**TYPE:** Science Inquiry

**TASK 11: Extraction of DNA from strawberry Fruit – Validation Test (18 marks)**

Students are to complete an in-class assessment based on a class experiment done previously. This task will be completed in one session under test conditions.

**Time for the tasks (35 minutes)**

* 5 minutes reading time
* 30 minutes working time

**What you need to do:**

* Follow the instructions provided very carefully to complete the test.
* Draw any results in pencil and answer all questions given.
* It is your responsibility to organise your time effectively.
* There is to be no discussion between you or any of your class mates.
* No sharing of any equipment or answers at all.

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| **Requirements for assessment** | **Due dates:** |
| * Complete all questions | \_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

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**STUDENT NAME: ANSWER KEY**

**TEACHER: Mrs Burns YEAR: 11**

**DNA Extraction from Strawberry Fruit Practical – Validation Test**

**1.** What was the aim of this investigation?

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To obtain a sample of (‘pure’) DNA from strawberry fruit

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(2 mark)

2. Given that safety glasses will be worn to prevent chemicals getting into your eyes, outline (name/description, and purpose) 4 other laboratory procedures you need to follow during this practical

|  |  |
| --- | --- |
| name | purpose |
| filtration | separate liquid from crushed strawberry fruit and buffer |
| other safety procedures –not running; clear workspace | to work safely – not be injured |
| crushing strawberry fruit | to break up cells walls |
| Ethanol | layer with DNA – create environment for DNA to come out of solution. |
| Follow instructions carefully | to get reliable results etc. |

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(4 marks)

3. What was the role of the soap/detergent in the buffer solution? Or, why was it used?

\_\_\_it breaks down the ‘fatty’ membrane of cells (1), then the nuclear membrane, releasing DNA into solution (1)

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(2 marks)

4.Why was it necessary to crush the strawberry fruit?

\_\_\_\_To break down the cell walls of the strawberry \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 mark)

5. Why did you have to be careful not to over handle the strawberry fruit?

The DNA would sheer/degrade - it would break up too much – not having so many longer strands

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(2 mark)

6**.** What was the gauze used for?

\_\_\_\_\_\_\_\_\_\_\_separating the strawberry fruit DNA, buffer solution from the strawberry fruit debris etc.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 mark)

**7.** What happened when an equal volume of ice-cold ethanol was placed on the filtered strawberry fruit solution?

The cold temperature of the ethanol stops the DNAases from breaking down the DNA (1)

the DNA is insoluble in ethanol, so it precipitates out at the boundary as a white gooey material (1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 mark)

8. What is the name – full words - of the substance collected at this stage?

Deoxyribonucleic acid. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 mark)

**END OF VALIDATION TEST**