

MODULE 2

"THE SEA AS A FOOD RESOURCE FOR MAN"

TEACHER'S GUIDE

Module map

Topics		
Seafood resources and human food request.		
Food nutritional properties.		
Seafood consumption culture and tradition.		
Aims and rationale		
To investigate students' seafood consumption habits.		
To highlight how much important is the seafood for human diet.		
To enhance differences between artisanal/local and commercial/imported seafood.		
To investigate on the historical changes in the seafood consumption habits.		
To let the students think on the possible environmental effects of such a change.		
Inserts		
1. The flavour of the sea.		
Subjects		
History, chemistry, food education, mathematics.		
Fact sheets		
Type	Title	Activities
S - Survey	1. "Tell me the fish you eat"	Survey on family dietary habits.
R - Research	2. "How much does seafood nourish?"	Label research at home or in class
	3. "About seafood preservation"	
E - Experience/elaboration	4. "Discovering the present seafood"	Visit to a fishmarket/ interview to fishmongers.
	5. "Back in time into seafood consumption"	Interview to elderly.
T - Test	6. "The sea as a food resource for man"	Survey in class.
Link to Mr.Goodfish Campaign issues		
Introducing the seafood consume issue		

Didactic instructions

Nourishment is one of the primary needs of any living being; therefore, it is natural that there is a complex network of activities around each element capable of supplying nourishment, which with man has also turned into cultural traditions.

This enables us to analyse the subject under different points of view.

Let us start this module by considering the dietary marine resources, mainly from their utilization point of view, to then elaborate, in the subsequent modules the themes linked to fishing techniques and economy, which is generated by seafood demand on the dietary market.

We would like to stress that, for simplicity, we will use the term "seafood" in the text composition, as well as in the tasks cards, to indicate all the marine resources which are commonly used as food. We include not only the proper fish, but also molluscs, crustaceans, and whatever else the seafood market can offer.

In order for this concept to be clear for the students from the start, we have structured **fact sheet S 1** as a survey on the family dietary customs of each student; the survey also implies a terms' sharing process.

Through a sort of parents' interview, the student must report on the fact sheet the list of the species usually eaten, with data on frequency and uses of these foods; to this end, the student is asked to relate a seafood recipe usually cooked at home.

The filling of these fact sheets can be later

integrated in the classroom, with a comparison and socializing activity regarding the different experiences; a statistical analysis can also be done (involving then the mathematical field), to be compared with the common statistics, presented by newspapers and mass media, in order to facilitate their significance, comprehension and use.

Fact sheet R 2 presents a thorough examination of the nutritional characteristics of the single marine food species and their nutritional value, compared to the most common land nourishments (meat, vegetables, dairy products, etc.).

We think food education has a fundamental importance, particularly in light of the global new economy developments, and the modern technological innovations. Within this context, it is even more necessary to make citizens responsible and aware. This is feasible only through information and knowledge of the elements which allow the individual to be able to evaluate and choose. Just like it happens with the greater knowledge of the organisms' and land environments' biology and ecology, compared to the marine ones, we are under the impression that seafood purchasing and consumption (within our culture at least) are mainly linked to the simple need to vary the diet or buy something renowned. A more aware choice normally takes place when it comes to land food; this is due to the importance of the contribution of the nutritional elements, which are fundamental for the body growth.

The spirit of the activity is then to stimulate the students' wish and curiosity to obtain

more information regarding the importance of seafood as a fundamental part of our diet; should this lead to an even small change in the dietary customs of their families, we will have partly reached one of the most significant results (and often harder to verify) of an environmental education process. The assumption of new, sustainable behaviours are important for the improvement of everyone's life style and of the natural environment.

In case the activity takes place through a labels research, we leave to the teacher the choice to elaborate the different topics (i.e. monounsaturated, polyunsaturated fats, etc.).

Fact sheet R 3 suggests a survey (which can be investigated in module 3, through the visit to a production plant) about seafood preservation procedures for dietary consumption. Also in this case, the subject can be approached on different levels: from the artisanal preservation methods (i.e. brine, in oil, dehydration), to the industrial ones (i.e. pasteurization, vacuum-pack, freezing, additive); from natural preservatives, typical of the traditional methods, to the chemical or synthesis ones, typical of the products meant for the retail food distribution and long life. The aim of the activity is still to reinforce the "difference" concept, and let the students discover the methods and tools variety, and consequently the resources employed by man to satisfy an essential need: nourishment.

Fact sheets E 4-5 are also dedicated to the concept of difference, and allow "photographing" respectively the present and past habits for the use of seafood as part of the diet, through interviews to fishmongers and the elderly. The aim of such experience is

first and foremost to make the student learn, through the direct discovery, the change in the use of fish in our diet, and secondly, to make him/her ponder on the potential consequences it can have on the sea environment and on the economy.

The work, by introducing indirectly also the economical aspect, allows the student to obtain basic, useful information (regarding dietary customs on a local scale), to better understand the proper commercial aspect, object of module 4.

As already mentioned, the subject can be expanded on under many aspects, with regard to the social and cultural area, whose development is typical of the humans. **Insert 1** of this module is dedicated to these aspects, which enhances the culinary tradition value, undisputed heritage of the different local cultures. Every Region has developed its own identity under this point of view, historically linked to the use of the territory and its resources, when the technological development was distant, and the globalization effects did not threaten the disappearance of the local diversities.

At last, with the aim of evaluating the students' learning of the contents of this module, **fact sheet T 6** is recommended; it is set up as a quiz, and the answers will be discussed and compared through a group session in the classroom.

This module aims at making the students elaborate in an individual way their knowledge of the food products and the gastronomic traditions of their land (or Country), contributing to the traditions development and continuity, within a context of great changes imposed by modern society.

INSERT 2

“THE FLAVOUR OF THE SEA”

The ISTAT (Italian National Statistical Institute) data about food consumptions indicates that in **Italy** the main seafood consumers are children aged between three and five.

This unexpected result highlights the right consideration the families of our Country have learnt to give to the sea nourishments; they provide fundamental, nutritious elements for the harmonious growth and development of our body.

Seafood in fact contains all the basic elements, such as proteins, carbohydrates, lipids, vitamins and dietary minerals. Furthermore, seafood is easily digestible, because of its high water percentage. While the protein content is always high, other elements percentages vary according to the species; marine organisms have a low content of connective tissue, and a high percentage of free amino acids. The lipidic component is also important for its richness in polyunsaturated fatty acids which, as well as not damaging the circulatory system, allow vitamins absorption. The most abundant dietary minerals are iodine, calcium, phosphate, fluorine, potassium and copper; they particularly contribute to the development of the bone tissue, as well as muscular system and nervous system control. Regarding its preparation, seafood is well suited for any type of recipe and cooking. The Italian regional gastronomic tradition is rich of every kind of dishes: soups, sauces, barbecues, *ripieni* (food stuffings), stews and so on! However, according to many, the best

cooks in this field are the sailors. They have been preparing seafood on board of their fishing boats from time immemorial, according to very simple recipes, and are rightly regarded as unbeatable and unique for the freshness of the utilized seafood.



A delicious fish recipe “Common dolphinfish (*Coryphaena hippurus*) alla Ligure”.

The historic path of seafood consumption by humans is necessarily linked to the preservation techniques development, as well the catch ones, obviously. From the first, very old and still used smoking, dehydration

and salting techniques (already widespread among the Egyptians five thousand years ago), to the more recent canned preservation systems (which have proven extremely useful to satiate in times of great poverty, but somehow alter the product's taste), to finally get to the modern freezing method (long life guarantee, unaltered organoleptic and flavour characteristics).



Anchovy salting technique.

On a historical level still, among the elements which facilitated the dietary seafood use diffusion, we also mention the huge influence which Christianity had in the development of social customs, especially in the Middle Ages. It has to be remembered how this religion traditionally forced periods (up to about 150 days a year) of abstinence from meats, often substituted by seafood as a dietary protein supplement. A comparison term regarding the influence of the dominating culture on social customs, and particularly on the diet, can be found today in the "fast food" spreading, generated by modern life "frenzy", and the consumer economy contextual spreading throughout the Western world. We do not mean to make any judgements towards any of the aforementioned references: the aim of the work suggested with this insert, is mainly to

stimulate students to create a comparison and to ponder on the historic changes which involve fundamental elements of our development, such as food, in this instance.

As well as our health, the preservation of cultures and local traditions are at stake; the new market rules risk disrupting for good the territorial diversities' panorama, and cause the disappearance of certain species, which are dietary products, and their environments too.

We therefore believe it fundamental to preserve history, traditions and local cultures knowledge, in order to safeguard their existence and the responsible approach for the exploitation of seafood resources.



The local fish feast "Sagra del pesce di Camogli"- Liguria.



Fact Sheet S 1

"TELL ME THE FISH YOU EAT"

Answer, with your parents, the following questions.

 How often do you eat seafood?

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 List the seafood you eat. Which is your favourite one? Why?

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 How does your family cook it?

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 Write your favourite seafood recipe.

Ingredients:.....
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.....
.....

Preparation:.....
.....
.....
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Fact Sheet R 2

"HOW MUCH DOES SEAFOOD NOURISH?"

Look for the nutritional properties of the following foods (to be referred to 100g).

Food	Kcal	Proteins	Carbohydrates	Fats
Hake				
Squid				
Mussels				
Anchovy				
Beef				
Milk				
Egg				
Seaweed (specify which kind)				
Apple				
Rice				




Check the data you have found with your classmates.



Fact Sheet R 3 "ABOUT SEAFOOD PRESERVATION"

Choose 3 seafood products in your kitchen and fill the table with the following information on their preservation.

Food	Preservation system (artisanal or industrial)	Expiring date	Use (make some examples)
Example: <i>Anchovy</i>	<i>Salted - artisanal</i>	<i>1 year</i>	<i>To be consumed fresh</i>

-  Make a comparison among the artisanal and industrial seafood preservation methods.
-  Which are the more common seafood preservation systems in your area?
-  Taste a seafood preserved in different ways. Then indicate the taste differences and the one you prefer.

Check the data you have found with your classmates.



Fact Sheet E 4

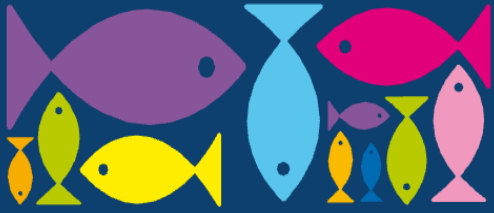
"DISCOVERING THE PRESENT SEAFOOD"

Fill the following table indicating the name and the origin of the seafood sold at the fishmarket. Choose 3 fishmongers.

Survey date.....

Fishmonger 1	Fishmonger 2	Fishmonger 3
Name	Name	Name
Origin	Origin	Origin
Name	Name	Name
Origin	Origin	Origin
Name	Name	Name
Origin	Origin	Origin
Name	Name	Name
Origin	Origin	Origin
Name	Name	Name
Origin	Origin	Origin

Check the data with your classmates.



Fact sheet E 5

"BACK IN TIME INTO SEAFOOD CONSUMPTION"

Make an interview to your grandparents or to an elderly person. Mark everything they tell you about seafood consumption.

 Ask the following questions.

... When you were a child like me:

- | | |
|------------------------------------|-------------------------------|
| 1. Were you used to eat seafood? | 6. Did you know its origin? |
| 2. Which kind of seafood was it? | 7. Did the canned tuna exist? |
| 3. Where did your family buy it? | 8. Did the frozen fish exist? |
| 4. How much did it cost? | 9. Did the farmed fish exist? |
| 5. Did you know how it was fished? | 10. |
| | 11. |

 Now write a short story or article based upon the collected answers.

Title

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Check the collected information
with your classmates.



Fact sheet T 6

"THE SEA AS A FOOD RESOURCE FOR HUMANS"

Mark the correct answers.

 Fish is a very important food rich of:

- vitamins proteins phosphor carbohydrates

 Anchovy is a:

- big pelagic fish Small pelagic fish Small benthonic fish

 Seafood can replace in the diet:

- meat rice meat and rice

 List different seaweeds and their nutritional properties.

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 List the artisanal and industrial preservation methods.

Artisanal.....

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Industrial.....

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 Indicate the main differences between the present and past seafood consumption habits.

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