

What's Cooking in the Classroom!

Sameera Sood



We are all familiar with the *MasterChef* series on television which is so popular and successful that it is now being produced in more than 40 countries. Such is the power of food and cooking - just watching some unknown people cook to compete is fascinating and entertaining.

We, as teachers, can use this universal fascination for food as a teaching tool to make learning interesting and relevant. Teachers are aware that effective teaching is engaging and experiential, it makes learning meaningful by relating abstract concepts to real world situations. Now what can be more engaging than learning by preparing, sharing and eating yummy food? Laws of physics, chemical changes or mathematical concepts can be made to come alive through simple cooking experiences. One can explain the process of fermentation by involving children in preparing dough, let them discover the concept of solubility and mixtures by making a lemonade, introduce measurement by asking children to follow a recipe minutely, or teach diversity by introducing food from different regions or communities.

21st Century learning cannot be limited to rote memorization of facts; it involves understanding, problem solving and critical thinking. We have to help our children get ready for the fast paced, technology based, rapidly evolving world. To achieve this, we have to ensure that children are able to understand the concepts, apply them in real life situations to solve problems using skills such as communication and time management. This can happen only if teaching and learning in our classrooms is holistic and complete. We have to move away from the traditional lecture or '*reading from the textbook*' method and use the active, experiential teaching approach to enhance students' motivation and enthusiasm for learning.

Using cooking experiences makes our teaching engaging, multisensory, interactive and collaborative. As children mix, measure, stir, bake, taste and serve, they get a deeper understanding of the concepts and acquire a plethora of skills to help them perform better academically and in real life situations.



The benefits of teaching through cooking experiences are as follows:

- *Brings alive concepts and builds understanding:* Complex scientific principles can be explained through cooking. For example, we can introduce chemical reactions by baking a cake or how the viscosity of honey changes when it is warmed. The concept of emulsions can be introduced by making mayonnaise.



- *Helps children acquire life skills:* Pre-schoolers introduced to cooking show demonstrably enhanced fine motor skills. They learn about using tools and equipment,

safety and hygiene. Older children, too, become more confident as they learn to plan before they actually begin to organize tasks involved in cooking and presentation. Moreover being able to cook is an important life skill in itself!!

- *Teaches concepts about nutrition:* It is easier for children to understand the importance of balanced diet, distinguish between junk and healthy food, recognize food groups, and know about the source of different food items through simple cooking experiences. Rather than talking about healthy snacks, if we involve children in making a healthy *bhel* with sprouts, the impact will be deeper and more lasting.



- *Develops self-esteem and confidence:* Children develop confidence in their abilities when they are cooking. They learn to perceive themselves as competent individuals who can create things and be appreciated for their efforts. Even a child who does not score well in examinations can experience success in simple cooking tasks.
- *Hones positive attitude towards learning:* All these factors contribute towards making learning fun rather than a chore. Cooking experiences harness children's natural curiosity to explore, experiment and create. Thus they become enthusiastic and active learners who enjoy learning through doing.







Cooking experiences in classrooms need not involve expensive ingredients, complicated appliances or even fire. A whole gamut of non-fire activities can be provided in pre primary and primary grades, which have to be planned carefully with utmost attention being paid to safety.

For Pre Primary Classes:

Apart from the above mentioned advantages, incorporating cooking experiences helps to enhance children's co-ordination and dexterity. They learn skills like sequencing and following directions. Cooking also supports language development as children learn new words such as names of ingredients, descriptive words (*soft, sweet, smooth*, etc.) and action words (*stir, mix, pour*, etc.). Moreover, children develop awareness and understanding of the world around them. They learn that butter becomes soft when left out of the refrigerator; beetroot stains hands and tongue, etc.

Sample Activities:

1. *Making lemonade: Creating and using picture recipes for language development and vocabulary building*

What you will need:	
	1 glass of water
	2 spoons of sugar
	A pinch of salt
	Juice of half a lemon

What you will do:

Step 1: Add sugar to water. Stir till it dissolves.

Step 2: Add juice of half a lemon. Stir.

Step 2: Add salt. Stir.

Step 3: Add ice cubes.



2. Making Bhel: Teaching counting and measurement

What you will need:

- 2 tablespoons of puffed rice
- 2 tablespoons of moong sprouts
- 1 tablespoon chopped tomatoes
- 2 tablespoons boiled and chopped potatoes
- 3-5 roasted peanuts
- 1 teaspoon lemon juice
- Few coriander leaves



Procedure:

Step 1: Guide students so that they count and measure out all the things.

Step 2: Ask them to mix puffed rice, sprouts, tomatoes, potatoes and roasted peanuts in a bowl.

Step 3: Let them pour lemon juice and mix well.

Step 4: Let them sprinkle chopped coriander. As they enjoy the *bhel*, ask questions about how they measured the ingredients.

3. Making Shrikhand: Teaching about texture and odour

What you will need:

- 5 tablespoons hung yoghurt
- 2 tablespoons mango pulp

- 1 tablespoon sugar
- A pinch of cardamom powder

What you will do:

Step 1: Let students smell yoghurt, mango pulp and cardamom powder. Let them talk about how these have different odours.

Step 2: Now put the hung yoghurt in a bowl. Talk about the texture, which is currently lumpy.

Step 3: Whisk the yoghurt till it is smooth. Talk about the creamy texture now. Discuss how the texture before whisking is different from the texture after whisking.

Step 4: Add mango pulp, sugar and cardamom powder.

Step 5: Mix well. Have students smell this mixture now. Let them discuss if they can recognize the original odours in it.

Step 6: Let them enjoy the *shrikhand*.



For Primary Classes:

1. *Baking a Cake: Introducing the concept of fractions*

What you will need:

- 1 cup flour
- $\frac{3}{4}$ cup sugar
- $\frac{1}{2}$ cup butter
- 2 eggs
- $\frac{3}{4}$ tablespoon baking powder
- $\frac{1}{2}$ teaspoon vanilla essence

What you will do:

- Ask students to measure out all the ingredients. Use this to talk about the concepts of *whole*, $\frac{1}{2}$ (*half*), $\frac{1}{4}$ (*one quarter*) and $\frac{3}{4}$ (*three quarters*).
- Mix flour and baking powder and sieve the dry mixture.
- Whisk eggs till fluffy.
- Mix butter and sugar well.
- Add this to the eggs. Mix well.
- Now add the small quantities of flour, mixing as you do so. Carry on doing so till all the flour has been added.
- Add vanilla essence and mix well.
- Bake in an oven at 280°C for about 25 minutes.



Similarly, do the following cooking experiments with students:

1. Make fruit salad by mixing chopped bananas, apples, pears, grapes with lemon juice. Talk about why certain fruits become brownish when exposed to air and how lemon juice can prevent this.

2. Set curd and use this opportunity to talk about fermentation and good bacteria.
3. Involve children in making salads or dips (*kimchi, hummus, salsa, etc.*) from different parts of the world to introduce different cultures.

Simple cooking experiences can make teaching tangible, familiar and interesting. So go ahead and use a spoonful of imagination and a dash of creativity to cook up delightful learning experiences for children.



Sameera Sood is an instructional designer, teaching and parenting coach. She has worked with leading organizations in the educational domain to create smart learning solutions to help children learn joyfully and spontaneously. She has authored several textbooks and story books for children. She also contributes to several professional magazines for teachers.

Lesson Plan: The Math of Baking a Cake

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a. *Multiplication of Fractions*

Objective: Students will be able to multiply fractions to double and treble a recipe.

Time Taken: 35 minutes

Procedure:

- Ask students to work in groups of four.
- Distribute copies of a cake recipe to each group (one already shared in the article).
- Inform them that the recipe is sufficient to bake a cake for 6 people.
- Ask students to imagine that they are organizing a party where 12 people have been invited.
- Let them, in their group, figure out how they will adapt the recipe to fit the planned party.
- Use this to explain the concept of multiplication of fractions.
- Let students actually calculate the amount of ingredients needed for 12 people.
- Repeat this by asking them to adapt the recipe for 18 people.
- Ask them to record their information in the following format.

<i>Ingredient</i>	<i>Amount needed for 6 people</i>	<i>For 12 people</i>	<i>For 18 people</i>



b. *Conversion to metric units*

Objective: Students will be able to

- recognize metric units of measurement.
- convert non standard units into standard units.

Time Taken: 35 minutes

Procedure:

- Write the following conversions on the board.

1 cup flour = 140 gm

1 cup butter = 227 gm

1 cup sugar = 200 gm

1 tablespoon = 16 gm

- Ask students to rewrite the ingredients after using metric unit (*gms*) instead of cup, tablespoon, etc. in the table below.

<i>Ingredient</i>	<i>Amount needed for 6 people in gm</i>	<i>For 12 people in gm</i>	<i>For 18 people in gm</i>



c. *Money and Shopping*

Objective: Students will be able to

- review the values of coins and notes.
- calculate the total cost of baking a cake from the cost of different ingredients used.
- carry out money transactions and practice counting change.
- determine the selling price.
- calculate the profit.

Time Taken: 35 minutes

Procedure:

Step 1

- Ask students to find out the price of different ingredients.
- Let them calculate the cost of baking a cake for their party of 24 guests.
- Tell them to create imitation money – both coins and notes of different denominations.
- Set up a shop in the classroom where the above ingredients can be purchased.
- Make one student act as a shopkeeper and let other students come and purchase the ingredients using their money. Let them calculate accurately the change they will receive.



Step 2

- Students have calculated the cost of the cake for 24 people. Let them find out the cost of a slice of cake for one person.
- Ask them to pretend to set up a bakery. Let them decide how much they will sell one slice of cake for. Remind them to be reasonable in their pricing so that people want to buy their cakes.
- Let them calculate the profit on each slice.

d. Units of Heat

Objective: Students will be able to

- recognize the units of measurement of temperature.
- convert between *Fahrenheit* and *Celsius*.

Time Taken: 35 minutes

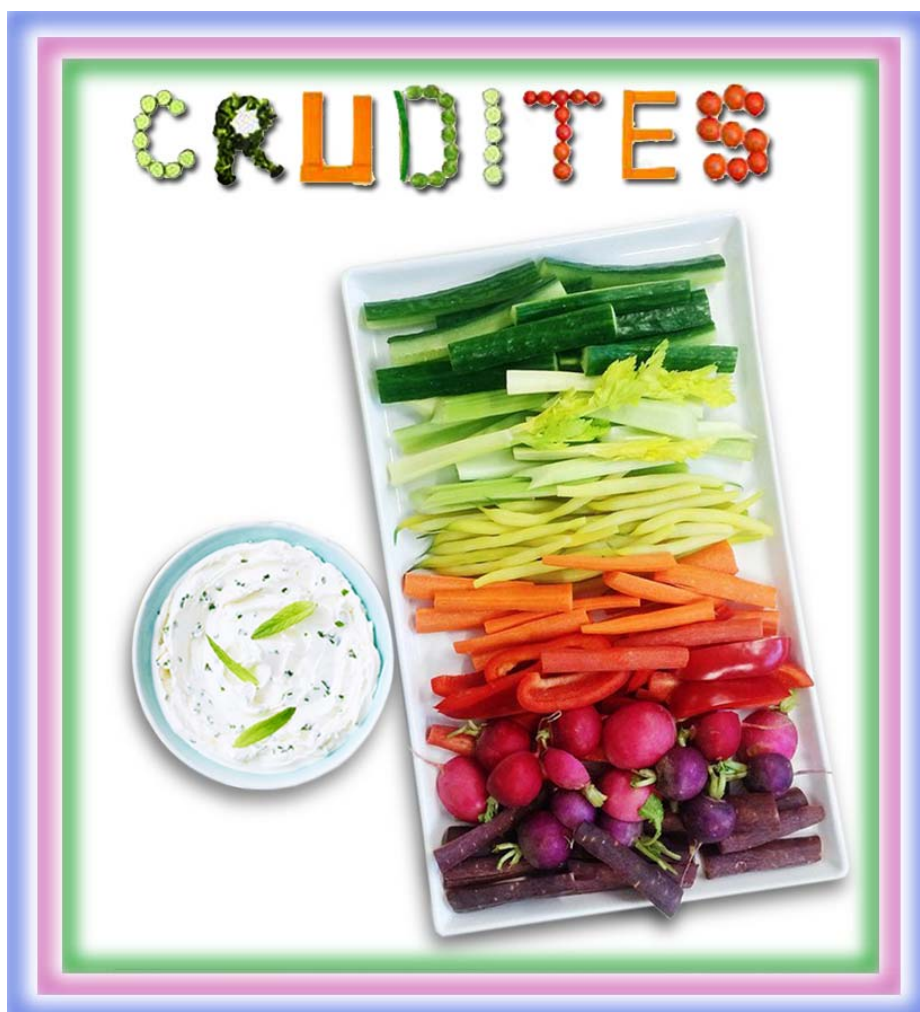
Procedure:

- Inform students about units of heat - *Fahrenheit* and *Celsius*.
- Explain the conversion of units between *Fahrenheit* and *Celsius* and vice versa.
- Let them convert the temperature at which the cake is to be baked to *Celsius*.



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Words Section



Crudités (noun)

- Mixed raw vegetables served as an *hors d'oeuvre*, typically with a sauce into which they may be dipped. (*Oxforddictionaries.com*)

Origin (and additional information) ~ The term's first known use was sometime around 1965-70. The commonly used term is the plural version of French '*crudité*' which means '*rawness, crudity*', and has been derived from Latin '*crudus*' meaning '*raw, rough*'.

Crudités are traditional French appetizers consisting of sliced or whole raw vegetables which are sometimes dipped in a *vinaigrette* or other dipping sauce. Crudités often include celery sticks, carrot sticks, cucumber sticks, bell pepper strips, broccoli, cauliflower, fennel, and asparagus spears, also sometimes olives, depending on local custom.

Words Section

Crudités are generally quite high in healthy nutrients and dietary fibre, and low in calories, fats, sodium, sugars, and cholesterol. However, the accompanying dip can be high in sodium, sugar, and possibly fats. Health-conscious people stick to dips like *vinaigrette*, *salsa* or *hummus*, which are typically not high in saturated or trans fats content. Other dips, such as cheese sauces or dips based on cream, sour cream, or mayonnaise, may have high saturated fat content.

It should be noted that crudités alone do not make for a complete meal, since they lack some nutrients, such as proteins, unless a high-protein dip such as *hummus* is used along with the vegetables.

Since they are uncooked, crudités must be washed carefully to remove any bacterial contamination. Some dips may also spoil quickly, if left warm and uncovered. Placing the dip, and perhaps the vegetables, in an ice-water bath usually slows down bacterial growth, as also covering them when they are not being served.

Crudités are usually cut into thin strips or single bite-sized portions, as they are meant to be served as starters or appetizers. Because certain vegetables, such as broccoli or cauliflower, can be difficult to digest when eaten raw, they are sometimes blanched before serving them as crudités. These are signature dishes of the French '*dainty food*' culture that emphasizes on finger food items being served using a wide variety of presentation techniques. Chefs all over the world have been experimenting with appetizers, and this has resulted in creation of innovative crudités, petit fours, fondues, etc. Crudités are also hailed as tasty alternatives for vegans and have been embraced by health food aficionados because of the nutritional benefits of the raw vegetables.

Usage ~

- i. *The chef's selection of vegetables includes crudités, such as carrots and celery, and sliced tomatoes with pesto and grated Parmesan cheese.*
- ii. *Even the snacks at such conferences are substantial - crudités with guacamole, and enormous muffins and sandwiches, to keep the attending scholars happy.*
- iii. *Many people are opting for fruit salads and crudités instead of complex starters when hosting a party nowadays.*