



Study of a Rocky Shore Ecosystem

(Adaptation of Rocky Shore Animals)

Background information:

Rocky shore ecosystem has unique environmental characteristics such as hard and impenetrable substrate, strong wave action, direct exposure to sun and tide. Animals often need to develop different adaptation features to survive in this habitat. There are significant changes in physical factors on rocky shore under strong wave action, from the highest splash zone to the lowest subtidal zone. The higher in rocky shore, the physical constraints for coastal animals are more obvious. In lower part of rocky shore, coastal animals are found in greater numbers and variety, at the same time, this also means more interaction between species. Therefore, organisms on rocky shore occur in distinctive horizontal bands or zones. It is a phenomenon known as zonation.

There are numerous microhabitats in rocky habitats. These microhabitats are refuge and the living place of different species which include crevices on rocky shore, shaded areas, areas under rocks, low-lying areas and tide pools. Crevices on rocky shore receive less wave action. Shaded areas can avoid the prolonged sun exposure, reducing the pressure of desiccation and high temperature. Areas under rocks are the best place to hide from a lot of hunters. Tide pools in intertidal zone are the only possible habitat for marine animals that cannot be exposed to air.

Task:

Design and implement a survey to find out the distribution, zonation of coastal animals or how they adapt to microhabitats and the harsh physical environment. Students should try to set a topic or hypothesis, and list research methods in detail, collect data through field visits, and finally write a related detailed report.

Available equipment and material:

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| 1. Clipboard | 2. Light meter |
| 3. Digital thermohygrometer | 4. Digital anemometer |
| 5. Forceps | 6. Trowel |
| 7. Transect (50 m) | 8. Quadrat (0.5 m X 0.5 m) |
| 9. Magnifying glasses | 10. Dissecting microscope (to be used in Lab.) |
| 11. Wildlife Pictorial Guide (Book) | 12. Hard Shore Organisms (Book) |
| 13. Hong Kong Field Guides- Rocky Shore (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 arrangement:

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.

