



Reef neighbours

Lesson plan: how mangroves, seagrass and reefs depend on each other, with a drawing task, a Venn diagram and a storm shield experiment



Ages	8 to 14
Time	60 to 75 minutes
Group	Up to 35 students, in groups for the experiment
Where	A classroom, ideally with a sink or outdoor space for the experiment
You need	The slides, plain paper, one Venn worksheet and one experiment sheet per student, and experiment kits (see below)

What students learn

- Mangroves, seagrass and coral reefs are separate ecosystems that work as a team.
- What each ecosystem does for fish, for the coast and for the climate.
- How mangroves protect coasts from waves, tested with a simple experiment.
- Why these habitats are being lost, and how to restore them properly.

Before the lesson

1. Print one **Venn diagram worksheet** and one **Storm shield experiment** sheet per student.
2. For each group of four to six: a shallow tray or plastic box, enough sand for a small beach, water, a ruler, and 15 to 20 twigs, straws or pencils.
3. Plain paper and coloured pencils for the Reef 1 and Reef 2 drawings.

The lesson

- 1 From land to sea 8 minutes, slides 1 and 2.** Ask who has seen mangroves or seagrass near home. Point out that the three ecosystems are neighbours along the same coast.
- 2 Meet the neighbours 10 minutes, slides 3 to 5.** Go through each ecosystem, then how they help each other.
- 3 Reef 1 and reef 2 12 minutes, slide 6.** Students draw both coasts and add animals. Ask pairs to compare and explain.
- 4 Venn diagram 8 minutes, slide 7.** Students sort the statements. Discuss the ones that caused arguments.
- 5 Storm shield experiment 20 minutes, slide 8.** Groups run both tests and fill in the sheet. Keep the waves the same for both tests so it is a fair test.
- 6 Loss and restoration 7 minutes, slides 9 to 11.** Share the numbers, the good news and how to plant mangroves properly. Finish with the questions.

Answers and what to listen for

Venn diagram: Mangroves: 1, 2, 11. Seagrass: 3, 4, 10. Both: 5, 6, 7, 8, 9, 12. (Seagrass also helps protect coasts by calming waves, so 9 can go in Both.)

Storm shield: the beach with roots usually loses less sand, because the roots slow the water and hold the sand in place.

Making it easier or harder

- **Younger groups:** do the experiment as a demonstration at the front, and use six Venn statements instead of 12.
- **Older groups:** measure how far the sand moves in centimetres, repeat each test three times and work out an average.
- **Field trip:** if you are near MCP, ask about joining a mangrove planting or a visit to a seagrass area.

Safety and good practice

- Mop up spilled water straight away.
- If you visit mangroves, wear shoes that can get muddy, watch the tide and stay with an adult.

Curriculum links

- **Science:** habitats and ecosystems, interdependence, fair testing, erosion.
- **Geography:** coasts and coastal protection.
- **Ocean Literacy Principle 6:** the ocean and humans are inextricably interconnected.

The teacher reading has the science behind every slide, with links to the sources.

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