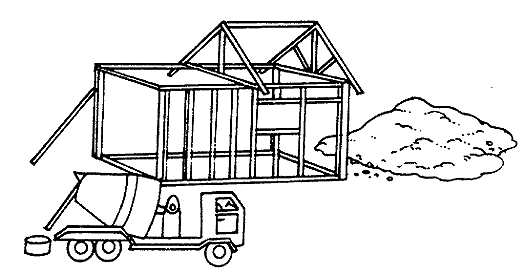
HOUSE OF INTERNATIONAL PANCAKES

A Pancake Analogy of Ingredient Functions

Background: *When building a house, the builder takes raw materials and uses them to create a home. Which materials he uses and where he puts them determines the type of house created. When building a food, the same principles apply.*

*A pancake is a great illustration of taking raw materials and turning it into a wide variety of creations. Pancakes are also* ***quick breads*** *because they typically do not use a* ***fermenting*** *process like yeast to leaven the product.*

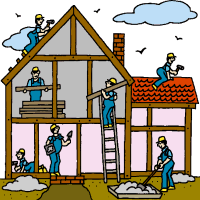


[hdinspiration.com building a house](http://hdinspiration.com/wp-content/uploads/2015/04/building-a-house-buildhse-0.jpg)

**Flour** is the main ingredient to any pancake. It provides the structure. Different types of flours alter the structure because some flours absorb more moisture or create more gluten (which binds the structure together) than others.

**Liquid** combines with the flour to establish the type of structure being made. If the proportion of liquid to flour is 50/50, then the batter is thick. If there is more liquid than flour, the batter is thinner. Liquids provide moisture as well as some leavening in the steam created when baking the batter or dough.

**Salt** enhances the flavor of the batter. Consider it the nails in exactly the right place in the boards or the curing agent for the cement. Just the right amount is needed to create what you want. For a batter, it is usually 2.5 mL for every 240 mL of flour (a scant 1/2 tsp salt per cup of flour).



[clipartpanda.com House under Construction](http://images.clipartpanda.com/house-construction-clipart-house-under-construction-clip-art.gif)

**Eggs** strengthen the structure of the batter. Eggs strengthen the gluten in the flour and water mixture, providing flavor, protein and a stronger product, less crumbly. Eggs are like the rebar in a foundation, or glued laminate beams across a ceiling: they help the structure stay together.

**Leavening Agents**: Quick breads do not require a wait time for raising to occur. Baking soda reacting with some sort of acid (vinegar, lemon juice or cream of tartar) will create some air bubbles and lift the structure of the pancake. This leavening doesn’t last long, so must be cooked immediately to keep the lift. Double acting baking powder will create the initial lift of the baking soda and acid, but also has a second leavening when it is heated. Leavening agents are the roof because they establish and limit the rise of the house.

**Fats** tenderize the dough, adding moisture, flavor and “mouthfeel” to the finished product. Fats would be the windows in a home: It cuts into the structure, but adds light.



[i.istockimg.com Thumbview of window](http://i.istockimg.com/file_thumbview_approve/20120578/3/stock-illustration-20120578-cartoon-window.jpg)

**Sugar** contributes sweetness, tenderizes the batter and helps hold the moisture. Sugar may also contribute to the browning of the pancake, which adds flavor and eye-appeal. Sugar is like paint that seals the wood or the siding that encases in the house.

Other ingredients, like spices, meats, cheeses, fruits or vegetables are extras that create uniqueness. In a house, it is the furnishings, decorations and landscaping: it individualizes the end product.



[Vector image of gingerbread house](http://www.vectors4all.net/preview/gingerbread-house-clip-art.jpg)

**Vocabulary:**

*Eggs—*Eggs bolster the structure of a flour and liquid batter. Egg whites, when beaten

provide additional lift to the batter and trap CO2  in the bubbles it creates. The

egg yolk provides protein and additional tenderness.

*Fats*—Fats can be oils, margarine, butter or a solid shortening. They contribute

tenderness, moisture, some flavor and “mouthfeel” of smoothness to the

product.

*Fermenting—*a biological reaction that creates gases that cause air pockets and rise in

yeast breads.

*Flour—*Usually made of a ground cereal grain, flour is the main ingredient in a quick

bread.

*Leavening Agents—*Something that incorporates air into a baked good. Yeast is a

leavening agent used for breads, requiring rising time for yeast to ferment and

create the air pockets in the dough structure. A Quick Bread uses leavening

agents that do not need fermentation or rising time, but rather utilize the

immediate reactions of baking soda to an acid to create air pockets in the batter,

or baking powder that has both the baking soda and an additional leavening

agent that provides rise during cooking.

*Liquid--*Liquids in a quick bread could be water, milk, juice, or any number of fluids that

add moisture to the flour. Liquids mix with the flour to form the batter of a quick

bread. If the batter is pourable, the ratio of fluids to flour is 1 to 1. The greater

the amount of liquid, the thinner the batter.

*Quick Bread—*A bread product that does not need time to rise. Their leavening agents

are typically chemical reactions between baking soda and an acid, or steam.

*Salt—*A mineral substance that enhances the flavor of foods.

*Sugar—*A sweetener in foods. Sugar adds flavor and browning to a quick bread. Sugar is

also responsible for the spreading of cookies when heated. Sugar contributes to

moisture retention and tenderness of the product.

**This lesson addresses the following USOE Core Standards:**

**Foods & Nutrition Sciences 1**

Standard 3, Objective 3c—Identify role of each ingredient in quick breads

**Science Intended Learning Outcomes**

ILO 1(e)—Formulate hypotheses, predict results based on prior data.

**Materials per group:**

1. Recipe for an international pancake

2. Ingredients for each recipe

3. Ingredient Function Table to fill out

4. Blank paper for a Pancake House

Pancake recipes and specific ingredients (*pancakes only: no fillings)*

|  |  |  |  |
| --- | --- | --- | --- |
| Buttermilk Pancakes | Crepes | German Pancakes | Serabi |
| Flour | Flour | Flour | **Rice** flour |
| Baking powder |  |  | Baking powder |
| Baking soda |  |  |  |
| Salt | Salt | Salt | Salt |
| Sugar | Sugar |  |  |
| Eggs | Eggs | Eggs | Egg |
| Buttermilk | Milk | Milk |  |
| Sour cream (or more buttermilk) |  |  |  |
| Unsalted butter | Butter | Butter or margarine |  |
|  | Vanilla Extract |  |  |
|  |  |  | Coconut milk (light) |
|  |  |  | Water |

Ingredients for fillings or toppings: (*if used)*

|  |  |  |  |
| --- | --- | --- | --- |
| Buttermilk Pancakes | Crepes | German Pancakes | Serabi |
| Maple Syrup | Strawberries | Butter or margarine | Coconut milk (light) |
|  | Orange Juice Concentrate | Brown sugar | **Coconut** sugar (or other kind of sugar) |
|  | Sugar | Cinnamon | Granulated sugar |
|  | Whipping Cream | Nutmeg | Salt |
|  |  | Powdered sugar | Pandan leaf (optional) |
|  |  | Apples | Bananas or apples |

**Instructions** *(with teacher notes)***:**

*To the teacher: for more information on ingredient functions, go to* <http://www.foodworks-intl.com/page47_baking_ingredients_function.htm>

1. Lab groups should be divided so that at least three types of pancakes are being made within the class. *These recipes include fillings or toppings that you may not want to do in class. Choices are: (1) All American Buttermilk Pancake, (2) French Crepe, (3) apfelpfannkuchen—Baked German Apple Pancake, or (4) Serabi—Indonesian rice flour and coconut pancake—this is a gluten-free option (remember to use gluten free baking powder, too)*

2. Looking at the recipe, hypothesize the type of pancake being made: light-and-fluffy, flat-and-dense, crumbly or solid? Write the hypothesis in Discussion Points.

3. Make the recipe, divide what is made into small samples for the class.

4. Draw a house and label with all the food ingredients in your recipe.

**Discussion Points/questions:** *(With teacher notes)*

1**.** Based on the wet/dry proportions and the ingredients, what kind of pancake did you think your recipe would make? *If the proportion of liquids to solids is high, the batter will be thinner, making a flatter pancake—like a crepe. If eggs are beaten prior to folding into the batter, the batter will be lighter. Eggs will also create a stronger structure, so the baked apple pancake with its 3 eggs will be denser than the regular pancake.*

2. Which ingredients create the structure? *Flour and liquid create the structure. Eggs help strengthen the structure if they are used.*

3. Which ingredients create the rise in the pancake? *Leavening agents create the rise in the pancake. Air, steam and Carbon dioxide are the main leavening agents in baked goods. Air and steam are natural components of any batter, Carbon dioxide is chemically or biologically produced. Chemically when using baking soda and baking powder, biologically when using yeast or other fermentation processes.*

4. Which ingredients add moisture to the pancake?

*The liquid, the egg, and the fat. The sugar helps retain the moisture.*

5. Which ingredients enhance the flavor of the pancake? *Sugar, salt and fat, as well as other ingredients such as spices and extracts.*

DRAW YOUR HOUSE OF PANCAKE

*It needs a structure, nails, a roof, support beams, windows, paint, and landscaping*

*Label the pancake ingredients in the proper positions*

*To the teacher:*

*Structure: flour and liquid*

*Nails: salt –they can draw hinges on the door or speckle the cement to show curing*

*Roof: the leavening agent*

*Support beams: Egg*

*Windows: Fat*

*Paint or siding: Sugar*

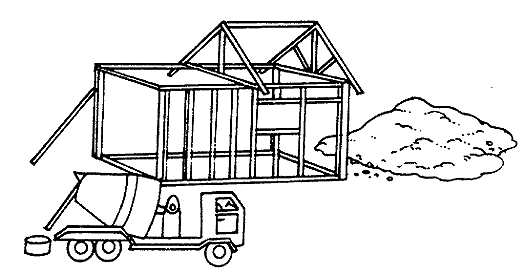
*Landscaping/decorations: other ingredients, spices, flavorings*

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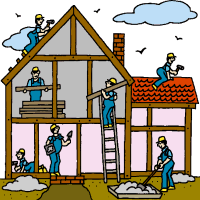


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**Discussion Points/questions:**

1**.** Based on the wet/dry proportions and the ingredients, what kind of pancake did you think your recipe would make?

2. Which ingredients create the structure?

3. Which ingredients create the rise in the pancake?

4. Which ingredients add moisture to the pancake?

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Adapted from [Serious Eats - seriouseats.com](http://www.seriouseats.com/)

[THE FOOD LAB](http://www.seriouseats.com/recipes/columns/the_food_lab/index.html)

*Unraveling the mysteries of home cooking through science.*

**Light and Fluffy Buttermilk Pancakes**

[**J. Kenji López-Alt**](http://www.seriouseats.com/user/profile/Goodeaterkenji) MANAGING CULINARY DIRECTOR

About This Recipe

|  |  |
| --- | --- |
| YIELD: | 8 pancakes |
| ACTIVE TIME: | 30 minutes |
| TOTAL TIME: | 30 minutes |

Dry Ingredients:

1 cup flour

1/2 teaspoon baking powder

1/4 teaspoon baking soda

1/2 teaspoon kosher salt

1-1/2 teaspoons sugar

Wet Ingredients:

1 large egg, separated

3/4 cup buttermilk

1/2 cup sour cream

2 Tablespoons of unsalted butter, melted

Procedures:

1. Combine flour, baking powder, baking soda, salt, and sugar in a medium bowl and whisk until homogenous.

2. In another medium bowl, whisk the egg whites until stiff peaks form. In a large bowl, whisk the egg yolks, buttermilk, and sour cream until homogenous. Slowly drizzle in the melted butter while whisking. Carefully fold in the egg whites with a rubber spatula until just combined.

3. Pour the wet mixture over the dry mix and fold until just combined (there should still be plenty of lumps).

4. Heat a large heavy-bottomed nonstick skillet over medium heat for 5 minutes (or use an electric griddle). Add a small amount of butter or oil to the griddle and spread with a paper towel until no visible butter or oil remains. Use a 1⁄4-cup dry measure to place 4 pancakes in the skillet and cook until bubbles start to appear on top and the bottoms are golden brown, about 2 minutes. Carefully flip the pancakes and cook on the second side until golden brown and completely set, about 2 minutes longer. Serve the pancakes immediately.

[](http://www.seriouseats.com/user/profile/Goodeaterkenji)

ABOUT THE AUTHOR

[**J. Kenji López-Alt**](http://www.seriouseats.com/user/profile/Goodeaterkenji) MANAGING CULINARY DIRECTOR

*J. Kenji López-Alt is the Managing Culinary Director of Serious Eats, and author of the James Beard Award-nominated column*[*The Food Lab*](http://www.seriouseats.com/the-food-lab/)*, where he unravels the science of home cooking. A restaurant-trained chef and former Editor at Cook's Illustrated magazine, he is the author of upcoming The Food Lab: Better Home Cooking Through Science, to be released on September 21st, 2015 by W. W. Norton.*

apfelpfannkuchen - german apple pancake [http://www.recipe.com/apfelpfannkuchen-german-apple-pancake/](http://www.recipe.com/apfelpfannkuchen-german-apple-pancake/%20)

Recipe from [Better Homes and Gardens](http://www.bhg.com/recipes/)

**SERVINGS:** 6

**PREP TIME:** 10 mins

**BAKING TIME**: 18 to 20 mins

* 3 eggs
* 1/2 cup all-purpose flour
* 1/2 cup milk
* 2 tablespoons margarine or butter, melted
* 1/4 teaspoon salt

FILLING:

* 2 tablespoons margarine or butter
* 1/3 cup packed brown sugar
* 2 medium cooking [appleshttp://images.intellitxt.com/ast/adTypes/icon1.png](http://www.recipe.com/apfelpfannkuchen-german-apple-pancake/), peeled, cored, and thinly sliced (2 cups)
* 1/4 teaspoon ground cinnamon
* 1/4 teaspoon ground nutmeg
* Sifted powdered sugar

**directions**

**1.**

In a medium [mixing bowl](http://www.recipe.com/how-to/colorful-mixing-bowls-under-50/) beat eggs with a wire whisk until frothy. Add [flour](http://www.bhg.com/shop/food/pantry-items/baking-ingredients/flour-c5476.html), milk, 1 tablespoon of the melted margarine or butter, and salt; beat until smooth.

**2.**

Heat an 8-inch round [baking pan](http://www.bhg.com/shop/kitchen/bakeware/baking-pans-a3040.html) or ovenproof [skillet](http://www.bhg.com/shop/kitchen/cookware/frying-pans-and-skillets-a2557.html) in a 450 degree F oven for 2 minutes. Add remaining 1 tablespoon melted margarine; swirl to coat pan. Pour batter into hot pan. Bake pancake in the 450 degree F oven for 18 to 20 minutes or until puffed and golden.

**3.**

Meanwhile, for filling, in a medium skillet melt the 2 tablespoons margarine or butter over medium heat. Stir in [brown sugarhttp://images.intellitxt.com/ast/adTypes/icon1.png](http://www.recipe.com/apfelpfannkuchen-german-apple-pancake/) until combined. Stir in apple slices, cinnamon, and nutmeg. Cook, uncovered, for 3 to 5 minutes or until apples are crisp-tender, stirring occasionally.

**4.**

To serve, remove pancake from oven. Spoon some of the filling into center of pancake. Sprinkle with powdered sugar. Cut into wedges. Pass the remaining filling. Pancake will collapse as it cools. Makes 6 servings.

**NUTRITION INFORMATION**

Per Serving: cal. (kcal) 217, Fat, total (g) 11, chol. (mg) 108, sat. fat (g) 3, carb. (g)26, fiber (g) 1, pro. (g) 5, vit. A (IU) 729, vit. C (mg) 2, sodium (mg) 223, calcium (mg) 40, iron (mg) 1, Percent Daily Values are based on a 2,000 calorie diet

Adapted from [Serious Eats - seriouseats.com](http://www.seriouseats.com/)

**Crepes with Strawberries & Cream**

  About This Recipe

|  |  |
| --- | --- |
| YIELD: | Serves 4 |
| ACTIVE TIME: | 25 minutes |
| TOTAL TIME: | 25 minutes |
| SPECIAL EQUIPMENT: | 10 inch nonstick skillet |
|  |  |

**Ingredients**

* **For the Crepes:**
* 2 eggs, beaten
* 1 cup milk
* 1/4 teaspoon vanilla extract
* 4 tablespoons melted butter, divided
* 1 cup (5 ounces) all purpose flour
* Pinch of salt
* 1 tablespoon sugar
* **For the Strawberries and Cream:**
* 1 1/2 pounds (24 ounces) strawberries, quartered
* 2 Tablespoons unsweetened orange juice concentrate
* 1 tablespoon sugar (for strawberries)
* 1 cup (1/2 pint) whipping cream
* 1 tablespoon sugar (for cream)

**Procedures:**

**1. For the Strawberries and Cream:** Combine cream and sugar in a large bowl. Using a hand blender or a whisk, whisk cream and sugar together until cream reaches stiff peaks. Cover and keep cool in the fridge.

**2.** Place strawberries, sugar, and orange juice concentrate in a bowl, toss so the strawberries are coated, then allow to sit on the counter while you assemble the crepes.

**3. For the Crepes:** Whisk together eggs, milk, vanilla, and 2 tablespoons melted butter. In a separate bowl whisk together flour, a pinch of salt, and sugar. Whisk wet ingredients into dry ingredients until no lumps remain.

4. Using a heat-proof pastry brush, brush a 10-inch nonstick skillet with butter, then heat over heat until the butter begins to sputter. Add just under 1/4 cup of batter to the pan, then swirl the pan until the batter coats as much of the bottom of the pan as possible. Cook until batter begins to brown, about 1 minute. Using a rubber spatula, flip the crepe and cook until the other side is brown, about 1 minute. Remove from pan and repeat with remaining batter.

5. Place 2 to 3 crepes on each plate and divide strawberries and a dollop of cream. Fold crepe in half and serve.

[](http://www.seriouseats.com/user/profile/sydneyoland)

[**Sydney Oland**](http://www.seriouseats.com/user/profile/sydneyoland) PRODUCT DEVELOPER/FOOD WRITER

* ©2006-2014





Adapted from <http://www.food.com/recipe/serabi-425282>

SERABI

*This is one of my childhood favourites and a traditional Indonesian dish. It is eaten as a snack or generally for afternoon tea and not usually as a dessert. Serabi is like a pancake but only cooked on 1 side. I have modified it by adding the fruit so you could also serve it for brunch/breakfast. They are traditionally cooked in an earthenware pan but a standard fry pan is fine. Try and find light coconut milk.*

INGREDIENTS

SERVINGS 4UNITS US

* 150g rice [flour](http://www.food.com/about/flour-64)—2/3 cup
* 1 teaspoon [baking powder](http://www.food.com/about/baking-powder-6)
* 1 [egg](http://www.food.com/about/egg-142)
* 1/4 teaspoon salt
* 200ml [coconut milk](http://www.food.com/about/coconut-milk-or-cream-145), light—3/4 cup
* 100ml [water](http://www.food.com/about/water-459)—2/3 cup
* Sauce
* 250ml [coconut milk](http://www.food.com/about/coconut-milk-or-cream-145), light – 1 cup
* 50g coconut sugar – 1/4 cup (*note! Table sugar can be substituted)*
* 1 teaspoon [sugar](http://www.food.com/about/sugar-139)
* 1/8 teaspoon [salt](http://www.food.com/about/salt-359)
* 1 [pandan leaf](http://www.food.com/about/screwpine-leaves-837) (optional)
* 2 [bananas](http://www.food.com/about/banana-61), peeled and sliced
* Or 2 [apples](http://www.food.com/about/apple-186), sliced

DIRECTIONS

1. Mix the coconut milk, water, salt and egg together.
2. Add the sifted flour and baking powder and mix through the wet ingredients. Set aside while you make the sauce.
3. Place all the ingredients except the fruit into a pan and heat until the coconut sugar is melted. Add the sliced fruit and cook for about 5 minutes.
4. Heat a fry pan and spray with oil. Traditionally serabi is made small, about 2 tbsp of batter per cake but you can make them larger. Cook like a pancake but on LOW HEAT and cook on 1 side only, do not turn the cake.
5. The top should be covered in little holes.
6. Remove from heat. To serve spoon some sauce into a shallow bowl and then place the serabi on top so they float.

<http://www.food.com/recipe/serabi-425282>