



Study of a Rocky Shore Ecosystem

(Adaptation of coastal plants, algae, cyanobacteria and lichens)

Background information:

Coastal plants, algae, cyanobacteria and lichens are entirely different types of organisms. They grow in rocky shore environment with different forms and modes of existence. Their growth is being affected by a number of physical (abiotic) factors and biotic factors. Take algae as an example. Algae have great variety in forms and types. Algae mainly grow in subtidal zone and intertidal zone with great variations in abundance and appearance following changes in season. Lichens are organisms with algae and fungus in mutualism. Lichens are mainly found in crustose and foliose shape with many different colours which grow on rock surface of splash zone with less impact of sea water. Coastal plants need to withstand the harsh conditions of rocky shore that is lack of substrate and freshwater, strong impact from wind and wave action. Therefore, these coastal plants mainly grow in backshore with less impact from wave action.

Task:

Design and implement a survey to find out the distribution of coastal plants, algae, cyanobacteria and lichens together with their adaptation features. Prepare a detailed/ full report.

Available equipment and material:

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| 1. Clipboard | 2. Light meter |
| 3. Digital thermohygrometer | 4. Soil thermometer |
| 5. Digital anemometer | 6. Trowel |
| 7. Forceps | 8. Water sampling bottles |
| 9. Transect (50 m) | 10. Quadrat (0.5 m X 0.5 m) |
| 11. Magnifying glasses | 12. Plastic bag |
| 13. Abney Level | 14. Refractometer (to be used in Lab.) |
| 15. Filter paper dried in oven (to be used in Lab.) | 16. pH meter (to be used in Lab.) |
| 17. Dissecting microscope (to be used in Lab.) | 18. Compound microscope and glass slides (to be used in Lab.) |
| 19. Standard glass wares (to be used in Lab.) | 20. Hong Kong Field Guides- Rocky Shore (Book) |
| 21. Hong Kong Coastal Plants (Book) | 22. Hard Shore Organisms (Book) |
| 23. Wildlife Pictorial Guide (Book) | |

Some items listed above may not be useful, students should decide what to be use. Additional equipment or material can be provided upon request, as long as the request item is available.

Procedure and time allocation:

1. Group discussion and formulation of investigation plan - 50 mins
2. Distribution of equipment - 10 mins
3. Field work - 90 mins
4. Laboratory work - 60 mins
5. Group discussion and interpretation of results - 90 mins
6. Write up the full report

