Ellen Frawley, Student Id 1207147

**EDF4402: Assignment Task One: CoRes**

***Unit 2 – Organisms and their environment; Adaptions of organisms; Behaviours for survival***

***Big idea – Plant tropisms and rhythmic activities***

Plants as living things demonstrate several characteristics of life including growth, response to stimuli, and adaptation.

Plants have important behavioural adaptions to improve their chances of survival and reproduction. The growth of a plant in response to a stimulus is termed a tropism. Movement that is independent of the direction of stimulus is called a rhythmic activity.

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| **What you Intend the students to learn about this idea.** | 1. Plants are sensitive to their environment 2. A tropism is a plant response to external stimuli 3. Positive tropisms are a growth response towards the stimuli 4. Negative tropisms are a growth response away from the stimuli 5. Phototropism is a response to light 6. Geotropism is a response to gravity 7. Thigmotropism is a response to contact with another object 8. Heliotropism is a response to follow the sun (leaves and flowers) 9. Photoperiodism is the response to periods of light and dark 10. Auxins are the plant hormones that cause the bending response 11. Rhythmic activities 12. Nastic movement is a movement independent of the direction of the stimulus ( opening and closing of flowers) |  |
| **Why is it important for students to know this.** | Students to understand that external factors influence growth and development of the plant.  Students need to recognise the importance of behaviour and adaption to the survival and reproduction of the plant.  Useful comparisons can be made with the more complex animal behaviours. |  |
| **What else you know about this idea (that you do not intend the students to know yet).** | Plant reproduction. – Sexual and asexual.  Plant hormones, (ie auxin) are covered in more detail in unit 3, area 2; Detecting and responding. |  |
| **Difficulties / limitations connected with teaching this idea.** | The concepts can be hard for the students to visualise and drawings can be idealised and not represent real outcomes. Students need to do this topic in conjunction with animal behaviours, in order for comparisons to be made. |  |
| **Knowledge about students’ thinking which influences your teaching of this idea.** | Students can view plants as boring, not really responding to their environment. Compared to animals, it is not obvious how they eat /move or, in this case, have strategies for survival. |  |
| **Other factors that influence your teaching of this idea.** | To try and challenge students preconceptions about plants. Prac work helps to engage the students. Students need to be encouraged to actively participate in their own learning and to be confident in gathering results and making conclusions |  |
| **Teaching procedures (and particular reasons for using these to engage with this idea).** | This will serve as a basis to explore plant behaviours for survival.  Class discussions: Students will have the opportunity to outline their existing knowledge, (preconceptions and misconceptions) through class discussions and this gives the teacher the opportunity to correct misconceptions.  Watching video or looking at diagrams to visualise the cell elongation action, caused by auxin and to get a clear understanding of tropisms and positive/negative concepts  Question building: Students form small groups to invent some questions about the topic. Eg, if we turn a plant upside down, will it grow towards the ground? What happens if we grow a plant in a cupboard? This allows confidence building and helps the students to connect with the material.  Design of lab experiments: to look at questions raised. Aim to cover all tropisms previously discussed and allows teacher to assess understanding and make corrections.  Class pracs: Practical experiments to look at what plant behaviours are observed in certain situations. This helps to engage the students and gives the practice at interpreting results and drawing conclusions. |  |
| **Specific ways of ascertaining students’ understanding of confusion around this idea (include likely range of responses).** | From the design of lab experiments the teacher can ascertain the understanding / confusion around the idea of tropisms.  Practical reports can be written up and assessed to allow the teacher to determine the level of understanding from the conclusions drawn by the students. |  |

**References:**

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