry,
- Technology.

This ICT syllabus is meant to develop the learner's operational first step in the world of computers by giving them the basic competencies needed in using computers and computer related materials.

By the end of the course, the learner should be able to:

- Recognize the basic parts of a computer and a computer system,
- Select and use conveniently hobbyist and productivity software available in their school,
- Communicate through the Internet or computer networks,
- Instruct the computer to do basic tasks,
- Adopt attitudes of citizenship in face of information available on the Internet, computer networks, and in the society.

The learner will have among other attainments, aptitudes in the manipulation of computer materials and an understanding of hobbyist and productivity software during teaching/learning activities in varied aspects including processing data and producing information, checking outcomes obtained by use of the computer, instructing the computer to do basic tasks, recognize and express understanding of intellectual proprietary rights, and all other things that could enhance its sense of responsibility.

IV. CONTRIBUTION OF THE ICT SYLLABUS TO ASPECTS OF LIFE

All works of life are concerned by the tremendous development of Information and Communication Technology. Nevertheless, Computer Science being a transversal discipline integrates well in all domains of life including the following life-study areas:

- Social and Family Life,
- Economy Life,
- Environment, Well-being, and Health,
- Citizenship,
- Media and Communications.

V. PRESENTATION OF THE WHOLE FAMILY LIFE SITUATIONS

To develop competencies among learners, the Information and Communication Technology syllabus explores the following family life situations:

- Discovering the computer environment;
- Acquainting with basic computer concepts, computer architecture, and hobbyist software;
- Processing and producing information using a computer ;
- Instructing the computer to do basic task;
- Searching and communicating information through use of the Internet or computer networks.

VI. SUMMARY TABLE OF MODULES OF THE ICT SYLLABUS

Cycle	Sub Cycle	Level	Modules	Duration
First Cycle	Observation	Form 1	**Module1** : Discovering computer system environment	25 H
			Module 2 : Acquainting with basic computer concepts, computer architecture, and software	25 H
		Form 2	**Module 3** : Processing data and producing information with the use of a computer	25 H
			Module 4 : Searching and communicating information through use of the Internet or computer networks	25 H

VII. MODULE : N° 1

VII.1 TITLE OF THE MODULE : DISCOVERING COMPUTER SYSTEM ENVIRONMENT

Durée : 25 H

VII. 2 PRESENTATION OF THE MODULE

This module is the first of the Observation Sub-Cycle. It is meant to propel the learners to operate their first step in the discovery of the computer environment by giving the learner basic competencies needed in the use of computers.

VII.3 CONTRIBUTION OF THE MODULE TO ACHIEVEMENT AND CURRICULAR GOALS

The learner should by the end of this module, be able to manipulate computer materials and distinguish productivity software in the course of teaching/learning activities and in varied domains, consulting and preparing documents, checking outcomes obtained from processing information through computer use, reconnaissance and respect of basic intellectual proprietary rights. Of course, some of these activities are designed to contribute to the development of the learner's sense of responsibility.

VII.4 CONTRIBUTION OF THE MODULE IN THE DOMAIN OF LEARNING

The module « **Discovering computer system environment** » is meant to take the learner to its first operational step in the manipulation of the computer by involving input and output peripherals and navigating the Internet. As a result, this module would be helpful for enhancing learning of the other disciplines.

VII. 5 CONTRIBUTION OF THE MODULE TO THE TEACHING SYLLABUS AND OTHER DOMAINS OF LIFE

This module permits the learner to:

- Use basic computer concepts, and ICT materials,
- Select and implement productivity software available in the school,
- Adopt attitudes of citizenship with regards to digital contents and ICT materials.

This module is therefore meant to initiate the learner to basic concepts in Computer Science. It equally presents a collection of essential knowledge, skills, and attitudes that will cause the learner to progressively understand the computer environment and his involvement in the ICT world.

VII.6 TABLE OF THE MAIN COMPONENTS OF MODULE 1

CONTEXTUALISATION		COMPETENCIES TO BE ATTAINED		RESOURCES			
Family of life situations	**Examples of life situations**	**Categories of actions**	**Examples of actions**	**Basic knowledge**	**Attitudes**	**Other resources**	**Duration**
Discovering computer system environment	• Identifying domains of use of a computer • Basic notion of computer maintenance • Aid to assignments using the computer tool (use of didactic software) • Using an appropriate peripheral • Preparing for leisure • Using a training software • Transcription of a list • Polishing a greeting card • Computer safety • Discovering and navigating the Internet • Chatting and writing a short message	Determination of material and software needs	• Identify some areas of computer applications • Enumerate types of software • Enumerate examples of system software • Enumerate examples of application software • Select material and software needs for specific purpose	• Area of computer application (examples of cases) • Hardware • Software **Historic Timelines** • Evolution of electronic materials and computers **Fundamental Notions** • Information • Data • Processing • Computer • Program • Software • Utility **Notion of Electronic devices**	• Determination • Team spirit • Collaborative work	• Teacher • Computer Laboratory • Productivity software • Basic parts of a computer • Computer manual • Specialized documents • Digitalized library or resources	6 H
		Manipulation of the computer	• Reproduce the basic functional diagram of a computer system • Classify basic devices as Input and Output peripherals • Sketch the principal parts of a Central Processing Unit • Packaging and carrying computer materials • Using magnetic and optical devices • Conserving computer material • Connecting computer devices • Start and Stop your computer and computer programs				6 H
		Discovering and implementing Input and Output peripherals	• Describe the basic parts of keyboard and mouse, • Move conveniently your cursor and the mouse pointer • Select and move objects with your mouse, • Start and Stop system and application software, • Use productivity software in the discovery of Input and Output peripherals, • Use a computer to write out messages on greeting cards, • Enter marks and perform calculations with marks, • Transcribe a list, • Modifying texts (insert, delete, search and replace, ...)				7 H

CONTEXTUALISATION		COMPETENCIES TO BE ATTAINED		RESOURCES			
Family of life situations	**Examples of life situations**	**Categories of actions**	**Examples of actions**	**Basic knowledge**	**Attitudes**	**Other resources**	**Duration**
		Adopting attitudes of citizenship with regards to digital contents and	• Verify the correctness of typed data • Check the validity of outcomes from processing • Support with examples your findings ; • Recognize and support intellectual proprietary rights ; • State the action mode for a given software to become functional on screen.	• Electronic components • Integrated circuits • Electronic cards			2 H
		Discovering the Internet	• Start a navigator (Web and Ordinary Browsers) • Start and Access a search engine • Start a web page • Navigate on the web				4 H

VIII. MODULE : N° 2

VIII.1 TITRE DU MODULE : ACQUAINTING WITH BASIC COMPUTER CONCEPTS, COMPUTER ARCHITECTURE, AND SOFTWARE.

Duration: 25 H

VIII.2 PRESENTATION OF THE MODULE

This second module has as goals to encourage the learner to:

- Discover the functionality of a computer and use of basic software ;
- Manage and conserve data on storage devices or facilities ;
- Perform basic computer maintenance;
- Use the computer to do basic tasks

This module is meant to get the learner acquainted with basic computer concepts, architecture, and software. It equally presents a collection of competencies which would cause the learner to progressively learn the first concepts in architecture and software.

VIII.3 CONTRIBUTION OF THE MODULE TO ACHIEVEMENT AND CURRICULAR GOALS

The essential knowledge on written communication including management of data would provoke the learner to exercise its societal roles, in economy life as well as in social and family life, and above all in media and communication.

VIII.4 CONTRIBUTION OF THE MODULE IN THE AREA OF LEARNING

This module « **Acquainting with basic computer concepts, computer architecture, and software** » is meant to encourage the learner to make use of the computer to process and organize data. These actions would foster learning, reading and interpretation of documents, as related to other disciplines in the domain of « **Sciences and technology** ».

VIII.5 CONTRIBUTION OF THE MODULE TO TEACHING SYLLABUS AND OTHER DOMAINS OF LIFE

The main objective is to encourage the learner to become autonomous with the computer. In this regard, at the end of the module the learner should be able to identify and select appropriate peripherals with respect to the task at hand as well as to rationally manage storage devices.

VIII.6 TABLE OF THE MAIN COMPONENTS OF MODULE 2

CONTEXTUALISATION		COMPETENCIES TO BE ATTAINED		RESOURCES			
Family of life situations	**Examples of life situations**	**Categories of actions**	**Examples of actions**	**Basic knowledge**	**Attitudes**	**Other resources**	**Duration**
Acquainting with basic computer concepts, computer architecture, and software	•Use of peripherals (Input and Output devices) •Use of appropriate hobbyist software •Basic computer maintenance •Discovery with an operating system •Storage of data •Written communication	Recognition of Input and Output peripherals	•Enumerate types of peripherals (Input, Output, Input and Output combination devices) •Enumerate types of printers •Enumerate magnetic, laser, and optical devices •Enumerate flash-based devices •Start and Stop a peripheral	**Basic notion for configuring programs (** software) **Issues with Maintenance (**Hardware) **Basic notions of storage** • Memory and storage devices • Characteristics of memories **Notions of processing and organizing data**	•Determi-nation •Team work •Collaborative work	•Teacher •Computer Laboratory •Productivity software •Basic parts of a computer •Computer manuals •Specialized documents •Digitalized resources	4 H
		Basic computer maintenance	•Clean a computer (keyboard, system unit, screen, mouse, …), •Clean peripherals (CD-ROM, printer, …), •Conserve storage devices (CD-ROM, tapes, …),				3 H
		Using basic functionalities of an operating system	•Enumerate system software, •State functions of a system software, •Identify the major parts of a graphical systems software (windows, icons, dialogue boxes, …), •State the various execution processes of commands working with mouse or keyboard •Start and Stop a named software, •Modify date and clock settings, •Open and quit a session, •Using help facilities in software applications.				8 H

CONTEXTUALISATION		COMPETENCIES TO BE ATTAINED		RESOURCES			
Family of life situations	**Examples of life situations**	**Categories of actions**	**Examples of actions**	**Basic knowledge**	**Attitudes**	**Other resources**	**Duration**
		Processing and organizing data using the computer	•Perform file operations (save, save as and delete, …) •Perform folder operations (create, name, list, delete, …), •Open and Save a document in the default folder, •Open a file from external storage device, •Save a document to external storage device, •Close a document or Exit an application, •Type and modify a document (insert, delete, search and replace, …), •Type and polish a document (Fonts, paragraphing, …), •Print a document, •Chat and Write electronic messages, •Send, Attach, and Open electronic messages.	• Files • Folders			10 H

IX. MODULE : N° 3

IX.1 TITLE OF THE MODULE : PROCESSING DATA AND PRODUCING INFORMATION WITH THE USE OF A COMPUTER

Duration: 25 H

IX.2 PRESENTATION OF THE MODULE

This third module is a logical sequence of the first two modules with the common goal of propelling the learner to discover the computer environment.

As such, by the end of this module the learner should be able to:

– Put together basic steps for the modification of a computer system ;
– Discover basic notions of data manipulation and management ;
– Identify hobbyist software (word processing, logo writer, Alice, …) for learning;
– Practice written communication and create data from a computer environment

Consequently, this module is meant to get the learner to prepare a written document with the help of a computer system.

IX.3 CONTRIBUTION OF THE MODULE TO ACHIEVEMENT AND OTHER CURRICULAR GOALS

The implementation of the competencies acquired in the first two modules is indicated here by the possibility to modify a computer system on the one hand, to manage data on storage devices on the other hand and, finally to practice written communication using a computer. Moreover, a good understanding of these communication and management skills would permit the learner to exercise its societal roles in the following life domains:

- Economy life ;
- Social and Family life ;
- Media and communication.

IX.4 CONTRIBUTION OF THE MODULE IN THE AREA OF LEARNING

The module « **Processing data and producing information with the use of a computer** » is meant to get the learner to use a computer to process data and organize information. These skills would benefit the learner in the learning areas (reading, interpretation, and preparing documents) related to other disciplines in the learning domain « **Sciences and technology** ».

IX.5 CONTRIBUTION OF THE MODULE TO THE TEACHING SYLLABUS AND OTHER DOMAINS OF LIFE

The third module entitled processing data and producing information with the use of a computer, compels the learner to practice with the computer and so recalls the notions acquired in the course of the previous two modules.

This module permits the learner to practice hands on with a computer and, by so doing gives the learner opportunity to exercise basic commands found in a given system software, and to prepare written documents using word processing and spreadsheet packages.

Consequently, this module would smoothly get the learner not only to become self-confident with a given system software, but to also be able to identify and make use of word processing, spreadsheet packages, and hobbyist applications to create and print documents. Of course, this is in line with one of the course objectives which is to « prepare the learner to be able to make use of hobbyist packages ».

XI.6 TABLE OF THE MAIN COMPONENTS OF MODULE 3

CONTEXTUALISATION		COMPETENCIES TO BE ATTAINED		RESOURCES			
Family of life situations	**Examples of life situations**	**Categories of actions**	**Examples of actions**	**Basic knowledge**	**Attitudes**	**Other resources**	**Duration**
Processing data with the use of a computer	• Modifying a given system software • Installation of simple applications • Managing data from a storage device • Making use of a suitable hobbyist software	Management of users profiles	• Open/Exit a user session with or without a password. • Describe the major parts of a given operating system • Organize information on your computer desktop • Modify a user name • Modify / set a password • Close /Change user session • Modify desktop settings • Perform multi-tasking	**Notions of configuration:** • BIOS • peripherals • Software un/installation • Notions of work session and passwords **Issues with Maintenance:** Software, antivirus, scanner, webcam, …) **Basic notions with word processing and**	• Determination • Team spirit • Collaborative work	• Teacher • Computer Laboratory • Productivity suits • Collection of basic computer components • Computer manual • Specialized collections • Digital resources	4 H
		Making use of an operating system	• Identify characteristics of hardware and software in a computer system, • Describe the start-to-stop process for a given computer, • Install and update simple application packages (antivirus, games, …) • Scan through a disk in a computer • Move files and folders				6 H

CONTEXTUALISATION		COMPETENCIES TO BE ATTAINED		RESOURCES			
Family of life situations	**Examples of life situations**	**Categories of actions**	**Examples of actions**	**Basic knowledge**	**Attitudes**	**Other resources**	**Duration**
		Working with files	• Put together files and folders • Organize files and folders • Identify characteristics of files and folders • Perform simple file or character search	**spreadsheet:** • General Characteristics of text processing applications • Different types of documents **Notions for organizing documents** • Files • Folders			4 H

Module 3 (suite)

CONTEXTUALISATION		COMPETENCIES TO BE ATTAINED		RESOURCES			
Family of life situations	**Examples of life situations**	**Categories of actions**	**Examples of actions**	**Basic knowledge**	**Attitudes**	**Other resources**	**Duration**
Producing information with the use of a computer	• Prepare a list with use of a given text processing package • Preparing a cultural activity/event • Producing personal and official type communications • Tactfulness with learning • Prepare/Edit a short message using a given text processing suit • Prepare summary reports of expenses • Transcribing school work with use of a given text processing suit • Participation in cultural and social life	Producing a document	• Enumerate text processing software • State properties of a text processing software • Describe the window of a given text processing software • Enumerate the major parts of a document in a text processing software • Type a text • Modify a font (style, colour, attribute, ...) • Polish a paragraph (Alignment, interline spacing, indentation, ...) • Save to a given folder • Save systematically every modifications • Move parts of a document with the help of a mouse • Use a mouse to highlight and select parts of a document • Perform copy, cut, paste functions • Move parts of a document with just the keyboard • Employ spell and grammar checker in a document • Modify a view by manipulating zoom function	**Basic tips for using a given software application** • Select an application software • Start an application suit • Close/Exit an application software **General notions of text processing packages** • Characteristics of a text processing software • Types of text documents	• Determination • Team spirit • Collaborative work	• Teacher • Computer Laboratory • Productivity packages • Collection of parts of a computer • Computer manual • Specialized collections • Digital resources	10 H
		Printing a document	• Manipulate print preview • Select a printer • Define a printing range/area				1 H

CONTEXTUALISATION		COMPETENCIES TO BE ATTAINED		RESOURCES			
Family of life situations	**Examples of life situations**	**Categories of actions**	**Examples of actions**	**Basic knowledge**	**Attitudes**	**Other resources**	**Durat ion**
			•Indicate the number of pages •Print a document				

X. MODULE : N° 4

X.1 TITLE OF THE MODULE : SEARCHING AND COMMUNICATING INFORMATION THROUGH USE OF THE INTERNET OR COMPUTER NETWORKS

Duration: 25 H

X.2 PRESENTATION OF THE MODULE

This module is meant essentially to render the learner fit for using the Internet and the World Wide Web to search for information through specialized web sites and to communicate using electronic mailing system. To achieve these goals, the learner has to get acquaintance with the Internet and working with specific tools such as an Internet browser (navigator), a search engine, and electronic addresses.

X.3 CONTRIBUTION OF THE MODULE TO ACHIEVEMENT AND OTHER CURRICULAR GOALS

This last module would permit the learner to discover Internet and its major services, the access procedures and tools that someone is able to find. Using some of these tools would encourage the learner to be able to search information on the Internet, send and receive electronic mails.

X.4 CONTRIBUTION OF THE MODULE IN LEARNING AREAS

The module « **Searching and communicating information through the Internet or computer networks** » bring to the learner competencies that would permit to do research works relative to other disciplines in the learning domain « **Sciences and technology** ».

X.5 CONTRIBUTION OF THE MODULE TO THE TEACHING SYLLABUS AND OTHER DOMAINS OF LIFE

This module has as goal to develop in the learner competencies that would permit in a given life situation, the ability to search for information and to communicate such information through the Internet or computer networks.

Consequently, the learner should be able to:

- Discover the Internet ;
- Use an Internet browser or navigator ;
- Use an Internet search engine ;
- Communicate through electronic mail or messaging system.

This module practically falls within the curricular goals in the life domain of Media and Communication. However, the transversal nature of the ICT syllabus would permit the learner to contribute to the other life domains of the curriculum.

X.6 TABLE OF THE MAIN COMPONENTS OF MODULE 4

CONTEXTUALISATION		COMPETENCIES TO BE ATTAINED		RESOURCES			
Family of life situations	**Examples of life situations**	**Categories of actions**	**Examples of actions**	**Basic knowledge**	**Attitudes**	**Other resources**	**Duration**
Searching and communicating information through use of the Internet or computer networks	•Navigating the Internet •Navigating computer networks •Simple search, e.g. a job, a car, … •Changes in lifestyle, schooling or professional •Traveling arrangements •New lifestyle •Comprehension of social issues •Exploration of a country and its culture, language, history, and geography •Learning use of a technology •Upgrading skills •Interpreting societal issues •Receiving assistance on home works •Communication by means of e-mail •Making communication in academic, professional or official arena •Dispatching cultural and artistic information	•Discovering the Internet and computer networks	•What is Internet? •State services available by virtue of the Internet •Enumerate local Internet Service Providers •Enumerate modes of access to the Internet	**Notions of Internet** • Definition • Material support • URL • Search engines • Navigators or browser • Face book **Web Terminologies** • Notions of WWW • Navigator • Web Page	•Determination •Team spirit •Collaborative work •Honesty and diligence	•Teacher •Computer Laboratory •Productivity suits •Collection of parts of a computer and computer systems •Computer manual •Specialized resources •Digitalized	6 H
		•Using an Internet navigator or browser	•Identify an Internet navigator •Enumerate browsers •Start a browser •Describe the window of an opened browser •Explore use of hypertext links •Explore resources by typing its URL				6 H
		•Using a search engine	•Explore use of search engines •Enumerate examples of search engines •Perform simple searches •Describe a result page from a search •Download documents and applications				6 H

CONTEXTUALISATION		COMPETENCIES TO BE ATTAINED		RESOURCES			
Family of life situations	**Examples of life situations**	**Categories of actions**	**Examples of actions**	**Basic knowledge**	**Attitudes**	**Other resources**	**Duration**
	• Exercise rights and responsibility • Participation in social and cultural life • Need of help and assistance • Search and report issues of immediate environment • Express creativity • Designing personal or collective projects	• Using electronic mailing	• Create an e-mail address • Open a session of an electronic mailing package • Enumerate the steps taken to send an e-mail • Open/Type/send an e-mail message • Register in a list-serve or a virtual community • Work with Face book and other virtual community • Add/Delete a receiver in your contact list • Create a contact group • Delete a message • Block or Blacklist a sender • Close a messaging session • Send a message with attachments • Open an attachment in a message	• Hypertext • Links • blog **Electronic mailing** • Basic principle • E-mail Address • Forum • White paper		resources	6 H