The New Senior Secondary Curriculum for Sierra Leone

Subject Syllabus for English for Science, Technology, Engineering, Agriculture, Medicine and Mining
Subject stream: Languages and Literatures

This subject syllabus is based on the National Curriculum Framework for Senior Secondary Education. It was prepared by national curriculum specialists and subject experts.

SSSC
Senior Secondary School Curriculum

English for Science, Technology, Engineering, Agriculture, Medicine and Mining – an applied subject

Subject Description

This syllabus aims to equip learners with the English language skills needed to enhance communication in the STEAMM disciplines. It seeks to develop in learners the ability to understand and use English in a wide range of contexts. Learning English for Science Technology Engineering Agriculture Medicine and Mining (ESTEAMM) is different from learning everyday English. In addition to clear sentence construction and a solid knowledge of grammar, the learning focus is more on formal and technical vocabulary as well as clear communication.

General Learning Outcomes

Learners are expected to be able to:

a. Display knowledge of basic grammar and language use, both generally and in the STEAMM disciplines.
b. Write cohesive scientific reports and other professional pieces that are specific to STEAMM fields.
c. Use an expanded vocabulary appropriate for STEAMM fields.
d. Display ability to read and understand written texts on STEAMM topics.
e. Participate in discussions and give presentations on topics relating to STEAMM fields.
f. Use specialized language to communicate clearly and concisely in the STEAMM disciplines.

Subject Content Outline by Themes and Topics

Grammar in Context

What is ESTEAMM?

Using articles and quantifiers, using verb tenses properly, use of the active and passive voice, direct and reported speech, interrogatives, punctuation, structuring sentences, using basic guidelines for expressing numbers

Vocabulary and Reading Comprehension

Extensive study of specialized vocabulary – word-building (word association, word formation, prefixes)

Reading of passages on STEAMM topics to develop and test comprehension and vocabulary skills:

English for Science - the causes and effects of global warming, environmental management and protection, liquids and gases, the composition of matter etc.

English for Technology – artificial intelligence and its impact on 21st century job markets, technological innovations, etc.
English for Engineering – safety procedures
English for Agriculture – parts of a plant and their functions, origin and composition of soil, drainage and irrigation, manures and fertilizers, animal husbandry.
English for Medicine – infectious diseases, therapy, surgery, anatomy and physiology, parts of the body, the musculoskeletal system, treatments etc.
English for Mining – safety and hazards, technologies in mining, mining engineering, processing plants, machinery in processing plants etc.
Interpreting tables, charts, graphs etc. in STEAM texts

Writing and Presentation Skills
Writing science reports (lab report, field report, progress reports), referencing, describing scientific and technical information, description of processes, objects or events, writing proposals, writing statistical results, writing a procedure or instructions
Presentation skills focusing on STEAMM fields – delivering presentations, selecting a topic and purpose, analysing the audience, preparing your presentation, use of visuals, engaging an audience through varied speech and body language, organizing your presentation, presentation outline, supporting materials, techniques for using supporting materials, presenting orally

Teaching Syllabus

Senior Secondary Level 1

Topic/Theme/Unit	Expected learning outcomes	Recommended teaching methods	Suggested resources	Assessment of learning outcomes
Grammar in Context • What is ESTEAMM? • Using articles and quantifiers capitalization rules • Using verb tenses properly • Use of the active and passive voice • Direct and reported speech • Using interrogatives	Learners will be able to: a. Explain what the ESTEAMM subject is about and its importance. b. Identify and use articles (e.g. a, an, the) and quantifiers (e.g. some, a few, many, several, enough, a lot, much, any) correctly. c. Use the various tense forms correctly in context.	Direct and pupil centered instruction Group activities Questioning Discussion	Bonamy, David (2009). Oxford English for Careers: Technology. Oxford University Press. Check Your English Vocabulary for Medicine (2006). Third Edition. A & C Black publishers Ltd, London.	Generally, Learners will be assessed both formally and informally through assignments, quizzes, presentations, participation and final examinations. Specifically, the learning outcomes will be assessed as follows: • Short answer questions during and at the end of lessons.

• Use of punctuation and capitalization • Structuring sentences • Using basic guidelines for expressing numbers	d. Explain why active or passive voice is appropriate to use in certain context. e. Explain when reported speech would be used and convert direct speech to reported speech in various tenses. f. Use reported speech correctly in writing and discussion. g. Recognize interrogatives and ask questions to gain information by using question words (what, who, where, when, how). h. Recall and apply the basic punctuation and capitalization rules in context. i. Explain the importance of correct sentence structure. j. Use simple and straightforward sentences to communicate clearly. k. Recall and use the guidelines for expressing numbers in writing		Zimmerman, Fran (1992). English for Science. The Open Society Fund. Ibbotson, Mark (2008). Cambridge English for Engineering. Cambridge University Press. Agricultural English (2012). Edited by Georgeta Rata, Florin Sala and Ionel Samfira. Cambridge Scholars Publishing	• Multiple choice tests on punctuation and capitalization rules as well as rules for expressing numbers. • Written assignments: Writing of short sentences to illustrate appropriate application of grammar rules. Examination will cover 70% of the assessments.

Vocabulary and Reading Comprehension	Learners will be able to: a. Recall and explain the meaning of terminologies in the STEAMM fields. b. Use words appropriate for a range of contexts within the STEAMM disciplines. c. Use scientific expressions accurately and appropriately. d. Memorize and master STEAMM terminologies. e. Use word-building strategies to form new words.			Cloze tests will be administered to gauge Learners' vocabulary proficiency. Learners are required to choose appropriate words to fill blanks in sentences/texts. In-class exercises Quizzes and exams throughout the term

Senior Secondary Level 2

Topic/Theme/Unit	Expected learning outcomes	Recommended teaching methods	Suggested resources	Assessment of learning outcomes
Vocabulary and Reading Comprehension continuation	Learners will be able to: a. Identify new vocabulary words from texts on STEAMM topics: – English for Science – English for Technology – English for Engineering – English for Agriculture – English for Medicine – English for Mining	Direct and pupil centered instruction Group activities/ Think-Write-Pair-Share Questioning Class work/ Assignment Presentation	As above	In-class exercises Quizzes and exams throughout the term

	b. Explain the meaning of specialized vocabulary and understand their meaning in texts on STEAMM topics. c. Comprehend detailed information on STEAMM texts. d. Capture the details on STEAMM texts. e. Explain the main idea of a paragraph/ text. f. Interpret and use information from tables, charts, graphs in texts. g. Use content area vocabulary. h. Use a wide range of reading comprehension strategies appropriate to STEAMM texts. i. Make inferences and predictions based			

Writing and Presentation Skills	Learners will be able to: a. Demonstrate skills in writing science reports. b. Use appropriate form and structure in writing lab and field reports. c. Organize ideas for writing scientific reports and articles (e.g. introduction, body paragraphs and conclusion) d. Write with clarity in view of the intended audience and message e. Produce writing that is appropriate and efficient. f. Describe processes, objects or events related to the STEAMM discipline.			Learners will be assessed based on the following: Written assignments: Learners writings will be assessed for the use of formal language as well as appropriate form and structure. Learners will be made to rearrange mixed paragraphs to ensure proper organization and flow from introduction to conclusion. Writing sessions - During lessons, Learners will write lab or field reports on given scenarios. This will be assessed based on elements such as: • Clearly state the purpose • Use appropriate vocabulary • Use correct grammar and punctuation • Good organization of ideas/details

Senior Secondary Level 3

Topic/Theme/Unit	Expected learning outcomes	Recommended teaching methods	Suggested resources	Assessment of learning outcomes
Presentation Skills	Learners will be able to: a. Deliver presentations with confidence for a variety of purposes and audience	Direct and pupil centered instruction Group discussions	As above	Learners will be assessed based on the following: a. Observation by teacher b. Discussion with their peers

	b. Use body language and varied speech to enhance their presentation. c. Use slides and visuals effectively. d. Speak fluently at an appropriate pace. e. Assess their own speaking, and that of others.	Think-Pair-Share Presentations Questioning Class work		c. In-class oral presentations Marks will be awarded based on the following elements: Fluency Confidence Pronunciation Grammar