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**Year 12 General Human Biology**

**Task 8: Practical – Infectious Diseases (5%)**

**Notes for teachers and laboratory technicians**

**Conducting the practical assessment**

The task should take approximately 20 minutes. Depending on the number of students and availability of equipment, there are several ways to approach this task.

1. Each student has their own set-up for the task and the teacher observes the students as they work.
2. Students could be rotated through the task over a number of lessons, with remaining students working on other activities.
3. Procedure can be adjusted to suit the availability of equipment.
4. When assessing use of equipment safely, including the use of appropriate PPE, the minimum PPE provided should be safety glasses. If available gloves and/or laboratory coats or aprons could also be provided.

**Part 1**

Students should be provided with different sizes of beakers and measuring cylinders to enable them to select the appropriate size for measuring 20 mL of liquid. Measuring cylinder sizes vary from school to school.

**Equipment – per student/station**

* 50-100 mL of coloured water in a small beaker/jar (body fluid)
* Smallest available measuring cylinder available to measure 20 mL of liquid
* 2 beakers (e.g. 100 mL and 250 mL) and 2-3 different sized measuring cylinders
* 10 mL measuring cylinder (or smallest available)
* Dropper

**Assessing the accuracy of adding 5 drops of liquid to the 10 mL measuring cylinder**

Add 5 drops of liquid to the 10 mL measuring cylinder and read the volume of liquid in the measuring cylinder. Student should be close to this value if they added the drops correctly.

Note: The types of droppers available in schools vary. Ensure all students are using the same type of dropper.

**Part 2**

Two alternative methods for preparing influenza swabs have been provided.

The number of swabs could be reduced to three or four per student. If changes are made to the number of swabs the student instructions, results table and available marks will need to be adjusted.

**Equipment – per student/station**

* 5 test tubes, labelled A-E, containing nasal swab samples
* Dropper bottle of influenza testing reagent

**PREPARING SIMULATED INFLUENZA SWABS**

Method 1 – Using phenolphthalein solution as influenza testing reagent

**Equipment**

* 10 mL of water in a small beaker (negative for influenza)
* 10 mL of 0.1 M NaOH in a small beaker (positive for influenza)
* 10 mL of 1.0 M NaOH in a small beaker (positive for influenza – high viral load)
* 5 cotton-tipped swabs or cotton buds per student/station
* 5 test tubes per student/station
* 1 test tube rack per student/station

**Procedure**

1. Add one swab per student/station to the beaker of water
2. Add three swab per student/station to the beaker of 0.1 M NaOH
3. Add one swab per student/station to the beaker of 1.0 M NaOH
4. For each student/station, label five test tubes A-E and place in them in a test tube rack.
5. Each set of five test tubes requires:

* One swab from the water beaker
* Three swabs from the 0.1 M NaOH beaker
* One swab from the 1.0 M NaOH beaker

Method 2 – using iodine solution as influenza testing reagent

**Equipment**

* 10 mL of water in a small beaker (negative for influenza)
* 10 mL of starch solution in a small beaker (positive for influenza)
* 5 cotton-tipped swabs or cotton buds per student/station
* 5 test tubes per student/station
* 1 test tube rack per student/station

**Procedure**

1. Add one swab per student/station to the beaker of water
2. Add three swab per student/station to the beaker of 0.1 M NaOH
3. Add one swab per student/station to the beaker of 1.0 M NaOH
4. For each student/station, label five test tubes A-E and place in them in a test tube rack.
5. Each set of five test tubes requires:

* Two swabs from the water beaker
* Three swabs from the starch solution beaker

Acknowledgements

**Task 1 Part 1** Safe Work Australia. (n.d.). *GHS02 (Flame)* [Pictogram]. Retrieved September, 2024, from [https://hcis.safeworkaustralia.gov.au/Hazardous  
Chemical/Details?chemicalID=1888](https://hcis.safeworkaustralia.gov.au/HazardousChemical/Details?chemicalID=1888)

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/HazardousChemical/Details?chemicalID=1888](https://hcis.safeworkaustralia.gov.au/HazardousChemical/Details?chemicalID=1888)

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**Task 2 Question 1** Adapted from: Muskopf, S. (2020). *Review the Structure of DNA*. [Diagram]. Retrieved September, 2024, from [https://www.biologycorner.com/work  
sheets/DNA-labeling.html](https://www.biologycorner.com/worksheets/DNA-labeling.html)  
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