An Example of a practical task

- An investigative practical work
- Assessment areas:
  - Area A: Practical Skills
  - Area B: Report writing

Title: Presence of protease in pineapple and/or kiwifruit

Scenario:

Last week, Mary prepared some jelly for her mother's birthday. In addition to plain jelly, she added fresh fruits into some of the jelly. She found that all the plain jelly could set as usual, but jelly with fresh pineapple and fresh kiwi added failed to set as the plain jelly. She was intrigued by this observation and she asked Miss Chan, her biology teacher, about it. Instead of telling Mary the answer directly, Miss Chan provided her with a piece of useful information:"*Jelly contains a kind of protein called gelatin, which causes the jelly solution to solidify and set after cooling.*"

Presence of protease in pineapple and/or kiwifruit

Students are required to

- propose a hypothesis to explain Mary's observation, i.e. jelly fails to set in the presence of fresh pineapple and kiwifruit;
- design and carry out an investigation to test their own hypotheses; and
- write a full report after investigation.

Aspects for assessment

- Students' understanding of hypothesis formulation and testing
- Competency of practical skills such as
  - Making measurements;
  - Setting up a water bath;
  - Handling common glassware; and
  - Extraction as well as Filtration.
- Writing a scientific report

Design 1 & design 2

- Refer to Teachers' version of Sample task

Boiled Grapefruit

Boiled Grapefruit Extract

Unboiled Grapefruit

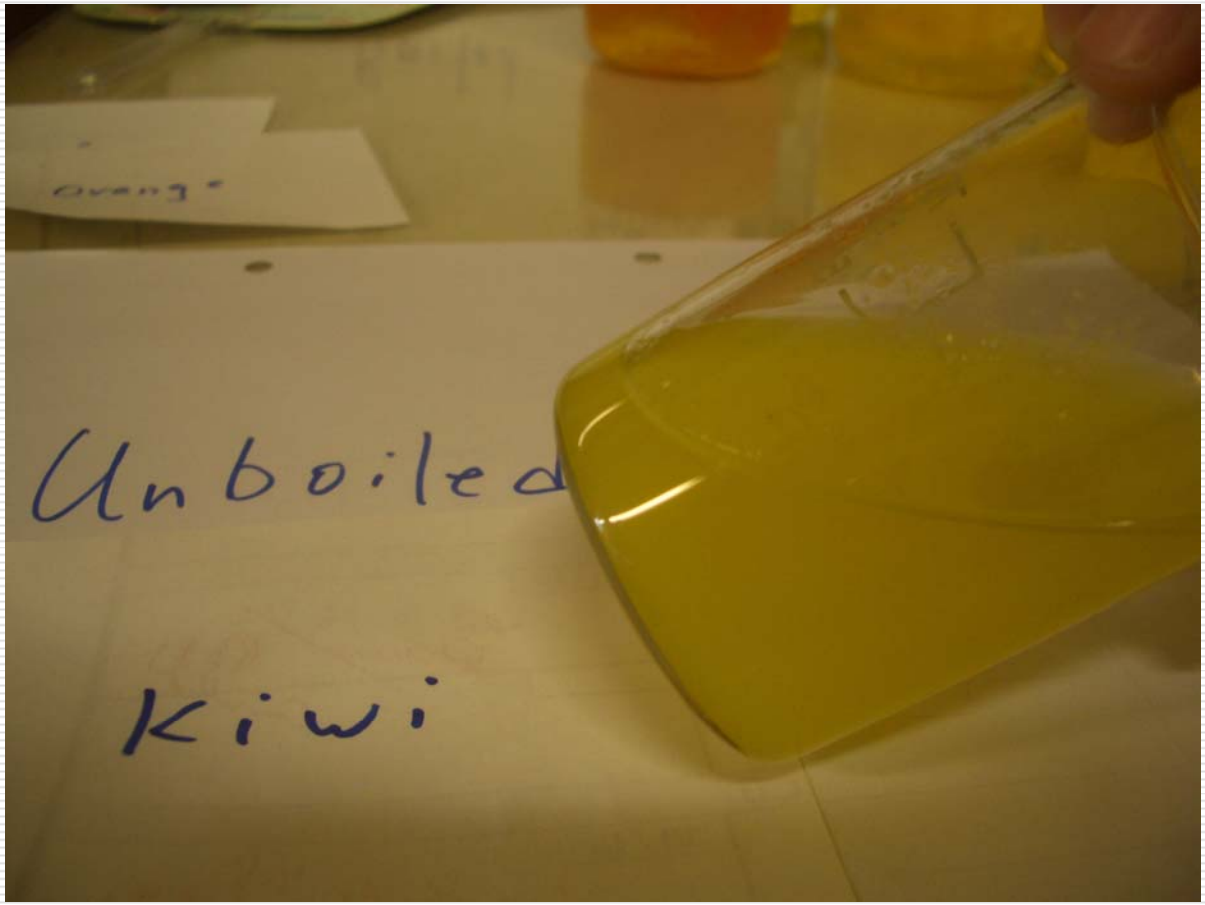
Unboiled Grapefruit Extract

Boiled Kiwi

Boiled Kiwi Extract

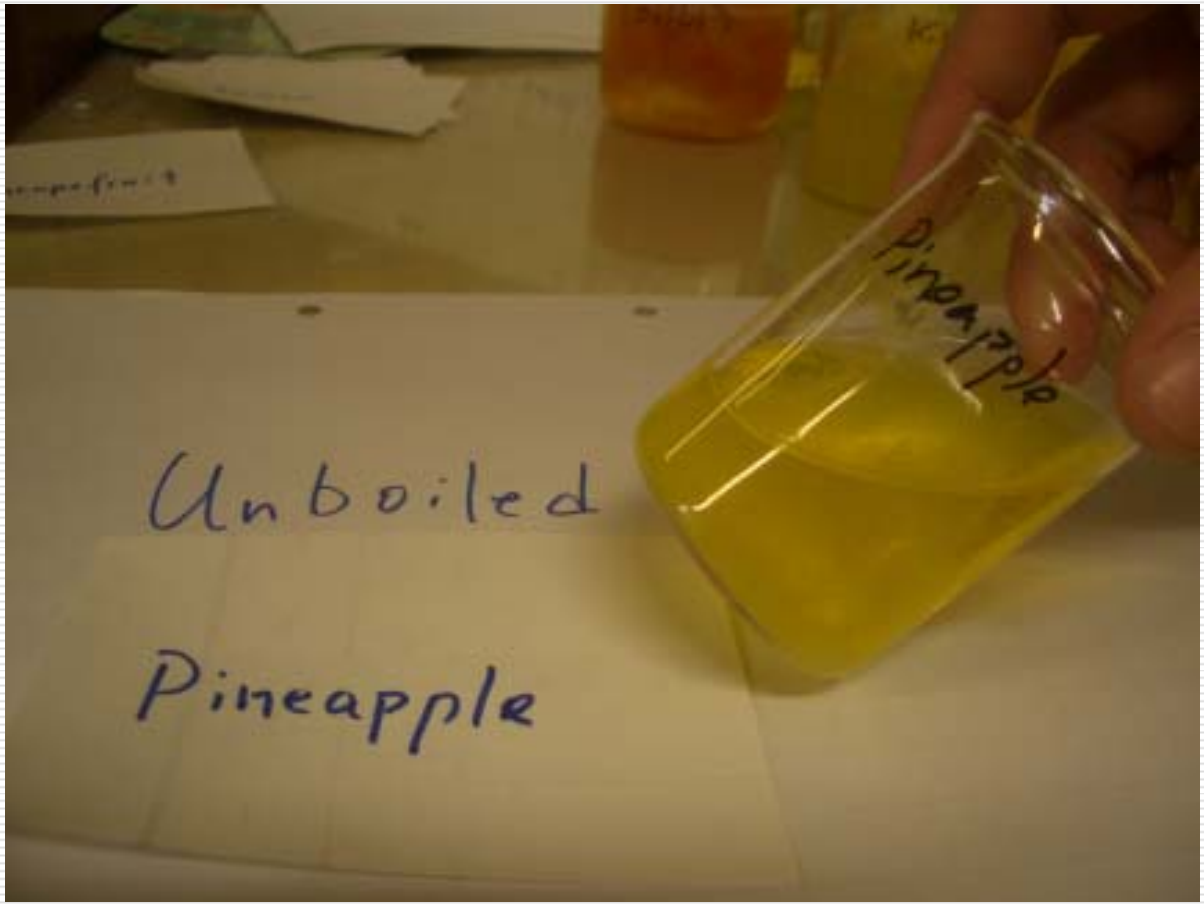
Unboiled Kiwi

Unboiled Kiwi Extract



Boiled Pineapple Extract

Unboiled Pineapple Extract



Some Sharing

- Students can come up with different designs
- Most students can perform the investigation within a double period
- Difficult for teacher to assess every individual student

Suggestions

- Split class assessment
  - At most 4 – 5 groups for each assessment
- Requesting help from another Biology teacher / lab technician?
- General assessment for one group, then individual fine-tuning

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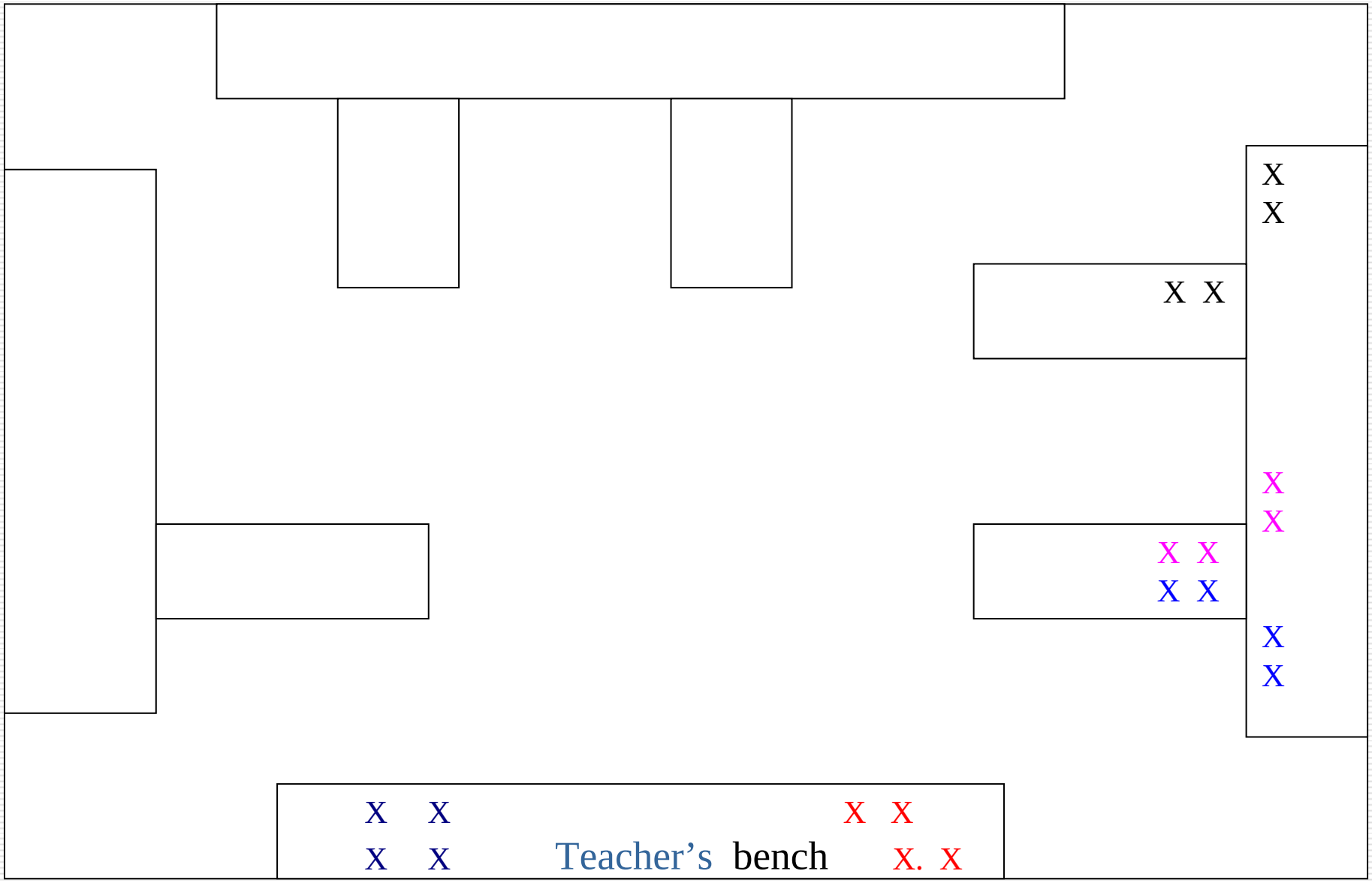
- A specific setting in laboratory for assessment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Remarks

- SBA gears to enhance teaching and learning, rather than creating tension and pressure to students
- Assessment tasks must be well designed and well-thought. E.g.
  - Setting of the laboratory
  - Alternative approaches
    - Encourage creative thinking and entertain individual differences
  - Man-power allocation
  - Students' prior knowledge, ability and diversity

- Thank You