

Preparing food to give it a new form

PREPARATION TECHNIQUES

Certain preparation techniques transform food to make it edible. There also some preparation techniques which go further than that and give food a new form. The food is processed to change its texture, taste or even how easy it is to digest.

In this case, there are several kinds of preparation techniques. Mechanical techniques involve whisking, blending or even spreading out a paste.

Mechanical techniques: whisking, blending, spreading out a paste

Types of thermal techniques are for example heating, cooking or grilling.

Thermal techniques: heating, cooking, frying or grilling

There are also biochemical techniques using raising agents and lactobacilli.

Biochemical techniques: raising agents, lactobacilli

Here are some examples to illustrate these techniques.

FROM FLOUR TO BREAD

Do you know how flour is made into bread? A first stage of preparation enables us to produce flour from grains of wheat.

Mechanical technique: grinding, sieving



Then we give flour a new form by first mixing it with water.

Mixture: flour, water

Then with yeast.

Biochemical technique: adding yeast

During fermentation, yeast consumes starch and emits gas bubbles, making the dough rise. Finally, the dough must be kneaded.

Mechanical technique: kneading

Then baked.

Heating technique: cooking in an oven

When baking, the Maillard reaction gives the crust of the bread colour and flavour.

Maillard reaction = carbohydrates + proteins + heat

The mixture of flour and water is also the basis for couscous, pasta and pancakes.

FROM BARLEY TO BEER

Barley is the basis of beer. When a seed germinates, its starch is transformed into sugars, and it is precisely this process which is used for getting malt from grains of barley.

Biochemical technique: malting

Malt is then mixed with water and hops to flavour the liquid.

Mix : malt, water, hops

Finally, yeast causes fermentation, transforming sugars into alcohol and carbon dioxide, making beer fizzy.

Biochemical technique: addition of yeast

FROM MILK TO CHEESE

A final example to understand how milk is the basis for cheese.

Milk is a rich foodstuff, but it is also highly perishable. There is a risk of contamination during milking, transportation or even storage. A well-known way of preserving milk is to make it coagulate and take away the excess liquid: This is the basic principle for making cheese. Early on, humans grasped how useful this process was and cheese took an important place in our nutrition.



The first stage involves curdling the milk.

Biochemical technique: curdling with rennet

The cheesemaker pours the milk into a cauldron and warms it.



Milk is coagulated by adding lactic bacteria and rennet, which is an enzyme extracted from a calf's stomach. The resultant curds have a soft, gelatinous texture.

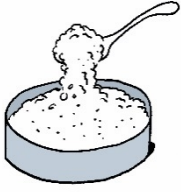
Transforming this into cheese requires a series of mechanical actions.

Mechanical technique: cutting up, churning, seizing, pressing

First of all, the milk is sliced, meaning that the curds are cut up using a wire frame and then reheated once more. Then there is the churning of the milk, when the cheesemaker controls the size and regularity of the grains of curd while continuing to stir the mixture.

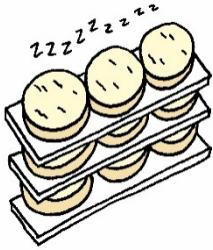


Collecting the curd means that the mass of curds is brought together using a large coarse canvas cloth. The whey, known as lactoserum, runs through this.



The mass of curds is put into a mould before going on to be pressed. The cheese is then pressed to remove any excess water. The last stage is fermentation.

Biochemical technique: fermentation



The cheese is turned regularly for twenty or so hours while being pressed. It is then taken out of its mould, salted and stored in a cellar where fermentation continues as the cheese matures.

Preparing food to give it a new form

Which of the following is not a mechanical technique?

- Whisking
- Grilling

Which of the following is a thermal technique?

- Heating
- Mixing
- Spreading

What is bread most often made from?

- Wheat
- Oats
- Vegetables

Which ingredient makes bread dough rise?

- Yeast
- Mushrooms
- Moss

What does not contribute to the Maillard reaction?

- Carbohydrates
- Heat
- Fermentation

Which alcoholic drink is made from barley?

- Beer
- Cider
- Wine

Hops are used when making beer.

- TRUE
- False

Yeast converts sugars into alcohol and gas.

- True
- False

What do we call the enzyme used when making cheese?

- Rennet
- Cheezyne
- Renzel

Before cheese ferments, it is turned for 3 days in a press.

- True
- False

Answers

Which of the following is not a mechanical technique?

- Whisking
Wrong! Whisking is a mechanical technique.
- Grilling
Well done! Grilling is a thermal technique.

Which of the following is a thermal technique?

- Heating
Well done! That's right.
- Mixing
Wrong! Mixing is a mechanical technique.
- Spreading
Wrong! Spreading is a mechanical technique.

What is bread most often made from?

- Wheat
Well done! That's right.
- Oats
Wrong! Oats are sometimes used in making bread, but not in most cases.
- Vegetables
Wrong! Try again!

Which ingredient makes bread dough rise?

- Yeast
Well done! Yeast causes starch to ferment, which produces gas that makes the dough rise.
- Mushrooms
Wrong! That's not the right answer.
- Moss
Wrong! Try again!

What does not contribute to the Maillard reaction?

- Carbohydrates
Wrong! Carbohydrates and proteins play a role in the Maillard reaction.
- Heat
Wrong! The Maillard reaction needs heat.
- Fermentation
Well done! Fermentation does not play a role here.

Which alcoholic drink is made from barley?

- Beer
Well done! Barley is used in making beer.
- Cider
Wrong! Cider is made from apples.
- Wine
Wrong! Wine is made from grapes.

Hops are used when making beer.

- TRUE
Well done! Hops are used to add flavour.
- False
Wrong! Try again!

Yeast converts sugars into alcohol and gas.

- True
Well done! That's right.
- False
Wrong! That's not the right answer.

What do we call the enzyme used when making cheese?

- Rennet
Well done! Rennet is extracted from calves' stomachs.
- Cheezyme
Wrong! Try again!
- Renzel
Wrong! Nice try, though.

Before cheese ferments, it is turned for 3 days in a press.

- True
Wrong! That's not the right answer.
- False
Well done! Cheese is turned while being pressed for around 20 hours.

Cheesemaking

[11-13 years old and 14-16 years old]

Fill in the gaps.

churned, collecting, curd, curdling, fermentation, pressed, sliced

The first stage when making cheese is _____ the milk. The cheesemaker pours the milk into a vat and warms it. Adding rennet and lactic acid bacteria makes the milk coagulate. The resultant _____ has a soft, gelatinous texture.

Transforming this curd into cheese requires a series of mechanical actions:

- First of all, the curd is _____, meaning that it is cut up with a wire frame then reheated once more.
- Then it is _____ and the cheesemaker controls the size and regularity of the grains of curd while continuing to stir.
- _____ the curd means that the mass of curd is gathered up using a large piece of canvas cloth. The whey, also known as lactoserum, runs through this cloth.
- The mass of curd is put into a mould before going on to be v to remove any excess water.

The last stage is _____. While the cheese is being pressed, it is turned regularly for twenty hours or so. It is then removed from its mould, salted and stored in a cellar where fermentation continues as the cheese matures.

Cheesemaking

[11-13 years old and 14-16 years old]

Fill in the gaps.

churned, collecting, curd, curdling, fermentation, pressed, sliced

The first stage when making cheese is **curdling** the milk. The cheesemaker pours the milk into a vat and warms it. Adding rennet and lactic acid bacteria makes the milk coagulate. The resultant **curd** has a soft, gelatinous texture.

Transforming this curd into cheese requires a series of mechanical actions:

- First of all, the curd is **sliced**, meaning that it is cut up with a wire frame then reheated once more.
- Then it is **churned** and the cheesemaker controls the size and regularity of the grains of curd while continuing to stir.
- **Collecting** the curd means that the mass of curd is gathered up using a large piece of canvas cloth. The whey, also known as lactoserum, runs through this cloth.
- The mass of curd is put into a mould before going on to be **pressed** to remove any excess water.

The last stage is **fermentation**. While the cheese is being pressed, it is turned regularly for twenty hours or so. It is then removed from its mould, salted and stored in a cellar where fermentation continues as the cheese matures.