PLANKTON

TRAWL

Terebellid worm
TRAWLING THE PLANK
What are we doing?

1. Brief on what plankton is and what role it plays in the environment,
2. Investigate different types of plankton,
3. Organisation of activity (what's happening)
Outcomes

- Life and Living

- L & L 3.2 Students present information which illustrates stages in different types of life cycles of familiar living things.

- L & L 3.3 Students describe some interactions (including feeding relationships) between living things and between living and non-living parts of the environment.

- E & C 3.3 Students identify different ways of obtaining energy
Life and Living

- Core content – ecosystems, role of organisms – producer, consumer, decomposer
- Flow of energy, photosynthesis,
- Natural relationships – food chains / web
- Competition for resources
Consider these questions

- What are plankton and where do they come from?
- What types of plankton are there?
- Why are plankton important?
- How many types of plankton are there?
- What do they look like?
- What do they eat?
So what is plankton?

- Plankton are organisms that drift in the ocean. Plankton is made up of animals and plants that either float passively in the water, or possess such limited powers of swimming that they are carried from place to place by the currents. The word plankton comes from the Greek word *planktos*, which means ‘wandering’ or ‘drifting’. Plankton dominates the well-lit surface layers of the world's oceans.

- There are two basic kinds of plankton, some are like plants and some are like animals.
So how big are plankton?

- Plankton range in size from tiny microbes, which are invisible to the naked eye, to jellyfish metres long.
Types of Plankton

- Zooplankton
- Phytoplankton
Phytoplankton

- Phytoplankton are tiny, photosynthetic organisms. This means they can manufacture their own food using energy from sunlight, producing oxygen as a by-product. They are often referred to as tiny plants because of this ability to photosynthesise.
Vorticellid ciliate
Zooplankton

- Zooplankton are floating or weakly swimming animals that rely on water currents to move any great distance. They are usually larger than phytoplankton.

- There are two major types of zooplankton: those that spend their entire lives as part of the plankton (called Holoplankton) and those that only spend a larval or reproductive stage as part of the plankton (called Meroplankton).
Mantis shrimp larva. This is the second larval stage of a Mantis shrimp. It is a crustacean. It looks completely different from the burrowing adult it will become.
Scale worm larva
Holoplankton

- Holoplankton spend their entire lives as part of the plankton. Permanent stage in life cycle.
- This group includes krill, copepods, various pelagic (free swimming) sea snails and slugs, jellyfish and a small number of the marine worms.
Meroplankton

- Meroplankton spend only the larval or early stages of their life as part of the plankton and spend their adult lives on the reef.

- Many of the common, well-known animals found on the Great Barrier Reef spend time as free-swimming meroplankton, bearing little or no resemblance to the adult they will become. The differences between the appearance of larval and adult stages led to much confusion in the past when larval forms were often believed to be completely different species from the adults.

- Meroplankton includes sea urchins, starfish, sea squirts, most of the sea snails and slugs, crabs, lobsters, octopus, marine worms and most reef fishes.
Stages of anemone life cycle

Tube Anemone larva

Tube Anemone adult
Stages in sea cucumber life cycle

- Sea Cucumber larva
- Sea Cucumber adult
Stages in a cone shells life cycle

Cone Shell larva

Cone Shell Adult
Stages in an octopus’s life cycle

Octopus larva

Octopus adult
Stages in a starfish’s life cycle

Starfish larva

Starfish Adult
Crustaceans display some of the most spectacular metamorphoses from free-swimming meroplankton to reef-dwelling adult.
The Food Chain

Zooplankton are the favorite food of a great many marine animals so camouflaging themselves is a very important survival strategy. Developing effective camouflage when you live in clear, blue water is no easy matter. The best solution and the one most often used by members of the zooplankton is to be as transparent as possible.
Marine Food Chain

The Marine Food Chain

Mammals

Bigger Fish

Small Fish

Phytoplankton

Zooplankton
Phytoplankton are involved in oxygen production
Where do most plankton live in the world and why.

- East Australian Sea Current
Trawl Net and sample collection

- 1 micron
- Collection vase
- Sample jar
Rotation on board IMPACT

- Three Groups
  1. Bow of Impact with Torch
  2. Port deck of Impact with Torch
  3. Starboard deck of Impact checking nets
Organisation

- Time is important if you want an early night with some free time!!!
- Clothing, don’t need a torch, no shoes or thongs, possible warm jumper
- Safety at night on board boats. Listen to all instructions carefully.
- Rotation, 2 or 3 way split
## Rotation – 3 Groups

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<thead>
<tr>
<th>Time</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
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<tbody>
<tr>
<td>7.00pm</td>
<td>Plankton Trawl, Meet at Turtle</td>
<td>Video, Kanomi</td>
<td>Night Walk, prawn lights, stars</td>
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<tr>
<td>7.30pm</td>
<td>Dry Lab Discover Session</td>
<td>Plankton Trawl</td>
<td>Video, Kanomi</td>
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<tr>
<td>8.00pm</td>
<td>Video</td>
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# Rotation – 2 Groups

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<td>8.30pm</td>
<td>Video</td>
<td>Dry Lab Discover Session</td>
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References

- Australian Museum
Internet Sites