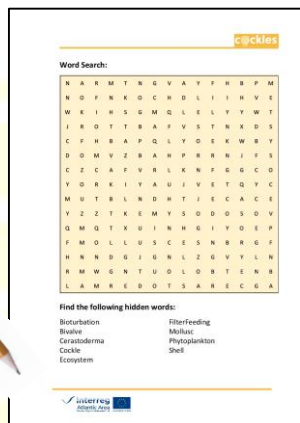


Folder A – Learning the vocabulary

You will need:

- Soup Word Search pages provided
- Pencil provided

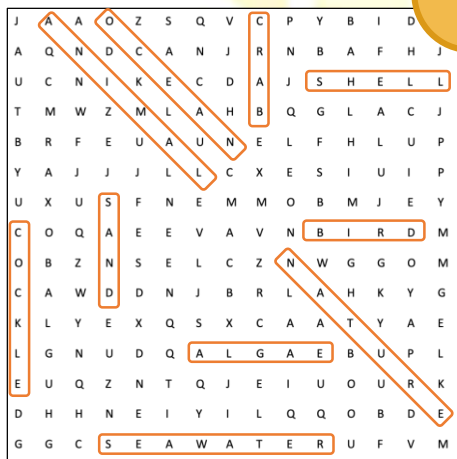


Instructions:

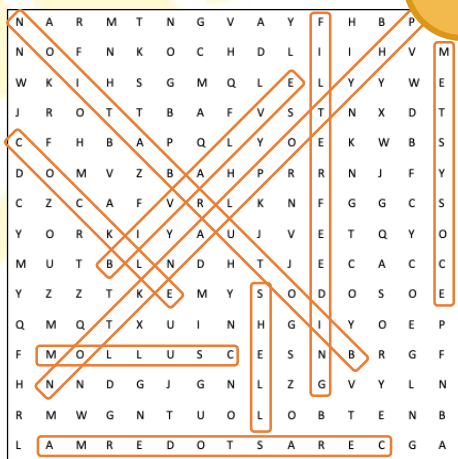
1. Grab a Soup Word Search and read the words written at the bottom;
2. Search for the words and mark them with a circle;
3. Words are placed either vertical, horizontal or diagonal.

Post-activity information:

6+



10+



You will need:

- Bivalve shells provided



Instructions:

1. Individually or in a group, choose a shell;
2. With the help of your teacher, try to identify the different external and internal features of the shell;
3. Check the answers with your teacher consulting the post-activity information.



You will need:

- Bivalve's shells provided
- Identification key provided



c@ckles	
Identification key: 1. Fan-shaped or elongated shell with prolonged ligament in the form of auricles → Pectinidae Shell ligament does not form auricles 2	
2. Each valve contains only one impression of the adductor muscle; asymmetric shell with regular shape and rough surface → Dorididae (e.g. <i>Ctenoecreta</i> , <i>Opus</i> , <i>Dorid</i>) Each valve with two impressions of the adductor muscle and pallial line without pallial lines 3	
3. Smooth or with thin ribs, triangular shell; shell ligament without cardinal teeth, anterior or terminal umbilic → Mytilidae (e.g. <i>Mytilus</i> , <i>Polygona</i> , <i>Mytilus</i>) Shell ligament with teeth, chondrophores or both 4	
4. Shell quite elongated with regular chaper, each shell with only one cardinal tooth → Solenidae (e.g. <i>Solen marginatus</i> , <i>Razor</i> (clam)) Shell does not present the above-mentioned characteristics; pallial line with a posterior pallial line 5	
5. Not ligament, both valves shell, sub-triangular and Veneridae (e.g. <i>Venerupis</i>) Internal ligament and 6	
with 1 or 2 cardinal teeth; impressions → Saxatidae (very furrow shell) three with well-developed vent → Cardidae (e.g.	

Instructions:

1. Individually or in a group, choose a shell to identify the bivalve species;
2. With the help of your teacher, follow the identification key steps;
3. Find out what species your favourite shell belongs to and repeat for the others shells;
4. Check the answers with your teacher consulting the post-activity information.

Folder B – Post-activity information	
<i>Crassostrea gigas</i>	<i>Ruditapes philippinarum</i>
<i>Mytilus galloprovincialis</i>	<i>Scrobicularia plana</i>
<i>Solen marginatus</i>	<i>Cerastoderma edule</i>
c@ckles	

- Alive or preserved cockles

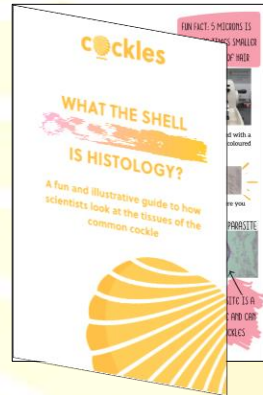


1. With the help of your teacher open one cockle
2. Observe and identify the different tissues of cockles;
3. Check the answers with your teacher consulting the post-activity information.



You will need:

- “What the Shell is Histology” mini-guide
- Slides provided
- Microscope



Instructions:

1. Learn about histology with the “What the Shell is Histology” mini-guide;
2. With the help of your teacher pick one slide and put it under the microscope;
3. Observe and identify the different tissues of cockles;
4. Check the answers with your teacher consulting the post-activity information.



You will need:

- Ecosystem photo provided
- Stickers provided



Instructions:

1. Learn more about other bivalve species with the Activity background information;
2. Take a sheet with the photo of a coastal habitat and the bivalve stickers;
3. Remove a sticker and place it in the area where the respective bivalve lives.

Folder D – Activity Background information

Introduction

The Activity Background information provides information regarding the description and habit, habitat and distribution of other bivalve species with ecological and economic importance in the Atlantic area.

The COCKLES team recommends using these sheets to teach students and facilitate Activity 4 execution.

Clams, e.g. *Ruditapes philipharrum*

General features:
Clams are bivalves from the Tridacnidae family, composed by two sub-triangular valves with well rounded the anterior corners and sharp posterior. They are filter-feeding organisms that can reach up to 8 cm in length.

Habitat and distribution:
Clams live buried in the sediment (from mud to coarse sand) in shallow water ecosystems. They are found along all the coast of the northern hemisphere.

c@ckles

Background information

e. *Cardium edule*

General features:
Bivalves from the Cardidae family, composed by two rounded valves lateral ribs and yellowish or brownish colour. They are filter-feeding organisms that can reach up to 5 cm in length.

Habitat and distribution:
Clams live buried in the sand and mud bottoms of estuaries and sheltered bay found along the southern Atlantic coast.

e. *Meretrix philipharrum*

General features:
Bivalves from the Meretridae family, composed by two rounded and smooth valves dark blue-black colour. They feed on suspended particles and can reach up to 10 cm in length.

Habitat and distribution:
In rocky substrates, close to the coast, in the intertidal zone of estuaries and rivers. They can be found from the United Kingdom to Morocco.

c@ckles

Background information

e. *Scapharca arcuata*

General features:
Bivalves from the Scapharidae family, composed by two long, smooth and reaching 12 cm in length with a brownish-yellow colour. These bivalves are found in small environmental disturbances.

Habitat and distribution:
In sandy or muddy sediments from estuaries. They can be found along the Atlantic coast and the Mediterranean Sea.

c@ckles

You will need:

- Colouring pages provided
- Colouring pencils provided

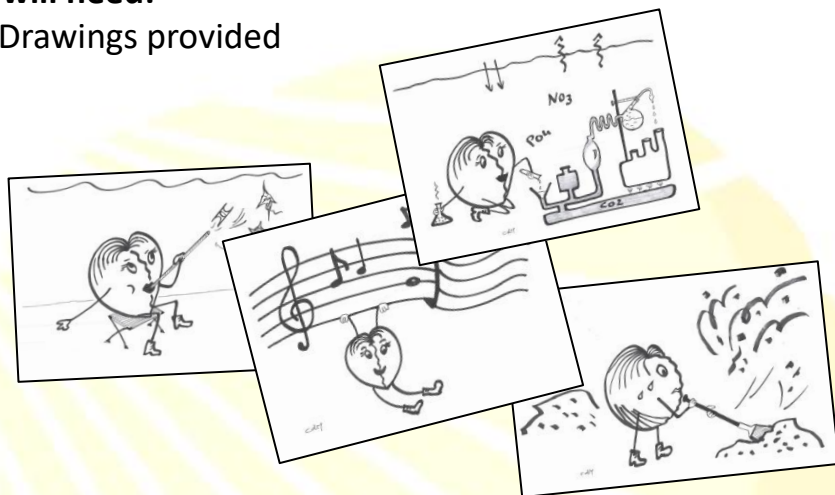


Instructions:

1. Choose a colouring page;
2. Have fun colouring with your favourite colours.

You will need:

- Drawings provided



Instructions:

1. Individually or in a group, choose a drawing;
2. Try to associate each drawing to one of the following ecosystem services:
 - Water filtration
 - Perturbation and alteration of sediment properties
 - Pathogen and toxin removal
 - Carbon sequestration in shell
 - Spiritual and symbolic
 - Biogeochemical cycling
 - Shell by-products
 - Habitat creation and biodiversity support
 - Physical and experiential
 - Erosion protection
 - Intellectual and representative
 - Shellfish meat
3. Check the answers with your teacher consulting the post-activity information.

You will need:

- COCKLES matching game provided



Instructions:

1. Shuffle the cards upside down and spread in rows;
2. Turn two cards and see if they match;
3. Keep them if they match or turn back over;
4. Alternate turns and repeat until matching all cards;
5. The game ends when all matching cards have been found.

You will need:

- Card game provided
- Letters provided



Instructions:

1. The teacher draws a card and reads the question;
2. Every correct answer earns you a letter of your choice;
3. The game ends when one team/player completes the word COCKLES.

C O C K L E S

You will need:

- Popsicle sticks
- White glue
- Paints and brushes
- Cockle shells



Instructions:

1. Colour your popsicle stick with paints and brushes;



2. Glue the shells to the end of the stick;



3. Let it dry and enjoy your bookmark.



Important note:

Imagination has no limits! You can also use the cockle shells provided to create any piece of art that you wish.

