



ACTIVITY 6

WHERE DOES OUR FOOD COME FROM?



EXPERIMENT OBJECTIVES AND CONTENT

In this activity, students explore the origins of the different foods they eat every day.



CAUTION: CHECK TO SEE IF ANY STUDENTS HAVE FOOD ALLERGIES.



ESSENTIAL KNOWLEDGE

- Consumption of living things (food)



SUGGESTED MATERIALS

Perishable non-scientific materials:

- Fresh fruits and vegetables
- Other food products or their packaging (milk, pasta, eggs, bread, cereal, chocolate, beef patties, cheese, tofu, margarine, candies, cookies, spaghetti sauce, iced tea, popcorn, yogurt, etc.)

School supplies:

- Glue, adhesive tape, scissors
- Large sheets of cardboard
- Coloring pencils

Note: You could ask each student to bring at least two or three different food packages to class. In addition to being useful for the experiment, this would expose students to some exotic foods and also provide a good opportunity to talk about recycling food packaging.



CONTEXT: SITUATIONAL PROBLEM OR RESEARCH QUESTION

Where do you think the food your parents buy at the grocery store and that you find on your plate and in your lunch box comes from? Does it "fall from the sky"? Where can we find most foods in nature, and what forms do they take?





SUGGESTED PREPARATORY ACTIVITIES (INTRODUCTION)

The students try to determine if the foods in their lunch boxes are of animal or plant origin. For some foods, it might be a combination of both.



INITIAL IDEAS AND HYPOTHESES

Here are a few examples of hypotheses the students might formulate based on their initial ideas:

Example 1

I predict that if I think about where foods come from, I might say that fruits and vegetables are from plants, while everything else comes from animals. I predict this because fruits and vegetables grow on trees, bushes, plants or in the ground.

Example 2

I predict that if I study how a food is made, I might find out if it comes from a plant or an animal. I predict this because milk comes from cows, and cows are animals.

Example 3

I predict that if I look for information on how candies are made, I might find out whether they contain a lot of sugar or not. I predict this because my father does not want me to eat too much candy because of all the sugar it contains.

Example 4

I predict that if I compare different types of bread, I might find out if they are made with different types of grain. I predict this because there is brown bread and white bread, and some breads contain seeds, while others don't have any.

RECORD ALL YOUR IDEAS AND OBSERVATIONS IN YOUR EXPERIMENT WORKBOOK.





WORK PLAN AND EXPERIMENTATION

Here are a few examples of experiments the students can carry out to verify their hypotheses:

Example A

The students examine different foods or images of food on packaging in order to classify them as being of animal or plant origin.

Example B

Using processed foods only, the students find the primary ingredient of the food and its origin (e.g., popcorn is made from corn grains that come from an ear of corn grown in a corn field, so popcorn is of plant origin).

EXPERIMENTAL FACTORS

To ensure scientific rigor, the students should evaluate the experimental factors that might influence the experimental results.

- None



DISCUSSION: SUGGESTED INTEGRATION ACTIVITIES (CONSOLIDATION)

The students draw foods or stick packaging to a piece of cardboard grouped according to the categories "plant," "animal," or "plant and animal." They might also suggest other classifications (e.g., processed, unprocessed, etc.).



SUGGESTED ACTIVITIES FOR APPLYING KNOWLEDGE (APPLICATION)

The teacher can enrich the activity by suggesting the students conduct an investigation, using a variety of information sources (books, Internet, parents, etc.) to try and answer some of the questions raised during the experiments. It might also be interesting to organize a picnic or a breakfast where cereals, milk, juice and fruits are served, so they can be compared (by eating them, of course!).





SCIENTIFIC CONCEPTUAL CONTENT

Unprocessed foods

In the past, the availability of grains, fruits and vegetables in markets depended on the season. But thanks to globalization and international trade, a wide variety of foods are now available year round in most groceries. Meat and poultry come from livestock farms, while fresh fish and seafood are fished or raised on fish farms with large basins.

Processed foods

Many foods are made, in either a traditional fashion or on an industrial scale, from one or several ingredients. For instance, bread is made of a mixture of flour, water and yeast. Cheese is made from cow, sheep or goat milk that is curdled with a lactic bacterial culture. Margarine is a mixture of vegetable oils to which are added coloring and which are combined, through emulsion, with a liquid made up of water, milk, salt, sugar, flavors and sometimes vitamins. Sausages are usually made from pork meat with added spices and stuffed into very thin tubes. Chocolate is made from seeds found in the cacao pods of the cacao tree; the seeds are crushed, ground, pressed, roasted, mixed, molded and then sometimes even used to coat an almond or piece of candied orange rind...mmmmm! You get hungry just thinking about it. Then there are all the cookies, chips, prepared dishes, frozen vegetables, cakes, juices, sauces, etc.





CULTURAL REFERENCES

Science and technology

If food is not preserved properly it will degrade (rot, mould) and become unfit for consumption. The preservation of foods thus consists primarily of preventing the growth of micro-organisms by various means, such as the use of preservatives, dehydration, sterilization, freezing, canning, smoking, and salting.

New technologies

Genetically modified organisms (GMOs) can be found on our grocery store shelves and in markets. Genetic modification consists of adding a gene to an organism (non-human) to give it a new characteristic (e.g., making a plant more resistant to insects). Genetically modified plants approved for use in Canada are grain corn, canola, potatoes, tomatoes, squash, soy, flax, cotton, sugar beets, and papaya.

History

The first processed foods sold to the public in the 19th century were pasta, chocolate, cookies, canned foods, soups and stocks, powdered milk for children, margarine, jam, malted products, and processed cheese.

Effects

Some food choices can have environmental impacts. For instance, bulk foods or foods with less packaging reduce waste production. In-season fruits and vegetables often taste better and are less expensive than imported varieties. Buying locally produced products is also a more environmentally friendly choice.

**FOR MORE CULTURAL REFERENCES,
VISIT THE ÉCLAIRS DE SCIENCES WEBSITE:
www.eclairsdesciences.qc.ca**





REFERENCES

Amor, Safia. *Les aliments: mode d'emploi*. Paris: Père Castor Flammarion, 2000.

Maniguet, Isabelle and Thierry Maniguet. *Les aliments, d'où viennent-ils?* "Octavius Sciences" collection. Paris: Gallimard jeunesse, 1999.

Mira Pons, Michèle. *Les aliments à petits pas*. Arles: Actes Sud Junior, 2000.

Radio-Canada. "L'essor des marchés publics." In *Radio-Canada: L'épicerie*. [Website, 2004] www.radio-canada.ca/actualite/v2/lepicerie/niveau2_10643.shtml. Consulted August 15, 2007.

Wikipédia. "Conservation des aliments." In *Wikipédia. L'encyclopédie libre*. [Website, 2007] www.fr.wikipedia.org/wiki/Conservation_des_aliments. Consulted August 15, 2007.

Tête à modeler. "Activités sur les aliments." In *Tête à modeler*. [Website, 1999] www.teteamodeler.com/dossier/alimentation3.asp. Consulted August 15, 2007.

Conception

L'île du Savoir (CRÉ de Montréal)

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PROCESS OF ACTIVE DISCOVERY

GENERAL LEARNING PROCESS IN SCIENCE AND TECHNOLOGY (IN ELEMENTARY SCHOOL)

Context related to everyday life



- Situation problem or
- Discovery question or
- Need to be fulfilled
- Question related to the operation of an object (how does it work?)

Initial ideas and hypothesis

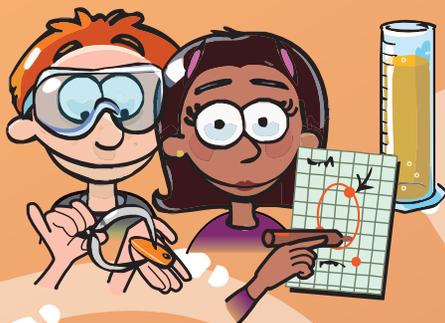
My initial ideas:

- I share my own ideas.

My hypothesis:

- I predict that... I think that because...
- I imagine my prototype.
- I think it works like this...

Planning and carrying out



My equipment:

- I observe and handle the equipment.
- How could this equipment be useful to me?
- I choose my equipment and my materials.

Carrying out my process:

- What will the steps be?
- What precautions should I take?

My actions:

- I carry out the steps of my protocol.
- I note or draw what I observe, what I do and what I discover.

My results:

- What is my answer to the problem, question or need?

Outcome



My outcome:

- Do my results confirm my hypothesis or not?
- Are my results similar to those of the other teams?
- Can the other teams' results help me to find answers to my problem, my question or my initial need?
- What could I communicate concerning my discoveries?

What I learned:

- What do I retain from this activity?
- What could I communicate concerning my results or my discoveries?

New question?