



**Title**

**Water steam and Mantou buns**

**Author**

*Valentina Ruskovski, applied sciences teacher*

**Table of activities**

<b>School subject</b>	<i>Applied sciences</i>
<b>Topic</b>	<i>Physical properties of water, evaporation and water vapor</i>
<b>Age</b>	<i>16 years</i>
<b>Required time for the activity</b>	<i>90 minutes</i>
<b>Required materials</b>	<i>Flour, water, oil, instant yeast, sugar and salt</i>
<b>Cultural concept</b>	<i>Preparation of traditional Chinese Mantou buns by steam</i>



# Education Resilience in Europe

Supported by:



Education Resilience in Europe is funded by the Grant Agreement signed on 21 September 2022 with Cisco Foundation and supported in promotional activities by Scientix 4 (Grant agreement N. 101000065). The content of the document is the sole responsibility of the organizer, and it does not represent the opinion of the European Commission (EC), and the EC is not responsible for any use that might be made of information contained.



## License

**Attribution CC BY.** This license lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit you for the original creation. This is the most accommodating of licenses offered. Recommended for maximum dissemination and use of licensed materials.

## Teaching concept

During this activity, students will learn how to prepare food using water vapor and how to apply their knowledge about different states of water, specifically the gaseous state. This process, called steaming, is a healthy cooking method that preserves the nutrients and flavor of the food. Students will also learn about the properties of steam and how it affects the texture and taste of food.

Additionally, they will learn about the importance of temperature and pressure in steam cooking and how to adjust them for optimal results. Finally, students will have the opportunity to taste the food they have prepared.

## Cultural concept

This activity aims to introduce students to the traditional Chinese dish called Mantou or steamed buns, which is a type of white bread popular in the northern part of China. The focus of the activity is to provide students with an opportunity to learn about the use of steam in Chinese cuisine and how it is used for preparation and cooking of Mantou.

## Applied science concept

Water has three main aggregate states: solid, liquid, and gas. The boiling point of water is 100°C at standard atmospheric pressure, which allows water to change from a liquid to a gaseous state. In cooking, the gaseous state of water, which is water vapor, is used to preserve the vitamins and nutrients of food while also eliminating harmful microorganisms.

## Aim of activity

The goal of this activity is to introduce students to the properties of water vapor by boiling water and observing the process of evaporation. Afterwards, the students will learn to use steam to cook traditional Chinese steamed buns known as Mantou.

By determining the time needed for the buns to be fully cooked, students will gain knowledge about the property of water vapor which can replace unhealthy fats in cooking, resulting in a healthier end product. Through this activity, students will also gain an appreciation for the healthy cooking methods of Chinese cuisine.

## Activities

This activity is a step-by-step process that allows students to learn about the method of preparing Mantou or traditional Chinese steamed buns. It consists of four main steps.

*In the first step, students conduct research on the history, preparation process, and basic characteristics of Mantou.*

*The second step involves the process of obtaining water vapor, which students learn about in terms of its properties and method of generation. In the third step, students prepare the dough for buns according to the provided recipe and proceed to cook them using steam. Finally, in the fourth step, students analyze the finished product in terms of nutritional caloric value and discuss the benefits of cooking without fat.*

*During the activity, students are tasked with conducting research on Mantou, kneading the dough, steaming the buns, and analyzing the finished product. The recipe provided includes 500 grams of flour, 10 grams of instant yeast, half a teaspoon of salt, 30 grams of sugar, a tablespoon of oil, and 275 milliliters of water. Students learn about the role of each ingredient and the correct order of adding them. They also investigate the role of yeast in the dough and its influence on the finished product.*

*To steam the buns, students heat water to boiling in a container and then place the buns in a steamer basket. They determine the moment when the buns are cooked by using chopsticks and checking the consistency of the dough. After cooling, the buns are tasted and analyzed for their nutritional properties and caloric value.*

*Overall, this activity provides students with an opportunity to learn about traditional Chinese cuisine, the properties of water vapor, and the benefits of cooking without fat.*