9.4 – Reproduction In Plans

**Understandings, Applications and Skills** (This is what you may be assessed on)

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|  | **Statement** | **Guidance** |
| 9.4 U.1 | Flowering involves a change in gene expression in the shoot apex |  |
| 9.4 U.2 | The switch to flowering is a response to the length of light and dark periods in many plants |  |
| 9.4 U.3 | Success in plant reproduction depends on pollination, fertilization and seed dispersal |  |
| 9.4 U.4 | Most flowering plants use mutualistic relationships with pollinators in sexual reproduction |  |
| 9.4 A.1 | Methods used to induce short-day plants to flower out of season.  |  |
| 9.4 S.1 | Draw internal structure of seeds. |  |
| 9.4 S.2  | Drawing of half-views of animal-pollinated flowers. |  |
| 9.4 S.3 | Design of experiments to test hypothesis about factors affecting germination. |  |

**9.4 U.1 Flowering involves a change in gene expression in the shoot apex**

1. Describe how a change in vegetative structure occurs to create a flower.

**9.4 U.2 The switch to flowering is a response to the length of light and dark periods in many plants**

1. Distinguish between long-day and short-day plants in terms of conditions required for flowering
2. Define phytochrome
3. Distinguish between red light and far-red light wavelength
4. Use the diagram below to explain the interconversion of phytochromes between daylight and darkness

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1. Explain how phytochromes control flowering in short-day plants
2. Explain how phytochromes control flowering in long-day plants

**9.4 A.1 Methods used to induce short-day plants to flower out of season**.

1. Identify factors that are changed to induce flowering**.**

**9.4 U.3 Success in plant reproduction depends on pollination, fertilization and seed dispersal**

1. Describe the process of fertilization in a flowering plant

Begin with the pollen grain on the stigma. Identify the site of seed development.

**9.4 U.4 Most flowering plants use mutualistic relationships with pollinators in sexual reproduction**

1. Describe the process of fertilization in flowering plants. .
2. Discuss TWO mechanisms of pollen transfer and the adaptations facilitate each mechanism
3. Explain two advantages of dispersing seeds over a wide area

**9.4 S.1Draw internal structure of seeds.**

1. Draw a diagram to show the structure of a seed (Label, and include functions of, micropyle, testa, scar, radicle, plumule and seed coat)

**S.4 S.2 Drawing of half-views of animal-pollinated flowers**

|  |  |  |
| --- | --- | --- |
| **Name** | **Structure (Identified in with a letter in drawing above)** | **Function** |
| **Sepals** |  |  |
| **Petals** |  |  |
| **Stamen** |  |  |
| **Filament** |  |  |
| **Anther** |  |  |
| **Pistil** |  |  |
| **Stigma** |  |  |
| **Style** |  |  |
| **Ovaries** |  |  |

**9.4 S.3 Design of experiments to test hypothesis about factors affecting germination.**

1. Define germination
2. State the functions of the following in the germination of a seed:
3. WATER
4. TEMPERATURE/pH
5. OXYGEN

15. Annotate the diagram to show the metabolic processes taking place during the germination of a seed**:**

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| **1.** |  |
| **2.** |  |
| **3.** |  |
| **4.** |  |
| **5.** |  |
| **6.** |  |