Curriculum in Statistics and Probability for Grades 7 to 10 (Philippines)

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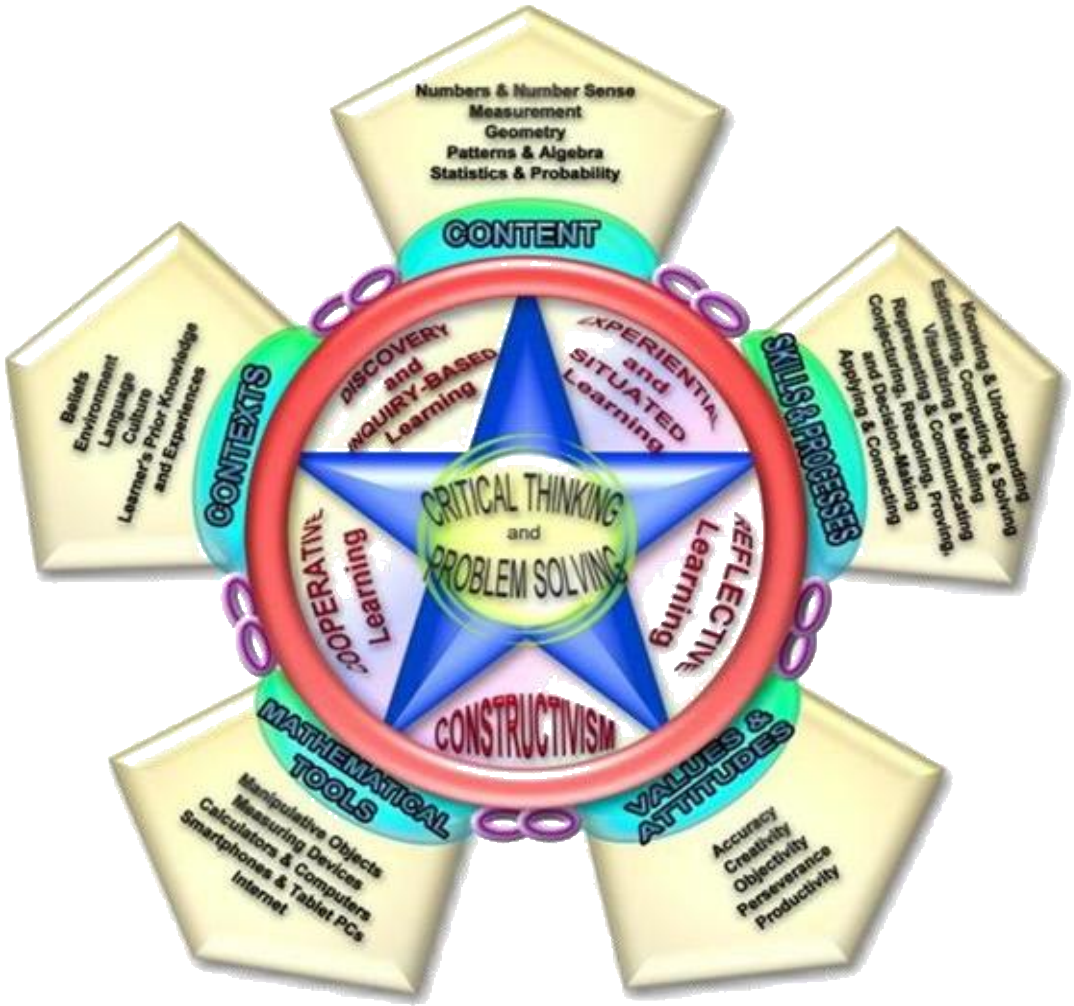

Figure 1.The Conceptual Framework of Mathematics Education

Goal: The twin goals of mathematics in the basic education levels, K-10, are Critical Thinking and Problem Solving.

Strands: The contents of the mathematics curriculum include Numbers and Number Sense, Measurement, Geometry, Patterns and Algebra, and Statistics and Probability.

Focus: Statistics and Probability as a strand is all about developing skills in collecting and organizing data using charts, tables, and graphs; understanding, analyzing, and interpreting data; dealing with uncertainty, and making predictions about outcomes.

Competency: Collects data:

on one variable using:

Grade 1: simple interview

Grade 2: questionnaire

Grade 3: existing records

on two variables using:

Grade 4: any source

on one to two variables using:

Grade 5: any source

on one or two variables using:

Grade 6: any source

Competency: Sorts, classifies, and organizes data in tabular form and presents them into a

Grade 1: pictograph without scales

Grade 2: pictograph without and with scales

Grade 3: vertical or horizontal bar graph

Competency: Organizes data in tabular form and presents them in a

Grade 4: single/double horizontal/vertical bar graph

Grade 5: line graph

Competency: Constructs pie graph based on a given set of data (Grade 6)

Competency: Interprets and draws inferences based on data presented in

Grade 1: a pictograph without scales

Grade 2: a pictograph without and with scales

Grade 3: different kinds of bar graphs (vertical/ horizontal)

Grade 4: different kinds of bar graphs (vertical/ horizontal, single/double bars)

Grade 5: different kinds of line graphs (single to double line graphs)

Grade 6: pie graph

Solves routine and non-routine problems using data presented in a

Grade 1: pictograph without scales

Grade 2: pictograph without and with scales

Grade 3: single bar graph

Grade 4: single or double bar graph

Grade 5: line graph

Grade 6: pie graph

Competency: Creates problems that can be answered using information presented in a pie graph (Grade 6)

Competency: Tells whether an event is

Grade 1: likely or unlikely to happen

Grade 2: likely, equally likely, and unlikely to happen

Grade 3: sure, likely, equally likely, unlikely, and impossible to happen

Competency: Describes events in real - life situations using the phrases

Grade 1: “likely” or “unlikely” to happen

Grade 2: “likely to happen” or “unlikely to happen” or “equally likely happen”

Grade 3: “sure to happen”, “likely to happen”, “equally likely to happen”, and “impossible to happen”

Competency: Records favorable outcomes in a simple experiment (e.g. tossing a coin, spinning a wheel, etc.) [Grade 4]

Competency: Explains the outcomes in an experiment (Grade 4)

Competency: Expresses the outcome in a simple experiment in words, symbols, tables, or graphs (Grade 4)

Competency: Performs an experiment and records result by listing (Grade 5)

Competency: Analyzes data obtained from chance using experiment involving letter cards (A to Z) and number cards (0 to 9) [Grade 5]

Competency: Describes experimental probability (Grade 5)

Competency: Quantify the phrases "most likely to happen" and "unlikely to happen" (Grade 6)

Competency: Describes the meaning of probability such as "50% chance of rain" (Grade 6)

Competency: Performs experiments and records outcomes (Grade 6)

Competency: Makes listings and diagrams of outcomes and tells the number of favorable outcomes and chances using these listings and diagrams (Grade 6)

Competency: Makes simple predictions of events based on the results of experiments (Grade 6)

Competency: Solves routine and non-routine problems involving

Grade 4: a simple experiment

Grade 5: experimental probability

Grade 6: experimental and theoretical probability

Competency: Creates problems involving a

Grade 4: simple experiment

Grade 5: experimental probability

Grade 6: experimental and theoretical probability

Statistics: Grade 7

1. Explains the importance of Statistics

2. Poses problems that can be solved by Statistics

3. Formulates simple statistical instruments

4. Gathers statistical data

5. Organizes data in a frequency distribution table

6. Uses appropriate graphs to represent organized data: pie graph, bar graph, line graph, histogram, and ogive

7. Illustrates the measures of central tendency (mean, median, and mode) of statistical data

8. Calculates the measures of central tendency of ungrouped and grouped data

Statistics: Grade 7

9. Illustrates the measures of variability (range, average deviation, variance, standard deviation) of a statistical data

10. Calculates the measures of variability of grouped and ungrouped data

11. Uses appropriate statistical measures in analyzing and interpreting statistical data

12. Draws conclusions from graphical and tabular data and measures of central tendency and variability

Content standard: demonstrates understanding of key concepts, uses and importance of Statistics, data collection/gathering and the different forms of data representation, measures of central tendency, and measures of variability.

Performance standard: is able to collect and organize data systematically and compute accurately measures of central tendency and variability and apply these appropriately in data analysis and interpretation in different fields.

Statistics: Grade 10

1. Illustrates the following measures of position: quartiles, deciles, and percentiles
2. Calculates a specified measure of position (e.g. 90^{th} percentile) of a set of data
3. Interprets measures of position
4. Solves problems involving measures of position
5. Formulates statistical mini-research
6. Uses appropriate measures of position and other statistical methods in analyzing and interpreting research data

Probability: Grade 8

1. Illustrates an experiment, outcome, sample space, and event
2. Counts the number of occurrences of an outcome in an experiment using: a) table, b) tree diagram, c) systematic listing, and d) fundamental counting principle
3. Finds the probability of a simple event
4. Illustrates experimental probability and theoretical probability
5. Solves problems involving probabilities of simple events

Probability: Grade 10

1. Illustrates the permutation of objects
2. Derives the formula for finding the number of permutations of n objects taken r at a time
3. Solves problems involving permutations
4. Illustrates the combination of objects
5. Differentiates permutation from combination of n objects taken r at a time
6. Derives the formula for finding the number of combinations of n objects taken r at a time
7. Solves problems involving permutations and combinations

Probability: Grade 10

8. Illustrates events, and union and intersection of events

9. Illustrates the probability of the union of two events

11. Finds the probability of the union of two events

12. Illustrates the probability of the intersection of two events

12. Finds the probability of the intersection of two events

13. Solves problems involving probability

Use of ICT in Statistics and Probability

Suggestion:

Use ICT enhanced lesson whenever available and appropriate.

Time Allotment

Grades 1 to 6:	50 minutes/day
Grades 7 to 10:	4 hours /week