

Our blue planet: lesson 2 of 3

# Down into the deep

A journey from the sunny  
surface to the deepest trench

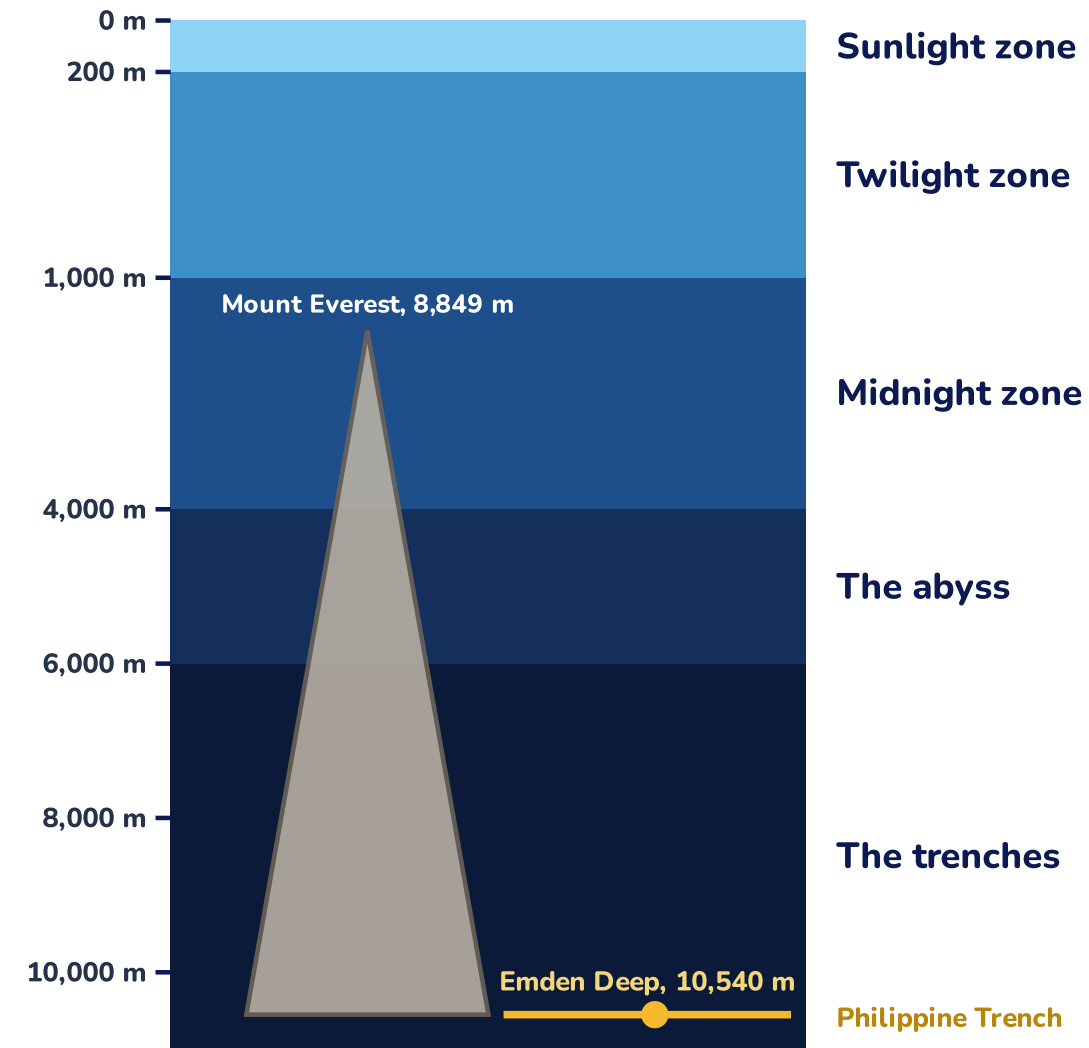


A reef in the sunlight zone, Negros Oriental. Photo: MCP



# The layers of the ocean

The deeper you go,



# Light, cold and pressure



## Light

Sunlight fades fast. Below about 1,000 m it is completely dark.



## Cold

Deep water is only a few degrees above freezing.



## Pressure

Every 10 m deeper adds the weight of another whole atmosphere pressing on you.



# Try it: the pressure bottle

1. Make three holes down the side of a plastic bottle, one above the other, and cover them with tape.
2. Fill the bottle with water.
3. Hold it over a tray and pull the tape off.
4. Which hole squirts the furthest? Why?

## What it shows

Deeper water is pushed on by all the water above it, so the pressure is higher.



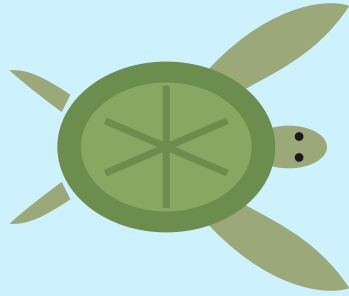
# Who lives where?



Sunlight zone

## Corals

They need sunlight, because tiny algae inside them make food from it.



Sunlight zone

## Sea turtles

They swim near the surface and breathe air.



Twilight zone

## Lanternfish

Rows of lights on their bodies help them hide and find each other.



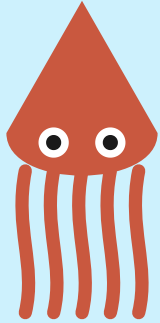
Midnight zone

## Sperm whale

Dives more than 1,000 m down to hunt squid, holding its breath.



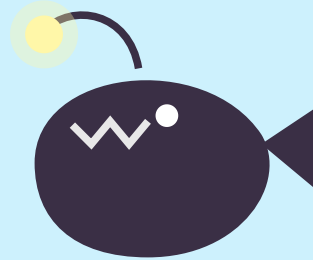
# Who lives where? Part 2



Midnight zone

## Deep-sea squid

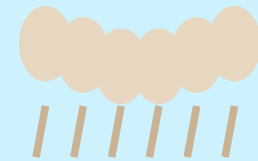
Huge eyes catch the faintest glow of light.



Midnight zone

## Anglerfish

A glowing lure on its head tricks small fish into swimming close.



The trenches

## Amphipods

Tiny shrimp-like animals that live even in the deepest trenches.



# Our own deep trench

**10,540 m**

the Emden Deep in the Philippine Trench, the third-deepest place on Earth

**2021**

a Filipino scientist, Dr Deo Onda, dived there, among the first people ever to do so

**Sadly, the divers found rubbish near the bottom. Even the deepest places are reached by our plastic.**

How we know: University of the Philippines, 2021



# Still to explore

28.7%

of the ocean floor has been mapped in detail so far

**We have better maps of the Moon's surface than of most of our own ocean floor. Maybe you will help explore it!**

How we know: Seabed 2030, 2026



# Talk about it

Which ocean zone would you most like to visit? Why?

Why do so many deep-sea animals make their own light?

How do you think rubbish got to the bottom of the trench?

Next time: why the ocean matters



# Photos and sources

**Photos:** reef by MCP. Drawings made for this lesson. All illustrations drawn for this lesson by Marine Conservation Philippines.

## Sources:

- University of the Philippines (2021). First Filipino to reach Emden Deep.
- Seabed 2030 (2026). Global seabed mapping reaches new milestone.
- NOAA. Ocean zones.

Full links are in the teacher reading. Free to use and share for education. Made by Marine Conservation Philippines. More free lessons: [marineconservationphilippines.org/resources/teachers-resources/](https://marineconservationphilippines.org/resources/teachers-resources/)

