



Master Lesson Plan

For

Mangoes Round the Year

Board	Standard	Subject	Chapter	Language	Reference Link	Creation
CBSE	STD V	EVS	Mangoes Round the Year	English	Mangoes Round the Year	2020-10-

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Mangoes Round the Year

1. MS_Objectives_Mangoes_round_the_year

Students will be able to:

1. Understand the different types of food preservation techniques practised from yester years
2. Learn and practise food preservation techniques that can be applied on a daily basis
3. Learn and practise a specific preservation technique that can be applied to preserve food for a considerably long term period
4. Apply their learning to come up with solutions/techniques for food preservation, given the nature of food & expected period of storage
5. Appreciate the shelf life of any food product thus avoiding wastage of food
6. Extend the understanding of food preservation and apply the same to preserving their good character

Time to teach	Asset Type	Theme	SubTheme
2 Minutes	Main Script	EVS_Food	Food Spoilage, Food Preserva Spoilage, Food Preservation

2. IQ_Food preservation

Notes to the teacher: Teacher may enable the students to think and come out with as many answers as possible before giving out the right answer/ answers

Questionnaire:

1) What can we do to keep food fresh during a long journey?

Answer: We can preserve food by storing it in air tight containers. Canned food items could be taken for long journeys.

2) What steps do you think one must take care to store food in a can?

Answer: The can in which the food is to be preserved is cleansed thoroughly before the food is stored.

It should also be packed based on the type of food that would be stored. There are special techniques for storing the food in a can based on the type of food to be preserved.

3) How long do canned foods usually last?

Answer: Generally the canned foods are good a for a yearlong if they are stored in a cool, dry place.

4) Why should we store pickle in a dry place?

Answer: We should store food in a dry place to avoid fungal infection.

5) Why do pickles, jams not get spoilt for longer duration?

Answer: Pickles do not get spoilt due to salting. The salt used in pickles draws out moisture from pickles so that bacteria cannot grow on them easily.

Jams do not get spoilt due to sweetening by adding sugar. Sugar inhibits the mould growths in the food thus preserving the food.

6) Most of you have seen your mother keeping the left-over food, in refrigerator. What is the reason behind it?

Answer: The low temperature in the refrigerator slows down the growth of germs keeping food edible for a longer time.

7) Why does milk in packets not get spoiled when kept in stores?

Answer: This happens due to pasteurisation, where milk is first heated at very high temperature to kill all germs present in it and then suddenly cooled at very low temperature and then packed.

In this way food is preserved for many days. But in hot and humid climates the milk will get spoilt if kept outside the refrigerator for a long time.

8) What is the common method that is used in pasteurisation and canning while preserving food?

Answer: Boiling. In both these cases, boiling is used as a step to preserve food.

Boiled fruits are usually canned later for preservation. Similarly, boiled milk that also goes through the process of pasteurisation is preserved in cans/packets later.

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Inquisitive Questions	EVS_Food	Food Spoilage, Food Preservation, Food Spoilage, Food Preservation

3. MS_Food Preservation Techniques**Food preservation**

A process by which certain foods like fruits and vegetables are prevented from getting spoilt for a long period of time. The colour, taste and nutritive value of the food are also preserved.

Preserving food increases the shelf life of fresh, seasonal foods that makes it last longer. Fresh fruit and vegetables will not be good for more than a week or so depending on how they are stored, but dried, canned, or frozen fruit and vegetables can last for months, even years.

Food is so important to survival, food preservation is one of the oldest technologies used by human beings. The most ancient and highly reliable method for preserving food is drying. People from the start of time have dried herbs, vegetables, and fruits to store them.

The basic idea behind all forms of food preservation is to either:

- Slow down the growth of bacteria; or
- Kill the bacteria altogether.

Different preservation methods commonly used today, include the following:

Freezing:

Freezing is one of the most commonly used processes for preserving a very wide range of foods. The true flavour, colour and appearance of the food is kept well during freezing. Most vegetables are blanched (put in boiling water for a very short time), dried and then frozen. An example of this method is frozen peas. Fruits can be frozen dry or in sugar or syrups.



Note to the teacher: Please play this

video:

<http://youtube.com/watch?v=1jlm7jR2f-c>

Fermentation:

- Fermentation is a process that happens in the presence of a microorganism. In this process, the microorganism eats sugar from the food and breaks the food into simpler substance.
- Idlis are made of a fermented batter of rice and urad dal. The ground mixture is left to ferment overnight. Idlis are good for diarrhoea because fermented food helps you fight bad germs.
- Curd is a product of fermented milk. Curd is good for us and can help us feel better if you have diarrhoea. The process of fermentation preserves food, and also makes it more nutritious and digestible.
- They are good because they have no oil and do not lose vitamins while cooking.



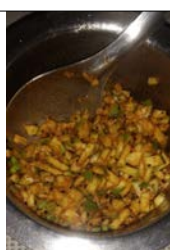
How is curd made?

Note to the teacher: Please play this video:

<https://www.youtube.com/watch?v=FHL6lw7uypw>

Pickling:

Vegetables can be pickled raw or cooked. They are stored in vinegar, which is a weak acid, and this prevents bacteria from spoiling the food. Even eggs can be cooked and pickled in vinegar and spices. Pickled onion, beetroot and cucumbers (as gherkins) are more common.



Making jams and jellies:

Fruit is cooked and softened, sugar is added and the mixture is boiled. When a certain temperature is reached, the jam can be taken off the heat and poured into jars. As it cools, it sets. Jellies are strained jams, without seeds or whole fruits.

**Drying:**

Drying, is one of the most ancient food preservation methods, is a great way of preserving herbs, fruits, vegetables and meats. Since the beginning of time people have let sun and nature take care of drawing moisture out of foods. This practice is used throughout the world. India is known for chillies, mangoes and a host of spices. Many fruits can be dried (for example apples, pears, bananas, mangoes, papaya). Currants, sultanas and raisins are all forms of dried grapes.

Drying is also used to preserve cereal grains such as wheat, maize, oats, barley, rice, millet and rye. Foods can be dried either in the sun or by artificial heat. To dry herbs, simply tie them together and hang in a sunny spot away from any humidity. To dry fruits or vegetables, set them out on a clean surface and keep them in the sun for a few weeks (this only works well in dry, warm climates).

**Canning and bottling**

Canning and bottling involves cooking foods, sealing it in sterile cans or jars, and boiling the containers to kill or weaken any remaining bacteria. Food preserved by canning or bottling is at risk of getting spoiled once the can or jar is opened. Lots of care is needed during the canning or bottling process so that water or micro-organisms do not get into the can. If this happens, gas produced in the can or bottle will cause it to swell or burst. This is why we never buy a damaged can in the supermarket.

Image Source:

Refrigerator, Jam bottle - OC W S Seema (ITV)

Curd in bowl : <https://pixabay.com/photos/yogurt-glass-white-2035323/>

<https://pixabay.com/photos/chilli-agriculture-food-vegetable-3653871/>

<https://pixabay.com/photos/food-ingredient-red-spice-4775447/>

Pickle - OC - jai.sai.sudar@gmail.com

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Main Script	Food	Types of Food, Types of Food

4. SA_Mouth-Watering Pickle

Aim: To prepare mouthwatering mango pickles.

Resources Required:

- 5-6 small or medium sized raw mangoes 1
- or 1.5 tbsp turmeric powder
- 0.5 or 1 tbsp fenugreek powder
- 1.5 or 2 tbsp mustard powder
- 1.5 to 2 tbsp red chilli powder
- Salt as required
- Mustard oil / Gingelly oil

Setting for the Activity [Indoor/Outdoor] -Indoor

Type of Activity: Project

Procedure:

1. Rinse and wipe the mangoes well with a kitchen towel.
2. Chop the mangoes and put them in a bowl.
3. Add all the spice powders and salt.
4. Mix well so that the spices uniformly coat the mango pieces.
5. Keep the container in the sun for 3-4 days. You can cover the container with a fine sieve or a thin muslin cloth, so that dust etc. does not fall on the pickle.
6. Mango pickle is almost ready on the 6th day.
7. Pour the mango mixture in a jar.
8. Add mustard oil to the spiced mangoes.
9. Add enough mustard oil that reaches upto just below the rim of the jar. Always remember to keep the oil floating above the pickle.
10. Close and keep in a cool place till everything gets mellowed and pickled.

Observation:

Mouthwatering mango pickle is ready.

Conclusion:

Removing moisture thoroughly while making pickle helps in preserving the pickle. The oil and salt act as a preservative against bacterial growth.

Instructions to Teacher: (If any – Optional)

1. The material should be ready beforehand.
2. Instructions given to the students should be very clear and simple.

Precautions: (If any – Optional)

- There should be no water or moisture in your jar in which you will keep the mango pickle.
- Ensure the spices used are also within their shelf life and not beyond expiry date.
- Make sure that water does not come in contact with the pickle and clean each and every instrument or vessel used like mixing bowl, spoon and mangoes with a dry cloth and dry them properly.
- The jar has to be clean. You can sterilise the jar (Leave the jar in sun for 20-30 minutes) if you want.

Troubleshooting: (If any – Optional)

If sky is cloudy, then mangoes cannot be kept in the sun, you have to preferably keep it in the sun. If there is no open area, then keep in a dry place or under fan but shelf life of pickle made under shade would be less than the one that is made by drying under sun as sun rays kill microorganisms.

Cleanliness is very important while making pickles. Cover the mango pickle with a layer of oil. All the mango pieces should be completely immersed in oil.

Keeping under the sun prevents fungal growth. The sunlight won't allow the fungus to grow. Spices should be fresh and within their shelf life date.

Questions to ponder:**1) Why did we have to add oil to preserve pickles?**

A) Food gets spoilt when bacteria grows on the food. Microorganisms breathe oxygen. Adding oil to food like pickles prevents the growth of these microorganisms as oil cuts off the contact of air with food.

2) Why did we dry the mangoes along with spices under sun?

Sun's rays kill microorganisms. To kill the microorganisms that can possibly be growing even after normal drying, we place the mangoes mixed with spices in the sun. Once the pickle is thoroughly dried, we pour oil over the pickle so that it can be preserved while we use it daily.

3) Do we have to follow the hand drying, sun drying and oil preservation for any type of pickle?

Yes. Any type of pickle should follow the same steps.

4) How long can this pickle be stored? What is its shelf life?

If the jar is not opened, then the jar can possibly last for a year or so. If the jar is opened and if you have started consuming the pickle, then the shelf life is dependant on various factors how the pickle jar is handled.

5) Any care to be taken while consuming pickle from the jar?

Since moisture is the one that causes microorganisms to grow, the spoons that are used to take pickles from the jar should be completely dry. Wet spoons should never be used to take pickle from a jar.

Time to teach	Asset Type	Theme	SubTheme
20 Minutes	Suggested Activity	Food	Types of Food, Types of Food

5. IA_Food Preservation Facts**FACTS ABOUT FOOD PRESERVATION:**

Food preservation is the technique which we have got from our ancestors. Ancient man had to use the power of nature for his survival. Ancient man, used freezing technique in frozen climate and sun drying in tropical climate.

The various means used by our ancestors for preservation include:-

Around 6500 B.C. salt mines were discovered in Salzburg, Austria. It was also discovered that when salt was added to food it allowed the food to be eaten even if kept for a longer period of time (even though it was very salty). The scientific reason is that the salt removes the water in the food. The bacteria cannot survive without water so the growth of bacteria is slowed down.

In the year 1810, canning was first invented by a chef in France named Nicolas Appert. He discovered that by cooking foods and sealing it in metal cans, the food would last longer. How this actually works is that cooking the foods kills that bacteria. When the food is sealed in cans, bacteria cannot reach the food so the food lasts much longer.



The corn syrup or fruit juice (acting as antioxidants) canned with the fruits stops oxidation of the fruit. Antioxidants prevent the reaction of food with oxygen. Oxygen in the air can cause food to break down and change in colour or flavour. Some common spices like turmeric, chilli and pepper are rich in antioxidants and chemicals that kill bacteria.



In the year 1969, transportation of food to the moon happened for the first time. The astronauts took freeze-dried foods to the moon. The freeze drying process was the combination of two methods that were found to increase the useful life of food including drying and rapid freezing.



Image Source:

<https://pixabay.com/photos/cooking-wok-chinese-asian-food-1835369>

<https://pixabay.com/photos/eating-can-fork-metal-closeup-3379301/>

<https://commons.wikimedia.org/wiki/File:ISSSpaceFoodsAssortment.jpg> - Public Domain

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<https://pixabay.com/photos/cayenne-peppers-chili-peppers-2779828/>

<https://pixabay.com/photos/black-pepper-spice-seeds-seasonings-83086/>

Time to teach	Asset Type	Theme	SubTheme
3 Minutes	Interesting Asides	EVS_Food	Food Preservation, Food Pres

6. DD_Food Preservation

Notes to the teacher: The following can be a conversation between the teacher and the students.

Food preservation can be achieved only with the help of clean storage containers.

As a school going student, how can one ensure that food is not spoiled when packed in the lunch box?

- 1) After reaching home, ensure the tiffin box, spoon is thoroughly washed with dish washing liquid and dried. Clean and dried lunch box will ensure no bacteria can spoil the food you bring to school daily.
- 2) Always wash the water bottle thoroughly before refilling the bottle with water. This prevents any one getting sick because of unclean water.
- 3) When helping parents with shopping groceries, always check the label of the product for its expiry date. This way students can learn how to buy products.
- 4) After shopping for vegetables, help parents store vegetables based on the type of vegetables. Some vegetables can be stored in refrigerator for long use while others last long only when stored outside. As a general thumb rule, it is always advised to use fresh vegetables and fruits for consumption, but when it is not possible, we store some of them in fridge for long use.

Some examples are below:

Potatoes should not be refrigerated. This is because when refrigerated potatoes are fried, they have harmful effects on body.

Root vegetables like potatoes, sweet potatoes last longer if they are kept outside fridge with good air circulation.

Curry leaves, coriander leaves, spinach leaves are to be consumed fresh, but when not possible they can be stored in a glass container lined with a tissue paper. They must be thoroughly rinsed, and dried under fan for an hour post which the leaves can be stored.

Milk should be refrigerated for long use, otherwise when kept outside, the milk gets spoiled.

Notes to the teacher: The teacher can encourage the students to an assignment on this to make them relate with the concept of daily food storage.

Time to teach	Asset Type	Theme	SubTheme
3 Minutes	Day-to-day Relevance	EVS_Food	Food Preservation, Food Pres

7. VC_Avoid Bad Company Develop Earnest Friends

Different kinds of food items spoil due to different reasons. Some foods spoil soon, some stay good for long.

In the same manner, some of you might get spoiled due to keeping bad company. As long as you do not associate yourself with bad company, you stay good for long.

Deepak was the son of a well to do businessman. His father had recently noticed some unpleasant changes in his behaviour. He had acquired many bad habits. His dad had met some of his new friends and he did not like their behaviour. He realised that it is this company which has been influencing him in a wrong manner.

It pained his father. He tried his best to set him right but to no avail.

One day, the father thought of a good plan to mend his son. He took Deepak to the fruit market. Deepak loved the fresh apples. His dad brought some fresh apples and a rotten one. They also bought some green unripe mangoes. They came home and put the apples and mangoes in two different baskets. He covered the mangoes with some straw.

After few days the father asked Deepak to bring the baskets. Deepak was surprised to find that all the apples had gone rotten. And the green mangoes had ripened and ready to be eaten.

His father told Deepak, "See, how one rotten apple has spoiled all the good ones, whereas the straw gave warmth

and protected the mangoes from the cold and dampness outside, so now they are perfectly ripe. Bad friends are like bad apples. They will spoil you. Always remember ABC—Avoid Bad Company and DEF--Develop Earnest Friends.”

Deepak listened to the advice and gave up the bad company.

Time to teach	Value Type	Value Sub Type	Value Attribute
3 Minutes	Peace		Stories

8. QA_All about food preservation

ROUND 1: MULTIPLE CHOICE QUESTIONS:

(Guidelines for the teacher: Students have to select the correct option. Each correct answer carries one point.)

1. The purpose of food preservation is

- a. To keep food safe
- b. To retain the quality of food
- c. To prevent the decay of food
- d. All of the above

Answer: All of the above

2. Shelf life of the food means

- a. Freshness of the food
- b. Quality of the food
- c. Spoiling of food
- d. Time limit within which food can be used

Answer: Time limit within which food can be used

3. We come to know about the spoilage of food from

- a. Its colour
- b. Its smell
- c. Its taste
- d. All of the above

Answer: All of the above

4. The main reason for preserving food is to

- a. Improve its colour and taste
- b. Increase its shelf life
- c. Make food more costly
- d. To spoil the food

Answer: Increase its shelf life

5. Food items that can be preserved in deep freezer of the refrigerator are:

- a. Food grains
- b. Fish
- c. Mangoes

d. All of the above

Answer: Fish

ROUND2:

CROSSWORD PUZZLE:

Guidelines for the teacher: Each correct answer carries one mark. All the terms are related to food preservation. The puzzle is attached in the uploaded files section.

Crossword puzzle generator used: <https://crosswordlabs.com/>

ROUND3:

RAPID FIRE TEST: (ppt)

(Guidelines for the teacher: Students have to attempt true or false from the statements given related to food preservation.)

1. Preserved food is not easy to store. (Answer: False)
2. Preserved foods are easy to transport from one place to another. (Answer: True)
3. Lemon juice is an example of natural preservative. (Answer: True)
4. Boiling of bottles and drying them, is to make them free of microbes. (Answer: True)
5. In making of squashes, we make use of any acid for the preservation. (Answer: False)

ROUND 5: (CLASSIFICATION OF FOOD)

TREASURE ROUND

(Guidelines for the teacher: Pick the various types of food and decide the category to which they belong)

INTRODUCTION: On the basis of time taken by the food to get spoiled; foods can be of three types: Non-Perishable (Do not get spoiled for a long time); Semi –Perishable (Spoil late); and Perishable (Spoil quickly).

The list of foods given will be:

- | | |
|--------------------------------|----------------------------|
| 1. Whole grains; Pulses; Nuts; | (Answer: Non – Perishable) |
| 2. Maida; Potatoes; Eggs | (Answer: Semi Perishable) |
| 3. Bananas; Butter; Bread | (Answer: Perishable) |

ROUND 6: VISUAL ROUND

Visuals on food preservation should be shown and then questions to be asked. The questions will be framed on the various methods adopted for food preservation.

How are the following foods preserved as shown in visuals?

1. Bananas

Answer: By covering them with transparent plastic wrap so that the area of contact is less with air containing germs.

2. Ice cream:

Answer: By cutting the ice cream cup to the level of ice cream.

3. Potatoes and tomatoes:

Answer: By wrapping in a cloth and refrigerating.

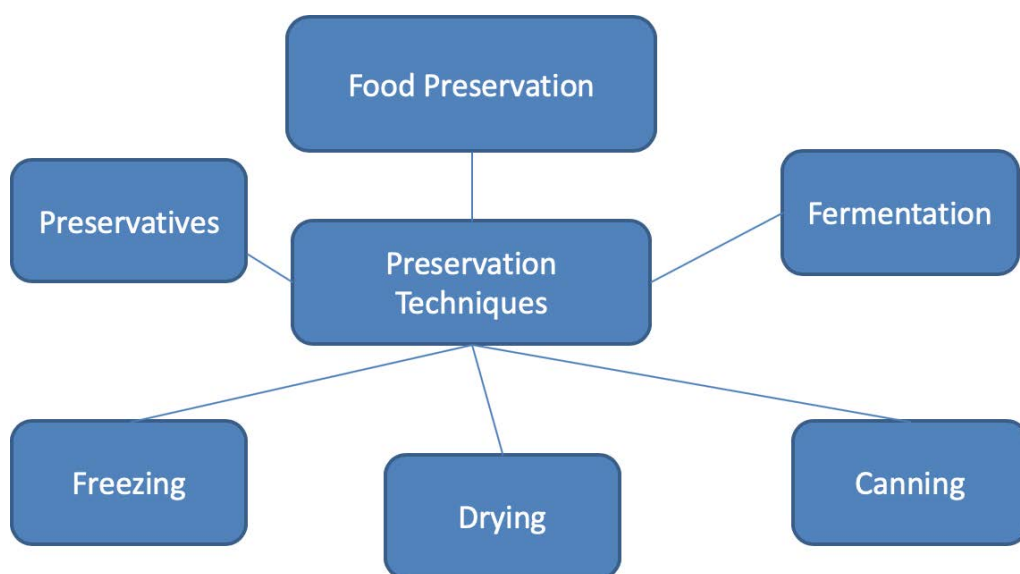
4. Strawberry:

Answer: By arranging the strawberries in a single layer.

5. Milk:

Answer: By Refrigerating.

Time to teach	Asset Type	Theme	SubTheme
20 Minutes	Assessments	EVS_Food	Food Preservation, Food Pres

9. MS_Summary_Mangoes_round_the_year

Time to teach	Asset Type	Theme	SubTheme
2 Minutes	Main Script	EVS_Food	Food Spoilage, Food Preserva Spoilage, Food Preservation