Unit 1

THE SEA AS A FOOD RESOURCE FOR HUMANITY

Didactic guide

Unit map

Topics		
Fish resources and human food needs.		
Nutritional properties of food		
Culture and tradition of the sea food consumption.		
Objectives		
Deepen students' eating habits.		
Highlight the importance of fish resources in the human diet.		
Highlight the differences between local and imported fish resources and craft and industrial activities		
Make students reflect on the environmental implications of changes, from the past to today, in the consumption habits of fish resources.		
To deepen the historical and cultural aspects and changes related to the consumption habits of fishing resources		
inserts		
1. The taste of the sea.		
Materie		
History, chemistry, food education.		
Didactic sheets		
Type	**Title**	**Activity**
S - Survey	1. “Tell me which fish do you eat”	Survey within the family.
R - Research	2. How much nutrition fo fish provide?”	Research and reading of fish product labels.
	3. “How to store the fish”	
E - Experience/elaboration	4. “The fish of today”	Visit to the fish market / interviews with fishmongers.
	5. “Discovery fish in the past”	Interviews to old people.
V - Verification	6. “The sea as food resource for Humanity”	Verification in class.

Didactic path

Nourishment is one of the primary needs of any living being; it is natural, therefore, that around every element that can provide sustenance, a complex network of activities develops transforming itselves into cultural traditions. This gives us the opportunity to analyze the topic from different points of view.

We therefore begin, in this module, with treating marine food resources essentially from the point of view of their use in human nutrition and then deepening, in the subsequent modules, the issues related to fishing techniques and the economy that is generated by the request of the "Fish" on the food market.

We want to reiterate that, for simplicity, in the drafting of the text we will use in these pages, as well as in the worksheets, the generic term of "fish" to indicate all those marine organisms that are commonly used as food; we therefore understand in this term not only fish proper, but also molluscs, crustaceans and anything else the fish market can offer.

In order to make this concept clear to students from the outset, we have structured the form **S 1** in the form of an "inquiry" on the food habits of each pupil's family, an investigation that also implies a sharing process of the terms. Therefore, through a sort of interview with their parents, the student reports the list of species usually consumed, with data on the frequency and methods of use of these foods.

The student is asked to report a fish recipe usually cooked in the family. The compilation of these forms can subsequently be associated, in the classroom, with an activity of comparison and socialization of the different experiences; a statistical analysis can also be carried out (thus involving the mathematical sphere), to be compared with the common statistics presented by newspapers and mass media, to facilitate their understanding of the meaning and their use.

Sheet **R 2** presents an in-depth study of the nutritional characteristics of the individual marine food species and their nutritional value, compared to those of the most common foods of terrestrial origin (meat, vegetables, flour, dairy products, etc.). We believe food education is of fundamental importance, especially thinking of developments in the new global economy and technological innovations of today.

In this context, it is all the more necessary to train responsible and aware citizens. This is possible only through information and knowledge of the elements that can put the individual in a position to be able to evaluate and know how to choose. Once again, as happens for the greater knowledge of the biology and ecology of terrestrial organisms and environments compared to marine ones, we have the clear feeling that, in general, the purchase and consumption of "fish" (at least in our culture) remains more tied to the simple desire to vary the diet or to buy something renowned. On the other hand, a more conscious choice is made of foods of terrestrial origin due to the importance in the supply of the fundamental nutritional elements for the growth of the organism. The spirit of the activity is, therefore, to stimulate students' desire and curiosity to acquire more information regarding the importance of "fish" as a fundamental constituent of our diet; if this leads to a change, even minimal, in the eating habits of their families, we will have achieved part of one of the most significant (and often more difficult to verify) results of an environmental education process: the adoption of new responsible behaviors, for the improvement their own living conditions and the quality of the natural environment. In the event that the activity is carried out through a search on the labels, we leave the teacher the choice to investigate the different indications present (for example monounsaturated, polyunsaturated fats, etc.).

Finally, sheet **R 3** proposes a survey (which can be further explored in module 3 by visiting a production plant) on how to store "fish" for food use. Even in this case, the topic can easily be tackled on different scales; from artisanal conservation methods (brine, oil, drying ...) to industrial ones (pasteurization, vacuum, freezing, additives ...); from natural preservatives, typical of traditional methods, to chemical or synthetic ones, typical of products intended for large-scale distribution and long storage.

The aim of the activity is still to strengthen the concept of "difference" and to make students discover the variety of methods and tools, and consequently of resources, that man uses to satisfy his essential need: nutrition.

Always on the concept of difference, the **E 4 and 5** cards are dedicated which allow, through interviews with fishmongers and elderly people, to "photograph" respectively the customs of the present and the past of the use of fish in feeding. The purpose of these experiences is, firstly, to make the student learn, through direct discovery, the change in the use of fish in our diet and, secondly, to make him reflect on the potential consequences that it can have on the sea environment and on the economy. The work, also indirectly introducing the economic aspect, allows the student to obtain useful basic information (relative eating habits at local scale) to better understand the more strictly commercial aspect, which is the subject of the work of module 4.

As already mentioned, the theme lends itself to the study of many different aspects concerning the social and cultural sphere, the development of which is characteristic of the human race. The insert 1 of this module is dedicated to these aspects, which enhances the value of the culinary tradition, the undisputed heritage of the various local cultures. Each region has developed its own identity from this point of view, historically linked to the use of the land and its resources, when technological development was still far away and the effects of globalization did not threaten the disappearance of local diversity.

Finally, in order to evaluate students' learning of the contents of this module, sheet **V 6** is proposed, set up in the form of a quiz, the answers of which will be discussed and compared in a classroom group activity.

INSERT 2

“THE TASTE OF THE SEA

ISTAT (National Institute of Statistics) data on food consumption indicate that the greatest consumers of "fish" in Italy are children between three and five years of age. This unexpected result highlights the right consideration that the families of our country have learned to give to marine-based foods, as regards the contribution of the fundamental nutrients in the growth and harmonious development of our body. The "fish", in fact, contains all the basic elements, ie proteins, carbohydrates, lipids, vitamins and minerals; moreover, it is a particularly digestible food, due to its high percentage of water. While the protein content is always high, the percentages of the other elements vary according to the species; marine organisms also have a low content of connective tissue, and a high percentage of free amino acids. However, the lipid component is also valuable for the richness of polyunsaturated fatty acids which, in addition to not damaging the circulatory system, allow the absorption of vitamins. The most abundant mineral salts are iodine, calcium, phosphate, fluorine, potassium and copper; they contribute particularly to the development of bone tissue and to the control of the muscular and nervous systems. In the preparation, the "fish" is well suited to any type of recipe and to any type of cooking. The Italian regional gastronomic tradition, in fact, is full of dishes of all kinds: soups, sauces, grilled, stuffed, stewed, and whoever has more than enough! Although, according to many, the most skilled the chefs in this field remain the sailors, who have been preparing the "fish" on board their fishing boats since time immemorial according to very simple recipes, but with good reason still considered unsurpassed and unrepeatable on the ground for the freshness of the "fish" they use.

The historical path in man's consumption of "fish" is necessarily linked to the development of conservation techniques, as well as, obviously, those of capture. From the first, very ancient and still used, systems of smoking, drying and salting (already widespread among the Egyptians five thousand years ago), to the most recent canned preservation systems (which have proved extremely useful in satisfying hunger in periods of severe poverty, but which somehow alter the flavor of the product) , to get to the modern freezing method (guarantee of long conservation and unaltered maintenance of organoleptic characteristics and flavor).

Salting of anchovies

Always on a historical level we mention, among the factors that facilitated the spread of the food use of "fish", also the enormous influence that Christianity had in the development of social customs, in particular during the Middle Ages. We remember, in fact, how this religion traditionally imposed periods (which reached around 150 days a year) of abstinence from meat, often replaced by fish as a dietary protein supplement. A term of comparison regarding the influence of the dominant culture on social customs, and in particular on nutrition, we could find it today in the spread of "fast food", generated by the "frenzy" of modern life and by the contextual spread of the economy consumerism throughout the western world.

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We do not want to express any judgment, for goodness sake, towards any of the references cited here: the purpose of the work suggested with this insert is rather to create in the students moments of comparison and reflection on the historical changes that involve fundamental elements of our development, which, in this case, the power supply. In addition to our health, there is also the conservation of local cultures and traditions; the new market rules risk definitively upsetting the panorama of territorial diversity and making certain species, which constitute food products, and the environments to which they belong disappear. We therefore believe it is essential that knowledge of local history, traditions and cultures is maintained, in order to preserve their existence.

Fish feast in Camogli - Liguria.

Educational sheetS 1 “TELL ME….WHICH FISH DO YOU EAT?”

Answer, with the help of your family, the following questions:

How often do you eat "fish"?

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List the types of "fish" you eat. Which do you prefer?

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How is it cooked by your family?

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Write the home-cooked fish recipe you like best

Ingredients:……

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Preparation:……

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Didactic sheet R 2 “HOW MUCH NUTRITION DOES FISH PROVIDE?”

Search the nutritional values of the following food items (data referring to 100 g of product)

food	Kcal	Proteins	Carbohidrates	Fat
hake				
squid				
mussles				
pilchard				
beef				
pigmeat				
eggs				
seaweeds				
apple				
rice				

Compare the data with those of your teammates

Scheda didattica R 3 “HOW TO STORE THE FISH”

Choose 3 fish products at home anf fill in the table with the following information on how to store them.

Product	Conservation method (artisanal or industrial)	Stoarege life	use
Example: *Anchovy*	*salted - artisanal*	*1 year*	*To eat fresh*

Compare the craft and industrial storage methods.

Do a survey on local products from your area and those from other regions.

Taste several products of the same type but preserved with different methods, indicate the differences in flavour and the one you prefer

Share ideas with your companions

Didactic shees E 4
“The fish of today”

Fill in the following table indicating the name and provenance of all the species marketed by 3 fishmongers randomly chosen.

Date……..

Pescheria 1	Pescheria 2	Pescheria 3
Name Origin	Name Origin	Name Origin
Name Origin	Name Origin	Name Origin
Name Origin	Name Origin	Name Origin
Name Origin	Name Origin	Name Origin
Name Origin	Name Origin	Name Origin

Share ideas with your companions.

Didactic sheet E 5 "DISCOVERY THE PAST"

Follow this track to ask a few questions to your grandparents and/or older people you know. Write down everything you are told during the interview.

Follow the question:

… When you were young like me:

1. **Did you eat fish?**
2. **What kind of fish was it?**
3. **Where did you go to buy it?**
4. **How much did it cost?**
5. **Did you know where it came from?**
6. **Did you know how it was fished?**
7. **Was there the canned tuna?**
8. **Did frozen fish already exist?**
9. **Dis farmed fish already exist?**
10. **……**

Now write a short article about your interview.

Title……

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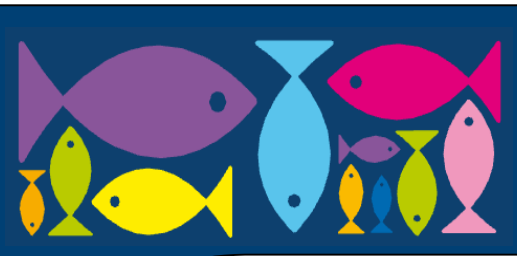
Share ideas with your companions.



Didactic sheet V 6
"THE SEA AS A FOOD RESOURCE FOR HUMANITY"

Flag the correct answers.

Fish is an excellent food rich in:

☐ vitamins ☐ proteins ☐ phosphorous ☐ carbohydrates

Le sardines are
sono:

☐ lare open sea fish ☐ small fish in the open sea ☐ small bottom fish

In diet fish can replace:

☐ meat ☐ rice ☐ both of them

Elenca le principali proprietà salutari comuni alle diverse specie di alghe.

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List the main health properties to different algae species:

Artisanal.....

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Industrial.....

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Indicate the main differences between todays' habits of fish consumption and those of the past:.

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