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The Effect of Using Learning Package and Geometer's Sketchpad

to Develop the Concept and Analytical Thinking on Circles

of the Ninth Grade Students

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Research Background

- Many educational researchers found that students' ability in many ways of thinking have not been satisfied.

- Mathematical concept is important for students to get being good in mathematics, Including in the living.

- Circle in geometry which is highly abstract in Learning. It is difficult to understand.
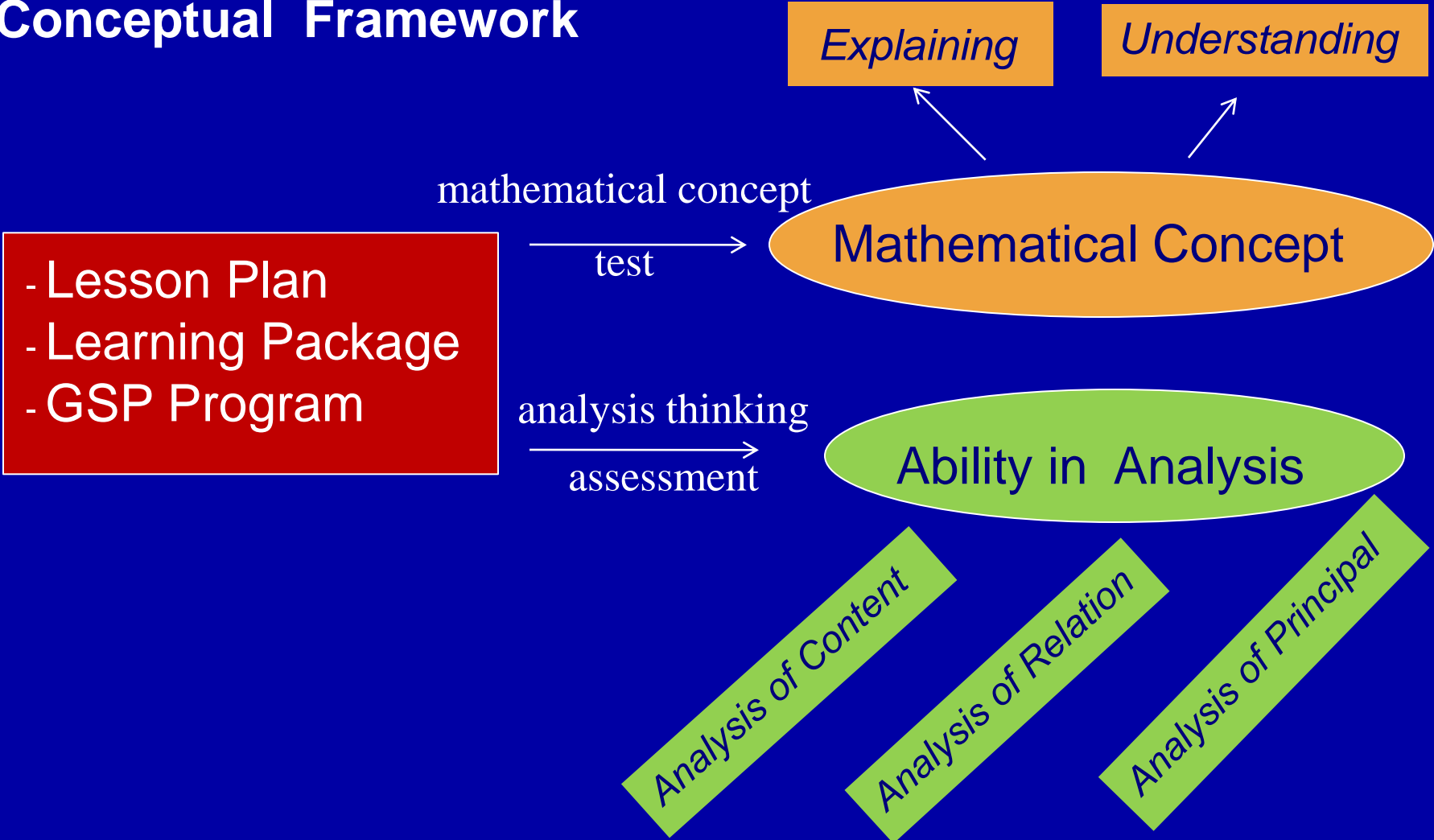
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Objectives

1. To study the result of using Learning Package and GSP Program in the mathematical concept of Circle of 9th grade students.

2. To study the result of using Learning Package and GSP Program in the ability of analysis in Circle of 9th grade students.

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Conceptual Framework

- Lesson Plan
- Learning Package
- GSP Program

mathematical concept

test

→ Mathematical Concept

Explaining

Understanding

analysis thinking

assessment

→ Ability in Analysis

Analysis of Content

Analysis of Relation

Analysis of Principal

The Geometer's Sketchpad (GSP)

is a software program for exploring Euclidean geometry, algebra, calculus and other areas of mathematics.
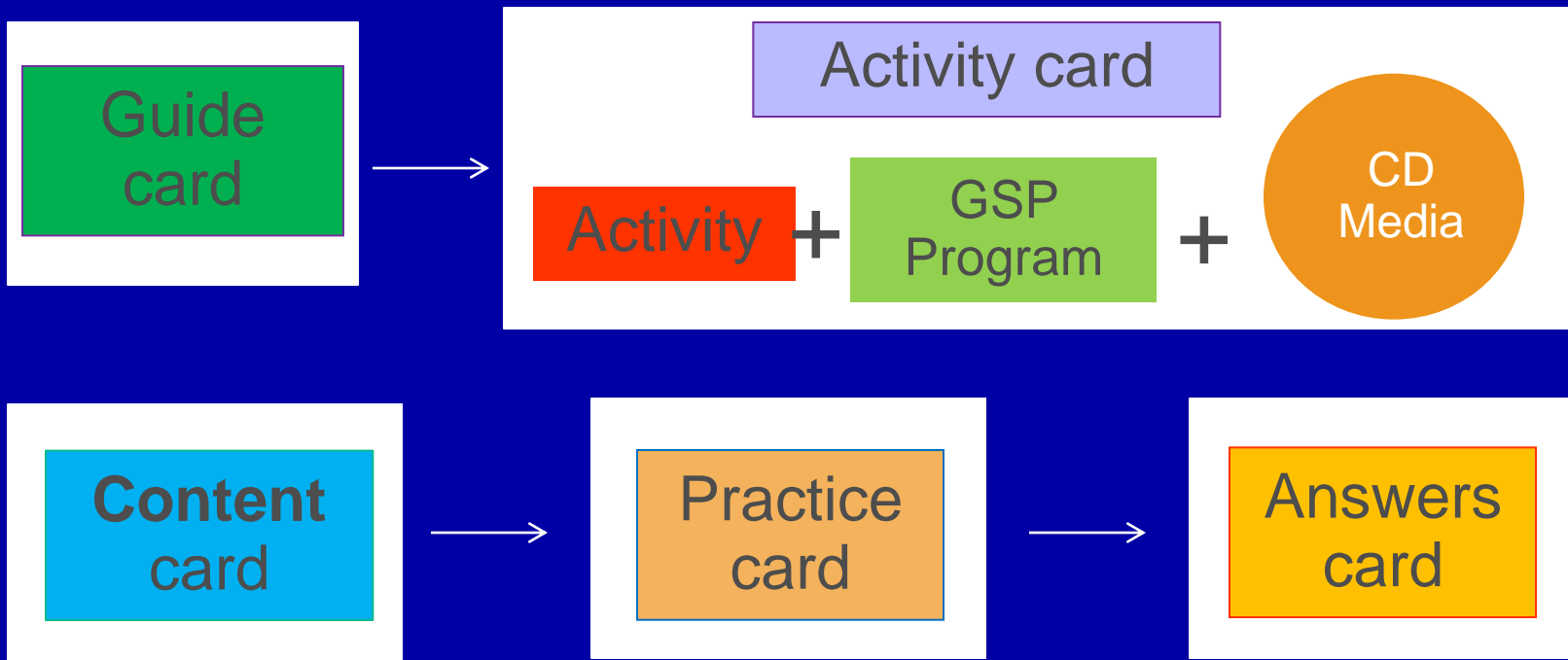
Population and Sample

Population

156 students of the ninth grade at Rachineeburana School Nakornpathom Province, who registered in m33201 mathematics, in the second semester, year 2009.

Samples

45 students of the population which were sampling by cluster.

Structure of Learning Package and GSP

Guide card	Activity card Activity + GSP Program + CD Media

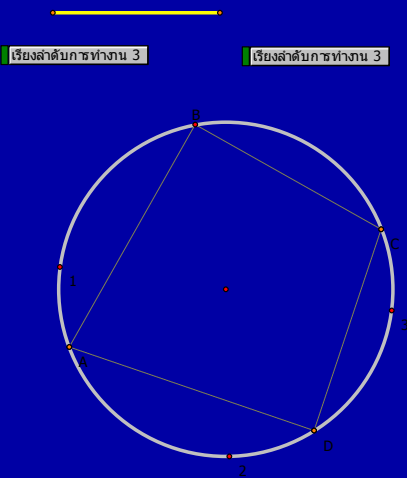|		
Content card →	Practice card →	Answers card

Data Collection

1.   Sample students were taught about circle, by using the learning package and the GSP program.

2.   After they did the activities, they would check and get the scores for their analysis thinking assessments.

3. The mathematical concept post – tests would be given to test the students after finishing the learning.

4. Divided the students into groups for presenting their success of projects using the GSP.

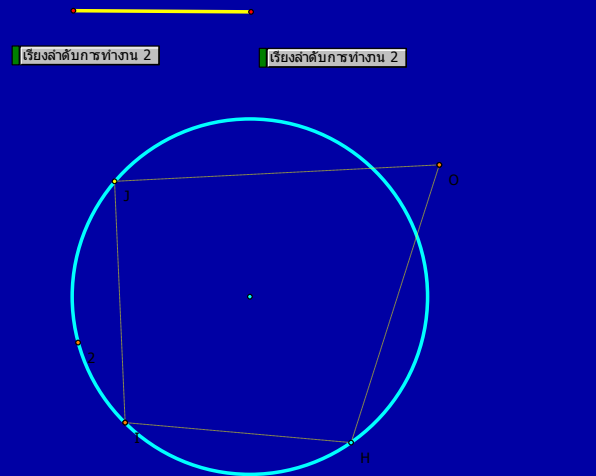5. Statically analyzed all the scores.

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Student success of project by using GSP to show

If any square touch the circle then the sum of angle and it's opposite are 180° or not

เรียงลำดับการทำงาน 3   เรียงลำดับการทำงาน 3

เรียงลำดับการทำงาน 2   เรียงลำดับการทำงาน 2

m∠ABC = 90.42°
m∠ADC = 89.58°
m∠ABC+m∠ADC = 180.00°

m∠JIH = 97.37°
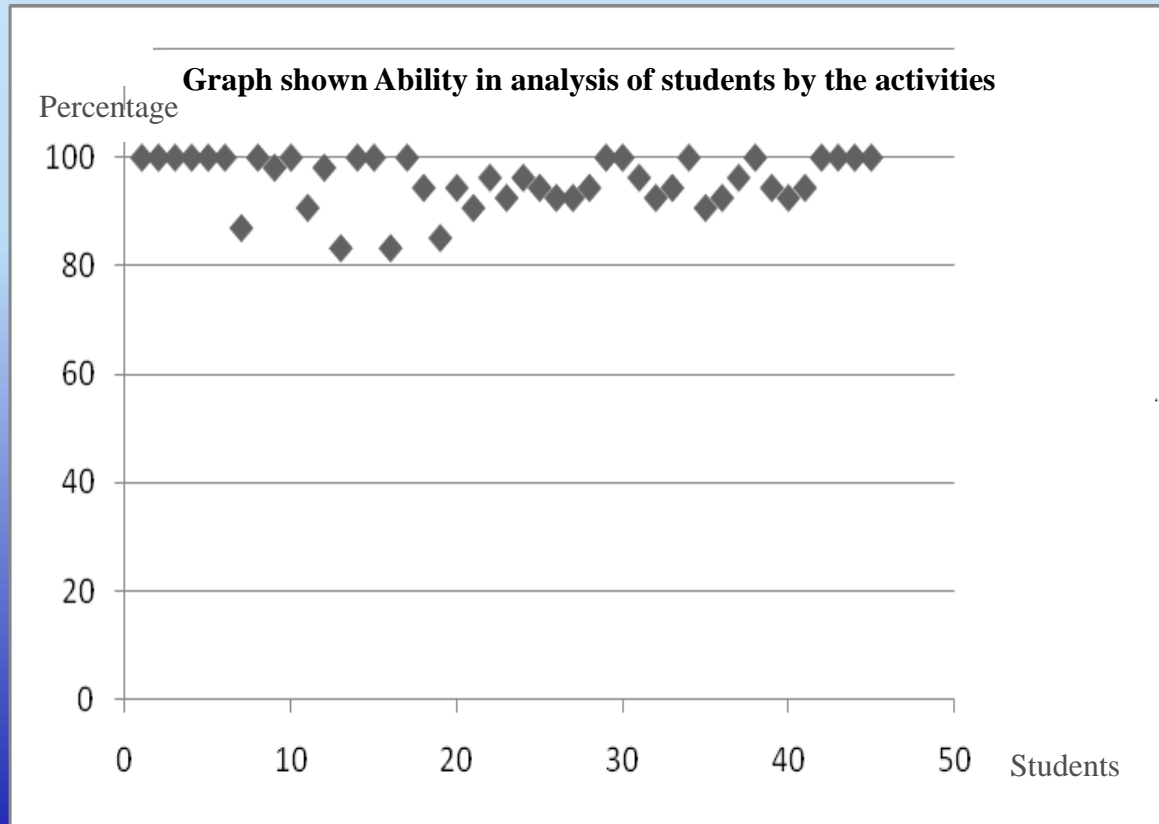m∠JOH = 69.50°
m∠JIH+m∠JOH = 166.87°

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TABLE Shows Mean (x̲), Standard Deviation (SD.), Percentage and Level of concept of samples.

Mathematical concept	Scores	Mean	Standard Deviation (SD.)	Percentage (%)	Level of concept
1. Component of a circle	6	4.23	0.851	71.48	high
2. Angle at the centre of a circle and angle in the segment	20	14.91	0.832	74.56	high
3. Chord	14	11.53	0.695	82.38	highest
4. Tangent to the circle	10	8.04	0.737	80.44	highest
Total	50	38.77	0.782	77.55	high

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GRAPH Ability in analysis of students by the activities.

Graph shown Ability in analysis of students by the activities

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