Unit 4

Science in Everyday Life

Learning Objectives

After learning this lesson, students will be able to

- apply the knowledge of scientific principles in day-to-day life
- observe the science that works in the kitchen
- learn about the value of cooking items and their medicinal properties
- explore scientific investigations in everyday life
- measure the boiling point of water and milk

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Introduction

What is Science?

Is Science important in our life?

Do you think science is separable from our day to day life?

Science is the study of the natural world around us. We learn science by observing, experimenting and describing.

Science is all around us. Examples of science can be observed from the time we wake up till we go to sleep and even while one is sleeping.

Science influences most aspects of everyday life, including food, energy, medicine, transportation and leisure activities.

How science is involved in daily life?

- Even in our sleep our body is working continuously. We dream while we sleep.
- When we eat food, our digestive system is at work.
- Medicine, vessels and furniture we use are the products of science.

4.1 KITCHEN SCIENCE

If one wants to explore science in everyday life, then kitchen is the right place to start. To understand how water boils or how idlis are cooked, we must know science.

Boiling Water

a)

b)

What do you infer from the above pictures?

The **first** picture shows **boiling water** and the **second** shows **boiling milk**.

What is boiling?

Heating a liquid until it becomes gas is called boiling. Boiling the water means to heat the water until it becomes gas and mixes with the air.

Boiling Point

The **boiling point** of a substance is the temperature at which the liquid boils. At this temperature, the liquid changes into gas.

Benefits of boiling water

- Destroys germs
- Improves digestion
- Prevents us from the infection of waterborne diseases

Cooking Idli

Idli is a common and usual breakfast of Tamil Nadu.

- What process is involved in the preparation of idli batter?
- What type of cooking process is involved in making idli?

Do you know the ingredients used for making idli?

1. Rice (Boiled rice)
2. Black gram (Black Lentils)
3. Fenugreek (Vendayam) and
4. Salt

Idli batter produced from above things is fermented for 8 hours before use.

Idli is cooked by the method called **Steaming**.

Idli is prepared using idli cooker.

Idli Making

1. Soaking rice and blackgram in water

2. Grinding

3. Allowing it to ferment

4. Steaming in idli cooker

Advantages of Steaming

- Easy cooking method.
- Steamed food is easily digested.
- Steamed food retains Vitamin C and E.

Idiyappam

We cook idiyappam by steaming. Idiyappam is prepared from rice.

Let us Taste - Varieties of Idlies

In order to attract the children and customers, caterers make varieties of idli by mixing the batter with grated beetroot or grated carrot and serve them as beetroot idli or carrot idli.



Let us think

The doctor advices patients to have idli or idiyappam. Can you guess why?

Tick (✓) the item which you see in your kitchen.








Tick (✓) the food items which are made by steaming.








Arrange the pictures in correct order.






4.1.1 Home appliances - Pressure Cooker

How would our life be without the following?

1. An electric bulb - _____
2. A fan - _____

Things like electric bulb and fan are called home appliances.

It is not easy to run our life these days without home appliances. Home appliances are machines that make life easier and convenient. In this section, we will learn about a few such appliances.

- Look at the picture and name it.
- Can you list the uses of this utensil?

Cooking food using water in a sealed vessel (cooker) is called pressure cooking.

Benefits of Pressure Cooker


Saves time

Minimizes the usage of fuel and saves energy


Retains nutrients in food

Pressure-cooking can cook foods four times faster than ordinary cooking.

Let us Discuss

1. Which one takes less time to cook pulses?
   a. pressure cooker b. mud pot
2. List out the food items prepared by pressure cooker. Discuss with your friends.

4.1.2 Other Home Appliances

Let us learn about some common home appliances and their uses .

Common Home Appliances and their Uses

Gas stove

Cooks faster by controlling heat

Mixer

Grinds hard spices, makes chutney and prepares juices

Grinder

Grinds food grains to produce batter

Vegetable Cutter

Chops vegetables

Kettle

Boils water and heats tea and coffee

Electric cooker

Heats and cooks food by using electricity

Induction Stove

Used as a substitute to stove

Coffee Maker

Makes coffee or tea

A **Refrigerator (Fridge)** is a popular home appliance for preserving food. It works on the principle of cooling.

The fridge has a pump that transfers heat from the inside of the fridge to its outside. This helps it to keep things cold.

The cold temperature inside the fridge slows down the bacterial growth in food and thus preserves the food for a longer time.

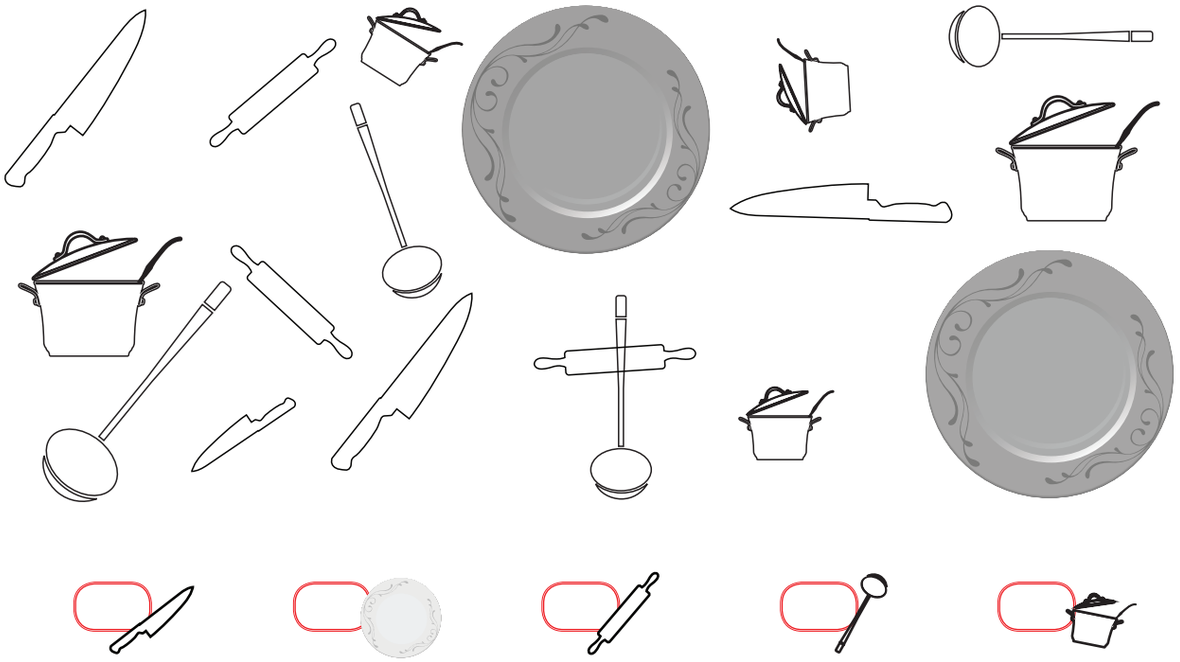
Safety Measures in Kitchen

- Never play with kitchen utensils such as knives, match boxes and glasswares.
- Use a cloth to hold hot pans.
- Inform an adult in case you smell cooking gas leakage
- Turn off the gas stove, microwave oven and any other electrical gadget immediately after use.

Match Column A with Column B.

	A		B
a		-	
b		-	
c		-	
d		-	
e		-	

Count and colour the objects.



4.2 Medicine in the kitchen

In the past times, kitchen medicine was practiced in every house. People knew how to treat some of the ailments of the family members and manage emergencies with what was available in the kitchen.

Is it not amazing to know that we have a pharmacy in our kitchen? Let us learn a few useful things we can use from the kitchen as medicines.

Importance of some kitchen medicines

Garlic

Garlic is called the poor man's antibiotic. It helps to balance blood pressure and reduces symptoms of common cold.

Asafoetida

It improves digestion. It is used as a remedy for diarrhoea and dysentery.

Ginger

It helps to improve digestion. It also reduces nausea.

Turmeric

It is a common anti-infectant and it helps to heal wounds.

Black Pepper

It is a great remedy for colds, coughs.

Cloves

It helps to relieve toothache.

Try in your home

Coriander juice

This juice is made from the coriander leaves. It helps to reduce chest congestion. It is rich in iron and vitamins A, B and C.

Preparation of coriander tea

This is made from coriander seed powder. One tablespoon of powder is mixed to two or three cups of water. Jaggery is added and they are boiled for 5 minutes. It improves digestion.

What are your favourite food items? Do you know the ingredients of them? Do they have any medicinal value? If so, fill in the table.

S.No	My favourite food	Ingredients	Medicinal value

4.3 Simple Scientific investigations in Daily Life

The curiosity of science starts from home. It is promoted by simple scientific investigations of the things that the children see around them or use daily like, why the leaves are green in colour? What is the difference between the sun and the moon? How does the television work?

Shall we learn about few simple investigations?

4.3.1 Real and Shadow

For what ?

To learn how the shadows are formed.

How?

1. Make the classroom dark.
2. Light a candle.
3. Place a toy near the candle. What do you see?
4. Move the toy away from the candle. What do you see? Move the toy closer to the candle. What do you look at?
5. Experiment and see what happens to the shadow if the light source is dim?

Complete the sentence:

- Moving the toy closer to the candle made its shadow _____.
- While moving the object away made its shadow _____.
- The big candle is bright and gives _____ shadow.
- The small is dim and gives _____ shadow.

Lava in a Cup

You will Need: A tall glass cup, 1/4 cup vegetable oil, 1 teaspoon salt, water, food colour.

What to do?

1. Fill the glass about 3/4 with water .
2. Add about 5 drops of food colour (Red).
3. Slowly pour the vegetable oil into the glass. See how the oil floats on top.
4. Sprinkle the salt on top of the oil.
5. Watch blobs of lava move up and down in your glass! Add another teaspoon of salt to keep the effect going.

What happens when you

add oil to water?	
add colour to the mix?	
add salt to the mix?	

First of all, the oil floats on the top of the water because it is lighter than the water. Since the salt is heavier than oil, it sinks down into the water and takes some oil with it, but when the salt dissolves, the oil goes up again. Is it not interesting?

4.4 Measuring Temperature of Water and Milk using Thermometer

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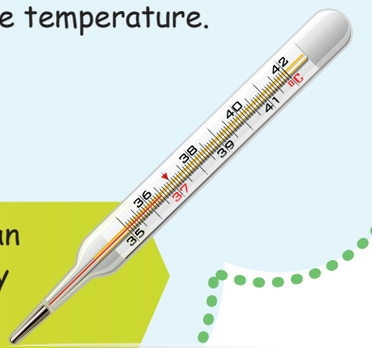
- Have you seen this device?
- Where have you seen this?
- Do you know the use of thermometer?

Usually, our body temperature is lower in the morning; it increases during the day and is highest in the evening. Other than this, a rise in body temperature is usually caused by an infection. Using a thermometer to check our temperature can help us manage any illness.

What is a thermometer?

Thermometer is an instrument used for measuring body temperature. It consists of a narrow, sealed glass tube, marked like a scale. The markings show the temperature.

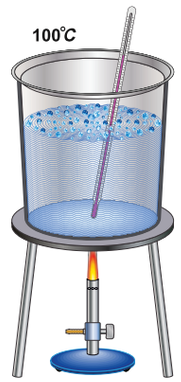
Daniel Fahrenheit, a German physicist, invented mercury thermometer in 1714.



Let us measure the boiling point of water using thermometer

Boiling point of water is 100°C

Things Needed : Water and thermometer



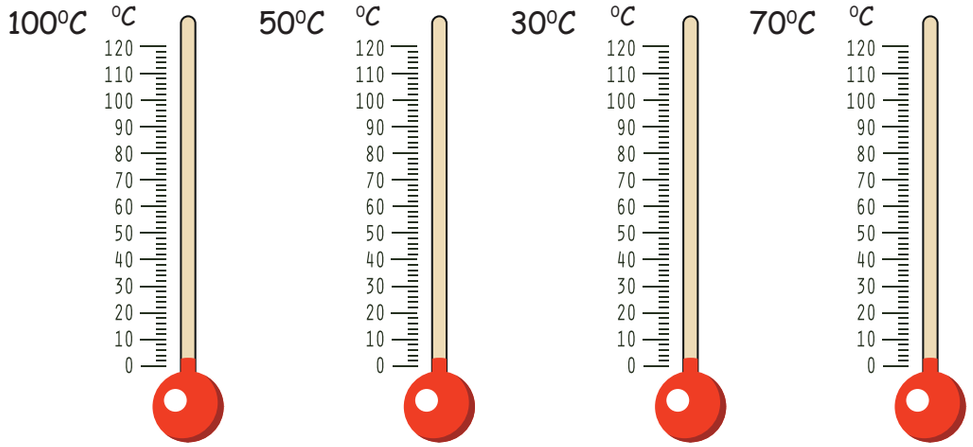
Procedure :

Heat the water. Measure the initial temperature, when the water starts to boil. Allow it to boil for few more minutes, measure the temperature.

The temperature remains the same when the boiling point reaches 100°C and continues to boil for some more time.

Similarly, the boiling point of milk can also be measured using thermometer.

Colour the thermometer to match the temperature written in the box.



EVALUATION

I. Say whether the following statements are true or false.

1. When we boil water, bacteria are destroyed.
2. Idli is cooked by the process called steaming.
3. Thermometer is used to measure pressure.
4. Refrigerator helps to keep things cold.
5. Garlic relieves hiccups and nausea.
6. Boiling point of water is 100°C.

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II Circle the name of the things from which idli is made.

Rice	Groundnut	Chilli	Black gram	Red gram
Water	Salt	Pepper	Sugar	Fenugreek

III. Match the home appliances and their functions.

Makes coffee

Preserves vegetables

Boils water

Makes batter of food grains

Cooks faster

IV. Which of these are safe to do at home? Put (✓) or cross (×) in the box.

1. Touching electrical appliances ☐
2. Playing with sharp objects ☐
3. Playing in kitchen ☐
4. Keep safe distance from the gas stove and cylinder ☐

V. Answer in a word or sentence.

1. How do you store fruits and vegetables for a longer period?
2. Name the instrument used to measure temperature.
3. How is idli prepared?
4. What is the use of black pepper?
5. Which kitchen medicine is called the poor man's antibiotic?

VI. Answer the following.

1. Write the uses of boiled water.
2. Write the advantages of pressure cooker.