



How Oysters Filter Dirty Water

Equipment required (per group)

- Print out of the 'How Oysters Filter Dirty Water' worksheet, one per group
- Empty container (no more than 300ml)
- Oregano (to represent algae)
- Dried onion (to represent debris and other loose material)
- Peppercorn (to represent sediment)
- Teaspoon
- Funnel
- Empty container (over 300ml)
- Coffee filter

To complete the activity

1. Share the time-lapse video 'Oysters Clean the Bay!' with the learners – www.tiramor.cymru/nativeoysters (Resource 1). This demonstrates how oysters can clear cloudy water over 5 hours. This sets the context for understanding their role in ecosystems. Oysters eat the algae (which go into the gut) and expel both real waste faeces and pseudofaeces, which are particles of non-food things (silt, microplastics...). They are very efficient and good at this where other animals suffocate with fouled up gills.
2. Ask learners to discuss the following:
 - Why is clean, clear water important for marine animals?
 - How might dirty water affect the ability of animals to breathe?
 - What impact might dirty water have on sunlight reaching marine plants?
 - How do oysters help clean the water?
 - What do you think happens if there is too much debris or pollution in the water?
3. Provide each group with a 'How Oysters Filter Dirty Water' worksheet and necessary equipment.
4. After completing steps 1–5, encourage learners to observe and discuss how the dirty water looks after mixing the ingredients?
5. Ask each group to predict how oysters might clean the 'dirty' water.
6. Support learners to follow next steps to create their own oyster out of a coffee filter.
7. Support learners to set their coffee filter in the funnel. Before they pour the 'dirty water' through the filter, remind learners not to use a spoon to push liquid through the filter, as this may cause the filter to tear.
8. After filtering, encourage learners to discuss how clean the water is after going through the filter. What was removed easily? Why is it cleaner? Encourage learners to consider whether everything has been removed? What about organisms that are too small to see and those that have been dissolved.
9. Ask each group to consider how the experiment demonstrates how oysters filter water in nature. Reflect on the limitations of the filter and the challenges oysters might face in heavily polluted water.

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What you will need

- Empty container (no more than 300ml)
- Oregano (to represent algae)
- Dried onion (to represent debris and other loose material)
- Peppercorn (to represent sediment)
- Teaspoon
- Funnel
- Empty container (over 300ml)
- Coffee filter

1. Add 1 teaspoon of oregano to the container.

This represents algae, small plants that live in the water.

2. Add 1 teaspoon of dried onion to the container.

This represents debris, (small fragments of broken-down plants and animal waste).

3. Add 1 teaspoon of peppercorn to the container.

This represents sediment, which is made up of small pieces of broken-down rocks.

4. Fill the container halfway with tap water.

This represents the water in a bay or river.

5. Mix everything together with your teaspoon.

You've now created your 'dirty water'!

6. Set aside the 'dirty water'.

7. Create your own 'oyster' by folding the coffee filter in half; then fold in half again.

8. Set the coffee filter in a funnel over the remaining empty container.

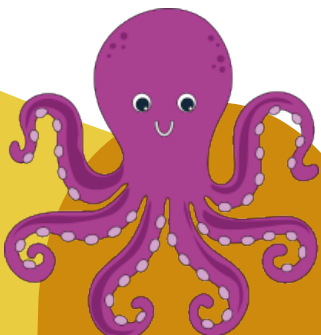
9. Pour the 'dirty water' mixture slowly through the filter.

10. Discuss how clean the water is after going through the filter.

DISCUSS

Why is the water cleaner?

How does this relate to how oysters filter water in nature?



Even though oysters are known to create pearls, the European native oyster rarely creates pearls.

