



## Don't Get Lost in the Trees

By JOHN BICKART, Ph.D. | **Science Education and Spiritual Transformation** | Chapter 12: Naming, Categorizing, and Labeling

*II. Back out to see the forest so you don't get lost in the trees.*

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### The Forest and the Trees

Instead of theorizing and philosophizing, let's practice teaching a lesson that balances the big picture and the details. We'll look at a science lesson on bread that will categorize all kinds of breads from crackers to cake. We will name the



ingredients and see the chemical effect of each. We will use the chart below to step back from the details to see all breads as one whole. Watch for two themes to arise: the movement in and out of the forest to the trees and back, and the movement back and forth from measurable quantities to experiential qualities. Quantities go with the left brain and the details. They reduce experience to a number. Qualities help you achieve a right brain, holistic experience. If science education strives to balance the way it looks at the subject of bread, the student is given an illustration of achieving an inner balance.

<b>Crackers to Cake</b>							
	Flour	Water	Milk	Yeast or Baking Powder	Egg	Fats or Oils	Sugar
<b>Crackers</b>	✓	✓					
<b>Flat Bread</b>	✓		✓				
<b>Bread</b>	✓	✓		✓			
<b>Pasta</b>	✓	✓			✓		
<b>Crepes</b>	✓		✓		✓		
<b>Pancakes</b>	✓		✓	✓	✓	✓	✓
<b>Cookies</b>	✓		✓		✓	✓	✓
<b>Cake</b>	✓		✓	✓	✓	✓	✓

Start by reading each of the ingredients across the top. Then check out the bread products down the left. We have chosen these to represent all breads.

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<b>Crepes</b>	✓		✓		✓		
<b>Pancakes</b>	✓		✓	✓	✓	✓	✓
<b>Cookies</b>	✓		✓		✓	✓	✓
<b>Cake</b>	✓		✓	✓	✓	✓	✓

The simplest bread is *Crackers*. Just about every culture on earth in every historical period has had crackers. They are made from ground grains called flour. Grains are the edible seeds from grasses. In the US, some favorite grains are wheat, rye, and oats. To make crackers you just add water to the flour and bake it.

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<b>Bread</b>	✓	✓		✓			
<b>Pasta</b>	✓	✓			✓		
<b>Crepes</b>	✓		✓		✓		
<b>Pancakes</b>	✓		✓	✓	✓	✓	✓
<b>Cookies</b>	✓		✓		✓	✓	✓
<b>Cake</b>	✓		✓	✓	✓	✓	✓

Flat breads are like crackers but a little softer. Although some use water and some use yeast or baking powder, some flat breads just use flour and milk. Milk has natural fat in its cream. This makes a flat bread softer than a crispy cracker. Flat breads from other cultures are: chapati and naan from India, tortillas from Mexico, focaccia from Italy, lavash from Armenia, and pitas from the Middle East.

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<b>Bread</b>	✓	✓		✓			
<b>Pasta</b>	✓	✓			✓		
<b>Crepes</b>	✓		✓		✓		
<b>Pancakes</b>	✓		✓	✓	✓	✓	✓
<b>Cookies</b>	✓		✓		✓	✓	✓
<b>Cake</b>	✓		✓	✓	✓	✓	✓

If you take a flat bread and make it rise with yeast or baking powder it becomes a tall bread - or just bread. The rising action comes from a chemical reaction caused by the yeast or baking powder with the flour and water. This is called fermentation. The carbon dioxide bubbles that result from the reaction cause the bread to rise from flat to tall. It is the identical chemical process to making alcohol. Stop here for a moment to note: bread and alcohol have been consumed, as far as we can tell, since antiquity in almost every culture and in every period of history. Bread is one of the connectors of all of the diverse types and evolutions of humankind.

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<b>Crepes</b>	✓		✓		✓		
<b>Pancakes</b>	✓		✓	✓	✓	✓	✓
<b>Cookies</b>	✓		✓		✓	✓	✓
<b>Cake</b>	✓		✓	✓	✓	✓	✓

Pasta is a form of bread that takes a new turn. It has flour and water but does not have yeast or baking powder to make it rise. So pasta is as flat as crackers. Because pasta is dough (flour and water) that has been boiled in water instead of baked in an oven, it comes out soft. Also, pasta often has egg. This makes it rubbery or flexible when cooked.

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<i>Bread</i>	✓	✓		✓			
<i>Pasta</i>	✓	✓			✓		
<i>Crepes</i>	✓		✓		✓		
<i>Pancakes</i>	✓		✓	✓	✓	✓	✓
<i>Cookies</i>	✓		✓		✓	✓	✓
<i>Cake</i>	✓		✓	✓	✓	✓	✓

My father cooked these since I was little. I have made crepes for my family, their friends, and now for my 9 grandchildren. We call them jelly rolls (as my father did). Crepes are like pasta, but they are usually a little softer because they generally have milk instead of water. They could be thought of as a flat bread with egg to make it rubbery, or a pasta that has milk instead of water to make it softer. Crepes are famous in France. You mix about two eggs per person (more eggs, more rubbery), with enough milk to make a golden yellow. Then add flour until the batter will pour easily to fill the bottom of a frying pan. Note: I can tell you **quantities** here, but if you pay attention to the **qualities** of color and texture you get three benefits. 1) You stay more attentive. 2) You have a method that is scalable to any amount of people. 3) Perhaps most importantly, you are not mechanical - you are a creative cook in loving relationship with your ingredients. Cook, roll, spread jelly, and eat!

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<b>Bread</b>	✓	✓		✓			
<b>Pasta</b>	✓	✓			✓		
<b>Crepes</b>	✓		✓		✓		
<b>Pancakes</b>	✓		✓	✓	✓	✓	✓
<b>Cookies</b>	✓		✓		✓	✓	✓
<b>Cake</b>	✓		✓	✓	✓	✓	✓

Pancakes are cake that you make in a pan. They just rise a little. Said another way, they are cookies (which basically do not rise) that rise a little. They are a dessert that we eat for breakfast. They differ from all of the bread above them on the chart by three ingredients. They have yeast or baking powder to rise. They have fats or oils like shortening to make them even softer and lighter. And sugar, of course, makes them sweeter.



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<b>Crepes</b>	✓		✓		✓		
<b>Pancakes</b>	✓		✓	✓	✓	✓	✓
<b>Cookies</b>	✓		✓		✓	✓	✓
<b>Cake</b>	✓		✓	✓	✓	✓	✓

You could say that cookies are pancakes that don't rise.

They stay crispy and chewy. Another way to relate cookies to crackers is to say that they are sweet crackers with egg and fats or oils to make them soft or crumbly or crunchy.

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<b>Crepes</b>	✓		✓		✓		
<b>Pancakes</b>	✓		✓	✓	✓	✓	✓
<b>Cookies</b>	✓		✓		✓	✓	✓
<b>Cake</b>	✓		✓	✓	✓	✓	✓

Cake is exactly like pancakes that grew tall. You just make sure that there is enough yeast or baking powder to make a deep pan full of dough rise so that you don't have a giant, hard lump.

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## Relating Parts to Wholes

Did you see how I kept speaking about the different bread products by comparing them to each other? In that way we moved from the detailed attention to the parts and stepped back to see the whole forest. Another way to do this with students might be to embrace the whole by one of these methods.

- Make a chart of their favorite bread products that groups all of the parts into one scheme.
- Suggest a fun quiz of going to the market or looking on the internet at bread products and guess which ingredients are in them.
- Prevent your science from getting too left brain by playing the game, "where did this come from", tracing parts to their whole path of origination.

You can also note that milk can be a whole food: cream is a fat/oil, lactose is a sugar, casein is a protein. This is why your mother's milk sustained you as a baby. And also, when you were in your mama's womb, you were as if inside an egg, which is also a whole food.

Another way to move out to a whole picture is to step back to group and relate the Far and Middle East to the West. Note that rice grains often make bread products in the Far East. Rice grows near the earth in water, much like the mother's womb. Middle Eastern and European breads are made from grasses like wheat and rye that grow in dryer air, higher off the ground, like a person who has grown up and left its mother. The newest cultures in the West, however, use a lot of corn. Corn blends features of rice and wheat. It's amount of water is like rice, but it grows up off the ground like wheat. It is as if lovers of corn products in the West are saying, "I wish to

relate to the whole globe and all of history. I wish to embrace the whole."

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