

Teacher's card



THE SECRET LIFE OF PLANKTON

Learning objectives

Cohesion & Collaboration

Child social development

Inter-individual relationships

Sociability & Exchange

Modalities of the activity

In the classroom

Outside

Duration of 1H30

Materials needed

- Tennis balls
- Small hoops
- Coloured crumpled paper balls
- Clock watch



Printable resources attached

- Printable 1: Role Cards
- Printable 2: Set of questions
- Printable 3: Marine Food Pyramid
- Printable 4: Marine Food Chain
- Printable 5: Timeline

Acts

Act 1: At the beginning there was nothing

Act 2: Understand under water's food chain

Difficulty and targeted school level

Easy

Primary

Low Secondary





Summary of the activity

At the beginning, there was nothing...

The 'Secret Life of Plankton' activity aims to introduce the fascinating topic of underwater life to children of all ages. Through this interactive and educational activity, children not only expand their knowledge about underwater life, but also delve into the captivating realms of earth science, biology, the creation of our planet, the intricate food chain, and the vastness of geography. By participating in this activity, children embark on a journey of discovery and exploration, where they will uncover the mysteries of the underwater world in a fun and engaging manner.

This captivating activity goes beyond traditional teaching methods by incorporating the art of storytelling and physical movement. By immersing themselves in the enchanting storyline, children not only absorb information but also enhance their learning and memory retention. Through various theatrical games and exercises, children are encouraged to explore different types of movement and experiment with the use of space. By closing their eyes during certain parts of the activity, children develop a heightened sense of body awareness, allowing them to connect with their physical selves more deeply. The guided story captures their imagination, igniting their creativity and encouraging them to express their unique ideas at the end of the activity. Furthermore, this activity creates a safe and supportive environment where students feel comfortable and valued, fostering a sense of belonging and allowing them to fully immerse themselves in the final part of the game without fear of judgment from their peers.

Sequencing the activity



ACT 1: AT THE BEGINNING,
THERE WAS NOTHING...



ACT 2: UNDERSTANDING
UNDERWATER FOOD CHAINS



Overall learning objectives of the whole sequence

This activity gives a lot of knowledge about earth science and biology in a pedagogical and playful way. It's a good activity to start working on the planet's creation, the food chain, geography... The storytelling and the fact that the children are active physically during the activity is an attempt to help pupils remember the lesson better.

Overall theatrical objectives of the whole sequence

The activity is based on timeless theatrical games. Through the activity, children get to discover new types of movement and use of space. The fact that they have their eyes closed during the first part of the activity improve their body awareness. They also follow a guided story, and are asked at the end to become creative. The first activity tries to put the children in a small "trance" so that they feel comfortable and not judged during the second act.

Skills developed throughout the whole sequence

- Introspection
- Exploring and inventing
- Using theatrical space
- Self-affirmation
- Physical activity
- Developing logic



Summary of the activity - Act 1: At the beginning, there was nothing...

WARM UP

All the children lay on the floor and are not allowed to move in the space. To the teacher's call, they can become either plankton, eels, or starfishes.

- When they are plankton, they bring their limbs together and try to be as small and round as possible (fetal position)
- When they are eels, they have to stretch out their legs and arms together to be as long as possible (like a snake)
- When they are starfish they spread out all their limbs to form a star shape.

INTRODUCTION

Now that we are warmed up, let's discover the story of life on earth.

TEACHER. - We are now the planet earth, at the beginning all the water was in the sky. A storm started and it rained for thousands and thousands of years. Can you feel the rain on your skin?

The group creates a big circle. The teacher is the master of the circle. He starts rubbing his hands. The student on his left start rubbing his own hands right after the teacher, and so does the student on his left, until the all circle of student are rubbing their hands.

Can you ear the light summer rain?

Now the teacher snaps his fingers. As before, the student on left do the same, until the all circle is snapping its fingers.

The rain is now louder.

Now the teacher slaps his tights. And so do all the children...

This is a storm !

After the storm, the teacher plays the game the other way around to go back to rubbing their hands, and then the silence.

It rained so much that the rain created the oceans. After millions of years, the storm tempered and the oceans were born.

1 billions of years ago appeared the zooplankton. Keep your eyes closed. But now, when you touch someone, you become a more complex organisms. Attach yourself to the person you touched. Now you move as a group. I can see your getting bigger.

Well done you're now just one massive group of organisms. Did you know that the longest living being on earth is actually made like that? It's the Syphonophore and it's made out of thousands of zooplanctons together !



We are now 600 millions of years ago. Open you eyes and break appart. You are now little animals. What sort of animal are you becoming? Maybe you have clamps? Or tentacles? Or fins? Do you move like a crab? Like a jellyfish? a starfish? an octopus? or a fish? Life can take numerous forms and shapes underwater. Did you know that the Oikopleura is a kind of plankton that moves around in circle, driven by it's long tail? While the teacher says that, the children have to play the different movement with their body.

Now create your own sea animal. Which one will you become? How would you move? Try to imagine it in your head and reproduce it's movements with your body. Inspire yourselves from the different animals we've met together.

The teacher walks amongst the children and select those that seems to imitate an interesting animal. The teachers interrogates them:

Can you describe your animal? What does it looks like? Tell me about it's colour? Does it eat other animals or is it being eaten?

At the end, all the children should have invented an animal.

CONCLUSION (OPTIONAL)

The teacher give the pupils a blank card. They have to find a name for their own see animal and draw it on the card.



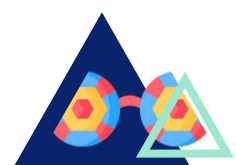
Mime, Acting,
Improvising



Duration of the Act:
45 minutes



Biology, Earth
Science



Creativity &
Imagination

Phases of activity

- 1 The teacher reads the introduction and asks the pupils about what sea animals they know.
- 2 The pupils plays the warm up game.
- 3 The pupils plays the main game.
- 4 As a conclusion, the pupils can draw their own animals.



Summary of the activity - Act 2: Understanding underwater food chains



Physical
Theater



Duration of the Act:
45 minutes



Biology



Cohesion &
Collaboration

Set up

The educator creates **three balanced teams**. If possible, the teams should wear colour training bibs. The team represents different categories of plankton. **Each child receives a card (*printable 3*) of the colour of it's team : Green, Pink & Blue.**

There might be more than one type of plankton per team, two or more children can receive the same card, just make sure there is enough card for everyone.

The different teams are:

- **Blue team: Phytoplankton** is the vegetal plankton. They feed on carbon, silica, oxygen and light (photosynthesis) and are often unicellular beings:
 - Coccolithophore makes chalk for its shell, and when it falls, does geology.
 - Alexandrium can paralyze humans and makes water toxic if it multiplies too much.
 - Diatoms build glass shells
 - Noctiluca Scintillans are bioluminescent (dinoflagellates)
- **Green team : Holoplankton** is composed by small animal plankton that will stay small forever. They eat phytoplankton:
 - Copepod with one eye and females carry eggs in shopping bags
 - Globigerina foraminifera (made of limestone)
 - Oikopleura (has a tail like our spine) and spins around itself.
- **Pink team : Meroplankton** is mostly composed by sea animal's larvae and will become bigger animals (crabs, shrimps, etc). They eat holoplankton. In the game, they can be paralysed (eaten) by phytoplanktons:
 - Zoe larva (It's a baby crab !)
 - Sea urchin larvae & starfish
 - Salps (salpidae) pump and filter water
 - Velelles (with a sail), rise out of the water and move into the wind. In Marseille, we eat them as seafood.



Warm up game

Drawing inspiration from the first act and the informations written on their card, The children are asked to imagine how their plankton will move, act and behave.

After each child figured out how it's own plankton moves, the teams are asked to create a 30 seconds choreography.

Before starting the game 1 st round of the game, each team will show its choreography to impress the other teams (as an aka in rugby).

Introduction Round

Warning: This is a game that must be played outdoor, in the schoolyard, a stadium or a parc.

Material needed: A series of small items (tennis balls, small hoops, coloured crumpled paper balls...). At least one per child. Clock watch.

Set up: The teacher places the items all around the schoolyard. Items can be hidden but not too much.

Instructions:

- Make three teams. The three teams start from the centre of the schoolyard. The teams plays their choreography.
- To the teacher call, they start running in the schoolyard to seek for items.
- The goal is to collect as many items as you can for your team. There is two different ways to get items:
 - Finding them on the schoolyard
 - Stealing them from your target's team.
- Each team as a target team and chase another team. You can only steal balls of your target's team.
 - The Meroplankton chases the Holoplankton
 - The Holoplankton chases the Phytoplankton
 - The Phytoplankton chases the Meroplankton
- When a child touches somebody of it's target team, the child touched gives him all its items. *For example: if a Meroplankton hold one item, and touches a Holoplankton that holds two items, the Meroplankton take the two items and has now three items.*
- After 5 minutes the game stops. The team with most balls wins the test round.

A few more rules:

- It's forbidden to hide items in your pockets.
- There is no safe spots for the teams
- Any other strategies is authorized. Hiding items, giving all the items to one child, etc... Unless it included violent behaviour (no pushing, blocking, etc...).



Second Round

Material needed: A series of small items (tennis balls, small hoops, coloured crumpled paper balls...). At least one per child - Clock watch - Printables 3, 4 and 5 printed (in large size and colour if possible).

Set up: The **printable 3, 4 & 5** must be displayed in the schoolyard or printed for each team.

Instructions:

- The first 5 minutes of the game are similar to the introduction round. The three teams start from the centre of the schoolyard. The teams play their choreography.
- To the teacher call, they start running in the schoolyard to seek for items by:
 - Finding them on the schoolyard
 - Or stealing them from your target's team.
- After 5 minutes, the game stops. The teams count their items. This time, they will need to use the items to get opportunities to solve questions. More items gives you more opportunities to solve questions.
- Giving one item to the teachers gives the team an opportunity to answer one question (*Printable 2*). Teams can decide the difficulty of the question they want to solve. Solving an harder question will make you win more points.
- The printables 3,4 and 5 are displayed in the safe zone and can help solving some questions. For example: the green team as collected 5 balls. They ask for:
 - 3 level - 1 question
 - 2 level - 1 question
 - 1 level - 3 questions
- The teachers draw five questions from the question table (3 level 1, 1 level 2 and 1 level 3). They answer 2 level 1 question right, and the level 2 question right. The others answers (1 level 1 and 1 level 3) are false. They get a total of $(2 \times 1) + (1 \times 2) = 4$ points. At the end the team with most points win.

A second round can be played (but the teacher as to make sure not to ask the same questions to the same teams).

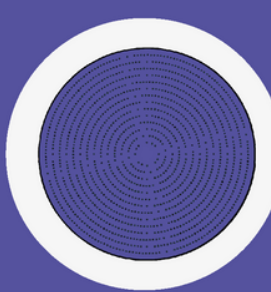

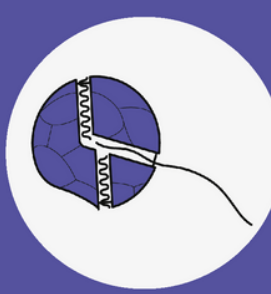
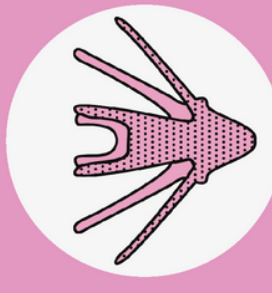

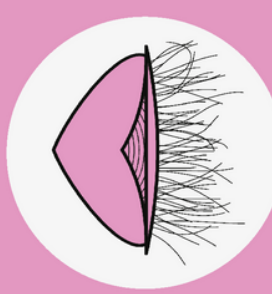
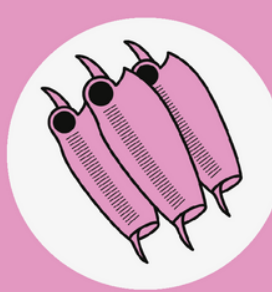

Conclusion: At the end, the teacher can explain that even if there was a winner, for the world to turn around, everything must remain balanced:

- If there is too much phytoplankton, oceans turn toxic.
- If the holoplankton win, they will be no more air on earth because there will be no more phytoplankton (phytoplankton bring more air to earth than all plants combined).
- If the meroplankton wins, he will have no more holoplankton to eat and will start cannibalize itself.

This game was based on the work of planktomania: <https://planktomania.org> and used the planktomania card game as a starting point. Reference drawing and charts can be found here: www.eclm.fr/livre/le-manuel-du-plancton/. Reference images can be found here: <https://planktonchronicles.org/fr/le-projet/>

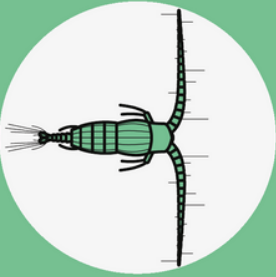


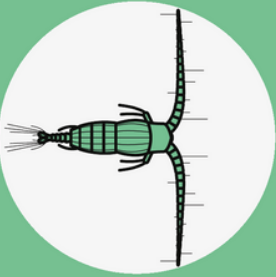




Printable 1 - Role Cards

<p>Diatoms</p>  <p>They can build a glass shell and live in cold waters. (make up more than 80% of plant plankton).</p>	<p>Noctiluca Scintillans</p>  <p>It is bioluminescent. (light energy released by certain animal species.)</p>	<p>Alexandrium</p>  <p>It can paralyse humans.</p>	<p>Sea urchin larva & Starfish larva</p>  <p>They have spiny skin and do not eat holoplankton.</p>
<p>Coccolitophore</p>  <p>It uses chalk to make its shell.</p>	<p>Veille</p>  <p>It has a sail and moves forward under the action of the wind on its sail.</p>	<p>Salp</p>  <p>They are formed by large chains of several individuals. in the water. « hand in hand ».</p>	<p>Zoe Larva</p>  <p>It grows by eating other plankton and eventually transforms into a crab.</p>



Printable 1 - Role Cards

 <p>Copepode</p> <p>It has paddle-shaped legs and has one eye.</p>	 <p>Globigerina</p> <p>Made from limestone, it can be preserved for millions of years and is used in geology.</p>	 <p>Oikopleura</p> <p>It looks like a tadpole and its tail is the ancestor of our spine.</p>
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Printable 2 - Questions

#	Help on printable	Difficulty	Question	Answer
1	No	3	What's the name of the longest organism living on Earth?	The syphonophore
2	Marine food chain	2	What's the name of plant plankton?	The phytoplankton
3	Marine food chain	3	Why is the plant plankton so important for humans?	Because it plays a large part in the production of oxygen on earth
4	Marine food chain	2	Quote a scavenger marine animal	The crab / The shrimp
5	Timeline	1	Who was on Earth first? : Planktons or dinosaurs?	Plankton
6	Timeline	3	When did the first phytoplanktons eaters appear?	1 billion of years ago (zooplankton birth)
7	No	3	What is photosynthesis?	The breathing of plants
8	Marine food pyramid	2	Sort from smallest to largest: phytoplankton; carnivorous zooplankton; herbivorous zooplankton	Phytoplankton - Herbivorous Zooplankton - CarnivorZooplancton
9	No	2	How did the oceans on Earth form?	The water contained in the atmosphere fell to earth in a storm that lasted for millennia.
10	Marine food pyramid	1	Quote a predator in top of the marine food chain	Killer whale - Shark - Sperm Whale
11	Marine food pyramid	2	Who is the biggest fish?: tuna or sardine?	Tuna
12	Timeline	3	When did the first living creatures appear on Earth?	3,5 billions of years ago
13	Marine food chain	2	Sort by order of the food chain: birds - planktons - small marine carnivorous	Plankton - small marine carnivorous - birds
14	Marine food pyramid	3	How many kg of zooplankton do you need to make 50g of tuna?	50 kg

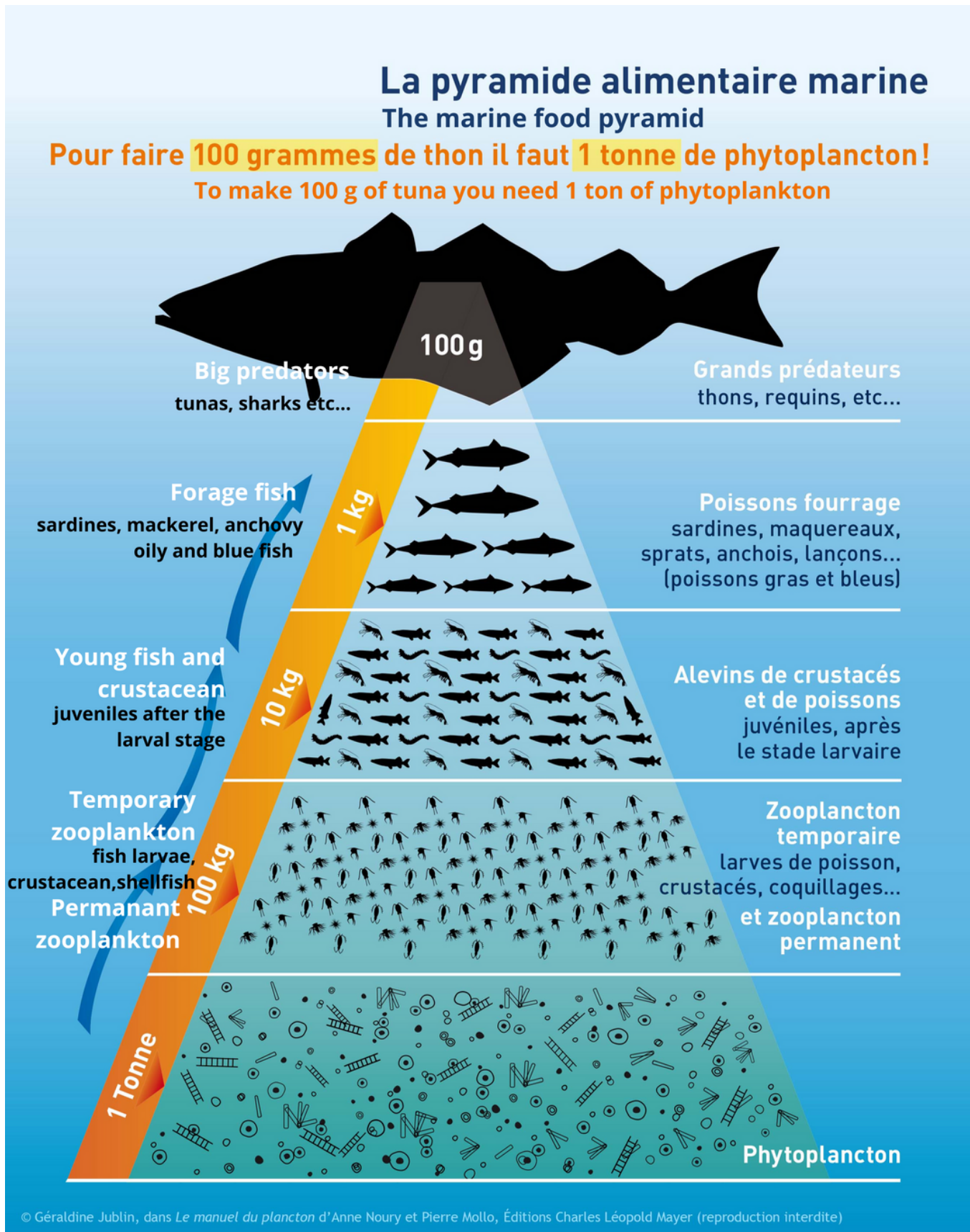


Printable 2 - Questions

#	Help on printable	Difficulty	Question	Answer
15	No	1	Quote a marine animal who have tentacles	Octopus / Cuttlefish / Squid
16	No	1	Quote a marine animal who have claws	Crab / Shrimp / Lobster
17	No	1	Quote a name of one seashell	Mussel / Oyster / Clam
18	No	2	Do fish need oxygen to live? Yes or no?	Yes
19	No	2	How many branches does a starfish have?	5
20	No	1	What is a shoal of fish?	A group of fish
21	No	2	How many legs does a crab have? (claws included)	8
22	Marine food pyramid	3	How many kg of phytoplanktons do you need to make 500 g of sardines?	500 kg
23	No	3	Is coral animal or vegetal?	Animal
24	No	3	Can urchins move?	Yes
25	No	3	Quote a octopus super power	Spit ink / Change it's colour
26	No	3	What is the particularity of hermit crab?	It leaves in shells that he finds
27	No	3	Who is the biggest? sea or ocean?	Ocean

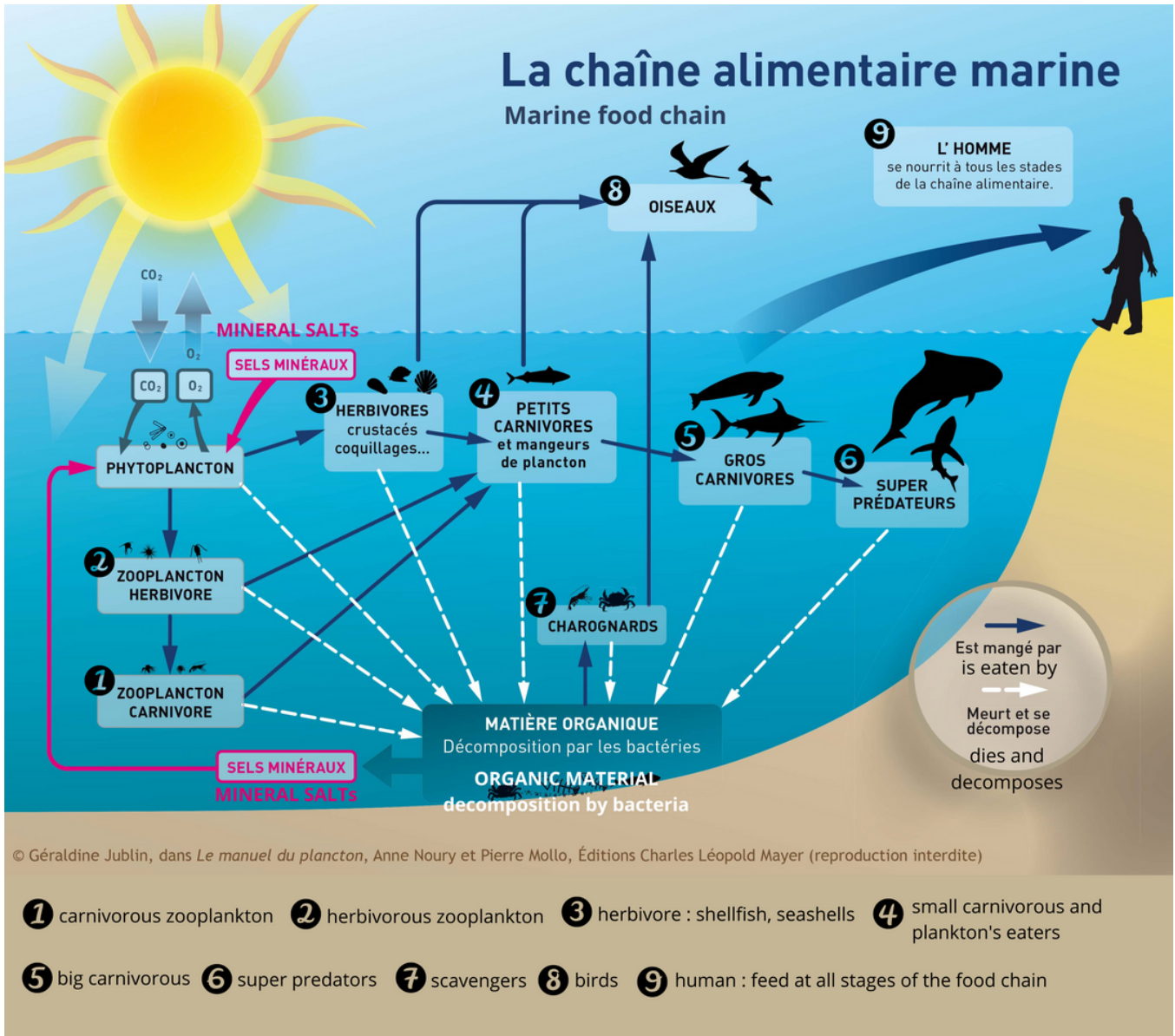


Printable 3 - The Marine Food Pyramid





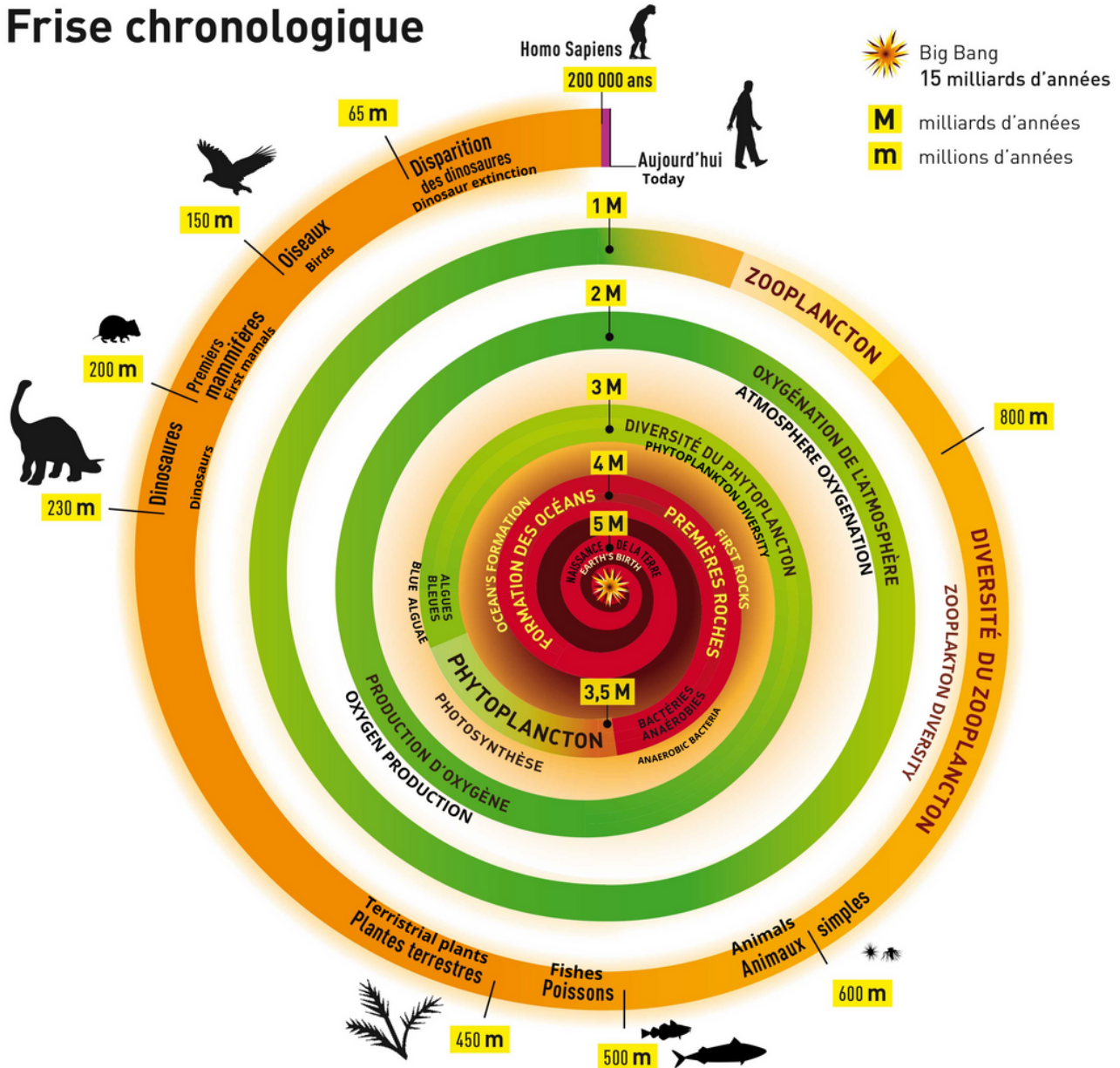
Printable 4 - Marine Food Chain





Printable 5 - Timeline

Frise chronologique



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Topic 1 - Animals movement

The last part of the activity, asking children to reproduce the movement of marine animals, can be extended to all animals. You can find many animal videos on the Internet. Use them as a basis for trying to reproduce as many animal walks as possible. You can for instance, consult the following video: <https://www.youtube.com/watch?v=-KezeE9-y0c>



Topic 2 - Discover the plankton life

Learn more about plankton by watching Plankton TV on planktomania and Plankton Chronicles:

- <https://planktomania.org/#planctontv>
- <https://planktonchronicles.org/en/episodes/>
- [Capitaine Coco - YouTube](#)



Topic 3 - Play with plankton

Play the "7 families" plankton game to learn about the different plankton families and how to study them. The game is available on the planktomania website in the games section: <https://planktomania.org/en/#modeles> (Role cards for a plankton game (wolf-fox-viper principle)).