The Spiral Progression Approach in the K to 12 Curriculum

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Outline

1. What is the spiral progression approach?
2. How is it implemented?
3. Why is it implemented?
4. What challenges should be met with the use of the spiral progression approach?
The spiral progression approach vs. the disciplinary approach
2010 SEC- Disciplinary Approach

Grade 10 – Trigonometry, Stat and Prob

Grade 9 – Geometry

Grade 8 – Intermediate Algebra

Grade 7 – Elem. Algebra
Spiral Progression Approach
Grades 7-10

Grades 4-6

Grades 1-3

K – Algebra, Geometry, Statistics and Probability
Disciplinal Approach – Science

- Grade 10 – Physics
- Grade 9 – Chemistry
- Grade 8 – Biology
- Grade 7 – Integrated Science
Grades 7-10

Grades 4-6

Grades 1-3

K - Integrated Science, Biology, Chemistry, Physics
Spiral Progression

Grade 3

Living things & their environment, Matter, Force, Motion, Energy; Earth Space

Grade 4-6

Grade 7-10
Another way of explaining Spiral Progression

• Basic concepts/General concepts are first learned
Spiral Progression Approach

• As learning progresses, more and more details are introduced

• While at the same time they are related to the basics which are reemphasized/rediscovered many times for connection and mastery
Spiral Progression

• Basic principles are introduced in the first grade and are rediscovered in succeeding grades in more complex forms.

• Concepts are introduced at an early age and re-taught in succeeding years in an increasingly sophisticated fashion.
Spiral Approach

Macro → Micro
Spiral Approach

Simple → Complex
developing the same concepts from one grade level to the next in increasing complexity and sophistication.
The scope and sequence of the content are developed such that concepts and skills are revisited at each grade level with increasing depth.

As more facts and principles on each topic are encountered, the understanding grows in breadth and depth, creating a metaphorical spiral.
The Design Spiral

- Owner's Requirements & Purpose
- Cost Estimates
- Weight Estimate
- Compliance with Design Standards
- Equipment List
- Plumbing, Mechanical, Electrical
- Engine & Powering
- Final Design
- Hull & Deck Construction
- Hull & Deck Engineering
- Lines Plan
- Sail Plan
- General Arrangement
- Hydrostatics & Stability
- Basic Dimensions & Design Ratio
- Comparison Designs
Progression is not only vertical (e.g., increasing complexity), but also horizontal (e.g., broader range of applications). Learning is extended, reinforced and broadened each time a concept is revisited.
Building on pupils’ prior knowledge and skills … to allow gradual mastery from one grade level to the next.
Advantages of the Spiral over that of the Disciplinal Approach

- Teaching is more integrative and multidisciplinary.
- Spiral progression approach enables students to connect disciplines.
Spiral Progression

• Ensures vertical articulation and seamless progression of competencies
• As early as Grade 7, students will learn concepts in earth science, biology, chemistry and physics. One need not wait to be in Grade 10 to learn physics.
Statistics and Probability

K – starts to make a graph or chart based on the information gathered.

Grade 1 - organizing, representing and comparing data using pictographs without scale representations and probability, and explores games and activities.

Grade 2 - compare data using pictographs with scale representations and the idea of likelihood.

Grade 3 - organize and interpret data presented in tables and bar graphs.

Grade 6 - construct, read and interpret a line graph and its corresponding table of data and solve problems involving data from a table and a line graph.

make simple predictions of events based on a probability experiment.
demonstrates understanding and appreciation of key concepts and skills involving

K – whole numbers up to 20

Grade 1 - up to 100-

Grade 2 - up to 1000

Grade 3- up to 10,000

Grade 4- up to 100,000
demonstrates understanding and appreciation of key concepts and skills involving

Grade 5 – up to 1,000,000

Grade 6 - mastered the concepts of whole numbers as applied... in critical thinking, problem solving, reasoning, communicating, making connections, representations and decisions in real life.
Advantages of the Spiral Progression Approach

• **Mastery of concepts** - One keeps moving upward but keeps returning to the fundamentals.

• **Improved retention** - Reinforces what is already learned; concepts are revisited; One learns best through the repeated experience of a concept.
Advantages of the Spiral Progression Approach

• Rich **breadth** and **depth** of knowledge achieved

• **Continuum** – vertical and horizontal articulation
Sequence of Learning within subjects

1. In some parts of the English curriculum it is difficult to identify clear progressions of the skills or texts identified in the specification of skills by year level. (p. 7)
2. Continuity through School Stages – The transition of the nature of English language outcomes is not as smooth in the Phils as in the comparator countries. In the Phils, the transition is disjointed. There is not always a continuation of specified outcomes between Grade 6 and 1st year.
1. The topic of measurement is consistent across the 10 years in terms of increasing development and complexity and is well aligned with other comparator countries.

2. Material in statistics is not well sequenced in Phils.

3. Basic data use is covered in Grades 3-6 and then not again until Grade 10 like Vietnam. (p. 9)
Math

1. Developed topics quickly.
2. Algebra introduced in Grade 7 but ignored in Grade 9.
Math

1. There is reasonable continuity with notable exceptions:
   • whole number not dealt with in sec level
   • gaps in Grade 7 and 8 for geometry
   • statistics is also discontinuous
Science

• The segmentation of Grades 8-10 into biology, chemistry and physics restricts the inclusion of some areas of science such as biochem.
AusAid Study

• Recommends articulation of subject matter within and across learning areas which is found to be wanting in the Philippine basic education curriculum
Challenge

• Come up with a continuum of standards and competencies

• Teachers have to be multi-specialists and multi-skilled
J. Bruner’s Theory of Learning as Basis of the Spiral Progression Approach

• The notion of *spiral curriculum* states that a curriculum should revisit basic ideas, building on them until the student had grasped the full formal concept.
Bruner’s Discovery Learning

- Spiral curriculum is also aligned with Bruner's theory of discovery learning, which posits that students learn best by building on their current knowledge.
Have a good day! God bless everyone!