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# Flotsam and Jetsam Activity

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## Level

Any

## Key questions

What is flotsam and jetsam?

What are the environmental concerns associated with it?

## Key Outcomes

Describe and identify the material washed up on a beach as flotsam or jetsam.

Understand the difference between flotsam and jetsam in traditional and modern usage.

Develop environmental awareness on how far flotsam and jetsam can be carried.

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Adapted from *Tropical Topics*, March 1995 (Queensland Department of Environment Far Northern Region, Cairns), Moroney et al, Coastal Activities for Primary Schools, and the Gould League of Victoria.

## Beachcombing and Beach Find Bingo

Flotsam used to refer to rubbish thrown overboard from a ship. Jetsam was the luggage, furniture and fittings thrown overboard to lighten the ship when it was being shipwrecked! Nowadays, both terms refer to the debris which is washed up on our shorelines, and may mean litter of both natural and human origin.

## What you need

Identification sheets of flotsam (see accompanying key)

Gloves, bags (if beachcombing)

Field guides

## What you do

Students can work in pairs or as individuals. Make sure you know about the hazards of touching piles of seaweeds or rubbish on the beach.

## Beachcombing

Collect items found along the high tide line of a beach area. Include both natural and human made items.

Warning: Never handle needles or pick up seaweed without shaking it first to dislodge crabs or human rubbish.

Identify as many items as possible. A guide is included for the most commonly found items.

## Beach Find Bingo

Use the accompanying sheet as a guide for students to find items matching the description along the shore.

## Class discussion

Following a visit to the seashore, discuss ways of reducing litter finding its way onto the beach; and ways of collecting the litter and disposing of it in an environmentally friendly way.

## References

Gould League Poster on Beachcombing

Dakin, W.J., 1980, *Australian Seashores*, Angus and Robertson

'Sources of Coastal Shoreline Litter Near Three Australian Cities', 1993, Victorian Institute of Marine Sciences.

Jones, M., 1994, *Fishing Debris ... What is Washing up?* Australian Fisheries.

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## Guide to Identification of Common Flotsam and Jetsam

### Animal Flotsam

1. Solid calcite skeletons of sea urchins. They usually are in small pieces and without the spines of the living creature.
2. Operculums. These can be thin and horn-like but some are heavy and calcareous. Attached to the foot of some gastropods
3. *Spirula* shells are delicate white coils with separate internal chambers. They come from a squid-like creature with ten arms bunched together at the head end and a cylinder-like body that is found swimming at depths of 200 - 2 000 m.
4. Dead sponges of varying forms.
5. Cuttlebones. Internal skeleton of cuttlefish.
6. Sand dollars. Sea urchins with a flattened body shape.
7. Crab parts. Occasionally whole carapaces can be found, if there is no sign of damage and the top lifts off like a lid, it is likely to be a moulted shell.
8. Goose barnacles. Attach themselves to driftwood or any other floating thing.
9. Bryozoans. Some flotsam is encrusted with delicate, cellular mats; these are colonial animals which may grow over rocks and plants or as erect branching forms.
10. *Sargassum* seaweed. Characterised by lots of tiny ball-like floats along the stems.

### Plant Flotsam

Many plants which grow by the shore rely on the sea to disperse their seeds so their fruits are found regularly as flotsam.

1. The grey-green flesh of the fruit of Alexandrian laurel (*Calophyllum inophyllum*) becomes brown and wrinkled and is lost in the sea. When found this fruit resembles a light brown golf ball with a pointed end, often with fibrous strands still attached.
2. Brown matchbox beans belong to a vine, *Entada phaseoloides*.
3. The large pineapple-like fruit of pandanus species breaks up into wedge-shaped segments, each with knobs on the broad end and a tuft of fibres on the other. The fibres may be worn away in the surf, leaving a woody segment with empty holes which once contained the seeds.
4. The box fruit (*Barringtonia asiatica*) is the largest flotsam fruit next to the coconut. It can float for up to two years.
5. On the tree fruits of the beach almond (*Terminalia catappa*) are encased in a fleshy layer. Below is a fibrous layer which is gradually eroded in the surf to reveal a brown almond-shaped seed.
6. Coastal she-oaks (*Casuarina equisetifolia*) drop small spiky cones into the water, and these are often found in the flotsam.

### Lethal jetsam

Not only is garbage on the beach unsightly, it also poses a very real threat to wildlife. The worst offenders are plastics which generally make up about 60% of rubbish.

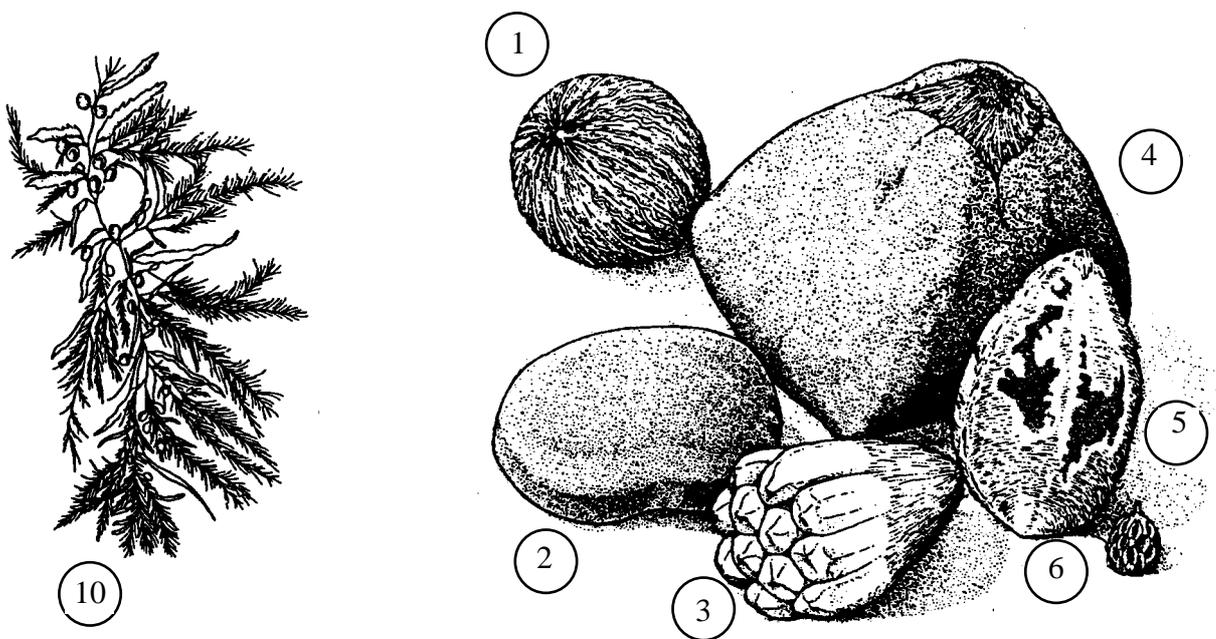
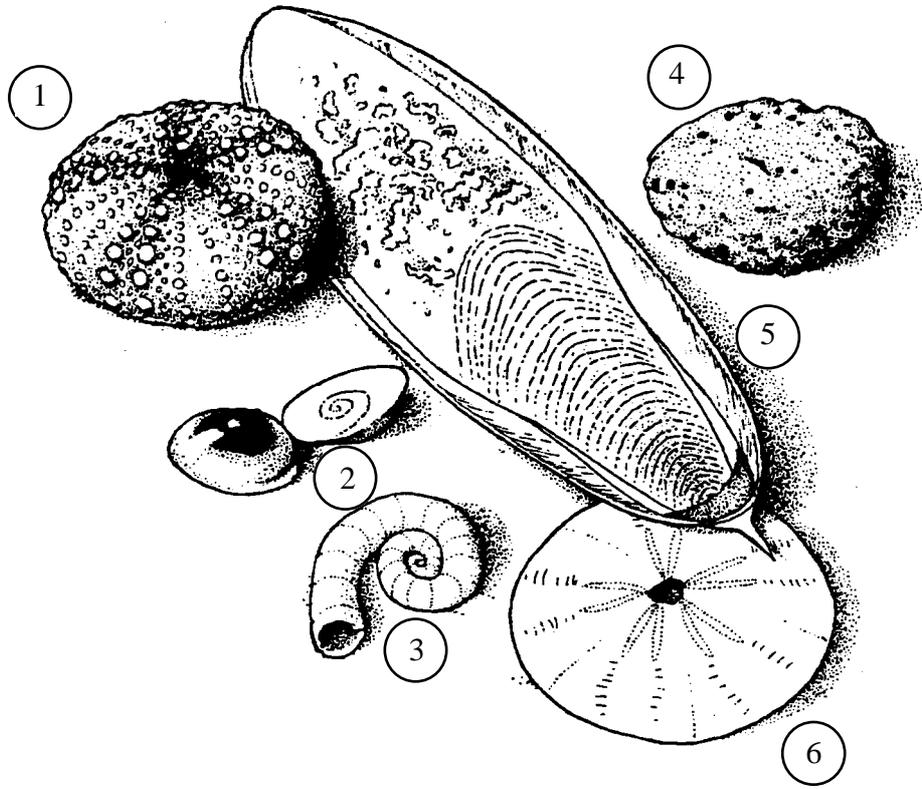
The disposal of plastics into the sea is prohibited under the International Convention for the Prevention of Pollution from Ships (MARPOL). The disposal of all other types of garbage (including metals, glass and food) is prohibited within 12 nautical miles of the nearest land including most of the Great Barrier Reef region. The law provides for fines of up to \$1 million for companies and \$200 000 for individuals illegally discharging garbage at sea.

While much of the litter on remote islands and beaches comes from marine sources, a survey of shoreline litter around Brisbane, Adelaide and Melbourne found that at least half of it came from the land. While some had been left by careless people on the beach, much had originated as street litter and been washed down to the sea along stormwater drains.

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# Beach Find Bingo

Find something that is described in these boxes. Draw or list your example.

light

complicated

dry

soft

moving

round

flexible

closed

flaky

see through

hard

hollow