



# Outreach Activities Guide



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# We're glad you're here

**Welcome to the TWILIGHTED Outreach Activities Guide.** We started designing fun, hands-on activities to inspire school children and the wider community with the marvels of the deep-sea when the TWILIGHTED project began in 2024.

As a Horizon Europe Twinning capacity-building project, TWILIGHTED seeks to improve deep-sea research, institutional management and science communication in the widening country of Portugal. The activities we share with you in this guide have been tried and tested in Madeira, Portugal and have successfully produced smiles, laughter and questions\* from audiences young and old. We very much hope these activities can be applied to your own local context, to help **bring the deep-sea to your classrooms and communities**, and/or inspire some new ideas of your own!

If you've created any activities that have been well received by your own communities, we'd love to hear from you! Share them with us at [twilighted.eu@gmail.com](mailto:twilighted.eu@gmail.com)

\*Okay, okay, and a few tears. Our Hungry Whale Tag game should be approached with caution...!



Trialled with more than **450 school children and community members** in 2025!



# Deep divers quiz

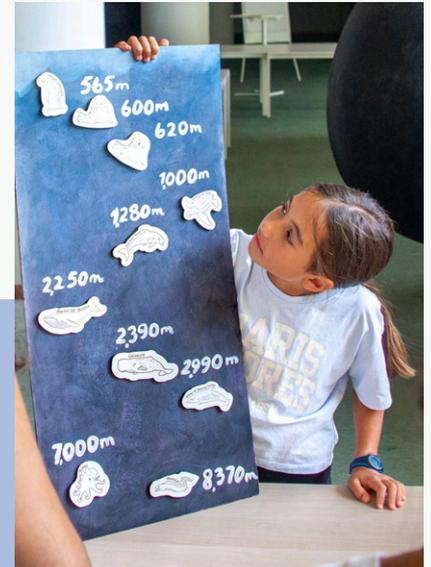
This interactive quiz gives community members of all ages the chance to be amazed by how deep (and for how long!) deep-diving animals can go! This game is best attempted by single players or small teams (we have two boards to make it a competition sometimes), although we've also tried it with school groups of up to 10 students per board.

**Number of players:** 1-4 per board (best results)

**Ages:** All! This stumps everyone!

**Time to play:** 5 mins + 5 mins to explain the answers

**Concepts learned:** Deep-diving animal ecology



## Materials

### Option 1

- Blue posterboard, approx. 1 m x 40 cm
- Marker
- Paper cut-outs of deep divers, laminated
- Adhesive velcro

### Option 2

- Wooden board, approx. 1 m x 40 cm
- Acrylic paint
- Laser-cut wooden deep divers
- Mini magnets

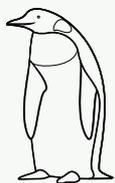
Whether using the posterboard or the wooden board option, make the background look like a cross-section of the ocean and label the depths that correspond to the maximum known depth of the deep-diving or deep-sea animals you'll use (see the ones we used in the appendix). Attach the velcro or magnets next to these depths with the corresponding velcro or magnet attached to the deep-diver cut-out.

## How to play

Introduce quiz by explaining that some animals, even mammals, reptiles and birds that need air to breathe, can dive very deep to catch prey – much deeper than humans! Then challenge players to guess the maximum known depth that your deep divers (or deep-sea animals) have been found to go dive/live. The game can be done individually or in small groups and can also be a competition (if you have two boards). After participants have attached all animals to a depth, reveal the answers – as well as some fun facts about these awesome animals! Deep divers and deep-sea critters we use in our quiz, including their maximum known depths and some fun facts, are in the appendix.

# Deep divers quiz example answers

Including links to research papers reporting maximum known depths.  
Find SVG files of these images for printing in this [Google file](#).



Emperor penguin

565m

Incredible for a bird!



Weddell seal

600m



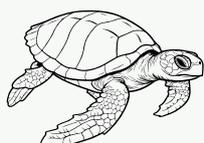
Humpback whale

620m



Bottlenose dolphin

1,000m



Leatherback turtle

1,280m



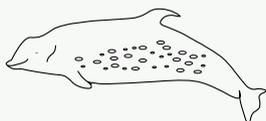
Sperm whale

2,250m



Elephant seal

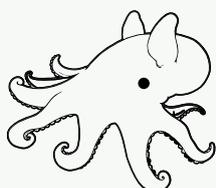
2,390m



Cuvier's beaked whale

2,990m

The deepest-diving mammal! This whale can hold its breath for over three hours!



Dumbo octopus

7,000m



Cusk eel

8,370m

These two live in the deep sea (i.e. unlike divers), but we use them to show how far down complex life can go!

# Echolocation challenge

This game gives participants the chance to see how deep-diving species like sperm whales, which hunt in the dark using echolocation, can get confused between their prey and pollution – specifically plastic. Participants see how difficult it is to ‘hunt’ just by sound!



**Number of players:** 1 person at a time

**Ages:** All! This stumps everyone!

**Time to play:** 1 min + 5 mins for explanations

**Concepts learned:** Deep-diving animal biology and the threats posed by plastic pollution

## Materials

- 3-4 small boxes of a similar size made of plastic, cardboard, fiber board/wood or another similar material (we recommend 4 as 3 can be too easy)
- Wooden stick or similar
- A way to hide the boxes, making them reachable only by the stick. We use a miniature wooden table covered in fabric.
- Paper/card stock labeled ‘A’, ‘B’, ‘C’ or ‘D’, so participants can guess which hidden box is the material they’re hunting for.



Arrange the boxes underneath the table/fabric hiding place, with the letters placed above. Where possible and to help explain the concepts, we also try to set up a monitor with [these clips](#) from the ‘[Whales in a Plastic Ocean](#)’ documentary (Changing Seas, PBS South Florida) to help participants visualize echolocation.

## Background

Studies between stomach contents of deep-diving cetaceans suggests that these animals are at greater risk of consuming plastic than their shallower-diving peers. Based on our [research at MARE-Madeira](#), we hypothesize that this is because the acoustic signatures of plastic overlap with the acoustic signatures of prey such as deep-sea squid. This may mean that these animals are accidentally ‘hunting’ for plastic in the deep-sea. [Read more.](#)

## How to play

Invite participants to hit the boxes under the fabric using the stick and guess by sound alone(!) which is plastic, fiber board/wood, cardboard, etc. When there are other participants waiting their turn and watching, this game is best played as a ‘one guess challenge’ to hunt for, e.g. cardboard. Then before the next player can hunt (e.g. for wood), mix up the boxes below the fabric. If they accidentally guess the plastic instead of their ‘prey’, then they just ate plastic and lost the game!

Hopefully they will have guessed some boxes incorrectly(!), which sets up a reminder that deep-diving cetaceans like sperm whales also get confused and will sometimes mistake plastic for a squid and eat the plastic instead!



# Hungry Whale Tag

Similar to the echolocation challenges, this game shows how deep-diving species like sperm whales may not be able to tell the difference between plastic and their prey when hunting, and accidentally ingest plastic. This game is great with a big group of younger children!



**Number of players:** 10-30

**Ages:** 5-12

**Time to play:** 5 mins each round

**Concepts learned:** Deep-diving animal biology and the threats posed by plastic pollution



## Materials

- Foam sheets cut into squid or plastic bag shapes (bonus points if sparkly)
- A way to distinguish the whale(s). We use blue baseball hats and tablecloths as capes.



## How to play

This is 'tag' where there is one (or a few) sperm whales and everyone else is prey – either plastic or squid. This game can be played outside or inside. If outside, treat like normal tag, with kids running around. If inside, have the 'prey' seated and whales walking around. Both versions work well!

Rules: Each sperm whale is hungry and wants to eat 5 squid. If they accidentally eat 3 plastic bags, however, they feel sick and their turn is over. Prey must keep their cut-out hidden until tagged (so the whales don't see what they are).

Whales are selected and the cut-outs are randomly distributed among the remaining players. When the game starts, it's a free-for-all of whales trying to tag/'eat' the other kids. When a kid gets tagged, they give their cut-out to the whale. After the whale(s) have collected 5 cut-outs (or 3 plastic cut-outs), then the round is over. Switch up the whales and go again!

*\*Note: children love this game and they all want to be the whales! We've had some cry because we ran out of time for everyone to be a whale. If you think of a great way to moderate this, let us know!*

# Pin the tentacle on the squid

## ‘TentaCOLA’ in Portuguese

This is ‘Pin the tail on the donkey’ but with a squid and tentacles. This game is more fun than education, but add fun facts about giant squids to amp up the educational content!

**Number of players:** up to 6 players (one per tentacle)

**Ages:** Great for young children and families

**Time to play:** 10 mins, including explanation

**Concepts learned:** Deep-diving animal biology



### Materials

- Construction paper cut into the shape of a squid’s mantle and 6 tentacles
- Blue tac
- Blindfold

### Background

We make this game more educational by sharing some simple squid ecology (e.g. deep divers like sperm whales hunt giant squid, which we know from finding squid beaks in sperm whale stomachs and from scars on these whales that look like they’re from suckers). We also play an interactive quiz of ‘how long is the biggest squid in the world?’ For this, put a piece of tape on the floor and invite participants (including parents, if present!) to walk from the tape until they think they’re as big as the biggest squid.

*Note: try to frame expectations to be smaller than reality by indicating an area fairly close to the tape. That way, when you walk the real distance (13-14 m) you get lots of “Wow!”s.*

### How to play

Blindfold the kid (or their parent!), give them a tentacle with blue tac on one side. Spin them around a few times, point them towards the wall and then let them go and try to put the tentacle as close to the squid mantle as possible. Rule: as soon as they touch the wall, that’s where the tentacle goes – no feeling around for the squid! Let more kids and parents have a turn until all tentacles are used up. The person who places their tentacle the closest to the mantle wins!

# Plankton quiz

We love this game because it brings to life a vast swathe of ocean life that is often overlooked in favor of whales and other megafauna.

We have two versions of our plankton quiz. Our digital version is great for classrooms of younger children. Our printed version can be adapted for both younger and older players and is best played in small groups.

**Number of players:** 1 to full classrooms

**Ages:** Digital version: 5-12, Printed version: adaptable

**Time to play:** 15 mins, including explanation

**Concepts learned:** Plankton biology



## Materials

- [\*Digital powerpoint of zooplankton images\*](#)
- *Printed, laminated plankton images and cardstock with fun facts or animal groups*

## How to play

### Digital version

Share a powerpoint introducing plankton to the classroom. Then go through slides of individual zooplankton images, selecting children one at a time to walk up to the screen and point to where they think the eyes, mouth or feet of the zooplankton are. They have one guess each until someone guesses correctly.



### Printed version

We also created a matching game of printed zooplankton images and fun facts about each zooplankton that we found. We invite older students and adults to try to match the zooplankton to the facts. For younger children, we use the same set of laminated zooplankton photos, but just invite them to separate the photos into groups: 'In the same group as jellyfish', or '...crabs', or '...fish', etc, depending on your zooplankton.

# Let us know how it goes!

We'd love to hear if you use our activities and if you have any ideas for improvements! Please tag us in social media if you post about your outreach efforts, too!



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