Project 6

Cooking without Fire

0685CH06

This project will help you learn about cooking without fire. You will read recipes, and use the correct kitchen tools and ingredients to make tasty dishes.

As part of the project, you will be able to:

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Figure 6.1: *Working together in a kitchen*

We all enjoy eating! Some of us also enjoy cooking. Cooking involves many methods like boiling, baking, steaming, grilling and frying. Raw food is heated to a high temperature, which changes the food, kills germs, improves texture and flavour, and makes it tastier and easier to eat.

We often use a gas or other type of stove for cooking — the heat cooks the food. We also use different utensils, depending on what we are preparing. But did you know that we can cook without fire as well? Additionally, we also eat some foods without heating. Besides raw fruits, we eat certain raw vegetables. Only those vegetables that do not need cooking to be edible, can be eaten raw. For instance, can you eat raw potatoes?

Raw vegetables maintain their maximum nutritional value since they are not exposed to heat, which can break down nutrients.

Preparing food items and dishes without the use of fire or heat opens up a world of creativity and nutrition. The use of fresh, uncooked ingredients to create healthy meals involves techniques, for making *salads* and refreshing smoothies to inventive dips and desserts, and the possibilities are endless. This approach not only preserves the nutritional value of the ingredients but also encourages a closer connection to the food we consume, promoting mindful eating and a healthy lifestyle.

Cooking also gives pleasure and develops a sense of pride. It also helps us to understand the importance of teamwork and cooperation as people who work in kitchen, like chef, cook, specialist cook, dish washer, kitchen porter and others have to work together.

Do you help out when someone is cooking at home?

Nutritional Value of Food

You must have learnt about different components of food, nutritional value, balanced diet and related concepts in Science. A diet rich in essential nutrients, especially those coming from raw fruits and vegetables, helps us in maintaining a healthy body and mind.

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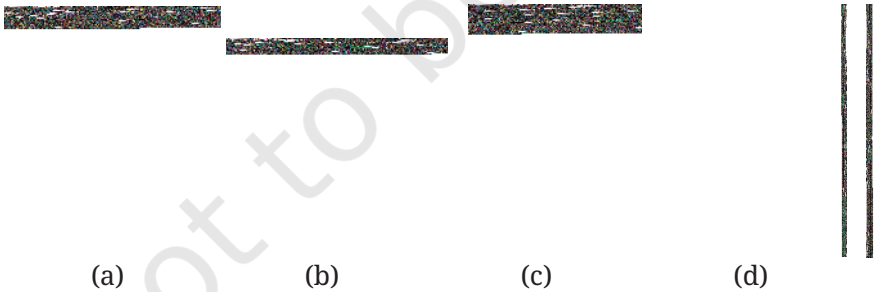
What will I be able to do?

At the end of the project, you will be able to:

1. Make use of basic kitchen tools, equipment and utensils;
2. Prepare tasty dishes without using fire;
3. Present dishes in a way that make them look tempting; and
4. Dispose of food waste and leftovers in an environment-friendly manner.

What will I need?

- Tray, bowl, plates and vessels or pots.
- Measuring cups, knife, kitchen weighing scale, chopping board, peeler, grater, fork, whisk, tablespoon, cups, wooden churner (*Maadhani*).
- Locally available fruits, vegetables, lentils, pulses, milk, curd, puffed rice, peanuts, butter and bread.
- Soap and water.
- Apron, haircap or any cloth to cover hair.
- Dustbins for keeping wet and dry waste.



(a) (b) (c) (d) (e)

Figure 6.2: *Kitchen tools (from left to right); (a) chopping board and knife, (b) measuring cups, (c) grater, (d) peeler and (e) whisk*

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How do I keep myself and others safe?

- Always wash your hands before and after handling food.
- You must be extremely careful when using sharp tools, and make sure you use them as demonstrated. Do not rush.
- Clean up any water or any other liquid that may have spilled immediately to prevent anyone from slipping and falling.
- Follow all other safety rules as discussed with your teacher at all times.

Internet safety: Ask your teacher for help while using the internet. Be careful not to upload or download anything, and do not share personal information anywhere.

What do I need to know before I start?

You will need to know the recipes of the dishes you are going to prepare. A recipe is a set of instructions that tells you how to make a dish. It has the list of ingredients and the steps to follow.

There are many ways to cook, but you will use a few way in the projects are as follows:

- **Mixing:** Combining ingredients together, as in a *salad* or a beverage.
- **Spreading:** Applying a soft substance over a surface, such as butter or cheese spread on bread or *Chutney* in a *Chapatti* roll.
- **Assembling:** Putting ingredients together to make a dish, like making *Bhel Puri* or sprouts *Chaat*.

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Activity 1: Reading recipes

A recipe includes the ingredients and instructions to prepare a dish. A few recipes are given here. You can look for more in a recipe book or on the internet.

Before you start following the recipes, you need to learn how to follow each step:

- **Read it all first:** Before you start, read the entire recipe from start to end.
- **Check the ingredients:** Make sure you have the right quantity of all the ingredients.
- **Prepare:** Gather the equipment and utensils you may need.
- **Follow the steps:** Complete each step in the order it is listed.
- **Look up for unfamiliar words:** If you see a word you do not know, use a dictionary or ask the teacher.

Dish Presentation

The way your dish looks is almost as important as its taste.

Here are a few tips for making your dish look great:

- Use colourful ingredients to make your dish vibrant; if you make a fruit *salad*, use fruits of different colours.
- Arrange your food neatly on the plate. Add a little garnish; e.g., some *Sev* and peanuts placed decoratively on a plate of *Bhel Puri* or mint leaves on buttermilk to make it look nice.
- You can search on the internet for photographs of beautifully arranged food for inspiration, using the keywords; 'presentation + beautiful + dishes + food' and 'presentation + beautiful + dishes + food + Indian'.

The space provided against the name in each recipe is for you to write any other name(s) you use for the dish.

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Making

Buttermilk /.....

You will need:

- 2 cups of curd
- 2 cups of water
- 1 teaspoon of roasted cumin powder
- Salt to taste
- Chopped mint leaves (optional)

What to do:

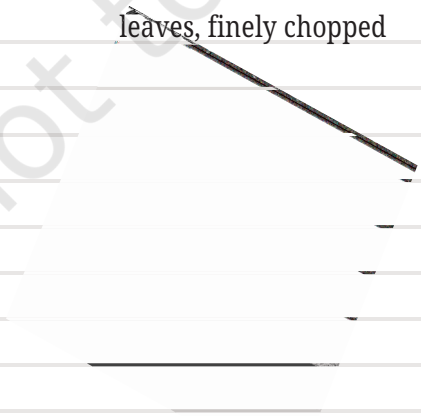
- In a bowl combine curd, water,cumin powder, and salt.
- Whisk until smooth.
- Pour into glasses and garnish with chopped mint leaves, if desired.

Making

Jaljeera /.....

You will need:

- 2 tablespoons of *Jaljeera* powder
- 4 cups of cold water
- 1 tablespoon of lemon juice
- 1 tablespoon of mint leaves, finely chopped
- 1 tablespoon of coriander leaves, finely chopped



What to do:

- Take a large jug and add chopped mint leaves, chopped coriander leaves, *Jaljeera* powder and lemon juice. Mix them up well.
- Add 4 cups of water to the jug and mix quickly till all the ingredients are completely blended. If possible, you can use a blender.
- Pour the mixture equally into the glasses and then pour the remaining water into the glasses, mix well.
- Serve immediately.

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Making

Kokam Sherbet /.....

You will need:

- 10-12 dried *kokam* petals
- 4 cups of water
- Sugar or honey to taste
- Roasted cumin powder (optional)

What to do:

- Soak the *kokam* petals in water for 2-3 hours.
- Strain the *kokam* -infused water into a pitcher.
- Add sugar or honey to taste and stir until dissolved.
- Optionally, add a pinch of roasted cumin powder for extra flavour.
- Chill in the refrigerator before serving (optional).

Making

Salad /.....

You will need:

- 3 cups of cut assorted locally available vegetables (cucumbers, tomatoes, capsicum, carrots, lettuce)
- ¼ cup of vegetable oil
- 2 tablespoons of lemon juice
- 1 teaspoon of honey
- Salt and pepper to taste

What to do:

- Wash and chop the vegetables into small cubes.
- Tear the lettuce leaves into small pieces.
- In a small bowl combine vegetable oil, lemon juice, honey, salt, and pepper.
- Whisk till the mixture is well combined, taste and adjust the seasoning.
- In a large bowl, toss the vegetables with salad dressing, salt, and pepper.

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Making
***Koshimbir* /.....**

You will need:

- 1 cup of soaked and drained *Moong Dal*
- 1/2 cup of grated carrot
- 1/4 cup of grated coconut
- 1/2 cup of cucumber, small cubes
- 1-2 green chillies, finely chopped
- Chopped coriander leaves
- Salt to taste
- Lemon juice to taste

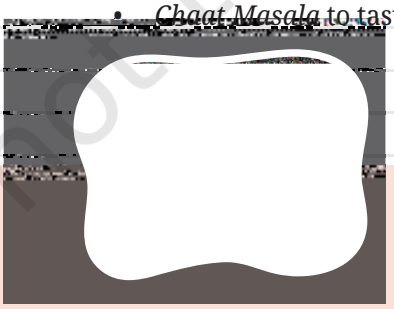
What to do:

- Wash and soak the *Moong Dal* for 30 minutes.
- Wash and prepare the vegetables.
- In a bowl, mix soaked *Moong Dal*, grated carrot, grated coconut, chopped green chillies, and coriander.
- Season with salt and lemon juice according to taste.

Making
Fruit *Chaat* /.....

You will need:

- 3 cups of cut assorted locally available fruits (e.g. apples, grapes, oranges)
- 2 tablespoons of lemon juice
- Honey or sugar (optional)
- *Chaat Masala* to taste



What to do:

- Wash and chop fruits into bite-sized pieces.
- Put the cut fruit in a large bowl, drizzle lemon juice to prevent discoloration.
- Sweeten with honey or sugar, season with *Chaat Masala*.
- Toss gently to combine.

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Making *Shrikhand* /.....

You will need:

- 3 cups of thick curd
- 1/2 cup of powdered sugar
- 1/2 teaspoon of cardamom powder
- Saffron strands (optional)
- Chopped nuts for garnish (optional)

What to do:

- Hang the curd in a muslin cloth for a few hours to remove excess water.
- In a bowl, mix the hung curd, powdered sugar and cardamom powder until smooth.
- Add saffron strands for flavour.
- Garnish with chopped nuts before serving.

Making *Bhel Puri* /.....

You will need:

- 2 cups of puffed rice (*Murmura*)
- 1/2 cup of chopped onions
- 1/2 cup of chopped tomatoes
- 1/4 cup of chopped coriander
- 1/4 cup of *Sev* or roasted peanuts
- *Chaat Masala* to taste
- Salt to taste
- 2 tablespoons of Mint *Chutney* (optional)

What to do:

- Wash and chop the onions, tomatoes, and coriander.
- In a large bowl, mix puffed rice, chopped onions, chopped tomatoes, and chopped coriander
- Season with *Chaat Masala* and salt.
- Mix well and enjoy.
- Top with *Sev* or roasted peanuts before serving.

If a mixer or grinding stone is available to make Mint *Chutney*, add 2 tablespoons to the *Bhel Puri* (optional).

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Making
Sprouts /.....

You will need:

- 1/2 cup of legumes (e.g. green *Moong*, *Kabuli Chana*, black *Chana*)
- Water
- Muslin cloth

What to do:

- Put the legumes in three separate bowls.
- Cover with water and let them soak overnight.
- Place the soaked legumes onto a wet muslin cloth. Sprinkle some water over them.
- Fold the muslin cloth over the grains or legumes and place them in a bowl. Cover it lightly with a lid so air can circulate.
- Check the muslin cloth from time to time. If it starts to feel dry, sprinkle some water over it to keep it moist.
- It will take at least 12 hours for the legumes to sprout. You will see little sprouts coming out of each one of the soaked legumes.
- Once you see the sprouts, transfer them to a storage container. They are now ready to be included in your salad.

Making
Lemonade /.....

You will need:

- 4 cups of water
- 8 lemons
- 1/2 spoon of sugar (as per taste)

What to do:

- Cut and squeeze the juice out of the lemons.
- In a bowl, mix water, lemon juice, and sugar until it dissolves.
- Chill in the refrigerator before serving (optional) .

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Making

Mint *Chutney* /.....

You will need:

- 1/4 cup of mint leaves
- 1/4 cup of coriander leaves
- 1 or 2 green chilies
- 1 small piece of ginger (about the size of your thumb)
- 1 small lemon
- Pinch of salt
- Water

What to do:

- Wash the mint and coriander leaves, shake off the extra water.
- Cut the ginger and green chillies.
- Grind coriander leaves, mint leaves, ginger, green chillies, salt, and a little water in a mixer or grinding stone till smooth.
- Add the juice of the lemon, mix well.

Making

Sandwich /.....

You will need:

- 8 bread slices
- 2 tomatoes
- 2 cucumbers
- 2 tablespoons butter
- Salt and pepper to taste

What to do:

- Wash and slice the vegetables.
- Spread a thin layer of butter on all the bread slices.
- Put a layer of sliced tomato or cucumber.
- Season with salt and pepper.
- Cover with another bread slice.
- Cut the sandwich to the desired shape.

If a mixer is available, spread a thin layer of the *Chutney* after the butter (optional).

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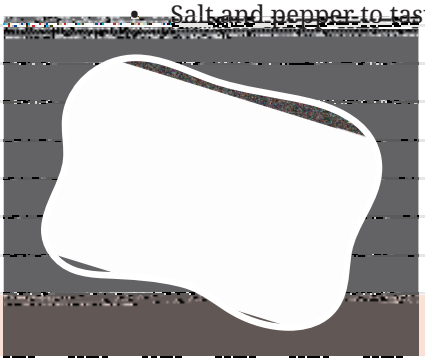
Making

Cucumber *Raita* /.....

You will need:

- 1 cup of plain yogurt
- 1 grated cucumber
- 1/2 teaspoon rosted cumin powder
- 1 tablespoon chopped coriander leaves
- Salt and pepper to taste



What to do:

- In a bowl, whisk the yogurt until smooth.
- Add the grated cucumber, roasted cumin powder, salt, and chopped coriander leaves. Mix well.
- Serve immediately.

If a mixer or grinding stone is available to make Mint *Chutney*, add 1-2 table spoons to the *Raita* (optional).

Making

Sprouts *Chaat* /.....

You will need:

- 1 ½ cup of assorted sprouts (e.g. green *Moong*, *Kabuli Chana*, black *Chana*)
- 1 ½ cup of chopped vegetables (e.g. tomatoes, onions, cucumbers, carrot)
- 1-2 green chillies, finely chopped
- 1 tablespoon lemon juice or vinegar
- Salt and pepper to taste

What to do:

- Wash and cut the vegetables.
- In a bowl, mix sprouts and chopped vegetables.
- Season with lemon juice or vinegar, salt and pepper.
- Toss well to combine.

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Making

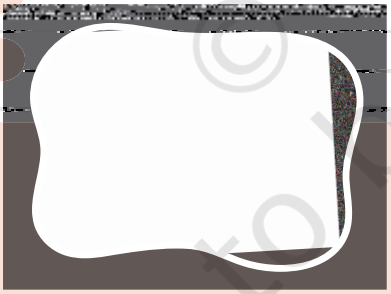
Making Coconut Chocolate Balls /.....

You will need:

- 1 cup of shredded coconut (unsweetened)
- 1/2 cup of sweetened condensed milk
- 3 tablespoons of cocoa powder
- 1/2 teaspoon of vanilla extract
- Additional shredded coconut or cocoa powder for rolling (optional)
- A mixing and serving bowl

What to do:

- In a mixing bowl, combine the shredded coconut, sweetened condensed milk, cocoa powder, and vanilla extract. Stir until everything is well combined and forms a thick, sticky mixture.



What to do:

- Scoop out small portions of the mixture and roll them into balls between your palms. You can make them any size you prefer, but they are usually small.
- If desired, roll the balls in additional shredded coconut or cocoa powder to coat them evenly.
- Place the coated balls on a plate or tray lined with paper.
- Leave the balls to set at room temperature for at least 1-2 hours. During this time, they will firm up slightly, making them easier to handle.
- Once they have set, your coconut chocolate balls are ready to enjoy!

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Activity 2: Deciding on dishes to be prepared

Conduct a survey of students in the school to find out what they like to eat. Some questions you may ask are as follows:

1. What is your favourite dish?
2. Which dishes do you like that can be prepared without fire?

Table 6.1 : Preferences of food items mentioned by students during the survey

Give preference from 1 to 5 , 1 = Least preferred , 5 = Most preferred														
Sr. No.	**Name of student**	**Buttermilk**	***Bhel Puri***	**Sprout *Chaat***	***Salad***	**Sandwich**	***Jaljeera***	**Lemonade**	***Kokam Sherbet***	***Koshimbir***	**Fruit *Chaat***	**Cucumber *Raita***	***Shrikhand***	**Coconut Chocolate Balls**
1.														
2.														
3.														
4.														
5.														

On the basis of the survey, list the dishes that will be prepared as part of the activity in the school.

1. .....
2. .....
3. .....
4. .....
5. .....

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Did you know?

Using Artificial Intelligence to read information on food packets.

Have you seen the thick and thin black lines on back of any package? This is called a 'Bar Code'. This code contains information that can be read by machines. You can use mobile apps like Google Lens to read this Bar Code to get information related to ingredients, nutritional information, expiry dates and so on.

Try reading the Bar Code of any food packet.

Activity 3: Measure your food ingredients

You might have discussed standard and non-standard units of measurement in your Science classes.

When cooking, both standard and non-standard units are commonly used for measuring ingredients. Understanding these measurements will help you to ensure accuracy and consistency in your preparation. For example, one pinch of sugar (non-standard measurement) and 10 grams of flour (standard measurement).

In case a kitchen weighing scale or measuring cups are not available, you can use common kitchen items, like cups, teaspoons and tablespoons to estimate quantities kitchen of ingredients. Some examples of measuring quantities of liquids are given below:

- A teaspoon can contain about 5 ml of liquid.
- A tablespoon can contain about 15 ml of liquid.
- One cup can contain about 250 ml of liquid.
- One litre of any liquid can be estimated with a capacity of 1 litre drinking water bottle.

Therefore, it is good to have a rough idea of how many grams or litres of an ingredient can fit into a cup or tablespoon.

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Using cups and a kitchen weighing scale to measure different kinds of ingredients (liquid and solid). Measure the same quantity of any ingredient with a cup, tablespoon or teaspoon used on a daily basis and record your observations in Table 6.2.

Using a kitchen weighing scale (Figure 6.3) to measure the quantity that can fit into a cup, teaspoon or tablespoon will help in choosing the right amount of ingredients.

Figure 6.3: *Kitchen weighing scale*

Table 6.2: Estimation of quantity of ingredient for conversion

Ingredient	Quantity in Grams or Litres	One Cup	One Teaspoon	One Tablespoon
Honey				
Lemon juice				
Cucumber (chopped)				
Flour (*Atta* or *Maida*)				

Activity 4: Handling tools with care and safety

Proper use and handling of kitchen tools not only enhance the cooking experience but also ensure safety and hygiene. For instance, sharp knives should be handled with care. Use a chopping board while cutting and always cut the food item away from the body and keep fingers clear of the blade. Measuring cups and spoons should be used accurately to ensure recipe success. Appliances like blenders and mixers should be operated according to manufacturer instructions to prevent accidents. Cleaning tools properly after use is equally important to prevent cross-contamination and maintain a hygienic kitchen environment.

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Table 6.3: Draw sketch of the tools

Tool	Sketch of tool
1. Knife	
2. Grater	
3. Whisk	
4. Peeler	

Activity 5: Storing food

Various ingredients require different cleaning and storage methods. Proper storage is essential to maintain freshness and prevent spoilage. For instance, grains and legumes should be kept in airtight containers to protect them from pests and moisture. Likewise, spices and herbs should be stored in airtight containers, away from heat and light. Use small bowls, plates, or containers to keep ingredients separate. If you have many ingredients, you may label them to avoid confusion.

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Refer to table 6.4 to identify and record the optimal storage methods for different ingredients.

Table 6.4: Storing conditions for different ingredients

Ingredient	Best way to store (e.g. room temperature, cool place, in the fridge)
Hard fruit	
Soft Fruit	
Green leafy vegetables	
Onions	
Cut vegetables	
Bread	
Milk	

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Activity 6: Handling and disposing of kitchen waste

Segregation of kitchen waste into different bins is an effective way to manage and dispose of kitchen waste responsibly. Organic waste can be collected separately and used for composting or vermicomposting to create nutrient-rich soil for gardening or disposed of through municipal composting programmes, where available.

Follow local guidelines and regulations for waste segregation and disposal practices. Empty containers like bottles, jars, and food trays (check for recycling symbols) should be disposed of separately for recycling. Clean cardboard, newspapers, magazines, and paper packaging can also be kept for recycling.

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(a) *(b)*

Figure 6.4: (a) *Segregating waste* and **(b)** *Disposal of segregated waste*

Answer the following questions:

1. Where did you dispose of the segregated waste?

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2. What did you do with plastic containers after using them?

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3. What did you do to reduce the amount of waste produced in the kitchen?

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4. What kind of waste can be used for composting?

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5. What can we do with leftover food instead of throwing it away?

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Activity 7: Beverage making

Beverages include any drink besides water. Some examples include lemonade, buttermilk, *Jaljeera*, and *Kokam sherbet*.

Figure 6.5: *Preparing buttermilk*

1. What beverage did you prepare?

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2. List the ingredients and their quantities used for making the beverages. Estimate the number of people you could serve with the ingredients used.

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3. Taste the beverages made by other groups. Did you notice any difference in taste? Yes/No.

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4. Provide and receive suggestions from other groups. Did you implement any suggestion? If yes, how did you incorporate them (e.g., adjusting ingredient quantities)?

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5. Describe the amount of waste generated (e.g., half a bag, one bag, or another description of quantity).

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Activity 8: Make dishes that require cutting and mixing

Now that the beverages are done, you can start making dishes that need cutting and mixing (Figure 6.6). You will cut fruits and vegetables that are ready to eat and mixing them together with salt, lime juice or any other ingredient to make a tasty dish!

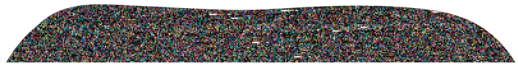

Figure 6.6: *Preparing a dish by cutting and mixing*

Some examples of food you can cut and mix are salad and fruit *Chaat*.

Please answer the following questions after you have finished your activity.

1. What did you make today?

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2. How did you decide what ingredients to use?

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3. What was the most challenging part of making this dish?

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4. Did you learn any new skill while preparing it?

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5. Did you add your idea to the recipe? If so, what did you change?

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6. Did you work with anyone else while making this dish? How did you divide tasks?

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7. What was the best part of working together?

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8. What did you learn from making this dish?

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9. What quantity of waste was generated from the activity?

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Activity 9: Make dishes that require cutting and assembling

Now let us take the next step. Assembling dishes means to take bits of ready to eat food and turning them into something different with a minimal effort.

Examples of dishes that need to be assembled are *Koshimbir*, sprouts *Chaat*, *Bhel Puri*, coconut chocolate balls, cucumber *Raita* and sandwich.

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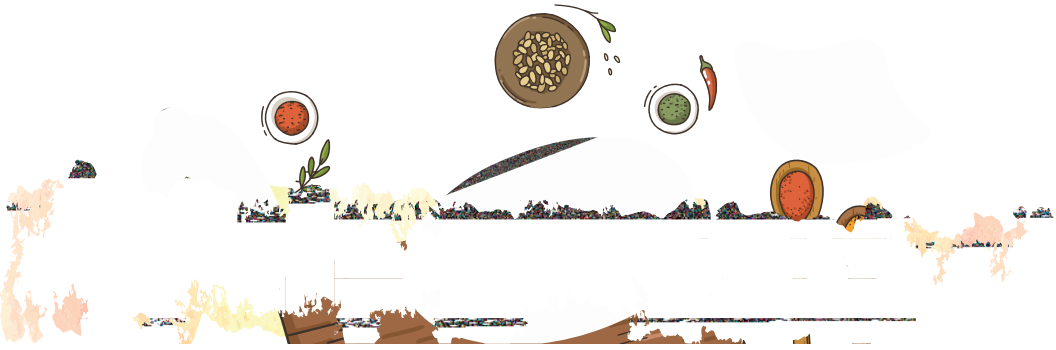

Figure 6.7: *Make sure the food tastes good before serving it in the Mela!*

Please respond to the following questions after you have finished cooking:

1. What did you make?

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2. List the ingredients and the quantity of each used to make the dishes.

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3. How many people could you serve with the quantity of ingredients you used?

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4. Go around and taste the dishes that other groups have made. Do you find any difference in taste? Yes/No. Give and take suggestions from them?

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5. Did you implement any of those suggestions? If yes, how?

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6. How much waste was produced (half a bag, one bag or any other way you would like to describe the quantity)?

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Activity 10: Organise a food *Mela*

You can organise a food *Mela* to exhibit the dishes, you learnt to prepare. With the help of your teacher and peers, plan and organise a food *Mela* on a small scale.

Answer the following questions.

1. What do you think is special about your food item?

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2. Make a poster or an invitation card or write a social media message to invite visitors.

3. How will you attract people to try the food items?

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4. How will you maintain cleanliness and hygiene in and around your stall?

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5. How will you clean up after the event?

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What did I learn from others?

Think about what you did and respond to the following questions:

1. Did you get recipes other than the ones in your Activity Book? Yes/No
2. Did you ask someone to help with the recipes in your Activity Book? Yes/No
3. Did you face any issue while working in team? How did you resolve it?
4. Did you learn measurement of ingredients from others? Yes/No

What did I do and how long did it take?

It is important to understand how much time is required for an activity to be completed.

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Calculate the approximate number of periods you spent on each activity. Mark them on the timeline below. If you did more than the activities suggested in the book, please add the number and time taken.

Activity	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Time taken (Periods)	---	---	---	---	---	---	---

What else can I do?

Create your own recipe. Be inspired by the different recipes you practised!

Name of the dish:

What is needed	What is to be done

Think and Answer

1. What did you enjoy doing during the activity?
2. What would you like to do differently?
3. Do you think you can prepare an entire balanced meal without using fire? Yes/No.
4. What jobs are related to the project? Look around, speak to people and write your answer. A few examples of jobs related to the work you just did are cook at home, chef in a hotel, and an artist who presents food in different forms.

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