

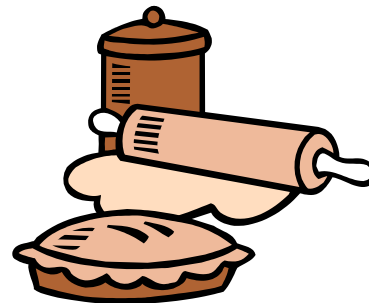
PRINCIPLES OF BAKING

Chapter 42



BAKING

1. A recipe for a baked product is like a **chemical formula**. Chemical reactions that take place during mixing and baking give the product its final **appearance**, **texture**, and **flavor**.
2. For baked products, each ingredient has a **specific purpose**.



Type of Ingredient	Purpose	Examples
Flour	<ul style="list-style-type: none">•Provides proteins and starch for structure	All purpose flour, whole wheat flour, cake flour, bread flour
Liquids	<ul style="list-style-type: none">•Help form flour structure•Make chemical changes possible	Water, milk, fruit or vegetable juice, yogurt, sour cream
Leavening Agents	<ul style="list-style-type: none">•Make baked products rise (by causing air or gas to be trapped in the mixture)	Baking powder, baking soda, yeast

Type of Ingredient	Purpose	Examples
Fats and Oils	<ul style="list-style-type: none">•Make products rich and tender•Add flavor•Help brown the crust	Butter, margarine, shortening, vegetable or olive oil
Sweeteners	<ul style="list-style-type: none">•Give flavor•Help crust brown	Sugar, honey

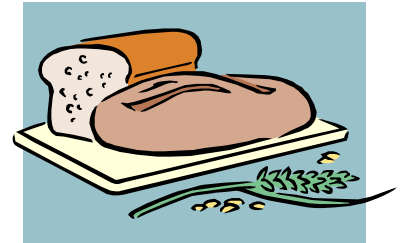
Type of Ingredient	Purpose	Examples
Eggs	<ul style="list-style-type: none">•Make products tender•Add flavor and richness•Bind mixtures together so they don't separate (emulsify)•Beaten whites – leavening agent	Eggs
Flavorings	<ul style="list-style-type: none">•Add flavor	Chocolate, spices, herbs, and extracts (like vanilla)

3. The differences between dough and batter:

	Dough	Batter
Consistency	Thick	Thin
How Shaped	Shaped by hand or cut into shapes	Poured or dropped
Products Made	Biscuits, cookies, pie crust, some breads	Pancakes, muffins, cakes

4. Reasons for mixing ingredients:

- a. Distribute ingredients evenly
- b. Develop gluten



5. Gluten is an elastic substance formed by the protein in flour. It forms the structure of the product. It becomes stronger the more the dough is mixed.

6. Yeast breads need strong gluten; cakes do not.

7. A leavening agent adds air or another gas (like carbon dioxide) to the product, helping it rise.

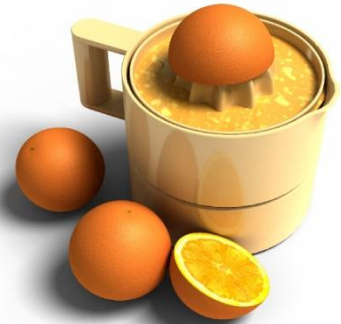
a. **Trapped air**, when you

- **Sift** flour
- **Cream** fat and sugar together
- Beat egg **whites**



b. **Steam**

- When the product is baked at a **high** temperature (like éclairs and cream puffs)



c. Chemical leavening

- **Baking soda** – forms carbon dioxide gas when combined with an **acid**. Used in recipes with **naturally acidic** foods, such as buttermilk, yogurt, or citrus juice
- **Baking powder** – combination of **baking soda** and a **dry acid**, forms carbon dioxide when mixed with any **liquid**. Recipe doesn't need an acidic ingredient.



d. Yeast

- A microscopic plant that gives off gas as it grows.
- Has a distinctive flavor and smell.
- Reproduces quickly if it has
 - Warmth
 - Moisture
 - Food (like sugar)



8. Leavening agents work together with gluten to give the product its shape.



9. Successful baking tips

a. Use the **exact** ingredients called for

- Changes may affect **flavor** and **texture**

b. Measure **accurately**

- A **tiny** amount can make a difference

c. Follow the **mixing** directions in the recipe

- Don't take shortcuts

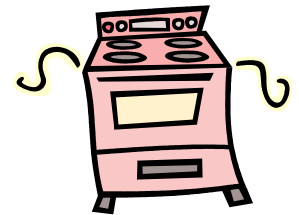
d. Use the correct **type** and **size** of pan

- Not too small or too large or a different shape

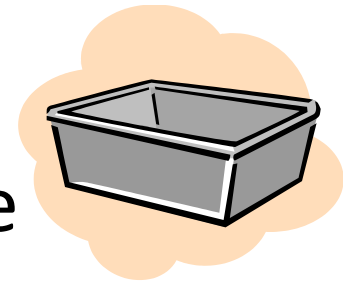
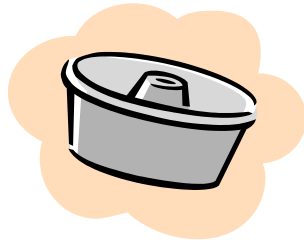
e. Use the correct oven **temperature**

- Too **high** = overbrowning, poor volume, tough texture

- Too **low** = pale color, soggy texture, uneven grain, sunken center



10. Pans must be properly **prepared** for baking, so the baked product isn't difficult to **remove**. Follow the directions given in the **recipe**.



11. When greasing pans, it is best to use **unsalted** shortening or a **cooking spray**.

12. Some recipes (like many cakes) call for greased and floured pans. The flour makes the product easier to remove and absorbs the fat.
- a. To do this, spread shortening in a thin, even layer over the bottom and sides of the pan.
 - b. Then, sprinkle about one tablespoon of flour into the pan.
 - c. Turn and tap the pan to spread the flour evenly over the bottom and sides.
 - d. Turn upside down to remove excess flour.

13. Unless they state otherwise, recipes are usually based on using **shiny metal** pans.

a. If you use **dull** metal pans, lower the oven temperature by **10°F**.

b. If you use **glass** pans, lower the oven temperature by **25°F**.

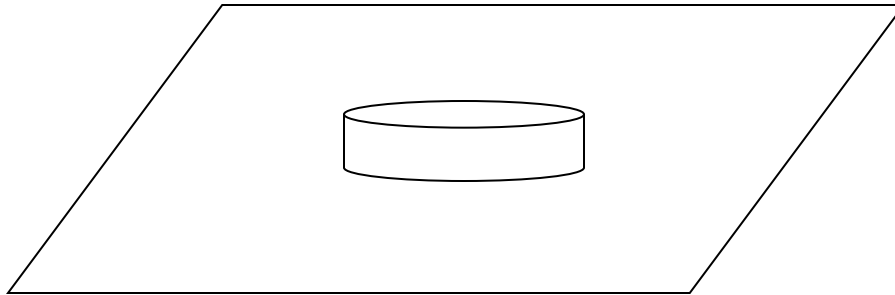


14. **Preheat** the oven so that the oven will be at the correct temperature when the product goes in.

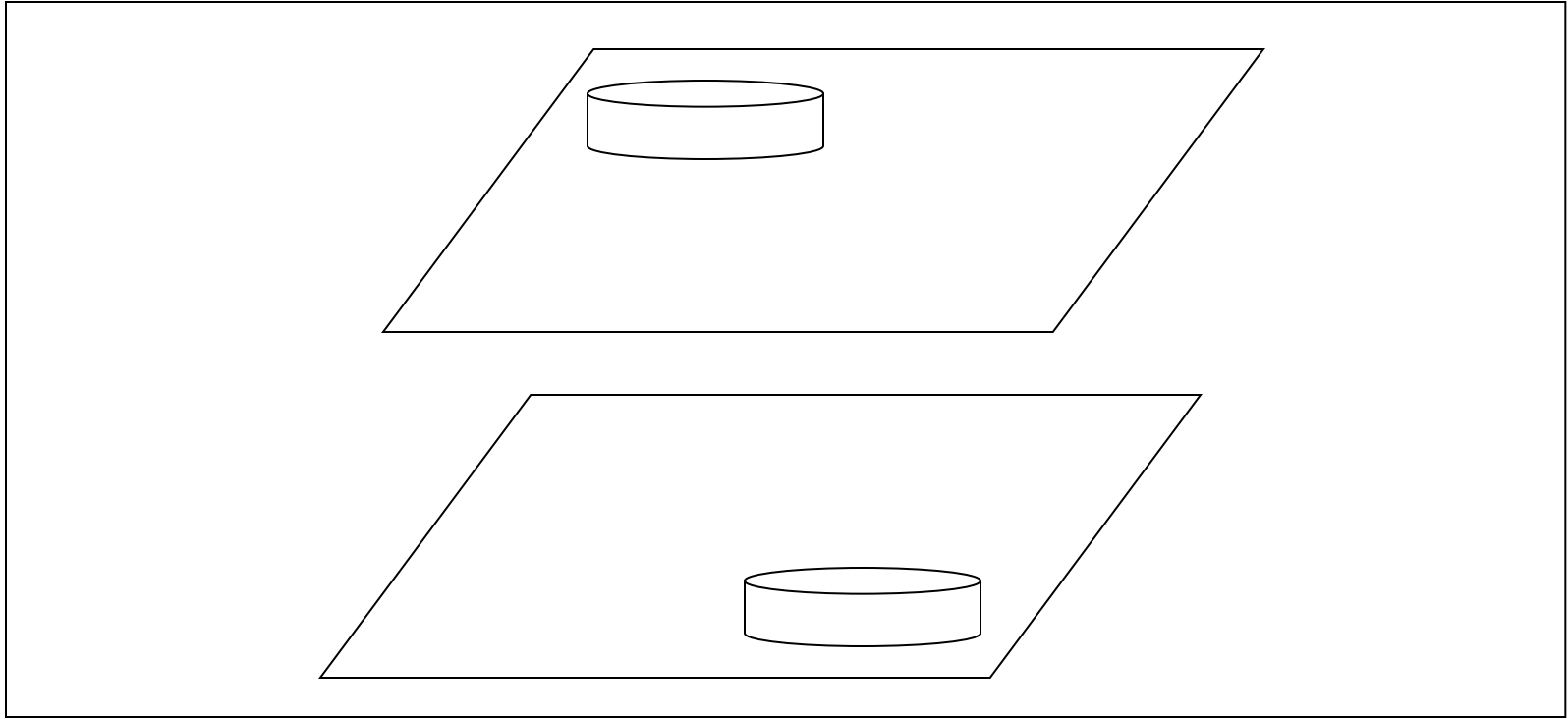
15. Before placing pans in the oven, wipe off the pan **sides** and **bottom**. Food particles on the pan will **burn**.

16. Sketch where the pans should be placed for the number of pans given:

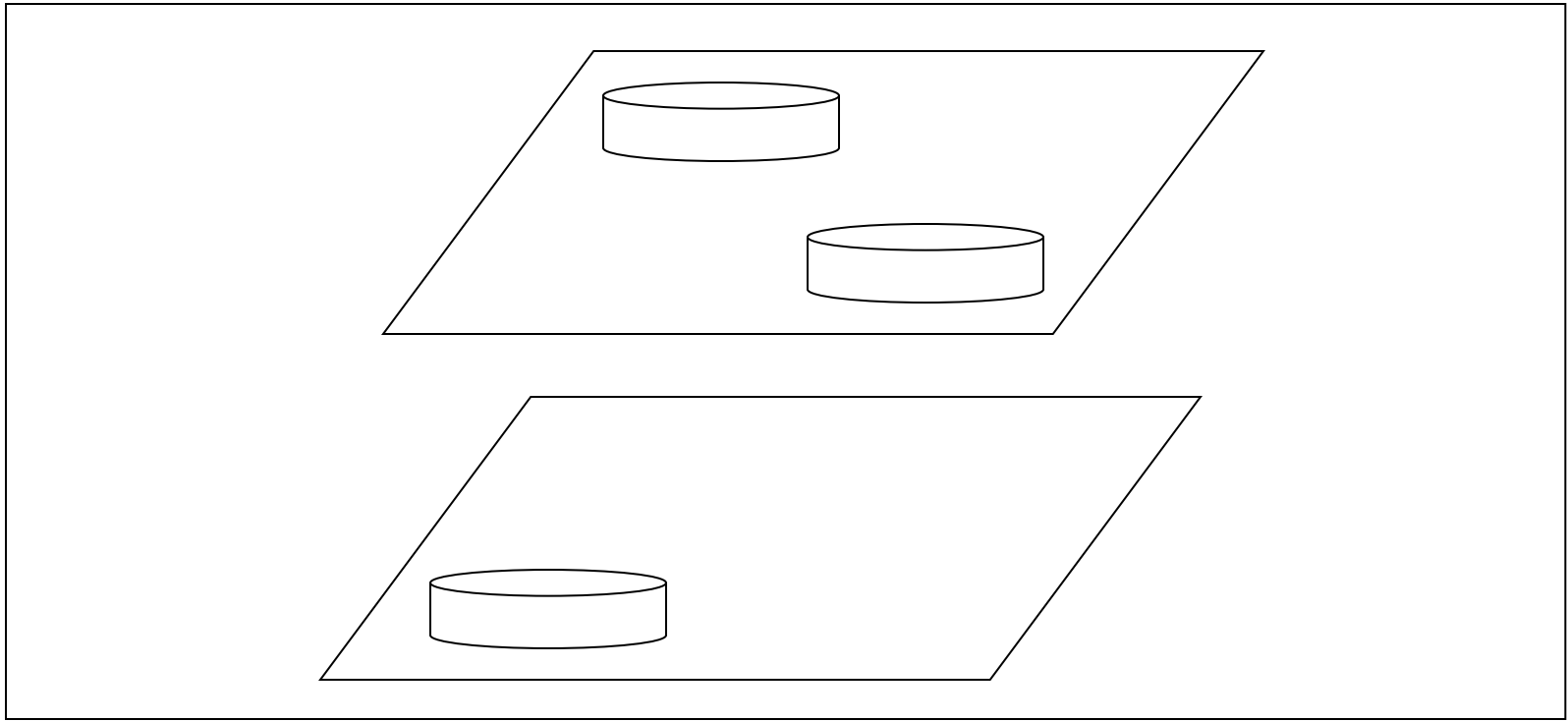
One pan should be centered in the oven in all directions.



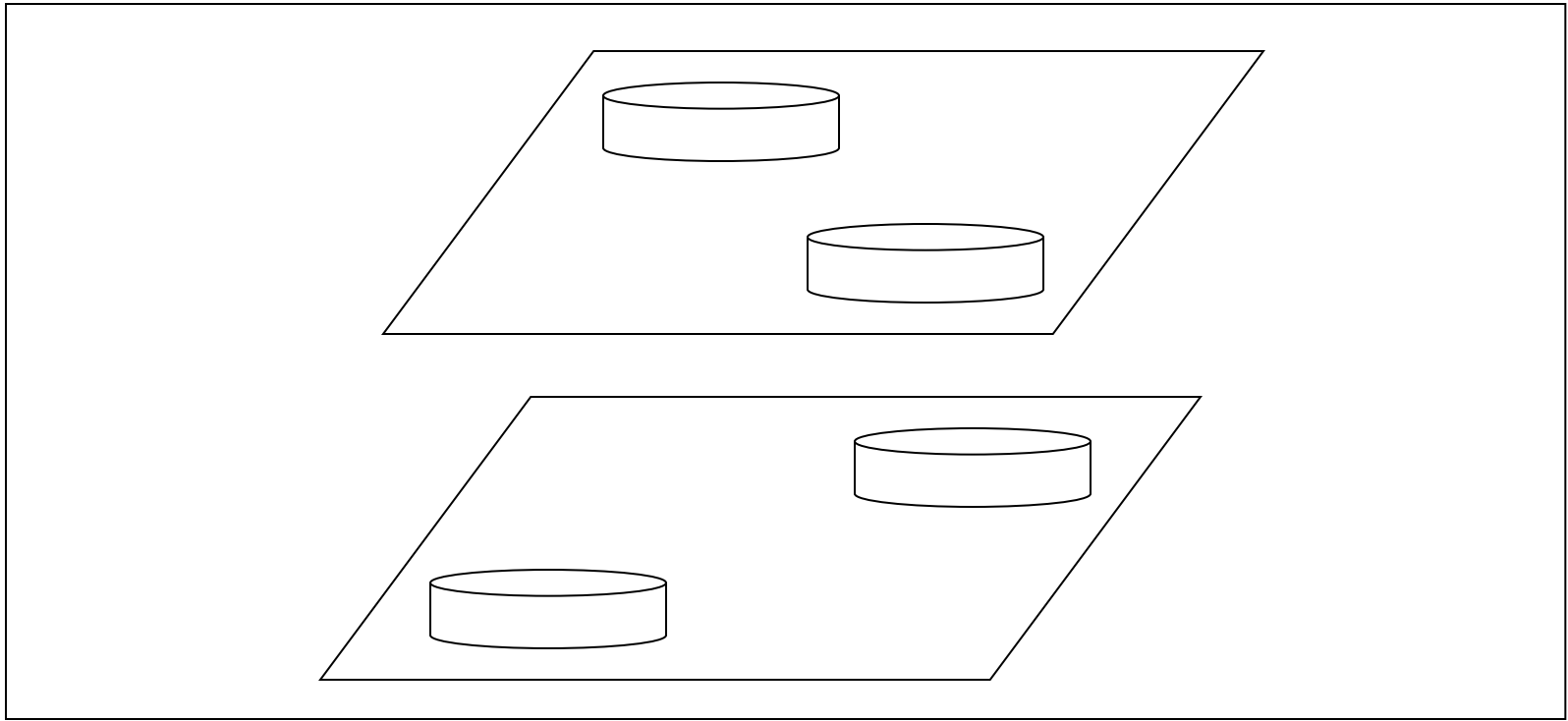
1 PAN



2 PANS

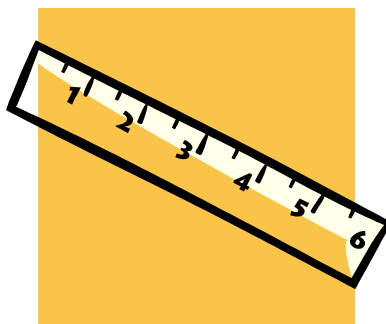


3 PANS



4 PANS

17. Be sure pans don't **touch** each other or the sides, top, bottom, or door of the oven. That would create a **hot spot**. Leave at least **one inch** of space between each pan and between the pans and oven walls.



18. The recipe should tell you when to **remove** the baked product from the pan. Some are taken out right away; others need to **cool** in the pan for a few minutes. Usually, they are then placed on a **wire cooling rack** to cool completely.

