Active Learning Lesson Plan

Biology - Cells and Molecules of Life

Cellular energetics (YoTeach!)

School :	XXX Secondary School
Subject :	Biology
Form : S4	Date : DD/MM/YYYY
Number of students: 24	Time : 50 minutes
Topic :	Enzymes and enzymatic reactions

Prior Knowledge:

- Catabolic and anabolic processes
- Properties of enzyme and its roles in metabolism

Learning Objectives:

- Investigate of the effect of temperature on the rate of enzyme reaction

Learning activities planned for this lesson:

- **Experiment 6.2** - Investigation of the effect of temperature on the rate of enzyme reaction (Part I)
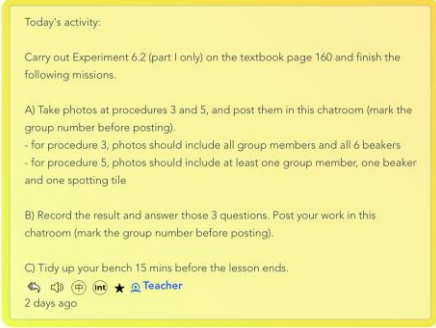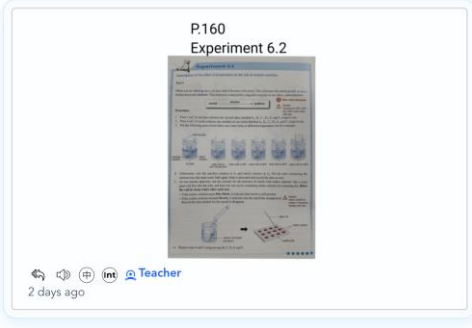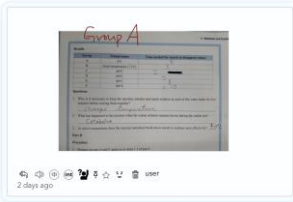- Record the experiment using **YoTeach!.**

Flow/Breakdown of lesson

Review and Warm-up (5 mins)

Teacher helps students to recall the prior knowledge including:

- Catabolic and anabolic processes
- Properties of enzyme and its roles in metabolism

Experiment (40 mins)

Teacher's Activity	Students' Activity
YoTeach! will be used to record the procedures and results of experiment 6.2. With reference to the description of the experiment 6.2 in the textbook, teacher briefs the students on the procedures and the missions when carrying out the experiment. (Pic 1 and 2) Pic 1 Pic 2 Today's activity: Carry out Experiment 6.2 (part I only) on the textbook page 160 and finish the following missions. A) Take photos at procedures 3 and 5, and post them in this chatroom (mark the group number before posting). - for procedure 3, photos should include all group members and all 6 beakers - for procedure 5, photos should include at least one group member, one beaker and one spotting tile B) Record the result and answer those 3 questions. Post your work in this chatroom (mark the group number before posting). C) Tidy up your bench 15 mins before the lesson ends. P.160 Experiment 6.2 By giving an example, teacher shows the format of uploading pictures and results. Students then take photos during the experiment and pictures of the results (Pic 3 - 5) in **YoTeach!**. Pic 3 Pic 4 Pic 5 Group A Group A Group A Teacher will then check the experimental results. Teacher could discuss with students the causes of bizarre results recorded by some groups (if any), answers of the questions, and conclusions could be made after the experiment.	Enter the room by scanning the QR code and entering the pin: **26992071**. Observe and work out according to teacher's demonstration. Students can ask questions through **YoTeach!**.

Conclusion and Homework assignment (5 mins)

Teacher concludes the lesson by recapping the findings/conclusion of today's experiment.

Assign homework to students.

Total: 50 mins