



CANADA
4-H Saskatchewan

Fun With Foods

Activity Guide

4-H Motto

'Learn To Do By Doing'

4-H Pledge

'I pledge

**My Head to clearer thinking,
My Heart to greater loyalty,
My Hands to larger service,
My Health to better living,
For my Club, my community and my country'**

4-H Grace

(Tune of Auld Lang Syne)

We thank thee, Lord, for blessings great
On this, our own fair land.
Teach us to serve thee joyfully,
With head, heart, health and hand

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CANADA
4-H Saskatchewan



Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada



**AGRICULTURE COUNCIL
OF SASKATCHEWAN INC.**

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Introduction

Sometimes we think we've done everything suggested but, in fact, we haven't. So it's really important to first understand the *why* of a step before you do it. Cooking is also about developing your powers of observation. What does *soft dough* feel like? What does a *ribbon* of egg foam look like? The first time you make dough, or egg yolk foam you're not really sure what you're looking for. So if your first attempts are spectacular, great! And if they're not, don't despair and give up. Work with someone who has already learned by trial and error, watch a YouTube video and pay more attention to the details. Great cooks are rarely born so. They usually become so after many attempts and a few failures along the way!

Remember that even with the same recipes, there will be many variations due to different ovens, different ingredients and personal differences. The time estimations are only estimations as people work at different speed.

Now, launch out into the great adventure of cooking! *Bon voyage* and *Bon appétit*!

A Matter of Record

Time

30 minutes to an hour

What you will learn

For chefs and cooks a journal can be kept and might be more aptly called a *kitchen journal*. It will help you develop your ability to observe, to organize your information in a way that makes sense to you and to keep your notes organized. And should you decide to write a cookbook in the future, you'll have a head start.

What you need

- A notebook
- A binder or scrapbook with pockets
- 3" x 5" inch filing cards

Instructions

1. If you love science and think of cooking as a lab, you might like a no-nonsense binder with inside pockets where you can keep a small notebook and recipe cards organized by categories or alphabetical order.
2. But if you see yourself more as an artist, you might want to decorate a scrapbook and find a way to include your recipes, instructions and notes in a more artistic fashion.
3. What's important is that you find a way to keep a *kitchen journal* that works for you. As you go along, you may want to adapt or change the way you keep your journal and that's o.k. This is for you.

Discussion

Are you happy with your journal? Does it reflect your personality?

When talking with others, do you find they have some cooking ideas that you'd like to try too?

Safety First!

Time

1-2 hours

What you will learn

You will learn about protecting yourself from accidents such as cuts, burns, falls, and electric shocks and about ensuring that the food you are preparing is safe to eat.

What you need

- Books, websites, group members, leaders
- Materials you need for what you choose to do.

Instructions

1. Along with the rest of your group, brainstorm some important safety rules or tips that you should follow to avoid accidents while cooking or working in a kitchen. Then brainstorm and share ideas on safety ideas or tips you should follow to keep the food you are preparing safe to eat.
2. Choosing what you feel are the most important points, make a poster, write a song or act out a play that would appeal to a 5-year-old brother, sister, cousin or neighbor.
3. Then have a look around your home to see if there are any hazards that you can spot. Discuss with your parents what safety measures are on hand to prevent fires, slipping, falls, breakages, electrocutions, etc.

Discussion

Did you learn any new safety tips?

How was your poster, song, or play presented to a younger person received?

What hazards, if any, did you spot at home or at a community kitchen?

Have you, a member of your family, or a friend ever had a case of food poisoning? Can you describe the symptoms? What did you learn from the experience?

Exponential Growth

Time

30 minutes

What you will learn

You will learn what exponential growth means and why it is important to keep certain foods at room temperature for only a short length of time.

What you need

- Pen or pencil
- Sheet of paper
- Friends and family

Instructions

1. Ask around your friends and family, who would be ready to work for you for a week or a month, if you agreed to pay them one penny for their first day of work, with a doubling of their pay each day after that? Can you afford to hire them under those conditions?
2. Which do you think is most likely to make you sick: a hamburger with one disease-causing bacterium or a hamburger with one million disease-causing bacteria? With a pen and paper find out how many generations it will take to go from one bacterium to one million, if you double the population every generation. If we assume that cell division occurs every 20 minutes, how long will it take? The ideal temperature for cell division for many disease-causing bacteria is within the range of room temperature.

Discussion

Did you find anybody ready to work for you under the conditions described in A)?

Would you be able to afford to hire someone under those conditions?

Explain why it's important to keep cold food cold and warm food warm by using

- 1) *The concept of exponential population growth, which means a doubling of population every generation and*
- 2) *The fact that many disease-causing bacteria are most active and reproductive around room temperature.*

Flour and Gluten

Time

Preparation: 30 minutes

Baking: 30 minutes

What you will learn

You will learn about starch and gluten in different types and kinds of flours.

What you need

- Bowls
- Forks
- Strainer
- Cheese cloth
- Baking dish Oven
- Samples of different types of wheat flours, such as whole wheat, all-purpose, bread, cake, pastry flours and different kinds of flours such as rye, spelt, corn, etc.

Instructions

From <http://exploratorium.edu/cooking/bread/activity-gluten.html>

1. Into separate bowls, measure one cup each of your flours. If your bowls look different remember which one contains which flour. If not, label them.
2. Then slowly add about $\frac{1}{2}$ cup to $\frac{3}{4}$ cup of water in each bowl and knead each mixture until it forms a soft rubbery ball of dough and let it sit for about 10 minutes.
3. In the sink, run cold water over one of the dough balls. Try cupping your hands around the ball and gently squeezing to remove the starch. With low-gluten flour, such as pastry and cake flours, you may want to put a cheese cloth in a strainer to keep it from disintegrating.
4. The water will run milky. Keep running cold water and squeezing to get the starch out. Eventually, after 10-15 minutes, the water will run clear. Your dough has now become a stringy mass of gluten strands. Do the same for your other samples. Then bake them at 400 degrees F for about 30 minutes. Take them out of the oven and compare them to each other.

Discussion

Which flour gave the most gluten? Which flour would you use to bake bread?

Were you surprised, when you took them out of the oven, to see how much some gluten balls had puffed up?

Stages of Egg White Foams

Time

1 hour

What you will learn

You will learn how to separate egg whites from egg yolks and to recognize the four stages of egg white foam: frothy, soft peaks, hard peaks and dry peaks. Many recipes call for the eggs to be separated and for the whites to be beaten to a certain stage. So those are two important skills to master.

What you need

- 3 small stainless steel bowls – All of your bowls should be clean but especially your bowl containing the egg whites. It should be washed really well with soap and warm water, rinsed and dried to make sure it contains no traces of fat, as fat will interfere with the egg white foam formation.
- A large copper or stainless steel bowl
- A wire whisk.
- A few eggs

Instructions

1. Have the three small bowls ready: One for your egg yolks, one for your egg whites and one to separate the whites from the yolks. Don't separate your eggs over the whites you have successfully separated already, in case of a mishap.
2. Crack each egg by giving it a tap on the side of the bowl. Aim to crack the shell at the middle of the egg so you end up with two shell halves roughly equal in size. Nest the cracked egg against the fingers of both hands and carefully pry into the cracked shell with both thumbs, bending the halves apart so that one half ends up cradling the whole egg. Now pass the egg back and forth between the half shells, allowing the white to roll over the edge of the shell and fall into the bowl below while always keeping the yolk in one half shell or the other. You are teasing the egg white from the egg yolk by transferring the egg back and forth between



the broken half shells. Make sure there's no trace of yolk in your white. Traces of any fat will "kill" your egg white foam, as mentioned in the Resource Guide. It interferes with the formation of the protein matrix that holds each air bubble separate from the others. Once the foam is formed, then you can add fat.

3. If the eggs were cold when you cracked them, float your bowl of egg whites in a larger bowl of warm water, for a few minutes, to warm them up to room temperature. This should help them reach a better volume.
4. Cover the egg yolks, keep them cold and use them in the next few days.
5. For this next part, you can work with a partner. Holding your bowl of two to three egg whites beat the egg whites by hand with a wire whisk. Why by hand? It will be easier to really notice the differences and transitions as your egg whites get more and more whipped. This exercise is about helping you to observe and recognize the different stages and not about being efficient in beating egg whites.

You might like to know that some French chefs still believe that beating egg whites by hand with a whisk, in a copper bowl, is the only proper way to beat egg whites, even if it takes longer. Why a copper bowl? Some of the copper ions migrate from the bowl to the egg whites, bind with one of the proteins in the egg white and make a more stable complex.

However, since many of us don't have copper bowl, using a stainless steel bowl is fine.

6. As you beat the egg whites, see if you can recognize the following stages:

Frothy stage: after 2 to 3 minutes of beating, the egg whites will still be clear but with large air bubbles.

Soft peaks stage: After about 5 minutes, the egg whites will be a white mass, but if you lift your whisk, the peaks fall back on themselves. This is the stage at which you would start adding the sugar, in very small amounts at first, then gradually increasing, if you were to make a meringue.

Hard peaks stage: By the time you have beaten the egg whites seven to eight minutes, or even slightly more, your egg whites should now be a beautiful, shiny, lustrous white mass and when you lift you whisk, the



peaks should stay stiffly upright. This is the ideal stage at which to incorporate egg whites in soufflés, puffed omelettes, angel food and chiffon cakes.

Dry peaks stage: If you keep beating the egg whites past the hard peaks stage, you will notice the foam starting to lose its sheen, with little white specks giving it a “curdled” look. Just for this exercise, keep beating longer to see what happens to egg whites that are overbeaten.



7. Now let those overbeaten egg whites stand for a few minutes. You will see a liquid separating from the foam at the bottom of the bowl. This process of separation is called *syneresis*.
8. Ask a 4-H leader, home economics teacher or parent to help you, if you find these stages confusing.
9. Egg white foams are essential for soufflés, both savory and sweet, meringues, fluffy omelettes and other delicacies such as Baked Alaska.

Discussion

How easy was it to separate the egg yolks from the whites?

How easy was it to see the differences between the stages of the egg white foam?

Did you need more help or were you able to figure it out on your own?

Making Butter

Time

15- 30 minutes

What you will learn

You will learn how to turn cream into butter by shaking it.

What you need

- A clean cork or a clean marble
- A strainer
- A ½ liter Mason-type jar with a lid. A glass jar allows you to shake and see what's happening.
- 125 ml of 32-35% cream, at room temperature
- A little salt

Instructions

1. Put the cream in the jar, add the clean cork or marble, and close the jar.
2. Shake it back and forth quickly and continuously. You can take turn with a friend for the shaking. At first you feel and see the cream swooshing about in the jar. Then it begins to have the consistency of whipped cream and the sides of the jar will be covered with thick white whipped cream. Keep shaking and you will feel a “clump” and the side of the jar will clear as the fat globules gather into butter and separate from the milk. You should have butter within 5 to 10 minutes or longer depending on your shaking, the cream temperature and the fat content. The fat clumps are the butter.
3. Pour the contents of your jar into a strainer over a bowl.



4. Press the butter with a spatula to press out as much of the liquid out as possible. That liquid is called buttermilk. You can drink it. Or you can use it to make buttermilk pancakes.
5. Now rinse the butter under cold water a few times and keep working it to get the buttermilk out. Buttermilk left in the butter causes it to become rancid, so make sure it's all out!
6. Then press it in a container, put it in a cold place and use it within the next few days. You now have unsalted butter. If you prefer salted butter, mix in a pinch of salt.

If you use cold cream, instead of room temperature cream, you will have to shake longer, 15 to 20 minutes, to make butter. You can also just shake the jar with the cream without a marble or a cork. You will eventually get cream, but it will take much longer, 30 to 40 minutes.



Discussion

How long did it take for the cream to become butter?

Could you feel the different stages of the cream while you were shaking?

How hard was it to remove all the buttermilk from the butter?

How did you like the taste of the buttermilk?

How did you like the taste of the butter?

Would you make butter again?

Oil and Vinegar Vinaigrette

Time

15 minutes

What you will learn

You will learn to make an oil and vinegar vinaigrette, which is a temporary or unstable emulsion. You will also learn to make it more stable by adding fine powders.

What you need

- Two small jars
- Measuring cups and spoons
- Ingredients

Instructions

Homemade Vinaigrette

¼ cup vinegar

5 tablespoons olive oil

1/8 teaspoon dry mustard

1/8 teaspoon garlic powder

1/8 teaspoon black pepper

Celery salt, oregano, basil, thyme to taste

1. In the first jar, you add just the oil and vinegar without the other ingredients.
2. In the second jar you put all of the ingredients.
3. Shake both jars at the same time for a few minutes and then put them on the counter undisturbed. Observe what is happening.

Discussion

Which of the two jars took longer to form separate oil and water (vinegar) layers?

*Explain why you found this difference, using the term *emulsifier*.*

Mayonnaise

Time

30 minutes

What you will learn

You will learn two methods of making mayonnaise: by hand and with a blender. You will also learn how to break a stable emulsion, which is called *demulsification*.

What you need

- Whisk
- Metal bowl
- Blender
- Small freezer container
- Ingredients

Instructions

Mayonnaise

Recipe provided by www.allrecipes.com by Cynthia Russell

1 egg at room temperature or 1 egg yolk if making mayonnaise by hand

½ teaspoon minced garlic (optional)

1 teaspoon dry mustard

1 tablespoon lemon juice

Salt and pepper to taste

¾ cup of vegetable oil (olive, canola, etc)

By hand (use the egg yolk only)

1. Rinse a bowl with hot water, dry it well and beat 1 egg yolk with a whisk or rotary hand crank beater.
2. Add the minced garlic, mustard, and lemon juice. Mix well.
3. Then add the oil, drop by drop at first, beating continually, until a little more than ¼ cup of oil has been added. Then you can add more at a time or pour in a thin stream, beating continually. Stop adding oil from time to time to make sure that the mixture is well combined.
4. When all the oil has been added, you can add the salt and pepper, to taste.

5. If the mayonnaise begins to curdle, wash the beater, beat another egg yolk in a separate bowl, and very slowly add the curdled mayonnaise to the fresh egg yolk, beating constantly, to form a new emulsion.

Blender method

1. Combine the egg, minced garlic, mustard and lemon juice in the blender or food processor. Blend until smooth.
2. Then blend on low speed while pouring oil into the blender in a fine stream as the mixture emulsifies and thickens. (Some blenders have lids with a removable centre part with a tiny hole at the bottom to allow pouring of liquids into the running blender).
3. Add salt and pepper to taste. Refrigerate.

Mayonnaise is the basis for many other sauces such as *aioli*, a very popular sauce in France and tartar sauce, used with fried fish. According to the *Joy of Cooking*, you should not make mayonnaise if a thunderstorm threatens or is in progress, as it simply will not bind. If you like challenges you might want to see if that is true.

Demulsification

Put a small amount of the mayonnaise you just made in a small freezer container and freeze it. Then, a day or a week later, take it out, thaw it, and observe.

Discussion

Did you have any difficulty making the mayonnaise? Did you prefer the hand beaten method or the blender method?

How did you like the taste of the homemade mayonnaise? If not, how do you think you could make it better?

What did you observe when thawing the frozen mayonnaise? Can you think of other ways to break an emulsion?

Hollandaise Sauce and Eggs Benedict

Time

30 minutes to an hour

What you will learn

You will learn to make Hollandaise sauce by two methods, the hand method and the blender method. Then you will use this sauce to make Eggs Benedict

What you need

- Double boiler
- Whisk
- Measuring cup and spoons
- Blender
- Stove top
- Ingredients

Instructions

Hollandaise

(for 3-4 people) Recipe provided by www.allrecipes.com by Chellebelle,

3 egg yolks

1 tablespoon lemon juice

¼ teaspoon Dijon mustard

1 dash of hot pepper sauce (Tabasco)

Pinch of pepper (white) and ¼ teaspoon of salt (or to taste)

½ cup butter

By hand

1. Divide ½ cup of butter into 3 parts.
2. In the top of the double boiler over hot, but not boiling-water, put 3 egg yolks, lemon juice, Dijon mustard and 1 part of the butter.
3. Stir the mixture rapidly and constantly until the butter is melted.

4. Add the second portion of butter and, as the mixture thickens and the butter melts, add the third part, continuing to stir constantly from the bottom of the pan until the butter is thoroughly incorporated. Do not let the water over which the sauce is cooking, come to a boil.
5. Remove the saucepan from the heat and beat the sauce for at least 2 minutes longer.
6. Replace the sauce pan over hot, but not boiling water and beat the sauce for 2 minutes longer.
7. Add the dash of hot pepper sauce, salt and pepper.
8. Should the mixture curdle, immediately beat in 1 to 2 tablespoons boiling water to rebind the emulsion, or add another egg yolk.



Blender version

1. In the blender container, combine all ingredients, *except the butter*.
2. Cover and blend for 5 seconds.
3. Then melt the butter in a saucepan. The butter needs to be melted and hot (but not burnt!)
4. Set the blender on high speed and pour the butter into the egg yolk mixture in a thin stream. (Some blenders have lids with a removable centre part with a tiny hole to allow pouring of hot liquid into the running blender). It should thicken almost immediately.
5. Keep the sauce warm until served by placing the covered blender in a pan of hot water.

Hollandaise sauce is used in *Eggs Benedict*. Plan to make it for your family as a special treat on Sunday morning or you can use it on any vegetable dish.

Eggs Benedict

3 English muffins sliced in half, toasted, buttered and kept warm

6 poached eggs

6 slices of ham or bacon

Instructions

1. Cover each toasted and buttered English muffin half with a slice of ham or bacon.



2. Top with a poached egg.
3. Pour the hollandaise sauce over and serve at once.

Discussion

Did you find any difference in the taste of the Hollandaise depending on the method you used?

Did you prefer one method over the other? Do you agree with chefs who believe you should never make Hollandaise sauce in a blender?

Did you have any problem with your Hollandaise sauce curdling? Were you able to solve the problem?

Did you manage to have all parts of the recipe ready at the same time, for the making of Eggs Benedict?

Did you try the Hollandaise sauce on other dishes?

Béchamel Sauce and Cream Soup

Time

30-45 minutes

What you will learn

You will learn to make a béchamel sauce, which is a base for many cream soups and sauces and then use it to make a cream of vegetable soup.

What you need

- Heavy-bottomed sauce pan
- Measuring cup and spoon
- Wooden spoon
- Stove top
- Ingredients

Instructions

1. To make a béchamel, or basic white sauce, you need to make a roux, which is melted fat (usually butter) to which flour is added, stirred and cooked for a few minutes.
2. Then the liquid, usually milk, though broth can also be used, is added slowly while stirring continuously. The starch in the flour is the emulsifier.

The difference between a thin and a thick white sauce is the quantity of butter and flour per cup of milk used to make the sauce.

- Thin sauce: one cup of milk, 1 tablespoon of butter and 1 tablespoon of flour.
- Medium sauce: one cup of milk, 2 tablespoons of butter and 2 tablespoons of flour.
- Thick white sauce: one cup of milk, 3 to 4 tablespoons of butter and 3 to 4 tablespoons of flour.

Traditionally, béchamel is made using white flour. For a healthier version, try using whole wheat flour and observe the difference it makes in the texture and the taste. (Some people actually prefer the taste of the sauce made with whole wheat flour).

A béchamel is the base for cream soups, pasta sauces and many other sauces.

Cream of vegetable soup

(For 4 to 6 people)

A few cups of steamed vegetables

¼ pound butter (or 4 tablespoons)

1 small minced onion

¼ cup flour (or 4 tablespoons)

3 to 4 cups of milk, chicken broth or a mixture of the two

½ to 1 teaspoon of salt and pepper

A teaspoon of thyme or basil or poultry seasoning

Instructions

1. Steam a few cups of vegetables. Carrots, broccoli, corn, peas, are good choices. Put aside.
2. Melt the butter, add the onions and cook till translucent.
3. Add the flour and stir to cook the roux for a few minutes.
4. Slowly add the milk or broth (or mixture of both), while stirring, until the sauce is ready.
5. Add the steamed vegetables, salt, pepper and herbs to taste.

Discussion

Did you have any difficulty making the béchamel sauce?

How did you like the taste of the soup?

Have you ever used a can of mushroom soup in a casserole? How would you replace the can of mushroom soup with a homemade sauce?

Meringue Cookies

Time

Preparation time: ½ hour

Cooking time: 1 ½ hour

What you will learn

You will learn to use egg white foam to make a meringue. A meringue can be used to make cookies or toppings for pies such as lemon meringue pie.

What you need

- Electric beater
- Rotary beater or whisk
- Bowl
- Cookie sheet lined with parchment paper
- Measuring cup and spoons
- Oven
- Pastry bag and tips(optional)
- Ingredients

Instructions

Review the instructions on making egg white foam in “Stages of Egg White Foams”. You can still beat the egg whites with a whisk if you prefer but feel free to use an electric beater, now that you recognize the stages of the egg white foam.

Meringue cookies

From Stephanie Jaworski, <http://www.joyofbaking.com/MeringueCookies.html>. It may help you to also watch her video demonstration on making meringue cookies.

3 egg whites

¼ teaspoon cream of tartar

¾ cup caster or fine ground sugar

¼ teaspoon vanilla extract (optional)

Note: If you don't have caster sugar, you can make it by putting your ordinary white sugar in a blender or food processor for 30 to 60 seconds.

Instructions

1. Line a baking sheet with parchment paper.

2. Preheat oven at 200 degrees F (or 100 degrees C).
3. Start on medium speed till egg whites are at the frothy stage. Then add the cream of tartar and beat until it is at the soft peak stage.
4. Start adding the sugar 1 tablespoon at a time, to make sure the sugar is well dissolved. You can increase the speed to medium-high. Keep beating the egg whites till all the sugar is added.
5. Test with your finger. If the meringue is ready it will be smooth when you rub a little between two fingers. If it's grainy, keep beating a while longer. It's ready when it is at the hard peak stage.
6. You can use two spoons, held face to face while you scoop the meringue and deposit them gently on the baking sheet. Try to keep them about the same size so they're all ready at the same time. Or try using a pastry bag with a star end shape or any other shape. It really adds a beautiful touch!
7. Bake at 200° F (93° C) for an hour to an hour and a half. Check to see that they are not browning; if they are, turn the temperature down to 175° F. When they're ready they'll come off the parchment paper very easily.
8. Once they are done, turn off the oven, leave oven door ajar and let them cool off that way. This meringue recipe can also be used as the topping on lemon meringue pie or in any other recipe calling for meringue.



Discussion

Were you able to recognize the different stages of the egg white foam? Or was it still difficult?

How did your meringue cookies turn out?

Did you experience any difficulty? If they didn't turn out well, can you figure out what you did wrong? Are you going to try again?

Fluffy Omelette

Time

Preparation and cooking: 30 minutes

What you will learn

You will learn to use egg white foam to make an omelette. You will also learn to adapt your favourite omelette recipe to make a fluffy omelette.

What you need

- Electric beater
- Rotary beater or whisk
- 2 bowls
- Measuring cup and spoons
- Skillet
- Oven
- Ingredients

Instructions

1. Find an omelette recipe you like. But, instead of mixing all the ingredients together, first separate the whites from the egg yolks.
2. Beat the whites to the hard stiff peak stage.
3. Mix the egg yolks and other ingredients together.
4. Melt 1 tablespoon of butter in a heavy skillet over low heat.
5. Then, using a whisk, gently fold the yolk mixture into the egg white foam to preserve all those air bubbles you just beat into the egg whites.
6. Pour this batter in the skillet.
7. Cover the skillet with a lid and, as it cooks, slash it several times with a knife to help cook the bottom.
8. After about 5 minutes, when it's half done, place it uncovered in the centre rack of an oven at 350° F until the top is set. Serve it hot from the oven.

Discussion

How did your omelette turn out?

How fluffy was your omelette?

Did you experience any difficulty? If it didn't turn out well, can you figure out what you did wrong? Are you going to try again?

How did you like adapting a recipe you like and doing it a different way?

Genoise Cake

Time

Preparation: 30-45 minutes

Baking: 30 minutes

What you will learn

You will learn to make whole egg foam and learn about the *ribbon stage*. Then you will learn to make a Genoise cake. This recipe can also be used as the base for Baked Alaska, which we will learn about later on.

What you need

- Electric beaters with bowl
- Spring pan lined with parchment paper
- Measuring cups and spoons
- Ingredients
- Oven

Things to watch for

- The egg foam needs to be manipulated very carefully in order to preserve the air bubbles you beat into the batter, since there are no additional leavening agents, such as baking soda or baking powder, in this recipe.
- You can also watch the following video, which shows you what the ribbon stage looks like, and explains how to make a Genoise: <http://videopediaworld.com/video/58455/The-Test-Kitchen-How>

Genoise cake

Recipe provided by www.allrecipes.com, by Kevin Ryan.

2 tablespoons unsalted butter

1 cup flour sifted with 2 tablespoons of sugar and 1 pinch of salt

4 eggs with ½ cup sugar, placed in a mixing bowl over hot (but not boiling) water, for 5 minutes or so. This will cut down the time it takes for the eggs to reach the ribbon stage.

Instructions

1. Preheat oven at 350° F (177° C). Grease a round 8-inch pan, line with parchment paper and grease again. Lightly flour.
2. Melt the butter and let it cool. Put it aside for now.

3. Beat the egg mixture at medium or high speed for 7 to 10 minutes (if you have skipped the warming up stage and are using cold eggs it could take up to 20 minutes). The egg foam is ready when it is light yellow in color and a ribbon of that mixture placed on the foam will stay put for a few minutes, instead of melting back into the foam right away.



4. Now add the flour mixture by folding the flour very gently into the foam. Remember that the air bubbles you just beat into the eggs are the only leavening agent. So treat those air bubbles very, very gently by folding gently.
5. Whisk some of this batter gently into the melted butter (that you have put aside) and then add that mixture back into your batter.
6. Put the batter into the spring pan lined with parchment paper.
7. Place in the middle of your pre-warmed oven for 25 to 35 minutes or so.

8. When the cake is ready, set it on a rack to cool off for a few minutes then unmold and cool for a few more minutes more. Turn top to bottom and leave it to cool further on the rack.
9. It can be iced with Crème Chantilly or any other icing of your choice. It can also be used as a base where sponge cakes are called for such as with Baked Alaska.



Discussion

How long did it take you to reach the ribbon stage? Once you saw the ribbon stage, did you find the explanations became self-evident?

How was your Genoise? Can you think of some other recipes you could use with a Genoise as a base?

Muffins

Time

Preparation: 15-30 minutes

Baking time: 20 minutes

What you will learn

You will learn to make a chemically-leavened baked product, muffins. The rising action in the muffin batter is due to the reaction of the baking soda with an acid and the action of baking powder.

What you need

- Two bowls
- Fork or whisk
- Measuring spoons and cups
- Buttered or paper-lined muffin tins for 12 muffins
- Oven
- Ingredients.

Things to watch for

- To have tender muffins, mix wet and dry ingredients until just moistened. When you over mix muffin batter, it tends to make the muffins tough as mixing helps develop the gluten which you want for bread but not for muffins.
- Using whole grain flour will increase the nutrient and fiber content of your muffins.

Seminary Muffins

Recipe provided by www.allrecipes.com , by Christa Adams

Makes 12 muffins

1 egg
1/3 cup mashed ripe bananas
3/4 cup packed brown sugar
1/3 cup applesauce
1 teaspoon vanilla extract
1 cup flour
½ teaspoon baking soda
2 teaspoons baking powder
1 ¼ teaspoon salt
1 teaspoon ground cinnamon
1 cup quick cooking oats
½ cup semi-sweet chocolate chips

Instructions

1. Preheat oven to 350 degrees F (175 degrees C). Lightly grease, or paper, one 12 cups muffin pan.
2. In a large bowl, combine egg, banana, brown sugar, applesauce and vanilla. In a separate bowl, sift together flour, baking soda, baking powder, salt and cinnamon.
3. Gently stir flour mixture and oatmeal into banana mixture. Fold in chocolate chips. Pour batter into prepared muffin cups.
4. Bake in preheated oven for 15 to 20 minutes, or until light brown. Remove muffins from pan and place on a wire rack to let cool before serving.

Discussion

How did your muffins turn out?

Did you find them tender? Did you notice any tunnels? Tunnels may be a sign of over mixing.

How did you like the flavour of your muffins? What was the acidic element that neutralized the baking soda?

Was there any bitter after taste in your muffins? Bitter aftertaste may be due to not enough acid in the batter to balance the baking soda.

Butter Cake

Time

Preparation: 30-45 minutes

Baking: 30 minutes

What you will learn

Using the traditional creaming method to make a butter cake, you will learn about the importance of whipping butter and sugar to add air bubbles to your batter and of beating just enough, after the addition of flour, to keep your cake tender.

What you need

- Bowl and electric mixer to do the mixing
- Bowl for the dry ingredients
- Bowl for the wet ingredients
- Measuring cups and spoons
- Spatula
- Greased pan with parchment paper
- Oven
- Ingredients

Instructions

The secret to tender butter cakes is to cream well at the beginning incorporating air bubbles but don't overbeat once the flour is added, as overbeating develops the gluten making your cake tough. Using low protein flour like cake flour can also help. If you decide to replace all-purpose flour with cake flour, you would use slightly more cake flour. For every cup of all-purpose flour you would use one cup and two tablespoons of cake flour.

Yellow butter cake

From www.joyofbaking.com/YellowButterCake.html, by Stephanie Jaworski (you can watch her video)

3 cups (300 g) sifted flour

3 ½ teaspoons baking powder

½ teaspoon salt

¾ cup unsalted butter at room temperature (hard enough to keep its shape but soft enough to be whipped)

1 1/3 cup granulated white sugar

6 large egg yolks

2 teaspoon vanilla

1 cup milk

Instructions

1. Preheat oven to 350° F (175° C).
2. Grease one 10 inch round cake pan (or 2 – 8 inch cake pans, if you want a layer cake).
3. Sift flour, baking soda and salt and stir well. Set aside.
4. In the bowl of your electric mixer, or in a bowl using a hand mixer, beat the butter for 3 to 4 minutes until soft and creamy. Don't skip this step because the initial beating of the butter is important for adding enough air bubbles to the mixture to get a light cake.
5. Gradually add the sugar and beat until light and fluffy (about 3 to 5 minutes).
6. Add egg yolks, in two batches, beating well after each addition, to emulsify well. Scrape down the sides of the bowl as needed.
7. Add the vanilla extract.
8. With the mixer on low speed, alternately add the flour mixture (in three additions) and milk (in two additions) beginning and ending with the flour.
9. Evenly divide the batter between the prepared pans (if you are using two pans), smoothing the tops with an offset spatula or back of a spoon. Bake 20-25 minutes or until a toothpick inserted into the centre of the cake comes out clean and the cake springs back when pressed lightly in the centre.
10. Have two wire racks ready. Place the cakes on the first rack to cool in their pans for about 10 minutes. Then invert the cakes onto the second rack and reinvert again from the second rack to the first rack so they cool with the top up. Cool completely before frosting, otherwise your frosting will melt.

Discussion

How did your cake turn out? Did you like the taste?

How was the crumb? Was it tender or tough?

If your cake did not turn out well, what would you do differently next time?

Yorkshire Pudding

Time

Preparation: 10 minutes

Baking: 30 minutes

What you learn

You will learn to make Yorkshire pudding, an English savory dish traditionally served with roast beef. The only leavening agent in this pudding is steam.

What you need

- A bowl
- Measuring cup and spoons
- Muffin tins (or baking dish)
- Oven
- Ingredients

Instructions

Yorkshire pudding

Recipe provided by www.allrecipes.com by BLU_17

3 eggs

1 cup milk

1 cup flour

2 tablespoons butter or drippings from a roast

1. Preheat oven to 375° F (190° C). In a bowl, beat the eggs with the milk and stir in the flour and then set aside.
2. Divide the butter evenly into the twelve cups of a muffin tin, about ½ teaspoon per cup. Place the tin in the oven for 2 to 5 minutes to melt the butter. Remove the tin from the oven and distribute the batter evenly among the buttery cups. Alternatively, if you are using meat drippings instead of butter (as was traditionally done), pour some of the hot meat drippings in each buttered cup and distribute the batter evenly among the cups.
3. If you have chosen to use a baking dish instead of a muffin tin, then melt the butter or pour the hot dripping into the baking dish, pour the batter into it and proceed.
4. Bake in preheated oven 5 minutes. Reduce heat to 350° F (175° C) and bake 25 minutes more or until puffy and golden.

Discussion

Were you surprised at how easy it was to make Yorkshire pudding?

Did you use butter or roast drippings as the fat in your pudding?

How well did your Yorkshire pudding turn out? Would you do it again?

Yogurt

Time

Preparation: 10 minutes

Cooling time: 15-30 minutes

Fermentation time: approximately 8-12 hours

What you will learn

You will learn the importance of temperature control in fermentation and you will learn how to make a fermented dairy product.

What you need

- Saucepan
- Thermometer
- Method of keeping milk around 115° F (42° C)
- Ingredients
 - 1 quart (4 cups) milk
 - ¼ cup yogurt or (starter in the appropriate amount according to instructions on the package)

You can use a starter or plain commercial yogurt. If you use commercial yogurt make sure no gelatin has been added and that it contains an active (living) bacterial culture. Assure yourself by reading the ingredients on the side of the container. Keep back a small amount (1/4 cup) of the yogurt you make and use it as starter for your next batch.

Instructions

1. First bring the milk to 180° F (81° C) to make sure you don't have other bacteria in the milk. Then cool it down to 115° F (41° C), which is the ideal temperature for *Lactobacillus* bacteria to reproduce.
2. Add the starter or yogurt and stir. Let it ferment for eight hours or overnight. When it's ready it should be thick and taste like yogurt.

There are different ways to maintain the ideal temperature for the milk to ferment. You can use a small cooler in which you put a few jars filled with hot water next to the jar of inoculated milk, and wrap the cooler in a down sleeping bag. Other people use a warmed-up crock pot wrapped in a thick towel and leave the batch in a slightly warmed oven that has been turned off. Others

use yogurt makers. Some yogurt makers are electrical and others use the insulating property of styrofoam.

You may also add some milk powder, up to one cup of milk powder, for four cups of fresh milk, if you want a thicker yogurt. And you may want to flavour your yogurt with honey, vanilla and fruits.

Discussion

How did your yogurt turn out?

Did you try different flavours or did you just keep it plain?

What health benefits do you derive from consuming yogurt regularly?

Crème Fraiche

Time

Preparation: 10 minutes

Fermentation: 24-36 hours

What you will learn

You will learn the importance of temperature control in fermentation and you will learn how to make a fermented dairy product.

What you need

- Medium saucepan with lid
- Bowl or jar
- Thermometer
- Ingredients

Recipe

Crème Fraiche

From Stephanie Jaworski, www.joyofbaking.com.

You can also watch her video. <http://www.joyofbaking.com/CremeFraiche.html#ixzz2Q7iSsoD2>

1 cup cream

1 to 2 tablespoon plain yogurt or buttermilk

Instructions

1. In a medium saucepan, over low heat, warm the cream to about 105° F (40° C).
2. Remove from heat, transfer the cream to a bowl and stir in the plain yogurt or buttermilk. Let this mixture sit at room temperature, covered until thickened. This can take anywhere from 24-36 hours depending on your room temperature.
3. When ready, stir the cream, cover and place in the refrigerator until well chilled. It can keep up to 10 days.

Crème fraiche is not that easy to find in grocery store and yet very easy to make. Crème fraiche literally means *fresh cream* in French but it is actually a cultured cream.

Discussion

How did your crème fraiche turn out?

Did you find it simpler to make than you expected?

Sucre a la crème

Time

30 minutes

What you will learn

You will learn to make a crystalline candy

What you need

- Saucepan
- Measuring cup and a spoon
- Wooden spoon
- Buttered pie plate
- Candy thermometer
- Stove top
- Ingredients

Instructions

Sucre a la crème literally means sugar with cream. It's really French fudge. When done just right, it is soft and melts in your mouth. The fat in the cream helps with keeping the sugar crystal small, so it feels smooth on the tongue. Some people also use corn syrup to replace some of the sugar, since corn syrup inhibits sugar crystallization.

Sucre a la crème

Recipe handed down from my mother, Yvette Roy

2 ½ cups brown sugar

½ cup sugar

1 cup cream 35%

1. Mix together in a saucepan.
2. Stir and cook till the temperature is at 220-230° F (or the soft ball stage).
3. Set in a pan and stir a few minutes. Let it cool off. Cut in squares.

(Note: My mother has made this recipe for years. She is a pro at it but even she will have her *sucre a la crème* not quite perfect sometimes! Don't despair if yours didn't turn out quite right.)

Discussion

How did your sucre a la crème work?

Was it too runny or was it too hard and brittle?

How did you like the taste?

Chocolate Caramels

Time

Preparation: 15 minutes

Cooking time: 30 minutes

Cooling time: 1 ½ hour

What you will learn

You will learn to make chocolate caramels, an amorphous candy.

What you need

- 8" x 8" (20 cm x 20 cm) baking pan buttered
- Measuring cups and spoons
- Large heavy saucepan
- Wooden spoon
- Cooling rack
- Knife
- Ingredients

Instructions

Chocolate caramels

Adapted from *The Anne of Green Gables Cookbook*, by Kate Mac Donald

1 cup unsalted butter (250ml)

3 ounces semi-sweet chocolate (84 g)

1 ¼ cups sweetened condensed milk (300 ml)

4 tablespoons corn syrup (60 ml)

2 ½ cups (firmly packed) brown sugar (550ml)

1. Put all the ingredients in the sauce pan, mix with the wooden spoon and bring it to boil over medium heat.
2. Then turn the heat down to medium low heat and cook the mixture for about 30 minutes. It's important to stir constantly during that time to prevent burning, which candy does easily.
3. When it's very thick, pour it in the baking pan and let it cool completely, which takes about 1 ½ hour.
4. Then cut into little squares and have a taste. Was it worth all that stirring?

Discussion

How did your caramels turn out? Did you experience any burning or scorching?

What factors contribute to the smoothness of this candy?

What difference do you find with the caramels you buy?

Alfalfa Sandwich/Salad

Time

A few minutes per day for a few days to make the sprouts
15minutes to make the sandwich or salad

What you will learn

You will learn how to sprout seeds, grains or beans

What you need

- A sprouting tray or a Mason jar with a piece of cheese cloth held over the top of the jar by the metal fastening ring
- Seeds
- Beans or grains
- Sandwich (or salad) ingredients

Instructions

Alfalfa sprouts

1. In a clean Mason-type jar, put a few tablespoons of alfalfa seeds and fill the jar with water until it is about half-full. Soak for 24 hours.
2. Then, instead of the metal or glass lid, cut a piece of cheese cloth to cover the opening and screw the metal ring on to hold the cheese cloth in place.
3. Rinse the sprouts twice daily for a few days.
4. When the seeds are sufficiently sprouted, replace the cheese cloth with the metal or glass lid and store in the fridge.

You can watch a YouTube video: *How to grow sprouts from seeds in your kitchen* by Give us this day Wisconsin

Alfalfa salad/ sandwich

1. Make a lettuce salad with tomatoes, cucumbers or any of your favourite items.
2. Rinse the alfalfa sprouts and add to the salad. Or, add a few sprouts to an avocado sandwich.

Discussion

How difficult was it to sprout?

Did you try other grains/ beans/ seeds? How did they work out?

You might want to research the nutritional benefits of sprouted seeds. Find out how sprouting improves the nutritional value of seeds.

What other dishes did you add your sprouts too?

Ice Cream

Time

Preparation: 1 hour

Freezing time: 3-4 hours

What you will learn

You will learn to make a dessert very similar to ice cream, but without churning. You will learn how to combine custard, which is an emulsion, with 2 foams, one of whipped cream, and one of egg whites and you will minimize the ice crystal size by using a gelatin.

What you need

- Double-boiler
- Measuring spoons and cups
- Small saucepan
- Wooden spoon
- Small mixing bowls
- Fork
- Wire strainer
- Electric mixer
- 2 large mixing bowls and another bowl or pan
- Rubber spatula
- Ingredients

Things to watch for

- You will be making 3 mixtures, so you need to pay attention to the specific conditions for each mixture. First you will make a custard, then you will make a whipped cream and lastly, you will make an egg white foam. Remember to have your bowl and beaters cold for the whipped cream, and no trace of fats in your bowl or on the beaters for beating the egg whites. Also warming up the bowl and having the eggs at room temperature will help the egg whites achieve a better volume. Remember to stir to make the emulsion of egg, flour, milk and corn syrup. It may look like it will take a long time, but you will be happy with the result of all this work!
- The following recipe is not a churned ice cream made with an old fashion hand-cranked ice cream maker. However it incorporates all the different systems of a churned ice cream and can be made without a churn.

Light and Creamy Vanilla Ice Cream

Adapted from *The Anne of Green Gables Cookbook*, by Kate MacDonald

2 teaspoons gelatin
¼ cup cold water
1 cup milk
½ cup of sugar
3 tablespoons corn syrup
1 teaspoon flour
Pinch of salt
1 egg, separated
2 cups whipped cream
1 teaspoon vanilla

Instructions

1. To start, put whipping cream, beaters and large mixing bowl in the refrigerator to chill for 15-20 minutes or so (or in the freezer). It will be ready when you whip the cream.
2. Then you will be making the custard, your first mixture. In the top of the double-boiler put the gelatin and the cold water and let it soften for 5 minutes or so. While the gelatin is softening, put 2 inches or so of water in the bottom of the double-boiler and bring it to a boil.
3. Meanwhile, pour the milk into the small saucepan and place it over medium heat. When tiny bubbles form around the edge of the pot, the milk is ready.
4. To the gelatin in the top pot of the double-boiler, add the hot milk, sugar, corn syrup, flour and salt. Place over the bottom pot containing the boiling water. Stir constantly with the wooden spoon until the mixture thickens. This should take about 15 minutes. Then put the lid on and cook the mixture over boiling water for another 10 minutes.
5. Meanwhile, separate the egg whites from the yolks and place in 2 different small mixing bowls. Set aside the egg white for later.
6. Beat the egg yolk slightly with a fork. When the 10 minutes are up for the mixture in the double-boiler stir in the egg yolk very slowly. Cook and stir a minute longer. Then pour that mixture through a wire strainer and into the large mixing bowl and let it cool to room temperature. Beat it with an electric mixer for about 5 minutes until it is light and creamy. Now you've done the finickiest part. Set aside.
7. Now on to the second mixture... Retrieve your cold bowl, beaters and cream and whip the cream with an electric mixer until it falls in large globs and forms a soft peak. Now you've done the second mixture! On to the third...

8. Wash the beaters thoroughly with hot soapy water, so that no traces of fat are left, because you will now beat the egg white to the hard peaks stage, which you already have experience in doing. That's your third mixture...
9. Now what's left? Yes... gently fold the egg white foam into your strained egg yolk mixture with a large spatula and then the whipped cream. Now gently stir in the vanilla. Why gently? I'm sure you can answer this by now... (Just because those air bubbles you've beaten into the emulsions and the foams love to be treated gently and will preserve themselves if you are nice.)
10. Pour the mixture into a pan or metal bowl and put in the freezer for 3 to 4 hours or until firm. Then taste it! Was it worth all that stirring and whipping?

Discussion

Was it challenging to keep track of three different mixtures?

What did you think of your ice cream compared to traditional churned ice cream?

Would you recommend it to your friends?

Would you add other ingredients to give it a different flavour?

Yeast Bread

Time

Preparation: 30 minutes

Rising time: 1.5 hour

Baking: 30- 45 minutes

What you will learn

You will learn to make yeast-leavened bread and learn about yeast activity and kneading action.

What you need

- Saucepan
- Large bowl
- Wooden spoon
- Measuring cups and spoons
- 1 greased bread pan
- Thermometer
- Ingredients

Things to watch for

- Remember that beating and kneading are responsible for gluten development and that yeast likes warm but not hot water.
- When you learn to bake bread you may want to start with white flour as it is easier to knead. As you become adept, you can add in some whole grain flour to make healthier bread. Other grains besides wheat can be used. However because wheat has the most gluten of any grain, followed by rye and barley, add those first to develop the gluten and add other grains (oats, corn, etc.) later.

Whole wheat bread

From *Eat More Whole Grains*, by Elaine Edel, p.40

This recipe is for whole wheat bread but you can use white flour when you are first learning to bake bread.

2 cups warm water

2 tablespoons oil

3 tablespoons brown sugar or honey

1 teaspoon salt

1 egg

1 tablespoon vinegar

1 chewable vitamin C tablet (500 mg)

2 ¼ teaspoon traditional yeast (1 envelope) or 1.5 tablespoon of fermipan yeast

5 to 6 cups flour

Instructions

1. If you're using traditional yeast, hydrate it first by dissolving 1 teaspoon of sugar into ¼ cup warm water (around 100° F) and then add the yeast to it. Wait for 10 minutes. If your yeast doubles in volume, then it's good and you can add it to the rest.
2. If you use fermipan yeast, you can add it to the dough without prior hydration.
3. While your yeast is hydrating, in another sauce pan, add water, oil, brown sugar or honey, egg, vinegar, salt and vitamin C tablet and warm to 100-110° F. It should feel warm to the touch but not hot. Add half the flour (about 3 cups) and beat 200 times to develop the gluten. Then add flour ½ cup at a time till the dough pulls away from the bowl. Now you start kneading and should knead 150 to 200 times till you get nice soft dough. Kneading is done by folding the dough towards you with the palm of your hand while pushing down and then turning it a quarter of a turn. Put additional flour on your working surface as you knead, to prevent your dough from becoming too sticky.
4. Slightly oil the dough and place in a greased bowl. Cover with a warm, damp cloth. Let it rise till the volume doubles, which could take 30-45 minutes. Punch it down, knead a



few times, and let rise again for another 30 minutes. (Always cover with a damp cloth when dough is rising.) Then punch the dough down again.

5. Shape the loaf to fit in the pan. Preheat oven to 350° F (175° C). Let rise for 15-20 minutes. Then bake your bread for 30-35 minutes. When it's ready, it will sound hollow when you tap the bottom of the loaf with a wooden spoon. Let it cool off for a while before slicing.
6. The aroma of freshly-baked bread is truly wonderful! Inviting your friends to sample your warm bread fresh from the oven, spread with a little butter is one way to make them eternally grateful for your friendship.



Discussion

How did your bread turn out?

How was the taste?

When you cut a slice, did the cells look pretty similar in size or did you have large holes?

Did it rise well or did you experience problems with that aspect of making bread?

How did you find the kneading part?

Did you enjoy baking bread?

How was the aroma?

Will you try different kinds of bread?

Soufflé

Time

Preparation: 30 minutes

Baking: 35-45 minutes

What you will learn

You will learn how to incorporate an emulsion with egg white foam to make a soufflé.

What you need

- A saucepan
- Whisk
- Soufflé dish or chiffon cake pan, ungreased or greased and sprinkled with parmesan cheese
- Oven
- Stove top
- Ingredients

Instructions

A soufflé is a white sauce to which egg yolks are added. That's the emulsion. Then egg white foam is gently added to the sauce. A variety of other ingredients, such as fish, cheese, or vegetables, can be added.

Cheese Soufflé

Recipe provided by www.allrecipes.com, from Egg Farmers of Ontario

For 4 servings

3 tablespoons butter

¼ cup all-purpose flour

¼ teaspoon salt

Dash pepper,

1 cup milk

1 cup grated cheddar cheese

3 egg yolks, whisked

3 egg whites, beaten until stiff

1. Melt butter in a pan, and then stir in flour, salt and pepper. Cook while stirring for a few minutes. Whisk in milk slowly, stirring all the while. Now add the cheese and stir till combined. Whisk the 3 egg yolks and add a little of the sauce to the egg yolks and stir thoroughly. This will help your emulsion bind better. Then stir the egg yolk mixture back

into the sauce. Put aside for a few minutes while you beat the egg whites until the stiff peak stage.

2. Now gently fold the egg whites mixture into the sauce using a whisk. Be very gentle. Remember you want to keep those air bubbles in the soufflé.
3. Spoon or pour into a non-greased soufflé dish.
4. Bake in a pre-heated 325° F (160° C) oven until puffy and golden brown – about 20-30 minutes. Don't open the oven door till 20-30 minutes have elapsed or your soufflé may collapse.
5. Serve immediately.

Discussion

Did you soufflé rise?

How did it taste?

It resembles somewhat the puffy omelette. But what is the difference between the soufflé and the puffy omelette?

Cream Puffs

Time

Preparation: 1- 1.5 hours

Baking: 45 minutes

What you will learn

You will learn how to make cream puffs by making the shell from a choux paste and filling them with whipped cream. You will also learn to use a pastry bag for the choux and for the whipped cream.

What you need

- Heavy bottomed saucepan
- Measuring cup and spoons
- Pastry bag with tips
- Baking pan lined with parchment
- Oven
- Bowl
- Mixer
- Ingredients

Instructions

Cream puffs shells are made of choux pastry. The only rising agent is steam. They are sliced in half and filled with Crème Chantilly, which is a foam.

Things to watch for

- To avoid having the choux turn into a wimpy mass of dough, poke a couple of holes in each chou when they've just finished baking. It allows the steam to escape and will let them dry out on the inside. (Note: *Chou* is the singular form and *choux* is the plural form in French.)

Choux

<http://www.joyofbaking.com/CreamPuffs.html#ixzz2LsVchTAN>

½ cup (65 grams) all purpose flour

½ teaspoon granulated white sugar

¼ teaspoon salt

¼ cup (4 Tablespoons) (57 grams) unsalted butter, cut into pieces

½ cup (120ml) water or milk

2 large eggs, lightly beaten

Glaze: 1 large egg

1. Preheat oven to 400° F (205° C) and place rack in centre of oven. Line a baking sheet with parchment paper or lightly butter the pan.
2. In a bowl, sift or whisk together the flour, sugar and salt and set aside. Then place the butter and water (or milk) in a heavy saucepan over medium high heat and bring to a boil. Make sure the butter melts before the water boils, to reduce the amount of evaporation. Remove from heat and, with a wooden spoon, add the flour mixture all at once and stir until combined. Return saucepan to the heat and stir constantly until the dough comes away from the sides of the pan and forms a thick, smooth ball, about 1-2 minutes. Transfer the dough to your mixer or use a hand mixer and beat on low speed for only about a minute to release the steam from the dough. Once the dough is lukewarm start adding the lightly beaten eggs. The dough will separate and then come together. Continue to mix until you have a smooth thick paste. Spoon or pipe with a pastry bag 12 small mounds of dough onto the baking sheet, spacing them about 2 inches (5 cm) apart. With a pastry brush, gently brush the tops of the dough with a lightly beaten egg.
3. Bake for 15 minutes and then reduce the oven temperature to 350° F (180° C). Continue to bake for a further 30-35 minutes or until the shells are a nice amber colour and when split are almost dry inside. Turn the oven off, poke a couple of holes in each puff and with the oven door slightly ajar, let the shells completely cool and dry out. Slice them in half and fill with Crème Chantilly.

Now for the Crème Chantilly to fill the puffs... Don't be fooled by fancy names such as *Crème Chantilly*. It's just whipped cream with a little sugar and vanilla!

Things to watch for

Make sure your bowl, beaters and cream are cold. Remember: egg whites beat better at room temperature and cream whips better cold.

Crème Chantilly

1. Whip one cup of heavy cream (32% milk fat) till it has doubled in volume and falls in big globs.
2. Then add 2 tablespoons of sugar and ½ teaspoon of vanilla (or a little pulp from inside a vanilla bean if you have one).
3. Voila! Crème Chantilly!
4. You can use a pastry bag to pipe the whipped cream into the cream puffs. Enjoy!!



Discussion

Did you have any difficulty making the choux? Did they rise well?

If you tried piping them in a pastry bag, how did that go?

Can you think of other fillings, sweet or savory, that you could make to fill them?

How difficult was it to make crème Chantilly?

Can you think of other ways you could flavour the whipped cream?

Why do you think there are so many French words in cooking?

Could you think of a French name you could give the different flavours of whipped cream?

Marshmallows

Time

30-45 minutes

What you will learn

You will learn to make an amorphous candy – marshmallows. Marshmallows combine a gelatin, sugar solution and egg white foam.

What you need

- A saucepan
- Candy thermometer
- Large pan
- Ingredients
- A free-standing mixer

This activity will work better if you have a partner the first time you make them.

Instructions

Marshmallows

Adapted from David Lebovitz

2 envelopes (17 g) of powdered gelatin

½ cup + 1/3 cup cold water

1 cup sugar

1/3 cup light corn syrup

4 large egg whites, at room temperature

Pinch of salt

2 teaspoon vanilla extract

Marshmallow mix: One part corn starch (or potato starch), one part powdered sugar (about 1 cup total.)

When you make these marshmallows, you make egg white foam into which you pour a hot corn syrup mixture and then a gelatin mixture and finally vanilla. You need to be very careful with the hot syrup you will be handling to avoid burns.

1. First, you get the gelatin ready by sprinkling the two envelopes of gelatin in ½ cup of cold water. Set aside. Then you separate your four eggs. Set aside the whites. (Keep the yolks for pancakes or crepes later on.)

2. Then you need to make your syrup. Mix the sugar and corn syrup with 1/3 cup of water in a small pan to which you have attached a candy thermometer. Place on a burner on medium to high heat. (Don't wash that pan after you pour off the syrup on the egg white foam. Use it to warm up the softened gelatin.)
3. While keeping an eye on your sugar mixture cooking ask your partner to pour the egg whites into the bowl and start beating on low speed until frothy, and then add a pinch of salt. When you see the syrup reach 210° F (100° C) increase the speed of the mixer to high and keep beating the egg whites until they are thick and fluffy.
4. When the syrup reaches 245° F (118° C) take the syrup off the burner (and handle carefully as previously mentioned!) and slowly pour the hot syrup into the whites that your partner keeps beating. Aim at the egg whites and not at the beaters (pouring so that the syrup does not fall on the whisk since some of the syrup will splatter and stick to the sides of the bowl). And to repeat again, be very careful with the hot syrup.
5. Now transfer your gelatin and water into the pan you used for making the syrup. There should be some heat left to dissolve the gelatin. Pour that gelatin slowly into the whites as they are whipping. Add the vanilla extract. Keep beating the egg white mixture for 5 minutes or more. When you touch the outside of the bowl it should feel completely cool (Even though you might be tempted to stop before it's completely cool it's important to keep beating until it's completely cool. This will keep your marshmallow from becoming soggy later on. Your patience will be rewarded by nice, dry, fluffy marshmallows!)
6. While your egg mixture is being mixed and cooling off, get your baking sheet ready, dusting it completely by sifting over it with the marshmallow mix (one part corn starch, one part powdered sugar). Then you can either cover the whole pan with the egg marshmallow mixture to cut them later, or you can put little individual mounds of marshmallow on your pan.
7. Let them dry for at least four hours. Dust them with the marshmallow mixture to keep them from sticking together. They can be cut with scissors dipped in the dry marshmallow mix so you can cut them into whatever shape or size you like.
8. You can make these in advance and store them for up to a week in an airtight container.

Discussion

Did it turn out well for you or did you experience difficulty?

If you were to do it again, do you think you would find it easier?

How do they compare to commercial marshmallows, in terms of taste and look?

Now that you know what to do, would you try making them by yourself?

Stuffed Gougère

Time

Preparation: 45 minutes -1 hour

Baking: 45 minutes- 1 hour

What you will learn

You will learn to make a savory dish that combines a cheese-chou pastry, filled with an emulsion to which mushrooms, ham and tomatoes have been added.

What you need

- Measuring cup
- Measuring spoons
- Saucepan
- Wooden spoon
- A large skillet
- Chopping knife
- Buttered large pie plate or baking dish
- Stove top
- Oven
- Ingredients

Instructions

Ham filled Gougère

Recipe handed down from a friend, Sandi Robertson

A gougère is a chou pastry to which cheese has been added. In this recipe, the gougère is a pastry that is steam risen and the filling is an emulsion of butter, flour and chicken broth to which onion, mushrooms, ham and tomatoes have been added.

Things to watch for

- In creating the chou pastry, make sure you add the eggs one at a time and mix well after each addition.
- In the emulsion, add the mushrooms and the onions to the butter *before* you add the flour. Cook them well before adding the flour, and then cook the flour for a few minutes and keep stirring as you add the chicken broth.

Gougère

1 cup milk
¼ cup butter
1 cup flour
4 eggs
1 teaspoon salt
1 teaspoon mustard
1 cup cheese grated

The method for making gougère is the same method used to make chou.

1. Boil the milk and butter.
2. Add a cup of flour and mix well till it becomes a ball.
3. Then add one egg at a time and stir well after each egg.
4. Add the salt, mustard and grated cheese and stir well till all is well mixed.
5. Spread on a greased large pie plate or baking dish, in a ring shape with some of the mixture spread thinly over the bottom of the pie plate. Set aside as you make the filling.

Filling

¼ cup butter
¼ cup flour
1 cup chicken broth
6 oz. ham cut into thin stripes
1 cup mushrooms
1 small onion
2 tomatoes cut in quarters

1. Make an emulsion by melting the butter and sauté the onion and mushrooms till they are cooked (the onions will be translucent when done).
2. Then add the flour, stir well and cook for a few more minutes.
3. Now add the chicken broth slowly and stir till the mixture thickens.
4. Add the strips of ham and the quartered tomatoes. Add salt and pepper to taste. Sprinkle with parmesan, if you wish.
5. Put this filling in your pie plate spread with the chou pastry mixture that you have set aside.
6. Bake at 425° F (220° C) for 10-15 minutes and then turn down temperature to 350° F (175° C) and bake for another 30-45 minutes. Serve.

Discussion

How well did you manage the making of the two separate parts of the dish?

Did you find it difficult to stay organized and see what you have to do next?

Did you recognize which elements were at play?

How did your gougère taste?

What kinds of variations might you do with this recipe? What other ingredients could you add for extra zip?

Cream of Sprouted Lentils

Time

Sprouting: a few minutes a day, for 3 or 4 days

Making of the cream: 30-45 minutes

What you will learn

You will learn to create a recipe, with some given ingredients, and you will test your recipe.

What you need

- Two sauce pans
- Measuring cups and spoons
- Stove top
- Ingredients

Instructions

1. First you will need to sprout the lentils. Soak $\frac{1}{2}$ cup dried lentils in a jar of water for 24 hours. Then rinse twice a day for two to three days. While sprouting them, keep them on the countertop. Once your lentils are sprouted, keep them in the fridge. You should use them in the next few days.
2. For the *Cream of sprouted lentils* here are the basic ingredients: Steamed sprouted lentils, onion, salt and a white sauce. You can add other ingredients if you wish. You will write a recipe including quantities, method, time and number of serving. You will test it and see what changes you need to make, if you need to make any.

Discussion

How did your cream of lentils taste?

If you did it again, what would you do differently? Are there ingredients you would remove and others that you would add?

How easy did you find it to estimate time, portion, and quantities?

Baked Alaska

Time

Cake: 30 minutes preparation and 30 minutes baking

Ice cream: 15 minutes preparation

Meringues: 30 minutes

Assembling: 15-30 minutes

What you will learn

You will learn about making a baked Alaska, researching recipes and understanding how you can change and adapt recipes.

What you need

For cake:

- Everything you need to bake the cake and then bake it in an 8 in. round cake pan, greased and lined with parchment paper.

For ice cream:

- Bowl lined with plastic wrap or aluminum foil to pack your ice cream, so that your ice cream will slide easily from the bowl.

For meringue:

- Bowl
- Beater or electric mixer, for making your meringue

In general:

- Freezer, oven, ingredients

Instructions

A Baked Alaska is made of three parts: a cake as a base, an ice cream on top of the cake and a meringue, covering it all. The meringue acts as an insulator and will prevent the ice cream from melting in the oven. However to insulate the ice cream adequately, you really need to cover the whole cake and ice cream really well with the meringue and leave no parts uncovered or you will have melted ice cream pooling at the bottom of your pan after you bake it. It has to be kept in a freezer, till you bake it at 425° F (220° C) for 5-10 minutes. You just want to lightly brown the meringue and it needs to be served to your guests right away.

That's the basics. And within those basics, there's plenty of room for differences.

1. First, the cake... it will be up to you to decide what cake you want for your base. You can choose to make a Genoise cake, a butter cake or a pound cake... You can use the recipes from this activity guide or you can research another cake recipe.
2. Second, the ice cream... What flavour of ice cream do you want to use? Some recipes suggest you layer different flavours of ice cream, or a mixture of sherbet and ice cream. But you don't have to. You can use one flavour of ice cream. You can use the homemade ice cream from this guide or you can use a commercial ice cream with the flavour of your choice. But you need to pack your ice cream in a bowl that's been lined with plastic wrap or aluminum foil to make it easy to unmold it on the cake. Then freeze it like that for a couple of hours.
3. Third, the meringue...meringues are pretty standard. But you can choose to flavour it with different extracts.
4. Next decision is your presentation... Do you want to pipe the meringue all around with a pastry bag or do you just want to spread it with a spatula?

There are many internet videos available that show how to put a baked Alaska together. You can look at a few to give you some ideas.

Enjoy!

Discussion

Did you decide to use the recipes from the activity guide or did you find new recipes for the cake and the ice cream?

How did you enjoy researching different recipes?

How did your baked Alaska turn out? Did you like the taste and appearance?

If you were to make it again, would you do anything differently? If so, what would you do?

Create a New Dish

Time

As long as you need

What you will learn

To be creative with your knowledge.

What you need

You will make a list depending on what you create.

Instructions

You have learned about making emulsions and foams, how to create volume in baked products and about fermentation, crystallization and sprouting. You have also learned to look at different recipes and adapt them.

Now, you will create a new recipe and you will give it a name. If you name it in Italian, French or Spanish, your new recipe will have exotic allure! Remember that a recipe includes ingredients, quantities, number of servings and method of preparation. You also need to write down what you will need and give an estimate of how long it will take to prepare your dish and any other indications of time required for cooking.

Your creation may become famous. Or it could get you a job. My favourite soup in my favourite restaurant was created by a young man who went to that restaurant with a jar of the amazing chowder he had just created. It was so good; he was hired on the spot! He no longer works there, but his soup is the only item on the menu that has never changed.

Discussion

How did your creation turn out?

If it turned out great, you might want to share with the world and start working on your cookbook!

If it did not turn out so good, are there changes you could make to improve it?

How did you enjoy being creative with ingredients?

Make a Meal

Time

1/2 day to a day

What you will learn

You will learn to bring together everything you have learned about emulsions, foams, leavening, microbiology, crystallization, sprouting and combining these elements into a meal for your family or friends.

What you need

A plan: your menu and recipes, list of ingredients, list of items needed and an estimation of how long each item will take. If there are different steps, make sure those are clearly laid out.

Instructions

You will prepare for your family a meal from scratch including at least a salad, entrée and dessert. There should be at least one from each of the following food type categories: emulsion, foam, leavened baked product, fermentation, crystallization and sprouting.



You can use recipes from this guide but feel free to use other recipes as well.

You can enlist the help of your family, if they're willing, to set the table, clean up and help with stirring or watching. But you are the cook for this.

Discussion

How did your meal turn out?

How did you enjoy cooking this meal?

How did your family enjoy it?

Was there anything you would do differently another time?

Did it give you an appreciation for skills and ability of chefs, cooks and even your parents or guardians?

Volunteer in the Community

Time

Variable

What you will learn

You will learn what organizations are providing help in your community and how you can help and contribute. You will also learn that there are many ways to contribute to your community.

What you need

- A list of organizations in your community working on food security or any other food issue that may be important in your community.

Instructions

After finding out what organizations exist in your community, call a few of them to find out what volunteer opportunities they offer and what the requirements to become a volunteer are. It's also a good idea to volunteer with another 4-H member or a friend rather than going alone. Then, when you sign up for a block of time, make sure you show up. If you get sick or an emergency situation arises, make sure you let them know that you can't go.

As an alternative, you and the other members of your club can raise funds for an organization that provides meals and food for people in need in your community by putting together an event where you demonstrate your cooking skills. It can be a supper, or a Victorian Tea, or cooking classes or a cake auction. This would require you to first brainstorm as to what the event might be. Plan the location, time, menu, task list, publicity, tickets sale and choose the charity that will receive the proceeds.

Discussion

How was your experience as a volunteer?

If you did a fundraising event, how did it go?

Did you experience any major difficulty?

What have you learned about food security in your community and around the world?

Additional Research and Activities

Unit 1: Safety First

- Visit a restaurant or a grocery store and see what measures they use to keep food safe to eat. Do they follow Health Canada's guidelines?
- Do a survey with yourself. This is only for yourself and you do not have to share with anybody else. Estimate (honestly) what is the percentage of hand washing you do after a trip to the bathroom and before you handle any food. Then find a way to record how often you actually do it. (Hopefully it will be 100% in both cases, but if not, then resolve to pay attention to hand washing.)
- Research the recommendations from Health Canada to prevent food poisoning?
- Research what kinds of bacteria can contaminate foods and how can you prevent contaminations?
- Research a case of food poisoning and how it could have been prevented.
- Research what government department is responsible for keeping the Canadian food supply safe from contaminants.

Unit 2: Ingredients

- Research the *Canada Grain Act*, an act of Parliament enacted in 1912 and revised in 1995.
- Research what grains grown in your region are covered by the *Canada Grain Act*.
- Research what regulations from the *Canada Grain Act* affect the production of wheat.
- Watch two different YouTube videos:
 - One on commercial grand scale flour milling, for example Wheat into flour: <http://youtube.com/watch?=3wyhzKX97Vek> by Grain Chain
 - And one on organic/stone ground milling such as Anita's organic flour mill: <http://youtube.com/watch?feature=fvwp&v=5qd37LW3QQY&1>
- Discuss the information given on stone ground being better for health.
- Read history of wheat in Canada from Encyclopedia of Saskatchewan. (<http://esask.uregina/entry/wheat.html>)
- Watch a YouTube video: From milling wheat to loaf – The story of bread. <http://youtube.com/watch?v=AbCjTONgM2c>, shows the industrial process of flour and bread making.
- Design a stone to grind flour and try grinding wheat or any other grain, and use that grain in a recipe of your choosing.
- Take samples of different kinds of flour, bran, germ, etc. and see if there is a visual difference in colour and texture.
- Make breads and cakes using different kinds of flour and see the results.

Unit 3: The Science Behind Foods

Emulsion

- Research recipes for different mayonnaise-based sauces. For example, *aioli*, a very popular sauce in France is basically a mayonnaise with a lot of garlic.
- Research recipes with béchamel and hollandaise sauces.
- Research what types of food (meat, vegetables, eggs, etc.) goes best with what types of sauces (mayonnaise, béchamel, hollandaise).

Foams

- Research recipes of desserts that are variations of whipped cream.
- Create your own dessert with a whipped cream base and gave it a name. Try calling it something in French.
- To see how temperature affects the formation of foam, make one foam of egg whites with cold egg whites and one with egg whites at room temperature. Make foams of whipped cream with cold cream, cold bowl and cold beaters and make one with bowl, beaters and cream at room temperature.

Volume

- Find out what are the active ingredients in different brands of baking powder.
- Make three small cakes:
 1. Use the amount of baking powder that is called for in the first.
 2. Use $\frac{1}{2}$ the amount in the second.
 3. Use twice the amount in the third and compare the three products as to crumb texture, volume, tenderness and general taste.
- Make a bread dough recipe. To see the importance of the right amount of kneading, separate your dough in three batches. Knead the first batch for only 2 minutes, the second batch for 8-10minutes and the third batch for 15-20 minutes. Mark your three batches and bake. Is there any difference? Would you make a recommendation to someone learning to bake bread based on your results?

Microbiology

- Research health benefits of fermented foods such as sauerkraut, kimchee and yogurt.
- Find and read study in “ The Journal of Agriculture and Food Chemistry on 2002” where Finnish researchers found that in lab studies, substance produced by fermented cabbage, isothiocyanates, helped prevent growth of cancer (from the article http://www.naturalnews.com/033659_sauerkraut_health_benefits, by Tara Green, Sept. 23, 2011).
- Look up a topic on the internet such as “*health benefits of yogurt*”. Find the sources of the articles. What claims do they make? What is the evidence for it? On what basis do they make those claims? Are there any research articles from reputable journals to back

these claims? What are the credentials of people writing the article? If possible, find and meet a microbiologist in a university close to your community.

- Scones and Devonshire cream are often served at a typical Victorian Tea. Research Victorian Teas. Find out what food is usually served and any special protocol for a Victorian Tea.

Crystallization

- Research the different stages of sugar crystallization and at what temperatures they occur.
- Make a list of what candies would have a crystalline structure and which ones would have an amorphous structure.
- Ask your parents or grandparents if they have a favourite candy recipe that they used to eat as a child. Find and make that recipe.

Sprouting

- Choose a few beans, grains or seeds. Research the difference in vitamins between the dry form and the sprouted form.
- Research the cautions issued by Health Canada about eating commercially grown sprouts. Find out if these cautions also apply to homemade sprouts.

Unit 4: Combining Systems

- Find your favourite dishes and see if you recognize what systems are used.
- Find some new recipes and see if you recognize why the suggested method is recommended.
- Find a recipe you like and see what modifications you could do to make it healthier. Which ingredients could be substituted and which ones should not be substituted.
- Once you master the bread dough recipe, you can do some variations. Pitas (fun to make and exciting to see them turn into little balloons in the oven), cinnamon buns, croissants and many others are all variations of bread dough.

Unit 5: Cooking in the Community

- Research behavior and expectations of a volunteer.
- Research the root cause of hunger.
- Research debate methods and various views on why hunger exists and what can be done about it. Then organize a formal debate about it.
- Research where are the community gardens in your community. If there are none, research what you could do to start some.
- Research the issue of food waste globally and in your community.
- Research ways to become more self-sufficient in terms of the food you eat.
- Do the quiz on hunger from the Canada Food Bank's web site. How well did you do? What did you learn?

- Invite a member of your community involved in a project or an organization dealing with food security. Prepare a list of questions to ask.
- Discuss ways to reduce food waste in your community.
- *Do without*: Raise money with your group by *doing without*. *Do without* a latte or a treat you buy regularly, put that money in a fund and donate to a food bank, a soup kitchen or an organization such as Salvation Army.
- Take an action to increase your food self-sufficiency. It can be as simple as deciding to sprout more regularly or as demanding as starting a garden in your backyard, getting some chickens to produce eggs, encouraging your family to get a plot at a community garden, or even starting community gardens in your community if they do not exist. Make sure you discuss with your family any plans that would involve them in any way and to find out the by-laws of your community. For example, some cities allow for people to have egg producing chicken in their back yard and some don't.

Note: If after doing your research, which means getting your facts from reputable sources, you believe that your community has bylaws that could be changed, then find out what actions need to be done and what support you would need to gather. A quote by Margaret Mead, a famous anthropologist, states:

*“Never underestimate the power of a small group
of committed people to change the world.
In fact it is the only thing that ever has.”*



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