SEAMEO Basic Education Standards (SEA-BES): Common Core Regional Learning Standards (CCRLS) for Mathematics

(SEABES – CCRLS in Mathematics)

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Aim of SEA-BES CCRLS in Science and Mathematics

“To provide world-class learning standards in Science and Mathematics, including 21st century skills that can be used as benchmarks in SEAMEO Member Countries to ensure all students have access to fundamental knowledge, skills and values in order to be socially responsible, globally competitive and sustainable.”
importance of mathematics
- to acquire mathematical literacy and manage living economically
- to establish a thinking society, being critical, innovative to handle challenges and for better living
- to support learning of other subjects such as science and STEM related fields
- to develop 21st century skills and competency through math as a science of patterns
- To design with data for technological advancement and business model
- To develop logical reasoning as a habit of mind for sustainable development through viable argument in understanding each other
General structure of the CCRLS in Mathematics

The interwoven components include:

- content knowledge and skills
- Mathematical processes
- Values, attitudes and habits for human characters

How to organise the strands

Maths Framework
Figure 3: CCRLS Framework for Mathematics and Aims of Mathematics Learning

Mathematical Values, Attitudes and Habits for Human

Mathematical Values:
- Generality and Expandability
- Reasonableness and Harmony
- Usefulness and Efficient Simpler and Easier
- Beautifulness

Mathematical Attitude attempting to:
- See and think mathematically
- Pose question and develop explanation such as why and when
- Generalize and extend
- Appreciate others’ ideas and change representation to conceptualize

Habits of mind for Citizen to live:
- Reasonably and critically with respecting
- and appreciating others
- Autonomously
- Creatively and innovatively in harmony
- Judiciously using tools such as ICT

Mathematical Thinking and Processes

Mathematical Ideas for:
- Set, Unit, Compare, Operate, Algorithm, Fundamental principle, and Varied representation such as table, diagram, expressions, graph and translations.

Mathematical Thinking:
- Generalization and Specialization
- Extension and Integration
- Inductive, Analogical and Didactical reasoning
- Abstracting, Concretizing and Embodiment
- Objectifying by representing and symbolizing
- Relational and Functional thinking
- Thinking forward and backward

Mathematical Activities for:
- Problem Solving
- Exploration and Inquiry
- Mathematical Modeling
- Conjecturing, Justifying and Proving
- Conceptualization and Proceduralization
- Representation and Sharing

Content

- Numbers & Operations
- Quantity & Measurement
- Shapes, Figures and Solids
- Pattern & Data Representations
- Extension of Number and Operations
- Measurement & Relations
- Plane Figures & Space Solids
- Data Handling & Graphs
- Number & Algebra
- Space & Geometry
- Relationship & Functions
- Statistics & Probability
Interlinking of the three components with the context
Special features:

• The 3 Key Learning Stages
  - developmental
  - simple fundamental concepts to more complex
  - Given different names to the titles
  - Nature of the mathematics learning to fit the demand of the 21st century
  - Format of the curriculum draft
Format

Key Stage Number: (Key Stage 1, 2 and 3)

Strand: Title of Strand under the Stage
- The description of each strand gives clear images for the developmental level in three Stages.

Topics: A set of standards is described under the topic.
- Every topic sentence begins from the gerund form of the verb to include mathematical practice.

- In the case of Mathematical Process and Humanity Strand:
  In every stage, every standard is described under the strand without categorizing into the topics.

Standard: very standard is described with gerund form and verb to show process and adjective to cite value and attitude such as follows.
Sample of a Standard

- **Understanding** the situations for addition up to 10 and obtaining fluency using addition in situations
  - **Introduce** situations (together, combine, and increase) for addition and explain it with manipulative and orally to define addition for operation.
  - **Develop** fluency of addition expressions using composition of numbers for easier calculation using number sense for composition of numbers
  - **Apply** addition with fluency in their life
Future Use and the Way Forward of the CCRLS in Mathematics

• Referenced against when reviewing and developing curricula across SEAMEO
• Curricula will be developed from the standards.
• New structures will be developed to reflect philosophies, principles and practices.
• Learning experiences will be developed from the curricula.
• Guide book or exemplars will be developed to support the use for classroom practitioner.
• Pilot development ...cont.
Future Use and the Way Forward of the CCRLS in Science and Mathematics

• Developing SEA-BES experts who can become consultants
• Developing an assessment framework based on SEA-BES CCRLS
• Setting up a committee comprising of policy makers in the respective countries to ensure the aims and objectives of SEA-BES CCRLS are achieved.
• It is a dynamic document that can be further developed every one or two years.
Implication

• to promote in every member country the establishment of best practices to overcome differences in curriculum;

• to produce systematic discussion process for the establishment of the regional integrated curriculum and assessment;

• to use as a platform for curriculum development and professional development for all stakeholders developing teachers imbued with ASEAN ideals in building ASEAN community;

• to serve as a platform for the Southeast Asia Primary Learning Metrics (SEA-PLM).
Prospects of SEABES CCRLS in Mathematics

• Different views about the national curriculums
  - as a cross reference
• As a new experiment platform to draw new ideas on mathematics curriculum from member countries
• As a guide for curriculum developer – ways to write curriculum
• A guide to formulate mathematics syllabus
• Teacher educators- as reference to draft curriculum
• As reference for all educators to understand curriculum document
THANK YOU
• For integration of ASEAN community
• assessment