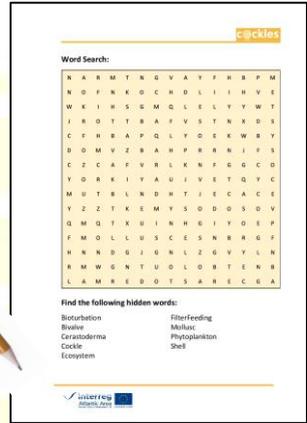


# Folder A – Learning the vocabulary

## You will need:

- Soup Word Search pages provided
- Pencil provided

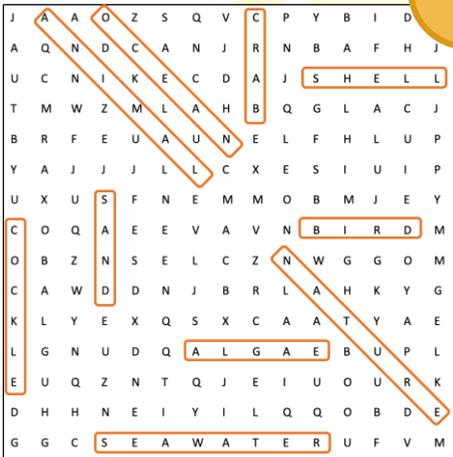


## Instructions:

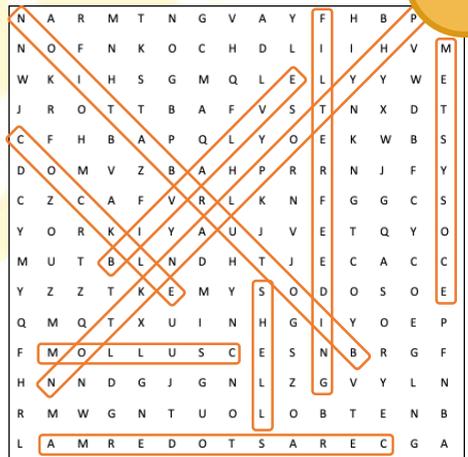
1. Grab a Soup Word Search and read the words written at the bottom;
2. Search for the words and mark them with a circle;
3. Words are placed either vertical, horizontal or diagonal.

## 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	
<p><b>Identification key:</b></p> <p>1. Fan-shaped or elongated shell with prolonged ligament in the form of auricles – <b>Pectinidae</b> Shell ligament does not form auricles ..... 2</p> <p>2. Each valve contains only one impression of the adductor muscle; asymmetric shell with regular shape and rough surface – <b>Ostrea</b> (e.g. <i>Crassostrea gigas</i> - Oyster) Each valve with two impressions of the adductor muscle and pallial line without pabuliferous ..... 3</p> <p>3. Smooth or with thin ribs, triangular shell; shell ligament without cardinal teeth anterior or terminal umbos – <b>Mytilidae</b> (e.g. <i>Mytilus galloprovincialis</i> - Mussel) Shell ligament with teeth, chondrophores or both ... 4</p> <p>4. Shell quite elongated with regular chise, each shell with only one cardinal tooth – <b>Solenidae</b> (e.g. <i>Solen marginatus</i> - Razor clam) Shell does not present the above-mentioned characteristics; pallial line with a posterior pallial sinus ..... 5</p> <p>✓ <b>Liverpool</b> MUSEUM, ANZIC</p>	<p>Shell ligament, both valves shell, sub-triangular and <b>Veneridae</b> (e.g. <i>Venerupis</i>) Hermal ligament and ..... 6</p> <p>with 1 or 2 cardinal teeth; impressions – <b>Semidae</b> (very furrow shell) free with well-developed sinus – <b>Cardidae</b> (e.g.</p>
1	2

## 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 10+

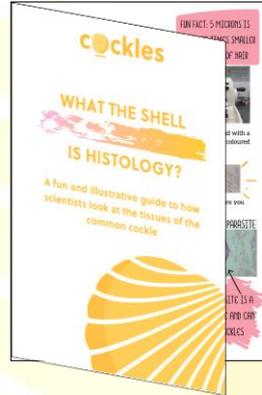
<p><i>Crassostrea gigas</i></p> 	<p><i>Ruditapes philippinarum</i></p> 
<p><i>Mytilus galloprovincialis</i></p> 	<p><i>Scrobicularia plana</i></p> 
<p><i>Solen marginatus</i></p> 	<p><i>Cerastoderma edule</i></p> 

✓ **Liverpool**  
MUSEUM, ANZIC
**c@ckles**



## You will need:

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



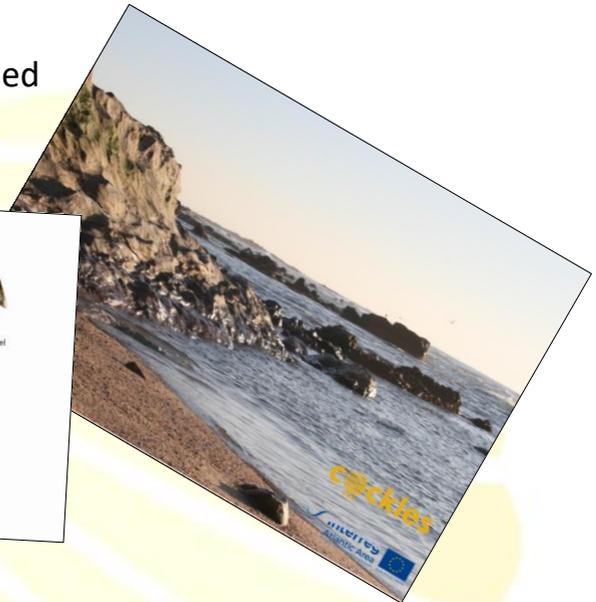
## Instructions:

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** All

**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 philippinarum***

**General features:**  
Clams are bivalves from the Tridacnidae family, composed by two sub-triangular valves with well rounded ribs and variable colour and shell patterns. They are filter-feeding organisms that can reach up to 8 cm in length.

**Habitat and distribution:**  
Clams live buried to 20 cm in the sediment (from mud to coarse sand) in shallow water ecosystems. They are found along the coast of the northern hemisphere.

**c@ckles**

**Background information** All

**e. *Cardium edule***

**Key:**  
Native from the Cardidae family, composed by two rounded valves, lateral ribs and umbonal or brachial colour. They are filter-feeding CLAM that reach up to 5 cm in length.

**Habitat:**  
Found 2-5 cm in the sand and mud bottoms of estuaries and sheltered bays found along the northern Atlantic coast.

**e. *Merula anthracinivola***

**Key:**  
Native from Mytilidae family, composed by two rounded and smooth shells' dark blue-black colour. They feed on suspended particles and 10 cm in length.

**Habitat:**  
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** All

**a. *Crassostrea edulis***

**Key:**  
Native from Ostreidae family, composed by two valves different in size in a larger and round with gran rough and shiny surface while the other flat. They feed on suspended particles and can reach 40 cm in length.

**Habitat:**  
Attached to rocky or hard substrates, in estuarine ecosystems. They can be found in the Atlantic and Pacific coasts.

**h. e. *Saxea maritima***

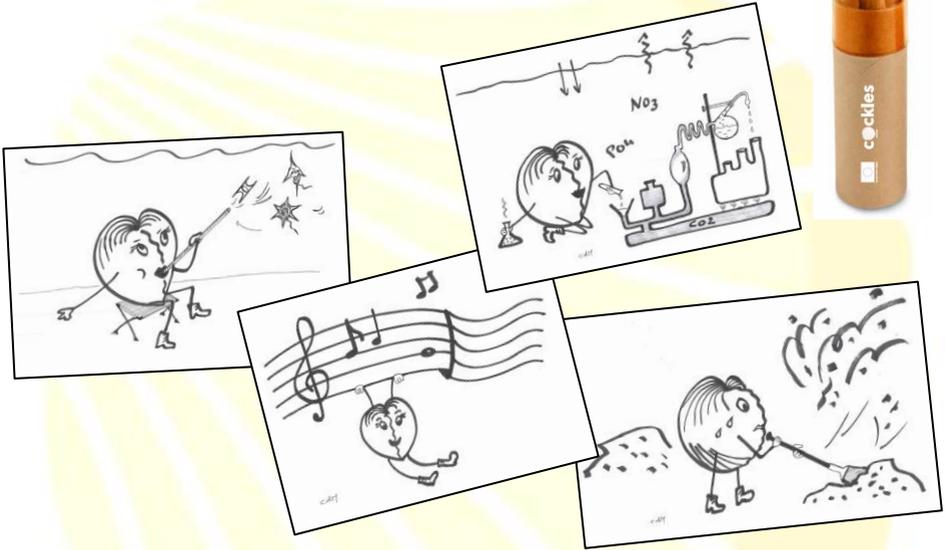
**Key:**  
In rocky substrates, close to the coast, in the intertidal zone of estuaries and rivers. They can be found along the Atlantic coast and the Mediterranean Sea.

**c@ckles**



## You will need:

- Colouring pages provided
- Colouring pencils provided

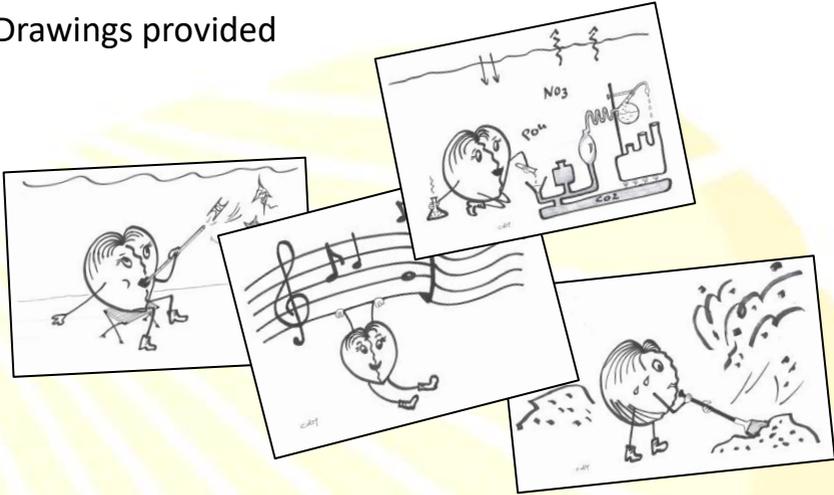


## Instructions:

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.



## 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.

