INTRODUCTION OF INNOVATIVE SCIENCE PROJECTS

- Objective: To provide innovative project ideas

- Sections for a science experiment guide:
  - Objective: the purpose of the project
  - Difficulty: difficulty level to operate and understand concept behind the project
  - Concept: the theoretical basis behind the project
  - Materials: equipment required for the project
  - Procedure: the steps used in the project
  - Results: the parameters should be collected
  - Analysis: clarify how to interpret the data
  - Conclusion: what does student learn from the project
  - Reference: the sources of information used in the project guide

DATA COLLECTION AND ANALYSIS

- Objective: provide instructions for high school students to record data, analyze them and present them on report

- Contents:
  - For report writing
    - Explained basic sections used in scientific report
    - Instructions for referencing resources
  - For collecting quantitative data during the experiment
    - Explained basic sections should be included in lab notebook
  - For analyzing the data using Microsoft Excel
    - Graphing the data
    - Performing linear regression
    - Performing statistical analysis

LAB TECHNIQUES AND SAFETY CONCERNS

- Objective: provide CPS students instructions and procedures of basic techniques required for completing scientific project in different subjects

- General layouts used in each technique guide:
  - Definition: what can the technique do in a scientific experiment
  - Application: the area of study the technique can be applied to
  - Difficulty: difficulty level for performing the technique
  - Concept: the theoretical basis behind the project
  - Materials: equipments used
  - Procedure: the detailed steps of the technique
  - Analysis: clarify how to interpret the data
  - Reference: the sources of information used in the project guide