**Integrated Science Unit 1**

**Task 1: Practical Skills Assessment**

**Task Type : Science Inquiry**

**Weighting of Task : 6 %**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. There are THREE SECTIONS in this science inquiry activity. You must attempt ALL sections.
2. You are not permitted to use your notes.
3. The time allowed to complete the questions is 60 minutes.

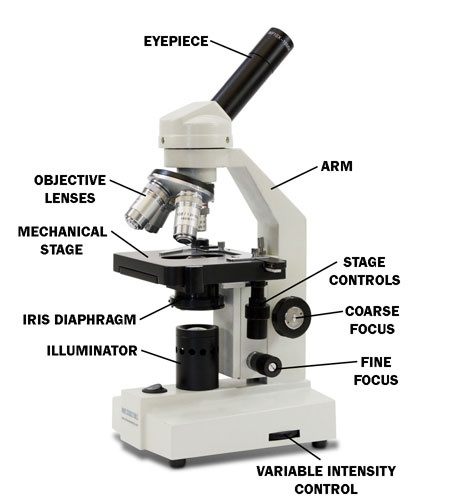
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|  | **Marks Allocation** | **Your Total** |
| **Section One** | 13 |  |
| **Section Two** | 25 |  |
| **Section Three** | 14 |  |
| **TOTAL** | 52 |  |
|  | | Percentage % |

**Practical Skills Assessment**

In this section you are going to carry out a practical and record and analyse your results. This will involve setting up a microscope, preparing a slide for viewing and recording your results.

**Section One**

1. Label the diagram of the microscope correctly. (4 marks)

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1. Describe how you would prepare a wet mount slide of plant tissue for viewing under the microscope. Ensure it is a step by step procedure using correct terminology. (4 marks)

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1. State why the plant tissue would be stained prior to viewing under the microscope. (1 mark)

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1. Once the microscope slide has been secured for viewing, describe the initial steps you would take to focus on the cells in the tissue. Ensure it is a step by step procedure, including the correct terminology. (4 marks)

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**Section Two**

During the following practical you will be assessed on your ability to prepare a microscope slide for viewing and the accuracy of recording information.

**Hypothesis**: If the chemical composition of a substance is different then the crystals they form during evaporation will be different in shape.

1. State the following:

Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (1 mark)

Dependent Variable : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (1 mark)

**Collect the following equipment:**

Microscope

Four microscope slides

Saturated solutions of Sodium Chloride, Aluminium Potassium Sulphate, Copper Sulphate, Magnesium Sulphate

Small dropper bottle of ethanol

Test paper

Below are a set of instructions to create a microscope slide for watching salt crystal grow. When you have completed the first activity repeat the process using the other saturated solutions (one at a time).

1. Place a small drop of salt solution onto the middle of the microscope slide.
2. Place the slide onto the microscope.
3. Using the low power, focus the microscope of the slide.
4. Then add a drop of ethanol to the solution and watch the crystals grow using the microscope.
5. Once the crystals have grown, try focusing the slide using the medium power.
6. Record what you see under the microscope on the following page.
7. Repeat steps 1-6 using the other saturated chemicals.

**You will be marked on the following:**

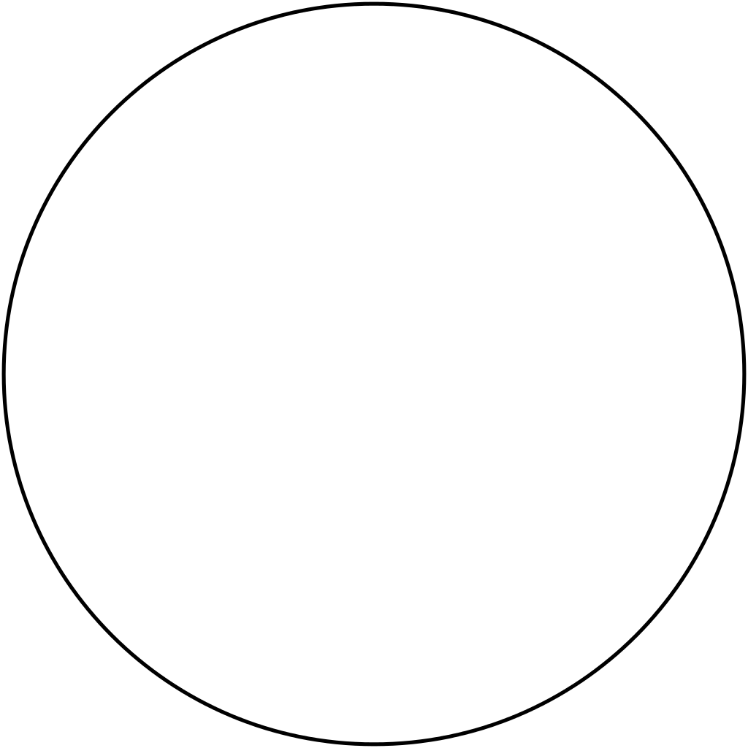
Safety in the laboratory (2 marks)

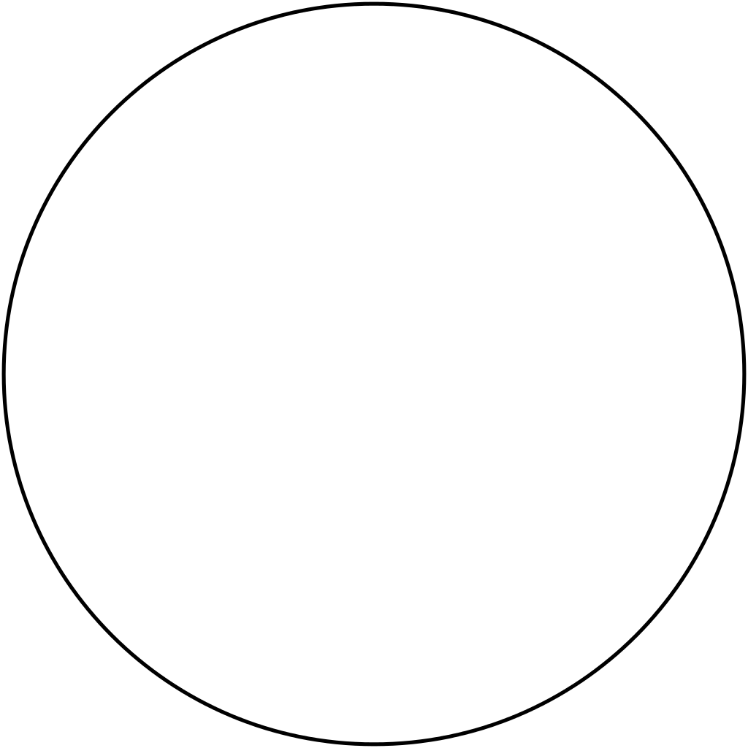
Preparation of a microscope slide sample (2 marks)

Appropriate use of a microscope to view a sample (3 marks)

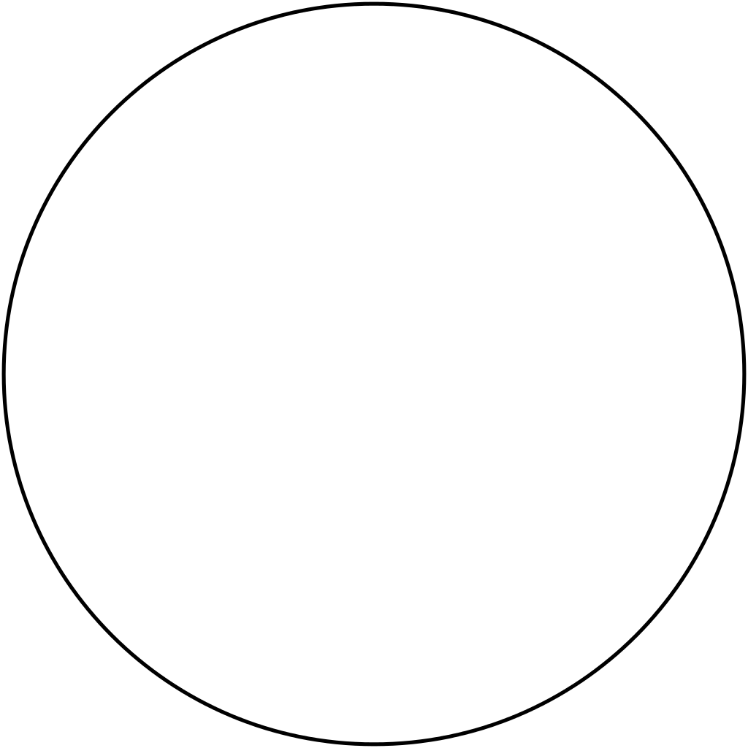
Appropriate care of laboratory equipment (2 marks)

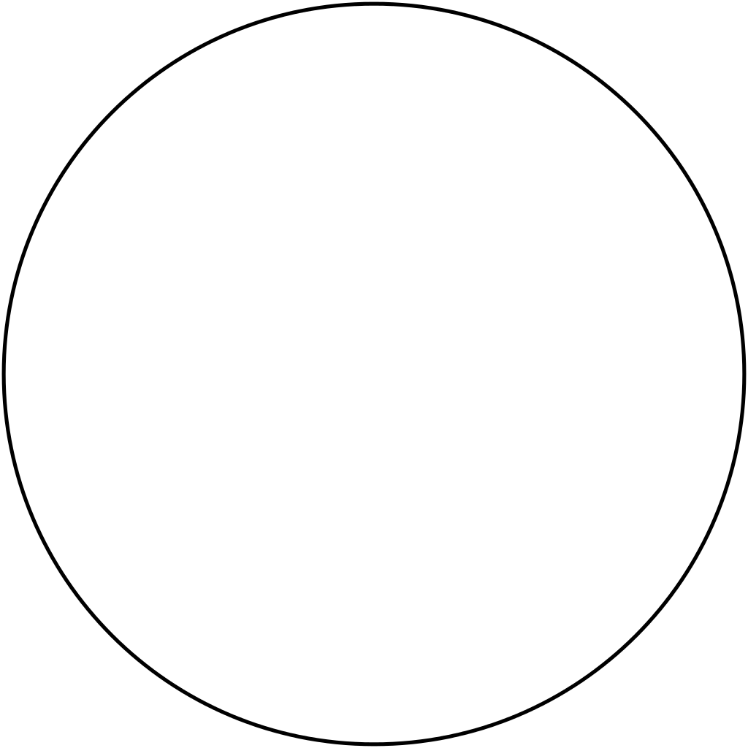
1. Record your results in the spaces below. (5 marks)

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1. Describe the crystal formation for each type of saturated solution. (4 marks)

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1. Write a conclusion for your experiment. (2 marks)

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1. Describe any difficulties you experienced in conducting this experiment and suggest a way that the design of the investigation could have been improved. (3 marks)

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**Section Three**

A science student set out to investigate the reason why the fish were active when the temperature was quite warm. A controlled experiment was designed in which groups of fish were subjected to different temperatures. The following data were collected.

# Temperature of Number of Number of Total Number

the container fish active fish inactive of fish in the

(oC) pond

0 0 50 50

10 4 46 50

15 8 42 50

20 18 32 50

25 40 10 50

30 48 2 50

35 11 39 50

40 2 48 50

45 0 50 50

##### Question 1

What hypothesis could the science student have been testing? (2 marks)

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##### Question 2

In the above experiment which is the:

(i) Independent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 marks)

(ii) Dependent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (1 mark)

##### Question 3

State 2 variables the student would need to control in order to collect reliable data? (2 marks)

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##### Question 4

On grid provided plot a graph to show how the number of active fish changed over time as the temperature changed. (5 marks)

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##### Question 5

What conclusion can you make from the results of the above experiment? (2 marks)

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