Learning Tool Code	Title
SDG14-SDGfP	"Life in the Seas and Oceans."

Objectives

- **students to get an idea of the diversity of plants and animals of the seas and oceans, their distribution: in the shallow coastal part, in the thickness and at the bottom, in coral reefs;**
- **to reveal the connection and adaptability of the inhabitants of the seas and oceans to life in different conditions.**

Activity details

Materials - tables, computers, electronic material ,"Life in the seas and oceans", collections of marine life, interactive board

Duration – 90 minutes

Number of groups - several groups of students (grade, age)- (5 grade, ages 11-12)

Instructions

The course of the lesson

1. Organizational moment

- Hello, sit down. / 1 minute /

2. Updating basic knowledge, skills and abilities

In the last lesson we got acquainted with different natural areas of the Earth and their inhabitants. Let's test your knowledge. Four students on the computer perform an interactive task. The others answer orally. Attention to the screen.

Task: name the animal and its natural environment (presentation "Test of knowledge") - individual study - for a correct answer, hand over the shell.

/ 5 minutes /

3. Assimilation of new material

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- Students, why do you think I gave you unusual and different objects? (students' answer)

Presentation 1

Presentation 2. Presentation 3. Presentation 4.
- Yes, it's true. That's right.

/ 10 minutes /

The topic of our lesson is "Life in the Seas and Oceans" (slide 1).

/ 1 minute /

We go for a virtual walk to the sea. Let's think about why we do this walk, what do you want to know? Why should we study life in the seas and oceans? (I ask questions to several students)

/ 2 minutes /

- You're right. (slide 2) Your goals match mine.

Earthly life arises in water. Everything that now crawls, runs and grows on the ground, everything that flies above the ground and everything that digs underground - everything has ever come out of the sea. This means that we humans are also connected to the sea. (slide 3)

/ 5 minutes /

Our body is still half water, our arms and legs are the former pectoral and pelvic fins of fish. Our lungs are formed by the swimming bladder of a fish. Our heart moves blood through our veins (WHAT TASTE) salty, like sea water, and our pulse beats are as rhythmic as the tides of the sea. (GLOBE)

The sea, or rather the world's oceans, cover 2/3 of the globe and contain 97% of all the Earth's water. For millions of amazing creatures, the sea is their home. The house is not simple, but multi-storey. (slide 4) Let us walk with you through the floors of this house and get to know its inhabitants, to solve their main life problems.

There must be certain living conditions. (light, food, oxygen, temperature) (slide 5),. (slide 6)

/ 7 minutes /

You know that plants are food for many animals, these same plants produce oxygen in the water. What plants are they? That's right, algae. (slide 7.8)

Animals living at different depths feed on algae (slide 9)

/ 5 minutes /

Our journey starts from the top floor, (Slide 10) here live organisms that form a community from the surface of the water. Here is a strange creature that floats, blue with red sail - a Portuguese warship in the old days, the Portuguese brightly painted their warships). He is a close relative of the jellyfish. The tentacles enter the water, with the help of which he catches his food: small crustaceans and fish.

/ 2 minutes /

Question No 1. How does a Portuguese ship stay afloat and not sink? (There is a large light air bubble and a large ridge at the top that serves as a canvas). Here, near the surface, it is bright and warm.

A relative of the Portuguese warship, the Sailboat, also sails on the surface of the ocean. It has a flat body like a raft, and a triangular sail rises on it. This is a predator that gets its food with the help of tentacles. And on the deck of this ship
you can see the sailors of the little Crabs. If they want to eat, they will go down to the bottom of a living ship and snatch from its tentacles the caught fish, crustaceans

The next floor is the community of the water column. (slide 11) This floor is full of light. / 5 minutes /

Question number 2. How does it stay in the water column and how to move in it? Plankton and free-floating organisms live here in the water column.

Plankton is a collection of living things (algae, crustaceans, ray beetles) that float freely in the water column, and for this they must have adaptations. (Outgrowths, bristles for water to keep them active.)

What adaptations do active swimming animals have for living in water? (click to open slide 11) / 2 minutes /

Slender simplified forms (herring, tuna, sharks, whales, dolphins).

They swim with fins. The tail fin pushes the fish forward. The dorsal fin, like the keel of a boat, does not allow it to tip over. Lateral rudders on turns, ascents and descents. / 2 minutes /

Which fish have hair, ominous fins sticking out of the water? (slide 12)

The ferocious predators of the sea are sharks and they swim fast. They are different: among them there are giants (20 meters) and dwarfs up to 15 cm. The biggest harmless are tiger and giant shark. They feed on plankton and small fish. Our sharks look sighted, but they are blind. For them, the main thing is not sight, but smell. A shark smells better than a greyhound.

The great white shark up to 6 meters is a cannibal. She hunts squid at night (slide 13) and his little relatives. The shark's jaws have many teeth, if they fall out, the new ones will grow in 8 days. The shark's dark, round, mesmerizing eyes instantly recognize their prey. The shark is constantly hungry, it is always on the move, if the shark stops moving, it will drown (without a swimming bladder). The water column is home to sea turtles, whales, dolphins and many other animals. (slide 14)
/ 5 minutes /

What devices do the inhabitants of the water column have? For example, whale and squid.

Both the giant whale and the crumbs of plankton algae - all sea swimmers have fat, this is a good help because fat is lighter than water. There are other adaptations, for example in squid, octopus, cuttlefish.

The squid contracts its muscles and releases a jet of water and is thrown back by the push. He swims in the opposite direction. It turns out that he has some jet engines underwater. / 3 minutes /

The next floor is the community of the inhabitants of the bottom. (slide 15)

The benthic community is very rich in species. Here, on the lower floors, live numerous mollusks with beautiful shells, starfish, hedgehogs, rays, shrimp, octopuses, fishermen, flounder.
Question number 3. How to move to the bottom and defend yourself from enemies? (click to open slide 15) / 3 minutes /

(Slide 16) At the bottom is a pile of sand, below it a waving flag. A fish swam up to the twig, touched it with its lips, the sand flew away for a moment, a huge mouth opened as if in sand and a fish fell into it. This is a fisherman's hunt.

How do stingrays, flounder, fishermen adapt to live at the bottom? (Flattened body shape, coloring according to the color of the bottom, ability to mask)

After a chessboard was lowered to the bottom of the aquarium and a flounder was placed there, it disappeared after a while. It turned out to be drawn in light and dark squares, like a chessboard.

Echinoderms also live at the bottom (slide 17) / 7 minutes / Coral reef community. (slide 18)
Living things are even more diverse in the coral reef community. This community is as rich in form as tropical forests. They look like luxurious fairy gardens inhabited by strange inhabitants. Coral reefs are located in shallow waters, there is a lot of heat, light, food.
The coral reef is a friendly place for many fish.

Community of deep - sea organisms. (slide 19)

What problems does the community of deep-sea organisms solve? There are no plants here, but strange organisms live.

/ 7 minutes /

Question № 4. How to navigate in the dark How do deep-sea fish lure their prey and flee from enemies? (open slide)

- I'm announcing a gym minute. (Get up, stretch, look back and sideways) Sit down. / 1 minute /

4. Independent work of students. (consolidation of what has been learned)

- We work in groups. 4 groups. Group tasks:

1. Practical work "Study of a collection of marine life"

2. View a video.

3. Fill in the table. (SHARE SHELLS)

Which group is the first to complete all the practical work is the first to fill in the row in the table on the interactive whiteboard. After filling in, go to the computer and perform the test - Fill in the table on the interactive whiteboard (slide 21) Group 1 and 2- on the blackboard, groups 3 and 4 - computer tests (change)

/ 10 minutes /

5. Diagnosis of the knowledge acquired in the lesson.

"So what did we learn today?" Have we achieved the objectives of the lesson? What questions do you have that are not clear?

6. At home. exercise. (slide)

7. REFLECTION (In what mood do you leave the lesson)

The most important problem of the oceans and seas is an environmental problem, and it is no longer the residents of "our multi-storey building" who have to solve it, but we, the people.

Beautiful colorful fish, huge whales, strange octopuses, funny dolphins - amazing creatures that we talked about in our lesson - should not be allowed to disappear.

8. Evaluation. Thanks for participating in the lesson. Task card.
Practical work "Study of the collection of marine life"

- browse the collection

- enter the names of the animals in the table. Watch the video on your computer.
- enter the name of the animal in the table

- to determine the features of adaptation to life in a certain community.

Communities of the seas and oceans			
Name of the community	**Representatives of the Community**	**Basic issue**	**Ways to solve problem**
Water surface		How to stay on water surface	
Water column		How to move in the water column	
Bottom		How to protect yourself from enemies and move at the bottom	
Deep sea		How to navigate in complete darkness	

Tips for the facilitator

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Debriefing

Task card.

Practical work "Study of the collection of marine life"

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Follow-up/Inspiration for the future

Information on social media, school website.

References/Further reading

https://coral.org/en/blog/how-much-do-you-know-about-ocean-wildlife-take-our-quiz-and-find-out-2/?gclid=EAIaIQobChMIsMrUlcLk9wIVtRoGAB3B-wU8EAMYAiAAEgJ-2PD_BwE

Annex

Communities of the seas and oceans

Name of the community	**Representatives of the Community**	**Basic issue**	**Ways to solve problem**

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LIFE IN THE SEAS AND OCEANS

WHICH ANIMALS FORM THE SURFACE WATER COMMUNITY?

1. Squid and sharks.

2. Tropical fish and water meters

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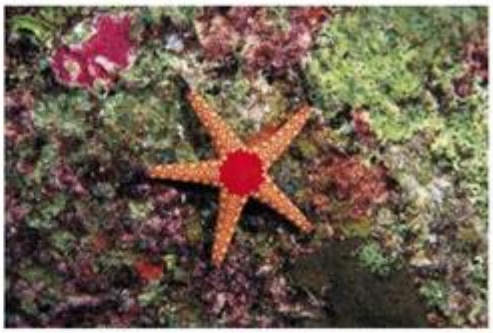
WHAT ANIMALS FORM THE THIN WATER COMMUNITY?

1. Squid and sharks.



2. Starfish and stingrays

WHAT ANIMALS FORM THE BOTTOM SOCIETY?

1. Starfish and stingrays

2. Fish and dolphins

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WHY ARE THERE NO PLANTS AT GREAT DEPTH?

1. Very cold.

2. Very dark.

SAY!

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WELL DONE!