**Key aims**

This practical is designed to assess the skills of decision-making, observation, interpretation and evaluation in relation to testing for biological moelcules.

**Intended learning outcomes**

By the end of this practical the student should be able to:

1. Decide what tests to carry out and what observations to make
2. Use an appropriate means to record your observations, constructing any  tables before you make the observations
3. Describe and summarise the key points of your observations
4. Draw conclusions in terms of the presence or absence of different chemicals  in the solutions
5. Suggest alternative strategies for identifying some of the materials

**Task: You will be given a test tube of unknown solution and will have thirty minutes to determine which macromolecules it contains.**

Preparations and making observations

1. You need to decide what tests to do and in what order so that it is possible to minimize amount of supplies used and maximize efficiency.
2. Decide how you are going to record your observations so that it will be absolutely clear what you did to which solutions, what you observed and your interpretation of the observations.
3. Prepare a piece or pieces of paper in accordance with your decisions.
4. Make a risk assessment of your proposed methods and decide what precautions to take to reduce the likelihood of an accident and to reduce the damage any accidents might cause – ask your teacher to confirm that you may go ahead with the tests.
5. Carry out the tests with full regard to safety, recording your observations and interpretations.
6. Record the identity of the unknown solution.

Write-up

1. hand in your original laboratory records, including your methods, observations and interpretations.
2. suggest improvements to the method including some of the following:
	* any experimental errors,
	* starch would also be hydrolyzed by acid. Suggest a better order to do your tests if this caused you difficulties,
	* ways to increase the efficiency of testing for macromolecules

You will be assessed on the following:

1. Experimental design: Effective pre-planning- **10 points**
	1. Description of procedures for the experiment including any applicable diagrams
2. Experimental Techniques: Safety and Conservation of materials- **4 points**
3. Data/observations collection- **4 points**
4. Analysis and conclusion- **12 points**
	1. Correct identification of unknown
	2. Supports claim with data
	3. Error analysis