SP\_12

**Lesson 12 – Learn about some food products – milk and beer**

***Aim: To learn more about milk and beer.***

***Guidelines:***

1. *The teacher gives instructions for making a presentation.*
2. *During the lesson students use the worksheet.*
3. *Students should be best divided into groups of 4. Each student should be responsible for his/her sub-topic. Some groups make a presentation on milk, some – on beer.*

**Task 1**

**Using the text students make a presentation. On their posters they should put down key words, figures, schemes, pictures.**

1. **About milk**

Milk is a white liquid produced by the [mammary glands](https://en.wikipedia.org/wiki/Mammary_gland) of [mammals](https://en.wikipedia.org/wiki/Mammal). It is meant to function as food for animal babies until they are able to digest any other type of food.

As soon as the baby is ready to take other type of food, mammary glands stop functioning. Exception is milking process when there is more milk than needed for feeding babies.

**Ways of consumption**

There are two ways of milk consumption: as food for animal babies and as a food product obtained from other mammals and used by people at any age.

**A food product**

In many world cultures, especially in the Western world, people continue to use milk after childhood – they use milk of other animal (mostly cows) as a food product. For centuries cow milk has been processed into cream butter, yoghurt, ice cream, cheese, sour cream.

Due to scientific progress it is now possible to obtain casein, whey protein, lactose, condensed milk, powdered milk, and other food ingredients and products.

**Properties of milk**

Milk as a product of animal origin has a lot of valuable properties and indicators that show whether it is suitable or not for consumption and it can be a source for other dairy products. Properties of milk are divided into two groups:

* Sensory properties – assessed through senses, so we get a whole picture of the product. We can assess the appearance and consistence, i.e. whether it is a homogenous liquid without mechanical, water or other additions without residue or flakes. Cow milk depending on fat content should be white or yellowish. The taste and smell should be typical without any other flavour or smell.
* Physicochemical properties that are determined by substances and their quantities contained in milk. The most important one is acidity ([pH](https://lv.wikipedia.org/wiki/PH)  6.5—6.7, titrated acidity 16—18[°T](https://lv.wikipedia.org/w/index.php?title=Ternera_gr%C4%81di&action=edit&redlink=1)), density (1028—1038 kg/m3), freezing temperature (-0.52°C – -0.59°C) and heat resistance (whether high temperatures cause the appearance of protein flakes in milk).

**Mythology**

In Latvian mythology the patron of cows and other livestock was Mara, who is also named as Cow Mother in folk songs. She often was a milk girl and butter maker, whose milk pail was considered the source of life power. According to historical data, in the 14th-18th centuries people considered toads, adders and other snakes as symbols of fortune for livestock. Many people fed them with milk. In legends Mara sometimes appeared as an adder, so toads and adders were also called Cow Mothers. Wagtails and nightingales brought fortune when pasturing livestock.

Milk (at times with honey) was considered revival potion, that is why it was widely used in many rites of passage. It also was a symbol of beauty, health and prosperity. It made ladies’ face skin white and beautiful, as well slender body that is reflected in many folk songs.

1. **about beer**

**Some interesting facts about beer:**

• Beer origins can be traced to Ancient Egypt in 4000 BC. The oldest beer brewing recipe was found there. It was made during the reign of Nefertiti.

• It is believed that first beer brewers were women. In some countries it was prohibited by law for men to brew beer and trade it.

• The largest beer consumption per capita is in the Czech Republic and Germany – about 130 litres per year. The largest amount of beer is consumed in China – Chinese drink 350 mil hectolitres of beer.

• The strongest beer ever made so far has 67.5% alcohol by volume.

• The most expensive beer in the world is Nail Brewing's Antarctic Nail Ale. It is 10% abv dark beer made of melted Antarctics glacier water, so it is considered the purest beer in the world. In 2010 it was produced in a limited edition – just 30 0.5l bottles. So far only three bottles have been sold, the first for 800 USD, and the last for 1815 USD. All the money was donated for charity – to save whales.

# Types of beer

There are about 20 000 varieties of beer. They differ as to their colour, transparency, smell, taste and strength. For all types of beer ingredients are the same. What is different is their sorts and brewing process.

There are two main groups - *Ale* and *Lager*. Each has a lot of beer varieties depending on the choice of ingredients, brewer’s skills and secrets.

*Ale was invented in the 17th century in England. It has bitter taste due to a large amount of hops that is added during the brewing process.* T[op-fermenting yeast](https://en.wikipedia.org/wiki/Top-fermenting_yeast) that rises to the surface is used for brewing ale. The fermentation process all happens at higher temperatures. This beer is darker than Lager, and abv is bigger.

 To produce *Lager* less active yeast is used, low-fermenting yeast, and fermenting temperatures are lower as well. Lager is light with a gentle and light taste; however, there can be exceptions. In Latvia lager types are brewed mostly.

**What does beer consist of?**

The ingredients haven’t changed for centuries. They are water, barley malt, hops and yeast.

**Water**

Beer has been produced since the beginnings of the civilization. Recipes are kept secret. One ingredient is always the same – water.

**Barley**

Grain malt was used 3000 years BC in Egypt. Brewers knew that for production of good beer barley was important.



**Hops**

7 000 years ago Egyptian and Babylonians started to make beer using pine shoots and herbs. Only in the 19th century it was discovered that it is hops that adds taste and smell to beer. 

**Yeast**

In 1516 in Bavaria Beer Purity Law was issued. It stated that the only ingredients could be water, barley, hops and yeast.