

**PENANG SANGAM HIGH SCHOOL**  
**P.O.BOX 44, RAKIRAKI**  
**LESSON NOTES**







**Subject: Basic Science**

**Year/Level: 10**

**Week 17**

<b>Strand</b>	1 : LIVING THINGS AND THE ENVIRONMENT
<b>Sub Strand</b>	1.3 : BIODIVERSITY, CHANGE AND SUSTAINABILITY
<b>Content Learning Outcome</b>	Explore the career opportunities in the medical, environment field to make informed decision on the subject combination necessary for its accomplishment.

**Mangroves**

-  highly biodiverse habitats that host a large variety of unique organisms from barnacles and oysters to fiddler crabs, mudskippers.
-  **Nutrients and carbon from mangrove forests:**
  - ✓ provide essential support to other near shore marine ecosystems such as coral reefs and seagrass areas
  - ✓ enrich coastal food webs and fishery production.
-  provide the first line of defense against cyclones, high winds and storm surges.
-  provide natural adaptation to:
  - ✓ the effects of climate change
  - ✓ serve as natural insurance against climate change
  - ✓ contribute towards the global reduction of greenhouse gas emissions.
-  estimated that globally, mangroves provide at least \$1.6 billion per square kilometres in ecosystem services annually.
-  Such services include protecting:
  - ✓ Foreshores
  - ✓ fisheries production
  - ✓ supply of building materials
  - ✓ tourism
  - ✓ recreation
  - ✓ improving water quality.

- 🌳 Carbon sinks.
- 🌳 nature's answer to the effects of Global Warming.
- 🌳 Conservation of mangroves and associated ecosystems
  - ✓ key natural adaptation strategy and action for reducing the severity and serious measure to climate change.
  - ✓ safeguards and enhances the livelihoods of coastal communities.

**Conservation farming**

- any system or practice which aims to conserve soil and water by using surface cover (mulch) to minimise runoff and erosion and improve the conditions for plant establishment and growth.
- involves planting crops and pastures directly into land which is protected by mulch using minimum or no-tillage techniques.
- combination of methods which aim to:
  - ✓ conserve water
  - ✓ soil quality
  - ✓ moisture
  - ✓ fertility
  - ✓ seed production, as well as the farmer's energy, time and money.

**ACTIVITY**

1. Mangroves reforestation can be an interesting and very exciting activity. There are several ways to get involved and to help protect the mangroves.

**Find the pairs that belong together! Draw lines to the matching pair.**

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| <ul style="list-style-type: none"> <li>A. <i>Keep the water clean</i></li> <li>B. <i>Look for planting sites</i></li> <li>C. <i>Watch the mangroves</i></li> <li>D. <i>Talk to people</i></li> <li>E. <i>Get involved</i></li> </ul> | <ul style="list-style-type: none"> <li><i>Confront them with the benefits of mangroves</i></li> <li><i>Don't dump your waste into the sea</i></li> <li><i>Help planting and maintaining mangroves</i></li> <li><i>Keep them clean and protect them from animals</i></li> <li><i>Monitor their growth and survival</i></li> </ul> |
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2. **Internet Research:**

Discuss what a Carbon sink is.

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1. Discuss three ways on why mangroves are important to the marine ecosystems.

a)

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b)

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c)

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**...STAY SAFE...**