OCEANS ARE CHANGING

Student’s worksheets

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Complete the table by asking to your classmates.

1.    2.    3.    4.    5.    6.    7.    8.    9.    10.    11.    12.
The ocean is the biggest ecosystem on the Earth. It is an aquatic ecosystem. Like all the ecosystems, it has got living and non-living things.

The living things are the plants and the animals.

The non-living things are the rocks, sand, air,…

Aquatic plants and animals are adapted to their habitat.

**With your partner think about five similarities and three differences between a land and an ocean ecosystem.**

<table>
<thead>
<tr>
<th>Similarities</th>
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<table>
<thead>
<tr>
<th>Differences</th>
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<tr>
<td>Land ecosystem</td>
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**Let’s see what you know about the ocean…**
Tick ☑ if you think the sentences are true or cross ☒ if you think the sentences are false.

<p>| | | | | | | | | | | |</p>
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<tbody>
<tr>
<td>1. There are more fishes than other animals.</td>
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<td>2. Sea plants haven’t got flowers.</td>
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<td>3. Some reptiles live in the ocean.</td>
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<td>4. All the fishes eat others fishes.</td>
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<td>5. Sea plants use their roots to absorb water and other substances from the soil</td>
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<td>6. Sea mammal babies drink milk from their mothers.</td>
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<td>7. There are not any birds in the ocean.</td>
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<td>8. All sea animals are vertebrates.</td>
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<td>9. All see animals are viviparous.</td>
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<td>10. All sea animals can travel to any part of the ocean and live where they like more.</td>
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<td>11. Coral is a plant.</td>
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<td>12. All sharks are dangerous.</td>
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<td>13. Sea mammals have lungs.</td>
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<td>14. Bears live in the ocean.</td>
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<td>15. There are plants and animals everywhere in the ocean.</td>
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<td>16. Sea plants need sun light to release photosynthesis.</td>
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<td>17. Oceans are polluted.</td>
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Score
Write the name of the animals in the correct part of the circles.

1. Read and match the sentences parts.

1. Oviparous are born from…
   a. have got a skeleton.
2. Viviparous are born…
   b. photosynthesis.
3. Herbivores eat…
   c. other animals.
4. Carnivores eat…
   d. eggs.
5. Omnivores eat…
   e. gills.
6. Fish breathe through
   f. their mother’s womb.
7. Mammals, birds and reptiles breathe through
   g. plants and other animals.
8. Plants make the
   h. lungs.
9. Invertebrates are animals which
   i. plants.
10. Vertebrates are animals which
    j. have got not a skeleton.

2. Complete the text with the words in the box:

   carnivores - non-living - food – plants - decomposers –
   ecosystem - small – water - animals

   In an ecosystem there are living things and _______ _______ things.
   The living things are things like __________ and animals.
   The non-living things are things like __________, rocks and sand.
   Ecosystems can be __________ like an aquarium or big like the ocean.
   The ocean is the biggest __________ on the Earth.
   In an ecosystem the living things form a food chain.
   Plants make their own ____________.
   ____________ animals eat plants.
   Carnivorous animals eat other ____________.
   ____________ eat the remains of other living things.
Sharks, sardines and sole are **saltwater fish**. They get oxygen from the water using __________.

Sharks, sole and sardines are ____________. They lay eggs.

Sharks swim by moving their tails from side to side and by using their fins.

_________ are cartilaginous fish. They have __________ made of cartilage.

Sardines and sole are bony fish. They have skeletons made of __________.

Sharks are cold-blooded. This means their bodies are the same temperature as the __________ around them.

| water – oviparous – gills – bones – skeletons – sharks |

Whales and dolphins are **marine mammals/fish**. Sea mammals breathe with **lungs/gills**. They can stay underwater for **long/short** time, but they have to come up to the surface to breathe because they need to take **oxygen/carbon dioxide** from the air.

They have got a hole on the top of their head. This hole is called blowhole. They breathe through it.

Whales and dolphins are **viviparous/oviparous**. They give birth to **live/dead** babies.

The babies drink their mother’s milk.

Whales and dolphins swim by moving their **tails up and down/side to side**.

They have got **soft/rough** skin.

They are **warm-blooded** animals.
Sharks, sardines and sole are saltwater fish. They get oxygen from the water using gills.

Sharks and sole are oviparous. They lay eggs.

Sharks swim by moving their tails from side to side and by using their fins.

Sharks are cartilaginous fish. They have skeletons made of cartilage.

Sardines and sole are bony fish. They have skeletons made of bones.

Sharks are cold-blooded. This means their bodies are the same temperature as the water around them.

Do you know any other salty water fish?

Whales and dolphins are marine mammals. Sea mammals breathe with lungs. They can stay underwater for long time, but they have to come up to the surface to breathe because they need to take oxygen from the air. They have got a hole on the top of their head. This hole is called blowhole. They breathe through it.

Whales and dolphins are viviparous. They give birth to live babies.

The babies drink their mother’s milk.

Whales and dolphins swim by moving their tails up and down.

They have got soft skin.

They are warm-blooded animals.

Some other mammals live in the sea and on the land, like seals and sea lions. They don’t have a blowhole.
Green turtles, salt water crocodiles and yellow-bellied snakes are marine reptiles. They spend most of their lives in water. Reptiles are oviparous, because they lay eggs. Reptiles have lungs so they must come to the surface to breathe. But they can stay under water for a long time. They live in tropical or warm waters. There are about 50 species of sea snakes. They spend all their lives in water. Salt crocodiles live in the tropical coast of Australia. Marine turtles are endangered, because they are hunted for their meat, eggs and shells.

Penguins, gulls and puffins are sea birds. They are oviparous. Most of sea birds lay eggs on coastal islands or cliffs in colonies. This offers greater protection from predators. Sea birds have lungs, so they have to come up to breathe. They have waterproof feathers to help them swim and dive and to keep warm and dry. Diving sea birds, such as penguins, spread oil on their feathers using their beaks. Some of them, like the penguins, spend long periods in the sea, others, like the gulls, just get food from the sea.
Write the five groups of vertebrates: m_ _ _ _ _, b_ _ _ _, a_ph_ _ _ _, f_ _ _ and r_ _ _ _ _.

Which group of vertebrates can you not find in oceans and seas?

Put each sentence into the correct box. Some of them can be in more than one box.

- are oviparous.                      - drink their mother’s milk.
- live in warm tropical waters       - have got lungs.
- lay their eggs on land.             - have got soft skin.
- have got eyes.                      - have got a tail
- are called cold-blooded             - have got scales
- have got feathers.
Now write the definition of a fish.

A fish is ………………………………………………………………………

……………………………………………………………………

……………………………………………………………………

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……………………………………………………………………
A sea mammal is an animal that lives in the water, is viviparous, breathes through its lungs, has got a soft skin. Dolphins and whales are sea mammals. Seals are also sea mammals, but they can stay out of the water for a long time.
MARINE INVERTEBRATES

Read and answer the questions.

Clams, mussels and snails are **molluscs with shells**. Molluscs don’t have skeletons. Clams and mussels have two shells and they live inside them. Snails have one shell. They move on one muscular foot. They have shells for protection. Clams and mussels close them when there is danger and snails hide inside the shell. They breathe through gills like fish.

Squids and octopus are **molluscs without shells**. Squids have a small piece of cartilage inside their body. They eat prawns, crabs and fish. They change their colour to hide. They can spray ink to escape from danger. They have eight arms, but the squid have two long tentacles too.

**How do shells and snails protect themselves from danger?**

**How do squids and octopus protect themselves from danger?**
Crabs, prawns, hermit crabs and lobsters are crustaceans. They breathe through gills. Crabs and lobsters can stay long time out of the water. Crabs, prawns and lobsters have a hard outside covering. When they grow bigger, they crawl out of their old shell and grow a new one bigger.

The hermit crabs haven’t got a hard covering. They find empty snail shells and live in them. When they grow up and go out of the shell and look for another one.

Crabs and lobsters have got ten legs. The two front legs are called pincer claws and they use them to catch their food.

Starfish and urchin are echinoderms. They are symmetrical. They have a skeleton made of hard shells. They have spines.
Coral, jellyfish and anemones are **cnidarians**.
Some of them have very soft bodies and tentacles.

**But others, like some corals have a really hard body.**
Coral and anemones attach themselves to rocks.
Jellyfish move around.
**Some corals are confused with plants.**

Sea tulips are sea **sponges**.
**Sponges** are invertebrates with an irregular body. They cannot move.
They attach themselves to rocks or on the sea floor.
**They filter water to get nutrients.**
Find 11 marine invertebrates.
Look for them in all the directions.

Write a characteristic of each invertebrate looking at pages 12 to 14.
AN_ _ _NES : ____________________________ ____________________.
C_ _ _M : ____________________________________________ ________________.
C_ _ _ _ : ________________________________________________ ________________.
C _ _ B : ________________________________________________ ________________
J_ _ _ _ _ _ _H : _________________________________ ____________________.
L _ _ _ _ _R : ________________________________________________________
O_T_ _ _S : ________________________________________________________
P _ _ _ : ________________________________________________________
S _ _ _ _ : ________________________________________________________
_ _ _ _FISH : ________________________________________________________
UR _ _ _ N: ________________________________________________________
Fill in the table looking at pages 12 to 14.

<table>
<thead>
<tr>
<th>GROUP NAME</th>
<th>EXAMPLE</th>
<th>BODY FACT</th>
<th>HAVE THEY GOT A SHELL?</th>
<th>CAN IT MOVE?</th>
<th>Interesting fact</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOLLUSCS with shells</td>
<td>Prawn</td>
<td>Have soft body</td>
<td>✓</td>
<td>✓</td>
<td>They spray ink.</td>
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<td></td>
<td>Urchin</td>
<td>Yes. They have a hard covering like a shell.</td>
<td>✓</td>
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<tr>
<td>ECHINODERMS</td>
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<tr>
<td>CDIDARANS</td>
<td>Sea tulip.</td>
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<td>They filter water to feed.</td>
</tr>
</tbody>
</table>

Núria Capella i Roca
Choose a species of sea animal and complete the diagram.

What is it?

Category

Main Concept

What are some examples?

Example

Example

Example

What is it like?

Property

Property

Property

Property

New Definition:

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SEA VEGETATION

Posidonia

Posidonia is a marine plant.
It has roots that attach it on sand and they take nutrients from the sand.
It has leaves that can be one meter and half long.
The leaves make photosynthesis to get nutrients.
It has flowers, and fruits.

Ask your partner the questions them complete the notes in the fact file.

What are sea lettuce and rockweed? ________________________________
How are their roots called? ________________________________
What is the holdfast? ________________________________
Do they have leaves? ________________________________
Where do they make the photosynthesis? ________________________________
What is a float? ________________________________
How do they reproduce? ________________________________
Sea lettuce and rockweed are **algae**.

Algae look like plants but their structure is different.

Their roots are called holdfast. They hold the algae to a rock or shells, so it doesn’t move, but they do not take nutrients.

They don’t have leaves; they have blades which use the sun’s energy for photosynthesis.

Each blade has a float. It is filled with air and keeps the plant up towards the surface.

They don’t have flowers. The blade makes spores that grow into new plants.

**Ask your partner the questions them complete the notes in the fact file.**

---

**Posidonia**

What is Posidonia? ________________________________

How does it take nutrients? ____________________________

Where does it make photosynthesis? ____________________________

Has it got flowers and fruits? ____________________________
Write the similarities and difference between Sea Plants and Algae.

**Similarities**

**Differences**
1. What is plankton?
   a. Microscopic pants that live in the ocean.
   b. Microscopic plants and animals that live in the ocean.
   c. Microscopic animals that live in the ocean.

2. Is plankton important to the sea?
   a. Yes, it is.
   b. No, it isn't.

3. Who eats plankton?
   a. Pirates.
   b. Only prawns, octopus and sardines.
   c. A lot of animals, some very small and others very big, such as whales.

4. How can we divide plankton?
   a. In two groups: Phytoplankton are plant plankton and Zooplankton are animal plankton.
   b. In three groups: Phytoplankton are plant plankton, Zooplankton are animal plankton and Catplankton are plankton that look like small cats.
   c. It's all the same, just one group.

5. Were does Phytoplankton live?
   a. Near the surface of the ocean because it needs sunlight to make photosynthesis like all green plants.
   b. Near the beach to see tourists.
   c. In the deep ocean so no animals can eat it.

6. Which percentage of the marine plants are Phytoplankton?
   a. 10% of the marine plants. So they are not very important.
   b. 90% of the marine plants. So they are the base of the food chain.
   c. 30% of the marine plants are phytoplankton.

A big part of the oxygen we breathe comes from the Phytoplankton. Phytoplankton is very important to life and humans should always protect it.
A. Decomposers ➔ They are animals that eat plants and animals when they die.

B. Living things in the oceans and on land depend on each other for food energy.

C. Tertiary consumer ➔ They eat secondary consumers. They are called carnivores or omnivores.

D. Secondary consumers ➔ They eat primary consumers. They are called carnivores or omnivores.

E. Producers ➔ They are plants and algae. They use the sun’s energy to make their food. This is called photosynthesis.

F. Primary consumers ➔ They eat plants and algae. They are called herbivores.
Food chains show how food transfers from one living thing to another in an ecosystem.
LIGHT ZONES

A lot of plants and animals live in the ocean. But almost 90% of living things live in 10% of the part of the ocean. This is because of light zones.

**Sunlight zone**
The sunlight goes down through the water for about 186 meters. This is called the sunlight zone. All the plants live in this zone, because they need sunlight to realize the photosynthesis. 90% of marine plants and animals live in the sunlit zone.

**Twilight zone**
This is the zone between 186 and 930 meters. Only a small amount of light reaches this zone. Plants don’t grow here, because they can’t make the photosynthesis. Some animals adapted to like light can live here, such as lantern fish, viperfish and hatchet fish.

**Midnight zone**
90% of the ocean is in the midnight zone. There is no light. The water pressure is extreme. It is very cold. Just a few animals live here like: angler fish, vampire squid and bacteria.
Write down the name of the products next to the time you think they will last in the sea.

1. For ever ➔ __________________________.
2. 250.000 years ➔ ________________________.
3. 650 years ➔ ___________________________.
4. 450 years ➔ ___________________________.
5. 400 years ➔ ___________________________.
6. 200 years ➔ ___________________________.
7. 100 years ➔ ___________________________.
8. 80 years ➔ ____________________________.
9. 50 years ➔ ____________________________.
10. 13 years ➔ ____________________________.
11. 8 months ➔ ____________________________.
12. 2 months ➔ ____________________________.

e. Plastic loops  f. Plastic bags  g. Newspapers  h. Cardboard box
i. Wood  j. Fishing net  k. Buoy  l. Nuclear waste
### Problem:

___________________________

### Why do we have this problem?

___________________________________________________

___________________________________________________

___________________________________________________

### Suggest solutions:

___________________________________________________

What can you do to solve the problem as....?

**European government:**

**Spanish government:**

**Catalan government:**

**Barcelona Town Hall:**

**In your family:**
Oceans are changing

Oceans are in trouble