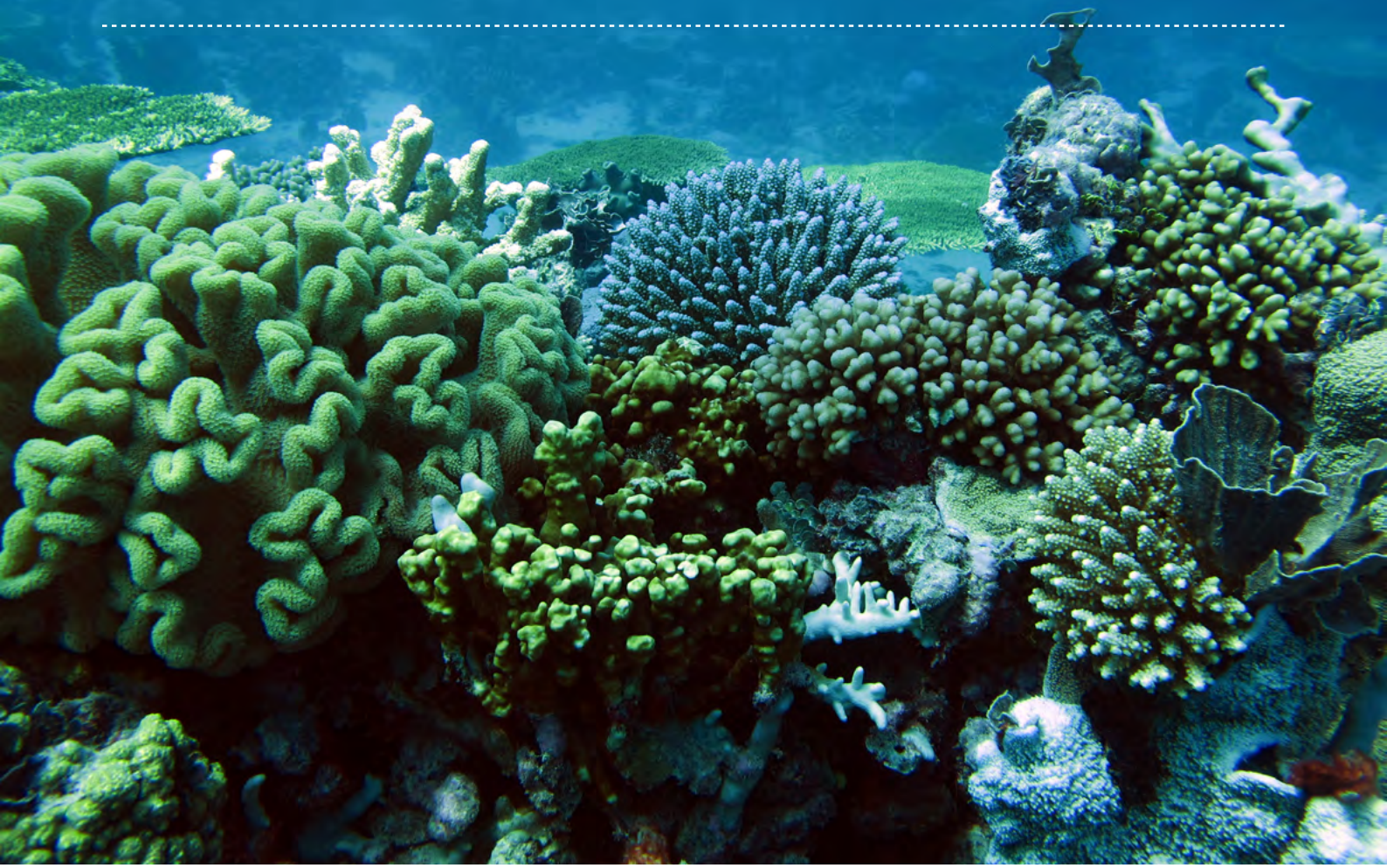
CORAL BLEACHING

ACTIVITIES TO PERFORM WITH YOUR STUDENTS

AGE LEVEL: 8-12 YEARS OLD

EDUCATIONAL BOOKLET AROUND THE EDUCATIONAL VIDEO CLIP: "CORAL BLEACHING EXPLAINED"
IN COLLABORATION WITH DR TULLIO ROSSI,
MARINE BIOLOGIST AND SCIENCE COMMUNICATOR



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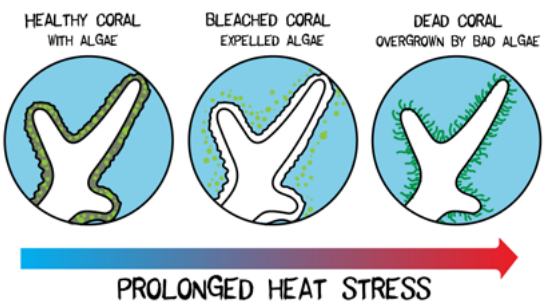
The Coral Garden

CORAL BLEACHING

ACTIVITIES TO PERFORM WITH YOUR STUDENTS AROUND THE EDUCATIONAL VIDEO CLIP: CORAL BLEACHING EXPLAINED
https://youtu.be/UyEw_Rl8mqM

While coral reefs cover less than 0.2% of the sea floor, they are host to almost 30% of marine biodiversity. Their good health is therefore vital to the diversity of the species they shelter, and for humanity. True indicators of the Ocean's health, a large part of coral reefs has been disappearing in recent years.



LEARNING OBJECTIVES

The main goals of this documentation are for students to:
— Enrich their knowledge of the Ocean, including information on coral
— Better understand the fragility of this ecosystem and the impact of climate change
— Become aware of the role they can play in addressing this issue

SUGGESTED CLASSROOM ACTIVITIES

GENERAL COMPREHENSION

Students are invited to take the quiz below, in groups or individually, to test their overall understanding of the video clip. A crossword puzzle will help them assimilate the associated key words.

Answers to quiz: 1c, 2b, 3b, 4b, 5b, 6b, 7c, 8a
Answers to crossword puzzle: 1- coral, 2- alga, 3- reef, 4- bleaching, 5- warming

Students can also design their own word search grid, by first placing the words that describe components of the reef (such as coral, algae, coral fish, etc.); then, dangers facing the reef (such as global warming, bleaching, etc.) and finally fill the remaining blank cells with any letters. Once finished, they can exchange their grid with their classmates.

CORAL AND ITS ENVIRONMENT

Discovering coral reefs

Students can represent a coral reef including different types of corals and fish to illustrate the variety and diversity of life forms present in this ecosystem. To do so, they can have a look at the works available on our website to find inspiration: *www.arts-oceans.com/* and use drawings, colored paper cut-outs, stencils, etc. Their creations can be assembled in a large fresco and exposed on the classroom wall.

Understanding the relationship between algae and coral

Algae and coral need each other to survive. Such an association is called "symbiosis". Organize a short participative play (called "forum theater") to explain this relationship: a student plays the coral, another the alga. What do corals and algae do for each other? What happens when water temperature increases? When a student has a suggestion, he replaces the actor and plays the role the way he thinks is good.

Your students can also perform documentary research to find other examples of symbiosis between various species. For instance, they can stage an anemone and a clown fish, a symbiotic pair well known to children and easy to represent. Use visual arts for the stage decors.

UPHEAVALS OF THE OCEAN

Increasingly warm

In class, a simple scientific experiment can be conducted to understand the greenhouse effect, using Experiment no. 1 attached at the end of this file.

Your students can supplement this session with online searches to understand the implications of climate change.

Increasingly polluted

In class, invite your students to reflect on what contaminates the oceans, and how it is an issue.

You can organize or participate with your class in a beach-cleaning campaign.

Coral reefs in danger!

Taking inspiration from the video clip and additional online documentation, invite students to draw a coral reef in an excessively warm ocean, victim of bleaching. As previously, put these drawings together in a large fresco and compare it to the one produced earlier, representing a healthy reef.

A ROLE TO PLAY

How to reduce our own impact?

Together with your students, brainstorm on how to reduce greenhouse gas emissions in different contexts: at home, during leisure activities, when traveling, at school, etc.
The meat industry is one of the most polluting. Your students can imagine simple vegetarian recipes and illustrate them with drawings.

Inform your family and friends

With your students, you can create different types of communication to share what they have learned with their entourage. This may include:

- Writing a short text – in documentary or narrative form – to explain the issues concerning coral and what each of us can can to do to help.
- Making a short animated film similar to the video clip "Coral Bleaching Explained" with your own illustrations and words.
- Supplementing the created frescoes of a healthy reef and another degraded by bleaching with key phrases, arrows, drawings of thermometers, etc. The final project can then be presented to other classes to explain the issue facing coral. Reefs can be outlined on paper in black and white and with colors on tracing paper, then superimposed to show the presence or absence of symbiotic relationship.

DISPLAY THE ACHIEVEMENTS OF YOUR STUDENTS AND YOUR PROJECTS!

Share your students' drawings, texts and videos.

We will publish them on the Tara Expeditions website. Do not hesitate to send them to us specifying who the artists are!

Show the projects you have coordinated on coral so that other teachers can be inspired.

Contact us: education@taraexpeditions.org

QUIZZ

1: CORAL IS...
a- A motionless animal
b- A colorful stone
c- An animal that is also a plant and a mineral

2: HOW DO WE KNOW IF A CORAL IS YOUNG OR OLD?
a- It becomes greyish as it grows old, like men
b- It grows with age, like the rings of a tree
c- It becomes more fragile and brittle

3: ALGAE AND CORAL LIVE IN SYMBIOSIS. WHAT DOES THIS MEAN?
a- They help each other from time to time
b- They help each other and wouldn't be able to live without the help of the other one
c- They compete with each other

4: WHAT DOES THE ALGA DO FOR CORAL?
a- It attracts small fish for coral to feed on
b- Using solar energy, it synthesizes sugar to feed coral

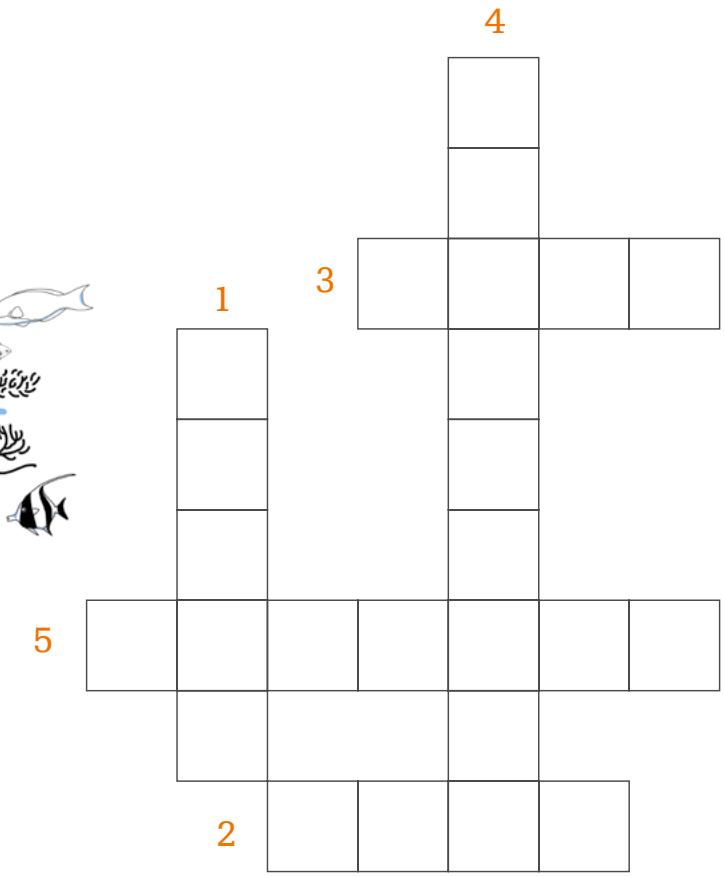
5: HOW DOES CORAL REACT WHEN SEAWATER GETS TOO HOT?
a- It sweats a lot
b- It expels the symbiotic algae
c- It dies

6: A CORAL WHOSE SKELETON IS APPARENT IS...
a- old
b- starving or dead

7: WHAT DO SCIENTISTS ANTICIPATE IN THE FUTURE?
a- Ocean temperature is going to decrease
b- Ocean temperature is going to stay the same
c- Ocean temperature is going to continue to increase

8: WHAT INDUSTRY PRODUCES THE MOST GREENHOUSE GASES?
a- The meat industry is more polluting than the transportation industry
b- The meat industry is less polluting than the transportation industry
c- The meat industry is as polluting as the transportation industry

CROSSWORD



1- Marine organism that is animal, plant and mineral
2- Marine organism vital for coral survival
3- Where coral grows
4- Name given when coral becomes completely white
5- Name given to the temperature rise

EXPERIMENT: GREENHOUSE EFFECT

1. QUESTION

What is a greenhouse effect?

To answer this question, the Planet Sciences Association & ADEME propose the following experiment:

2. MATERIAL

— 1 transparent bowl
— 1 thermometer
— 2 glasses
— water

3. PROCEDURE

1- Fill the 2 glasses with the same amount of water
2- Place the glasses outside in the sun, and cover one of the glasses with the transparent bowl
3- After 60 minutes, measure the temperature of the water in the 2 glasses. Which glass contains the warmest water?

4. FURTHER INFORMATION

The transparent bowl acts like a greenhouse, allowing light rays to pass through and retaining the heat. Different gases in the earth's atmosphere play the same role: not only do they protect us but they also retain the sun's heat. Without these gases, the Earth's surface temperature would be -180C ! However, for several years, the quantity of atmospheric greenhouse gases has increased leading to climate disruptions. It is interesting to find out which gases have greenhouse effects and where they come from.

This experiment was provided by the Planet Sciences Association

SOURCE :

Fondation Tara Expéditions, Planète Sciences et l'ADEME
www.oceans.taraexpeditions.org/rp/effet-de-serre/