

**MINISTRE DES ENSEIGNEMENTS SECONDAIRES**  
**MINISTRY OF SECONDARY EDUCATION**

**INSPECTION GENERALE DES ENSEIGNEMENTS**  
**INSPECTORATE GENERAL OF EDUCATION**

**PHYSICS TEACHING SYLLABUS**  
***Form 1 and Form 2***



*Observer son environnement pour mieux orienter ses choix de formation et réussir sa vie*

**INSPECTION DE PEDAGOGIE CHARGEE DE L'ENSEIGNEMENT DES SCIENCES**  
**INSPECTORATE OF PEDAGOGY IN CHARGE OF SCIENCES** **Août 2014**

REPUBLIQUE DU CAMEROUN

*Paix - Travail – Patrie*

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MINISTERE DES ENSEIGNEMENTS  
SECONDAIRES

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INSPECTION GENERALE DES  
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REPUBLIC OF CAMEROON

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MINISTRY OF SECONDARY EDUCATION

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INSPECTORATE GENERAL OF EDUCATION  
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Order N° 264/14 /MINESEC/ IGE ..... <sup>Sup</sup> 13 AUG 2014

To outline the syllabuses for Form I and Form II of Secondary General Education.

**THE MINISTER OF SECONDARY EDUCATION,**

**Mindful of the Constitution;**

**Mindful of the Law N° 98/004 of 14 April 1998 to lay down Guidelines for Education in Cameroon;**

**Mindful of Decree N°2011/408 of 9 December 2011 to reorganise the Government;**

**Mindful of Decree N°2011/410 of 9 December 2011 to form the Government;**

**Mindful of Decree N°2012/267 of 11 June 2012 to organise the Ministry of Secondary Education;**

**HEREBY ORDERS AS FOLLOWS:**

**Article 1:** The syllabuses for Form I and Form II of Secondary General Education shall be outlined as follows:

## PREFACE

### SYLLABUSES FOR 21ST CENTURY CAMEROON

At the beginning of this millennium, as Cameroon chooses to become an emerging nation by the year 2035, its secondary education sector faces many challenges. It should:

- Offer quality training and education to most young Cameroonians within a context marked by large classes in primary education;
- Prepare them for smooth insertion into a more demanding job market worldwide, through a pertinent teaching /learning process.

In addition, training tools have significantly evolved in their conception and implementation. A school that was mostly based on contextualised knowledge acquisition has given room, all over the world, for a school that aims at empowering learners to help them cope with complex and diversified real life situations. Instead of a school cut off from society, we now have a school deeply rooted in a society that takes into account sustainable development, local knowledge and cultures.

The implementation of this new school ,prescribed by the Law to lay down guidelines for education in Cameroon, and the necessity for socio-professional insertion require the adoption of a pedagogic paradigm for the development of syllabuses relating to **“The competence based approach with an entry through real life situations ”**.

In this perspective, new syllabuses for Secondary General Education, those of Teacher Education and Training Referentials for Technical Education are part of this great change for the re-dynamisation of our education system. They are in line with the implementation of the provisions of Growth and Employment Strategy Paper (DSCE) which, by the year 2020, specifies the minimum amount of knowledge which each Cameroonian is supposed to possess by the time they leave the first cycle of secondary education.

These syllabuses define essential competencies that should be acquired by learners within the first cycle of secondary education, in terms of knowledge, know how and attitudes. They equally define the framework that will enable teachers to organise their pedagogic activities.

While congratulating all those who designed these syllabuses, I hereby exhort all the members of the education family, notably teachers, to acquaint themselves with the new paradigm, to effectively implement it and make the Cameroon education system successful.

  
The Minister of Secondary Education  
*Louis Baptes Baptes*

## **FIRST CYCLE SYLLABUS REVIEW**

### **A PARTICIPATORY AND INNOVATIVE APPROACH**

The syllabuses that were drawn up by the Inspectorate General of Education in the Ministry of Secondary Education since 2012 are in accordance with the major guidelines for education in general and secondary education in particular as they are enshrined both in the 1998 law to lay down guidelines for education in Cameroon and in the 2009 Growth and Employment Strategy Paper(DSCE) .

These orientations could be summarised, amongst others, to train within the framework of an emerging Cameroon in the year 2035, citizens that will have a good mastery of the two official languages (English and French), deeply rooted in their cultures but open to a world in search for sustainable development and dominated by Information and Communication Technologies.

Conceived in the various Inspectorates of Pedagogy, and later introduced for trialling in secondary and high schools during the 2012/2013 school year, these syllabuses were developed with the contributions of classroom teachers and teacher trade unionists.

The new syllabuses had to undergo many changes:

- a shift from a skill based approach to a competence based approach through real life situations;
- a shift from a school cut off from society to one that prepares citizens for a smooth insertion into socio-cultural and economic activities ;
- a shift from an evaluation of knowledge to that of competences necessary to sustainable development.

When these new changes and orientations were taken into account, they naturally led to a shift of paradigm within the curriculum reform process. The option we have adopted is the competence based approach through real life situations. The syllabuses of the first cycle of Secondary General Education are broken down into 5 areas of learning, each of them containing a given number of disciplines as shown in the table below.

<b>Areas of learning</b>	<b>Disciplines</b>
1- Languages and Literature	<ul style="list-style-type: none"><li>- French</li><li>- English</li><li>- Living Languages II</li><li>- Ancient Languages</li><li>- Literature(in English and in French)</li></ul>
2- Science and Technology	<ul style="list-style-type: none"><li>- Mathematics</li></ul>

	<ul style="list-style-type: none"> <li>- The Sciences( Physics, Chemistry, Technology, Life and Earth Sciences)</li> <li>- Computer Science</li> </ul>
3- Social Sciences/Humanities	<ul style="list-style-type: none"> <li>- History</li> <li>- Geography</li> <li>- Citizenship Education</li> </ul>
4- Personal Development	<ul style="list-style-type: none"> <li>- Sports and Physical Education</li> <li>- Manual Labour</li> </ul>
5- Arts and National Cultures	<ul style="list-style-type: none"> <li>- National Languages</li> <li>- National Cultures</li> <li>- Arts</li> </ul>



For 6e and 5e (Francophone sub -system of education ), the weekly workload and the quota as compared to the total number of hours on the time table (32 h) are displayed in the table below.

<b>Domaines d'apprentissage</b>	<b>Volume horaire</b>	<b>Quota</b>
Langues et Littératures	10 h	30%
Sciences et Technologies	08 h	25%
Sciences Humaines	06 h	20%
Arts et Cultures Nationales	04 h	15%
Développement Personnel	03 h	10%

One hour is allotted for preps.

For the Anglophone sub-system of education (Form I and Form II) the same information is summarised in the table below.

<b>Areas of Learning</b>	<b>Weekly workload</b>	<b>Quota</b>
Languages and Literature	10 h	30%
Science and Technology	08 h	25%
Social Sciences	06 h	20%
Arts and National Cultures	04 h	15%
Personal Development	03 h	10%



**The Inspector General of Education**

**Dr. Mrs Evelynne Mpoudi Ngolle**

## END - OF - FIRST CYCLE LEARNER'S EXIT PROFILE

The first cycle of Secondary General Education admits young graduates from primary schools aged between ten and fourteen. Its general objectives are not only to build intellectual, civic and moral skills in these children but also competences and fundamental knowledge which will either enable them to foster their education in the second cycle, or to prepare them for a smooth insertion into the job market after professional training.

Thus, within the framework of these new syllabuses, the learner is expected, after the first cycle of secondary education, to be able to use his/her competences to solve problems through family of situations relating to domains of life as indicated in the table below:

N°	Domains/Areas of life	Families of situations to be treated in the 1 <sup>st</sup> cycle
1	Family and social life	<ul style="list-style-type: none"> <li>• Participation in family life</li> <li>• Healthy professional relationships</li> <li>• Social integration</li> </ul>
2	Economic life	<ul style="list-style-type: none"> <li>• Discovery of income generating activities</li> <li>• Discovery of the job market, social roles, jobs and professions</li> <li>• Self confidence, aspirations, talents, self potential</li> <li>• Practising healthy eating habits</li> </ul>
3	Environment, health and well being	<ul style="list-style-type: none"> <li>• Preservation of the Environment</li> <li>• Quest for a healthy life style</li> <li>• Choosing and practising a healthy life style</li> </ul>
4	Citizenship	<ul style="list-style-type: none"> <li>• Mastery of rules and regulations governing the Cameroonian society</li> <li>• Discovery of cultural values and customs of the Cameroonian society</li> </ul>
5	Media and Communications	<ul style="list-style-type: none"> <li>• Discovery of the media world</li> <li>• Discovery of Information and Communication Technologies</li> </ul>

In order to achieve these objectives, the learner should be able to mobilise, within the various disciplines and constructive areas of learning of the syllabuses, all the pertinent resources in terms of knowledge, know how and attitudes.

The next table gives you a general overview of the afore-mentioned objectives, while the syllabus for each subject unfolds, in details, all the expected competences per level and at the end of the 1<sup>st</sup> cycle.

Areas of Learning	Disciplines	Expected outcomes at the end of the 1 <sup>st</sup> cycles
1-Languages and	Living languages:	French and English, L1

Literature	English, French , German, Italian, Spanish, Chinese, Etc.	Receptive skills: reading and listening Read in an autonomous way, different types of texts related to areas of life as defined in the syllabus; Listen and understand various texts related to the above mentioned areas of life Productive skills: speaking and writing Produce various types of texts , of average length related to these areas of life; Language tools: appropriate use of various language tools in order to produce and read types of texts related to that level;
	English to Francophone learners  French to Anglophone learners	Communicate accurately and fluently using all four basic skills in language learning; Be able to transfer knowledge learnt in class to real life situations out of the classroom; Be able to cope and survive in problem solving situations;
		<b>Living languages II</b> Receptive skills: reading and listening Read and understand simple texts on social life, citizenship, the environment, well being and health, media etc.. Listen and get oral information in order to simply interact during communication situations related the various domains of life. Productive skills: speaking and writing Sing, recite, dramatise , orally answer questions related to the various domains of life as defined in the syllabus; Write short passages on various familiar topics.
	<b>Ancient languages:</b> Latin, Greek <b>National languages</b>  <b>Literature</b> Cameroon Literature; French Literature; Francophone Literature; Other literatures	Develop general knowledge through ancient languages and cultures; know the origins of the French language for linguistic mastery; Carry out elementary tasks in translation.
2-Science and Technology	Mathematics, The Sciences	Use mathematic knowledge skills and values with confidence to solve real life problems within the different domains of life;



	Computer Science	Communicate concisely and unambiguously and develop power of mathematical reasoning (logical thinking, accuracy and spatial awareness).
		<b>The Sciences:</b> Acquire the fundamentals of sciences in order to understand the functioning of the human body, the living world, the earth and the environment; Acquire methods and knowledge to understand and master the functioning of technical objects made by man to satisfy his needs; Demonstrate attitudes to protect his/her health and environment.
		<b>Computer Science :</b> Master the basics of Information and Communication Technologies; Exploit and use ICTs to learn.
<b>3- Social Sciences /Humanities</b>	<b>History</b>  <b>Geography</b>  <b>Citizenship Education</b>	Possess cultural references to better locate events in time and space within a democratic system and become a responsible citizen. <b>History:</b> Acquire a common culture ; be aware of heritage from the past and current challenges; <b>Geography :</b> Develop one's curiosity and knowledge of the world; Get acquainted with landmarks to find your way and fit in the world. <b>Citizenship Education:</b> Possess essential knowledge in rights and duties in order to fulfil his/her citizenship.
<b>4- Personal Development</b>	<b>Moral Education;</b>  <b>Home Economics;</b>  <b>Sports and Physical Education</b>  <b>Health Education</b>	Develop his / her physical abilities/skills ; Get ready for physical challenges , save and regain energy after physical efforts; Identify risk factors; possess basic knowledge and principles in hygiene and health education; Demonstrate a sense of self control and appreciate the effect of physical activities. Conceive and draw up sports and cultural animation projects; Acquire methods and develop a high sense of efforts;

		Conceive, draw up and implement projects that will enable one to project his/her image and feel the well being inspired by self-confidence.
<b>5- Arts and National Cultures</b>	<b>Arts/Artistic Education; National Cultures</b>	<p><b>Artistic Education:</b>  Observe and appreciate works of art;  Carry out an artistic activity;  Gradually acquire the love for personal expression and creativity;  Possess a mastery of creativity in music, plastic arts and the performing arts.  Dramatise, recite texts (poems, tales, proverbs, etc.) relating to various areas of society;  Practise the different dramatic genres: sketches, comedy, tragedy, drama, etc.</p> <p><b>National languages and Cultures</b>  Demonstrate a mastery of Cameroon cultures;  Visit the various cultural areas of the country in order to discover their characteristics;  Demonstrate a mastery of basic rules in writing Cameroonian languages as well as basic grammatical notions applied to these languages;  Demonstrate a mastery of one of the national languages at 3 levels: morpho-syntax, reception and production of simple oral and written texts.</p>
Even though the learners acquires skills in different disciplines, these competences are accompanied by other skills known as cross curricular competences related to intellectual, methodological, social and personal areas of learning.		
<b>6- Cross curricular competences</b>	Intellectual and Methodological domains	Solve Problem in a given situation; Use knowledge skills and values with confidence in order to solve real life problems within the different domains of life; With confidence, find useful information to solve problems he/she is faced with; Give his/her opinion ; Support his/her opinion with strong arguments ;

		Assess him/herself with a view to remediation; Demonstrate basic knowledge in note taking ; Conceive and realise individual projects; Analyse and summarise information, give feedback and report orally or in writing. Develop problem solving approaches; Exploit and use ICTs in his/her activities.
	<b>Social and Personal Domains</b>	Interact positively and assert his/her personality while respecting that of other people; Join team work, fit in a common initiative project /group; Demonstrate interest in cultural activities ; Develop a sense of effort, love for work, perseverance in tasks or activities carried out ; Understand and accept others in intercultural activities; Accept group assessment.

The resources to be mobilised by the learner are found in many disciplines and areas of learning. So it is important to implement these syllabuses not in isolation but as interrelated subjects. These remarks hold both for subject and cross curricular competences. They are so called to show that they should be developed through teaching/learning activities of the different subjects. The development of subject and cross curricular competences concern the entire education family as they are capable of inspiring an educative project and the putting in place of extra curricular activities. The ultimate training goal of these syllabuses, at the end of the first cycle, is to enable the learner to be self reliant, to be able to keep on learning through out his/her life, to contribute to sustainable development and become a responsible citizen.

**MINISTRY OF SECONDARY EDUCATION**

MINISTERE DES ENSEIGNEMENTS SECONDAIRES

**GENERAL INSPECTORATE OF EDUCATION**

INSPECTION GENERALE DES ENSEIGNEMENTS

**INSPECTORATE OF PEDAGOGY IN CHARGE OF SCIENCE EDUCATION**

DEPARTMENT OF PHYSICS, CHEMISTRY AND TECHNOLOGY

# **PHYSICS TEACHING SYLLABUS**

## **FORM 1 AND FORM 2**

REPUBLIC OF CAMEROON  
*Peace -Work – Fatherland*  
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REPUBLIQUE DU CAMEROUN  
*Paix - Travail – Patrie*  
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**Order N° \_\_\_\_\_/MINESEC/GS/IGE/.....**

defining the Physics Teaching Syllabus for Secondary General Education, Anglophone Sub-System

## The Minister of Secondary Education,

Mindful of the Constitution of Republic of Cameroon and its subsequent modifications;

Mindful of Law No. 98/004 of 14 April 1998 to lay down guidelines for Education in Cameroon;

Mindful of Decree N°2011/408 of 09<sup>th</sup> December 2011 reorganizing the Government;

Mindful of Decree N°2011/410 of 09<sup>th</sup> December 2011 to form the Government;

Mindful of Decree N°2012/267 of 11<sup>th</sup> June 2012 to organize the Ministry of Secondary Education;

Hereby orders:

**Article 1:** The Physics Teaching Syllabus for Secondary General Education, Anglophone sub-system is defined as follows:

**REPUBLIC OF CAMEROON**  
**Peace – Work – Fatherland**

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**MINISTRY OF SECONDARY EDUCATION**  
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**INSPECTORATE GENERAL OF EDUCATION**

PHYSIC

nd FORM 2

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**INSPECTION GENERALE DES ENSEIGNEMENTS**

13



**LEARNING AREA: SCIENCE AND TECHNOLOGY**

**SUBJECTS: PHYSICS**

**CLASSES: FORM 1 & FORM 2**

**ANNUAL HOURS: 100 (120 PERIODS)**

**WEEKLY WORKLOAD: 02 PERIODS OF 50 MINUTES**

**COEFFICIENT: 02**

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## GENERAL INTRODUCTION

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

In the Form 1 and Form 2, this learning area is expected to be a continuation, deepening of the knowledge (scientific notions), know-how (improved methods and techniques) and further development of attitudes acquired in the primary school. It has as main aim to inculcate (promote) in the learner responsible behaviour, knowledge and competencies.

## 2 PROFILE TO BE ACQUIRED AT THE END OF THE SOURCE

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 his/her health and that of all others in his/her surrounding;
- imbibe the scientific method;
- use process skills to acquire knowledge;
- read security notices;
- communicate his/her results.

The design and teaching of the present **Physics** syllabus is centred on the Competency-Based Approach (CBA) which should begin from the identification of a real life situation or problem and proceed through the definition of the competencies (skills) required to transform, modify or improve the situation to the mobilisation of the appropriate resources necessary for transforming, modifying or improving the situation. This approach ensures the understanding and use of scientific knowledge and methods by involving the learner in the active construction of his/her own knowledge. It equally goes beyond the gathering of scientific knowledge to the application of such knowledge to seek solutions to real life problems in different contexts. The knowledge and skills that the learner acquires in school should therefore be seen as a means to an end and not as an end in itself. This approach is therefore carefully selected to fulfil the prescriptions of the 1998 educational policy framework of Cameroon and the Growth and Employment Strategy Paper which calls for the training of a citizen who is autonomous, self-reliant and imbued with the appropriate tools to face the challenges of a rapidly changing socio-economic and technological world.

**Physics** will cover all six modules.

Successful learners of the content of the syllabus will gain lifelong skills, including:

- confidence in a technological world, with an informed interest in scientific matters
- an understanding of how physics theories and methods have developed, and continue to develop, as a result of groups and individuals working together
- an understanding that the study and practice of physics are affected and limited by social, economic, technological, ethical and cultural factors
- an awareness that the application of physics in everyday life may be both helpful and harmful to the individual, the community and the environment
- knowledge that physics overcomes national boundaries and that the language of physics, used correctly and thoroughly, is universal
- a concern for accuracy and precision
- an understanding of the importance of safe practice
- improved awareness of the importance of objectivity, integrity, enquiry, initiative and inventiveness
- an interest in, and care for, the environment

## PRESENTATION OF THE LEVEL, MODULE AND RELATIVE DURATION OF THE PHYSICS SYLLABUS

CLASS	TITLE OF MODULE	DURATION
Form 1	1. The world of science	8
	1. Matter: Properties and transformation	12
	2. Energy: some applications and uses	16
	3. Health Education	4
	4. Environmental Education	4
	5. Technology	6
Form 2	1 The world of science	8
	2 Matter: Properties and transformation	12
	3 Energy: some applications and uses	16
	4 Health Education	4
	5 Environmental Education	4
	6 Technology	6

The Physics Syllabus in general follows the general introduction spelt out above. that is:

- PLACE OF THIS SYLLABUS IN THE CURRICULUM
- CONTRIBUTION OF THE SYLLABUS TO LEARNING
- CONTRIBUTION OF THE SYLLABUS TO REAL LIFE SITUATIONS

### 3 COMPETENCIES THAT THE PHYSICS SYLLABUS WOULD DEVELOP IN THE LEARNER

It is expected that at the end of the course three components of competency would have been acquired by the learner. These are their personal attributes, skills and knowledge.

1. Personal attributes are the underlying characteristics that are deep and enduring parts of an individual, expressed most of the time. They are one's personal style or personal effectiveness such as feeling, attitudes, self – image, values, motives, habits and traits. These attributes are hidden and it is expected to be uncovered and improved upon in the learner.
2. Skills can be observed. They are acquired through practice and experience. This includes the ability to understand and apply procedures to complete specific tasks and respond to inquiries.
3. Knowledge is a baseline of information that allows a person to perform from an informed perspective. This information consists of theories, facts and principles. This information may be acquired through formal and/or informal learning and experiences.

Therefore the competencies to be evaluated at the end of the course will be;

- Any element that is critical to successful and effective performance
- Measuring, observing and performance oriented skills (process skills)
- Skills related to life activities from the immediate environment
- Consistent in similar activities
- Checking and controlling validity
- Objectiveness
- Positive view of life.
- Communication
- Team Leadership
- Self Aware
- Resourcefulness
- Humility
- Motivation
- Creativity
- Independent

### 3.1 PLACE OF THE SYLLABUS IN THE CURRICULUM

This programme 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;
- providing the learner with the ability to utilise technological instruments and tools;
- developing his/her capabilities of observation, integration, creativity and autonomy;
- developing in the learner the skills to seek solutions to daily problems in different contexts (life situations);
- building in the learner the spirit of research and team work.
- developing a positive approach to life.

### 3.2 CONTRIBUTION OF THE PROGRAMME TO LEARNING

**PHYSICS** should be the crucible for experimentation; an experimental practice that will enable learners to acquire:

- process skills (observation, investigation, manipulation and problem-solving);
- creative skills ;
- critical, inferential and scientific thinking skills; and
- the spirit of autonomy, self-reliance and team work.

## 4 PRESENTATION OF THE FAMILIES OF SITUATIONS COVERED BY THE PROGRAMME

N°	Module	FAMILIES OF SITUATIONS
I	The world of science	Understanding what science is all about
II	Matter: Properties and transformation	Utilization of products and consumer goods.
III	Energy: some applications and uses	Utilization of energy in daily life.
IV	Health Education	Care of body organs: Medical devises
V	Environmental Education	Climate change: Management of water, Atmosphere, (hydrology), Use of satellite. Air movement, Waste disposal
VI	Technology (Elementary Engineering)	Inaccessibility and the malfunctioning of common tools

### COMPREHENSIVE TABLE SHOWING THE MODULES FOR FORM ONE AND FORM TWO.

This paradigm requires that the syllabus be written in modules. The syllabus covers all six modules both in Form 1 and Form 2.

#### a) The modules.

CYCLE	Level	Title of module	Topic	Duration/ (hours)
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<b>First cycle</b>	<b>Form 1</b>	The world of science	Basic equipment in a science laboratory.	08
			1 Safety rules.	
			2 Some scientific skills and attitudes	
		Matter : Properties and Transformation	3 <i>Physical state of matter</i>	12
			4 Measurements	
			5 Using services wisely	
			6 Thermal and electrical insulation	
		Energy	7 Energy needs of human beings	16
			8 The types, sources and usage	
			9 Transmission of energy	
			10 Force	
			11 Motion	
		Health Education	12 Sound	04
			13 Thermometer	
			14 Sport and physics	
		Environmental Education	15 Radiation	04
			16 Global warning	
			17 Climate change	
		Technology	18 Machine	06
			19 Care and maintenance	
			20 Technical drawing	
	<b>Form 2</b>	The world of science	1. Scientific Method Part 2	08
			1 Simple application of measurements	
		Matter : Properties and Transformation	2 Temperature	12
			3 Change of state	
			4 Thermal and electrical insulation	
			5 Physical states	
			6 Action of heat on materials	
			7 Action of electricity on materials	
		Energy	8 Energy needs of human beings	16
			9 Renewable energy	
			10 Electricity	
			11 Light	
			12 Energy exchange	
			13 Motion	
		Health Education	14 Distribution of Pressure in a liquid	4
			15 Muscles stress	
			16 Types of lenses and their application	
		Environmental Education	17 Understand the effect of cosmic radiation from the sun	4
			18 The Ionosphere	
			19 Greenhouse effect	

			20 Variation of rainfall in Cameroon	
		Technology	21 Project	6
			22 Care and Maintenance	
			23 Repairs	
			24 Technical drawing	
			25 Basic telecommunication devices	

## 5 PRESENTATION OF THE PROGRAMME MATRIX

### a) The Matrix

The programme matrix is a table made up of three major columns:

- The first column is the **Contextual Framework** which embodies the *families of situations* and *examples of real life situations* where the knowledge and skills can be applied.
- The second column is the **Competencies**, 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 each module.
- The third column is the **Resources** and consists of the *essential or core knowledge* which gives all the set of cognitive and affective resources which the learner needs to mobilise to successfully treat a family of situations. It is divided into four components: the *subject content*, the *aptitude* (skills or know-how), *attitudes* to be disposed or displayed as well as *other resources* (material, human, finances, etc.) necessary for the acquisition of the competencies.

The table appears as below.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
Families of Situations	Examples of Situations	Categories of Actions	Examples of Actions	Content (Core Knowledge)	Aptitude (Skills)	Attitudes	Other Resources

## 6 ASSESSMENT OF THE PHYSICS PROGRAMME

The overall goal of this programme is to assess the ability of the learner to integrate scientific knowledge and methods in the different subject areas to seek solutions to real life situations in their local environments and in different contexts.

Assessment will therefore aim to test the knowledge and competencies (skills, abilities) in different areas including the:

- ability to apply scientific knowledge and methods in problem-solving; which should involve the ability to sort, organise, classify and analyse scientific data and information; to interpret phenomena and find solutions to problems;
- ability to explain certain natural occurring phenomena;
- ability to organise material and present ideas in a clear and logical manner;
- ability to handle patterns in scientific knowledge and show critical, imaginative and inferential thinking skills;

Practical skills will be assessed with respect to the:

- use of and care for equipment;
- design and use of experiments;
- quantitative and/or qualitative analyses.

Integrative skills will be assessed with respect to the ability of the learner to identify locally specific (real life) problems and design projects to solve such problems which should integrate knowledge, skills and methods acquired in this programme.

## Form 1

### MODULE I: THE WORLD OF SCIENCE

## **1.TIME ALLOCATION: HOURS 2 hours per week. Total hours 8.**

## **2. INTRODUCTION TO THE MODULE**

Man is an integral part of the living world. Man therefore has to provide his needs (food, shelter and energy) which are obtained from resources found around him by exploiting the natural world through the implementation of scientific practices 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 scientific methods through which he can use to improve on his environment, improve on his standard of living and conditions to adapt 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, life related resources and their interrelationships.

This module therefore enables learner to develop basic scientific skills in life situations and through teaching / learning activities to:

- reinforce the fundamentals of the scientific processes;
- develop abilities on improved and sustainable management of the environment,
- discovering the world around them more intimately,
- enhancing the ability to see the need for maintenance and renovation of daily used tools.

## **3. 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 towards a systematic methods being aware of the society in which man finds himself.
- This module could provide future career in the any fields such as engineering, agronomy, environmental education, teaching, etc...

## **4. 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 comprehension of investigating, analyzing and concluding processes about happenings around him.
- The importance of this module resides in the fact that the learner who lives permanently in a changing 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.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
Family of situations	Examples of situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources

Investigating science	Knowing how things are and how they work	Practice of scientific methods	-Explain how to observe things in the environment - Why should measurement be done	<b>Introduction to science.</b> - Definition of science - Branches of science and scientist. <b>General:</b> Basic equipment in a science laboratory. -Safety rules for working in a science laboratory. Careers in science <b>Scientific Methods Part 1:</b> Method of investigation in science. 1. Observing: 2. Measuring using ruler, tape, thermometer, protractor, stop watch and balance: know how to read values (scale), positions of measuring instruments and the eye when reading 3. SI units .	Be able to recognize and identify basic science equipment and things around us..  Think and act scientifically	-Curiosity and sense of observation -Respect of others opinions -Interest in scientific advancement -Open-mindedness -Patience -Love for nature -Team spirit and cooperation -Creative thinking --Effective communication	30 cm rule Metre rule Tape Measuring cylinder Thermometer Balance Protractor Stop watch Burner Lighter Match Visit to the market Visit to the hospital Sport
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## MODULE II: MATTER, ITS PROPERTIES AND ITS TRANSFORMATION

1. TIME ALLOCATION: 2 hours per week. Total hours: 12

### 2. 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 Form One and Two 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.

### 3. 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.

### 4. 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).

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
FAMILIES OF SITUATIONS	EXAMPLES OF SITUATIONS	CATEGORIES OF ACTIONS	EXAMPLES	ESSENTIAL KNOWLEDGE	APTITUDE	ATTITUDES	OTHER RESOURCES
Commonly consumed and used products.	-Nature of materials around us. (Solid, Liquid and Gas) -Buying and selling of consumable materials -Buying and selling of grains and liquids. -Buying of domestic gas - Communication and information on consumptions.	Characteristics of matter. Matter exist in three stages. Application of measurement - Determination of the mass of a body - Determine the weight of a body - Determination of the volume of a body - Determine the temperature of a body	-Read and respect the prescription on the labels of materials products. -Use of balance -Measure and calculate the volume of a given object.	<b>-Properties of matter and their characteristics</b> Materials come in different forms (states). As a basic for understanding this concept: - know that solids, liquids and gases have different properties . - know that the properties of substances can change when the substances are mixed, cooled or heated. <b>MEASUREMENT: Techniques of measurement.</b> <b>Measure:</b> <ul style="list-style-type: none"> <li>• Temperature</li> <li>• Volume</li> <li>• Mass</li> <li>• weight</li> <li>• density</li> </ul> In each case above use simple local market / house whole examples. <b>Using Services Wisely:</b> Safety measures Using information.	<ul style="list-style-type: none"> <li>• Measurement and calculation of the mass and volume of an object.</li> <li>• Understand the difference between mass and weight</li> <li>• Show practically that the temperature of melting ice is constant.</li> <li>• How bodies can be kept cold in warm areas.</li> <li>• Be able to recognize faulty instruments.</li> </ul>	-Great care should be taken when handling doubtful products. -usefulness of density. <ul style="list-style-type: none"> <li>• Always think of reading the information and labels on the bodies of materials before using them.</li> </ul>	-Balance - Meters -Bathroom scale -- Glassware (beaker, flask, measuring cylinder, test tube, etc.) - glass ware test tubes beakers Volumetric flasks measuring cylinders Oil Domestic gas.
		Interpret and exploit the inscriptions on the body of consumed products. Safety measures when using these common objects.	-Interpret and exploit enclosed leaflet. - Read and interpret diagram.				

### MODULE III: ENERGY, VALUE AND USES

1. TIME ALLOCATION: 2 hours per week. Total 16 HOURS

2. GENERAL PRESENTATION:

This module present is subdivided into two units as follows:

Unit one consists of:

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

Unit two consists of:

- Heat as a means of transmitting energy from one area to another. ( conduction, convection)
- Electricity as a means of transferring energy within 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.(energy that causes change in position)

### 3. 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.

### 4. 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.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
FAMILIES OF SITUATIONS	SITUATIONS	CATEGORIES OF ACTIONS	ACTIONS	ESSENTIAL KNOWLEDGE	APTITUDE	ATTITUDES	OTHER RESOURCES
Everyday use of energy	-Area where energy is needed. -Functioning of a radio using batteries. -cooking with fire wood. -cooking with gas. -cooking with kerosene cooker.	Use of electrical energy.	<b>Types of energy used by human beings:</b> -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.	<b>-Energy needs of human beings:</b> State human needs of energy and availability. <b>The types, the sources, the usage of energy.</b> <ul style="list-style-type: none"> <li>• Types of energy: heat, electrical, mechanical, chemical.</li> <li>• Sources of energy: solar, wood, fossil (petrol, gas, charcoal).</li> <li>• Daily use of energy</li> <li>• Safety roles</li> </ul>	<ul style="list-style-type: none"> <li>• Identification of a conductor, an electrical and thermal insulator.</li> <li>• Product thermal and electrical insulation.</li> <li>• Protection of persons against electrical hazards.</li> </ul>	-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.	<b>The transmission of energy</b> <ul style="list-style-type: none"> <li>Heat: conduction, convection and radiation. Use simple example to define and explain.</li> <li>Show some positive and negative effects of energy.</li> <li>Solar panel for heating.</li> </ul> <b>Force (cause) and Motion (their effects) on objects in the environment.</b> <b>Motion:</b> <ul style="list-style-type: none"> <li>Identification of mechanical action and magnetic interaction from environmental situations.</li> <li>Determination of their effects.</li> <li>Deduce simple examples of motion from these effects. Then define motion.</li> </ul>		-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.	-Use of gas cooker, kerosene cooker or firewood. -Use of kerosene lamp. -Protection against combustion risks. -Use of improve cooker. -Use of oven/kiln. Project on a strip to a touristic site. - 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				
		Organize Field trip.					

## MODULE IV:HEALTH EDUCATION

### 1. TIME ALLOCATION: 2 hours per week. Total 4 HOURS

### 2. INTRODUCTION TO THE MODULE

This module deals with the proper functioning of vital organs of the human being.

It is aimed at helping the learner to construct knowledge and develop essential resources (concept, techniques, and methods) and attitudes linked to the proper functioning of these vital life organs. This would enable the learner to appreciate the importance and the fragility of certain human organs in order to adopt behaviours that would safeguard, protect, conserve and perpetuate the human species

Through the learning activities and taking into consideration real life 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.

### 3. 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...

### 4. 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.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
Family of situations	Examples of situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources
Human organs	Ear as an organ Noise and their effect on your health	Use of ear phones and sound level	- Useful noise level - Ear defects identification	- Know how sound is produced. - Characteristic of sound - Musical instruments - Essential parts of the ear and their functions: curvature of the external ear, etc; - Noise levels	- Responsible use of and identification of sound instrument - Being able to produce local musical instrument	- Observe rule on acoustic at home and public places.	Clinical thermometre lenses guitar
	Body temperature	Use of clinical thermometer	- Know the normal body temperature	- Reading a clinical thermometer - Relate reading on thermometer on health situation - Understand when to take in hot / cold substances.	- Be able to read and interpret correctly	- Give health advise	Medical personnel. Visit to hospital/Disc otheque.
	Body Awareness/ Movement	How does my body move	- How do we sit/stand/ walk /sleep	- Correct postures: - Sport and physics: Explain why the body needs sport.	- Responsible method of using the body	- Be able to advise on standing, sitting, walking and sleeping position	Posters, charts

## MODULE V: ENVIRONMENTAL EDUCATION AND SUSTAINABLE DEVELOPMENT

### 1. TIME ALLOCATION: 2 hours per week. Total 4 hours

### 2. 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.

### 3. CONTRIBUTION OF THE MODULE TO THE GOAL AND OBJECTIVES OF THE CURRICULUM:

- The skills the learner will acquire 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.

### 4. 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 indispensable 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.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
Family of situations	Situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources
Climate change	Radiation level  -Global warming and climate change	Types of Toxic waste  -Limitation of global warming or reduction in global warming	Where is it found.  -Obliged industries to properly manage toxic products -Limit the emission of green house gases and use of fossil fuels	What is toxic waste? Background radiation. Useful dose. Harmful nature  Greenhouse effect Causes Effects	Ability to handle radioactive substances.  -Choice of household apparatus,	-Daily practices  -Respect of hygiene rules -Respect for the environment (prohibition in burning tyres, plastic materials, throwing pollutants in nature, sensitize the population on dangers of bush fires..)	-Technicians in sustainable rural development, hygiene and sanitary personnel -Technicians in sustainable development Personnel from the Ministry of Environment and Nature Protection  Agricultural technicians



## MODULE VI: TECHNOLOGY

### 1. TIME ALLOCATION: 6 HOURS

### 2. 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.

### 3. 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.

### 4. 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.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
FAMILIES OF SITUATIONS	SITUATIONS	CATEGORIES OF ACTIONS	ACTIONS	ESSENTIAL KNOWLEDGE	Aptitude	ATTITUDES	OTHER RESOURCES
Amelioration of living condition. Tools and common appliances;	- Fabrication and maintenance	-Maintenance of simple mechanical systems. -Maintenance of simple objects.	-Identification of needs; -Seek solutions to the needs -Conception: -Make a case study of the problem -Choose suitable materials for the fabrication of an object and properly use. -Choose the right tools to realize a given task and properly use.	<b>Application of some common tools. Machine:</b> Identify point of application of effort and load. How tools function. Appreciate distance covered by effort and load. Application of simple screw drivers and guide tracks, saws, glue, hammer, pincers, pliers, spirit level, ramp gear systems, pulley and glasses. <b>Care and maintenance.</b> -Lubrication; -Cleaning <b>Technical drawing.</b>	Use of the following tools: screwdriver and tester, Wood and Metal saws, glue, hammer, pliers, sand papers, millimeter. -Look for a fault on a simple object. -Repair a simple object: example a touch light. -Techniques of fishing, hunting and harvesting. -Fabrication of a water filter -Techniques of producing natural gas from house garbage.	-Teamspirit -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 -Pliers -Glue -Sand paper -Scissors - Spade -Matchets -Hoe -Binding paper -Computer -Internet -Other material or materials necessary to realize a project. - Technician to realize the project. -Lubricants. -Touch light

## FORM 2

### MODULE I: THE WORLD OF SCIENCE

**1.TIME ALLOCATION: Total hours: 8**

#### **2. INTRODUCTION TO THE MODULE**

Man is an integral part of the living world. Man therefore has to provide his needs (food, shelter and energy) which are obtained from resources found around him by exploiting the natural world through the implementation of scientific practices 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 scientific methods through which he can use to improve on his environment, improve on his standard of living and conditions to adapt 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, life related resources and their interrelationships.

This module therefore enables learner to develop basic scientific skills in life situations and through teaching / learning activities to:

- reinforce the fundamentals of the scientific processes;
- develop abilities on improved and sustainable management of the environment,
- discovering the world around them more intimately.

#### **3. 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 towards a systematic methods being aware of the society in which man finds himself.
- This module could provide future career in the any fields such as engineering, agronomy, environmental education, teaching, etc...

#### **4. 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 investigating, analyzing and concluding about happenings around him.
- The importance of this module resides in the fact that the learner who lives permanently in a changing 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.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
Family of situations	Examples of situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources
Investigating science	Knowing how things are and  Making things work	Practice of scientific methods	-Collecting data - Analyse data - interpreting and concluding	<b>-Scientific Methods Part 2</b> 1. Collecting data: know the importance of collecting data. What are data? 2.. Interpreting and concluding 3. Predicting and evaluating 4. Planning - Simple application of measurement <ul style="list-style-type: none"> <li>➤ Density of house whole things e.g oil, water,</li> <li>➤ Speed e.g student movememt in the classroom and/ orduring sport.</li> </ul>	Be able to recognize and identify why oil float in water. The speed of things around us.  Think and act scientifically	-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 -Effective communication	

## MODULE II: MATTER, ITS PROPERTIES AND ITS TRANSFORMATION

### 1. TIME ALLOCATION: 12 HOURS

### 2. 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 Form One and Two 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.

### 3. 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.

### 4. 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).

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
FAMILIES OF SITUATIONS	EXAMPLES OF SITUATIONS	CATEGORIES OF ACTIONS	EXAMPLES	ESSENTIAL KNOWLEDGE	APTITUDE	ATTITUDES	OTHER RESOURCES
Commonly consumed and used products.	-Buying and selling of consumable materials -Buying and selling of grains and liquids. -Buying of domestic gas - Communication and information on consumptions.	Application of measurement <ul style="list-style-type: none"> <li>• Thermal and electrical insulation</li> </ul> Determine the physical characteristic (properties) of an object.	- Read and respect the prescription on the labels of materials products. - Use of balance - Measure and calculate the volume of a given object.	<b>-Properties of matter and their characteristics</b> <b>Transformation of matter (Change of state)</b> <ul style="list-style-type: none"> <li>• Temperature: melting point; boiling point</li> <li>• Change of state of water. Vaporization, condensation, liquefaction, sublimation. (Indicate that the temperature stays constant during change of state.)</li> <li>• Thermal and electrical insulation</li> </ul>	<ul style="list-style-type: none"> <li>• Show practically that the temperature of melting ice is constant.</li> <li>• Usefulness of thermal and electrical insulation</li> <li>• Three states of matter.</li> <li>• How bodies can be kept cold in warm areas.</li> <li>• Explaining electricity and lightning effect on materialsj</li> </ul>	-Safety rules working with heat and electricity. <ul style="list-style-type: none"> <li>• Always think of reading the information and labels on the bodies of materials before using them.</li> </ul> Ability to visualize Ability to draw Sense of appreciation Ability to reason and justify lightning scientifically.	-Balance - Meters -Bathroom scale -- Glassware (beaker, flask, measuring cylinder, test tube, etc.)  glass ware test tubes beakers Volumetric flasks measuring cylinders.
		Interpret and exploit the inscriptions on the body of consumed products.	-Interpret and exploit enclosed leaflet. - Read and interpret diagram.				
		Safety measures when using these common objects.		<ul style="list-style-type: none"> <li>• Physical states: Permeability, impermeability, solubility.</li> <li>• Action of heat and electricity on materials.</li> </ul>			

### MODULE III: ENERGY, APPLICATIONS AND USES

#### 1. TIME ALLOCATION: 16 HOURS

#### 2. GENERAL PRESENTATION:

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

Unit one consists of:

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

Unit two consists of:

- Heat as a means of transmitting energy from one system to another. (conduction, convection)
- Electricity as a means of transferring energy within 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.

#### 3. 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 carry out different activities in the environment.

#### 4. CONTRIBUTION OF THE MODULE TO THE PROGRAMME OF STUDY AND TO THE AREAS OF LIFE.

The content of this module has 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-à-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.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
FAMILIES OF SITUATIONS	SITUATIONS	CATEGORIES OF ACTIONS	ACTIONS	ESSENTIAL 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 of electricity. -Read and respect the notices on electrical appliances.	-Energy needs of human beings <b>The types, the sources, the usage of energy.</b> <ul style="list-style-type: none"><li>• Renewable energy: Water, wind, geothermal, biomass.</li><li>• Electricity: Sources of electricity. Uses: Basic idea on electrical circuit, electric current, conductor and insulator.</li><li>• Light: sources, receivers, medium of propagation, speed, light beam, light</li></ul>	<ul style="list-style-type: none"><li>• Identification of a conductor, an electrical and thermal insulator.</li><li>• Product thermal and electrical insulation.</li><li>• Protection of persons against electrical hazards.</li></ul>	-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.

				ray, shadows. • Energy exchange: chemical to electrical to heat/light, etc. Use of flow chart.			
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.	<b>Motion</b> • Movement with respect to space – (distance) and time. • Average velocity. Instantaneous velocity. Simple presentation of distance and time (Simple graphs). • Action at a distance. Gravitation, Magnetic forces, • Contact force Up thrust friction		- Respect of environment. – Responsible attitude toward the use of fire.	- Sound management - Transport agency (CAMR AIL ...) - Material for the production of solar ovens. - Thermal and electrical insulation.
		Use of chemical energy.	- Use of gas cooker, kerosene cooker or firewood. - Use of kerosene lamp. - Protection against combustion risks. - Use of improve cooker. - Use of oven/kiln.				
		Organize Field trip.	- 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				

## MODULE IV:HEALTH EDUCATION

### 1. TIME ALLOCATION: 4 HOURS

### 2. INTRODUCTION TO THE MODULE

This module deals with the proper functioning of vital organs of the human being.

It is aimed at helping the learner to construct knowledge and develop essential resources (concept, techniques, and methods) and attitudes linked to the proper functioning these vital life organs. This would enable the learner to appreciate the importance and the fragility of certain human organs in order to adopt behaviours that would safeguard, protect, conserve and perpetuate the human species

Through the learning activities and taking into consideration real life 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.

### 3. 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...

### 4. 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.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
Family of situations	Examples of situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources
Healthy Living	Body pain/The headache	Pain caused by pressure and stress	- Blood pressure	- Distribution of Pressure in a liquid. - Knowledge of average blood pressure. - Muscle stress	- Know that over 80 % of the body is fluid	- Appreciate that headache may not necessarily come from the head	
	The eye as an organ.	Use of the eye and their defect	- Identifying the type of eye defects - Use of lenses	- Type offenses and their applications. -The eye as a imaging device.	-be able to select the appropriate lens to any eye condition	-be able to advice on eye problems - respect medical prescription.	

## MODULE V: ENVIRONMENTAL EDUCATION AND SUSTAINABLE DEVELOPMENT

### 1. TIME ALLOCATION: 4 HOURS

### 2. INTRODUCTION TO THE MODULE

This module takes into consideration the management of the following twocomponents 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.

### 3.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.

### 4.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 indispensable 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.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
Family of situations	Situations	Category of actions	Actions	Essential Knowledge	Aptitudes	Attitudes	Other resources
Climate change	-Radiation level	- Radiation emitted into the atmosphere	-Radiation from the sun and those emitted from by the earth -Communication and education on weather.	2.3-Understand the effect of cosmic radiation from the sun. 2.3.1-Understand the effect of destruction of the ionosphere 2.3.2-Energy waste in destruction of the forest and its consequences.		-Respect for the environment (prohibition in burning tyres, plastic materials, throwing pollutants in nature, sensitize the population on dangers of bush fires..)	Hydrometer Thermometer
	-Global warming and Greenhouse effect	-Limitation of global warming or reduction in global warming	-Obliged industries to properly manage toxic products -Limit the emission of green house gases and use of fossil fuels	3.Greenhouse effect 3.1-Causes 3.2-Effects 3.3 Appreciate air movement over the earth's surface.	-Choice of household apparatus, aerosols with no CFCs		
		Heat content of the soil	- Heat absorbed and released by the soil.	4 Effect of exposing the soil to heat or rain. 4.1 Variation of rainfall in Cameroon.	-choice of building materials and farm land.		



## MODULE VI: TECHNOLOGY

### 1. TIME ALLOCATION: 6 HOURS

### 2. 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.

### 3. 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.

### 4. 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.

CONTEXTUAL FRAMEWORK		COMPETENCIES		RESOURCES			
FAMILIES OF SITUATIONS	SITUATIONS	CATEGORIES OF ACTIONS	ACTIONS	ESSENTIAL KNOWLEDGE	Aptitude	ATTITUDES	OTHER RESOURCES
Amelioration of living condition. Tools and common appliances;	- Fabrication and maintenance	--Fabrication of tools. -Maintenance of simple objects.	-Choose suitable materials for the fabrication of an object and properly use. -Choose the right tools to realize a given task and properly use.	<b>Application of some common tools.</b> <b>Machine: review of Form one.</b> <b>Projects: ( what is a project)</b> -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. • <b>Example: identifying leakage in the house water system,.</b> Its upkeep and maintenance. <b>Care and maintenance.</b> -Lubrication; -Cleaning The principles of functioning of an appliance. - Bimetallic strip - Thermometers - Expansion of gases. - Electrical meters Repairs of simple objects: methodology. Preventive maintenance. Technical drawing. Basic telecommunication devices: -radio -cell phone	Use of the following tools: screwdriver and tester, Wood and Metal saws, glue, hammer, pliers, sand papers, millimeter. -Look for a fault on a simple object. -Repair a simple object: example a touch light. -Realisation of a project by the learners: -Fabrication and use of tools for rearing and agriculture. -Techniques of fishing, hunting and harvesting.	-Teamspirit -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 -Pliers -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 - radio - cell phone

**Article 2:** The syllabus presented in article one here above shall be implemented as from the beginning of the 2014-2015 school year;

**Article 3:** All previous provisions repugnant hereto are hereby repealed;

**Article 4:** Inspectors Coordinator General, the Director of General Secondary Education, the Director of Examinations and Certification, Regional Delegates of Secondary Education, Divisional Delegates of Secondary Education, Education Secretaries of various Private Educations Agencies, Principals of public and private schools, each in their own sphere shall be charged with the strict implementation of this order which shall be inserted and published in the Official Gazette in English and French.

Yaoundé, 13 AUG 2014

THE MINISTER OF SECONDARY EDUCATION



*Louis Baptes Baptes*

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