

The Components of food

What's in Our Food?



Carbs

Fuel for energy to play
and think!



Proteins

Muscle builders for your
growth.



Vitamins

Protective shields against
germs.



Water

Vital for all life processes.

Plus: Fats, Minerals, and Roughage!

Carbohydrates: Energy Boosters

Main Functions:

- ✓ Primary source of energy.
- ✓ Sugar gives instant energy.
- ✓ Starch releases energy slowly.

Sources: Potatoes, Rice, Wheat, Bread, and Corn.

Potatoes, rice, and bread



Fats: The Energy Banks

Why do we need them?

Fats give ****double the energy**** of carbohydrates. They store energy for later use and insulate our body to keep it warm.

Types of Fats

Unsaturated: Liquid at room temp (Plant oils like Sunflower).

Saturated: Solid at room temp (Animal fats like Butter, Ghee).

TEST FOR FATS

Materials Required

- Filter paper.
- Sunlight or any other source of light.
- Food sample – Oil, Butter, Cheese, deep-fried potato chips etc.

Procedure

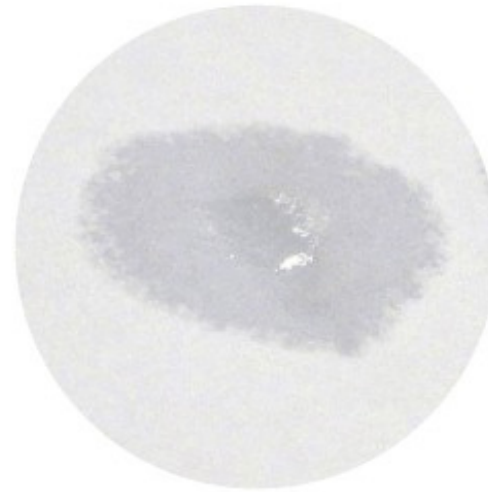
- Select the food sample for which you need to test for fats.
- In a filter paper, take a small quantity of the food.

If the food sample is liquid-like butter, oil, and cheese, gently spread it and if you are using potato chips, then crush it and wrap the paper slowly. Make sure paper is not damaged.

Leave the experiment undisturbed for 3 to 5 min aside.

Now straighten the paper and allow it to complete either by keeping it in sunlight or near the open window.

Now observe for the changes on the paper.



Water drop



Oil drop

According to the observation, the presence of fats in the given food sample is indicated by the oily patch on the paper. The filter paper observe the oil from the food sample and becomes translucent. This was a simple experiment which is used to check for the presence of fats in the give food sample. This paper spot test for fats can be performed for different sources of food and can maintain a healthy life.

Proteins: The Body Builders

Functions:

-  Helps in growth and repair.
-  Essential for muscles and blood.
-  Helps build immunity.

Sources: Milk, Eggs, Pulses, Meat, and Tofu (Soy protein).

- They are compounds of carbon, nitrogen, oxygen, and hydrogen. (Note that carbohydrates and fats only had carbon, oxygen, and hydrogen, but proteins also contain nitrogen).
- Some proteins may also contain sulfur, phosphorus, or certain metals. Our body contains a protein called hemoglobin, which carries oxygen.



Sources of Proteins

Plant Sources: Tofu, beans, soybeans, nuts, etc.

Animal Sources: Meat, milk, eggs, lamb, chicken, pork, yogurt, etc.



Test for Proteins

The presence of protein can be tested using a copper sulfate solution and sodium hydroxide (also known as caustic soda).

Take a test tube and add a crushed food sample into it.

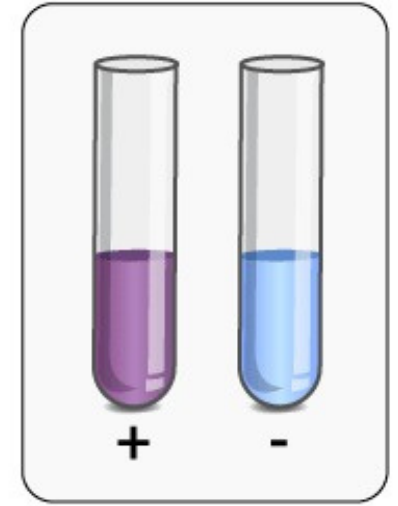
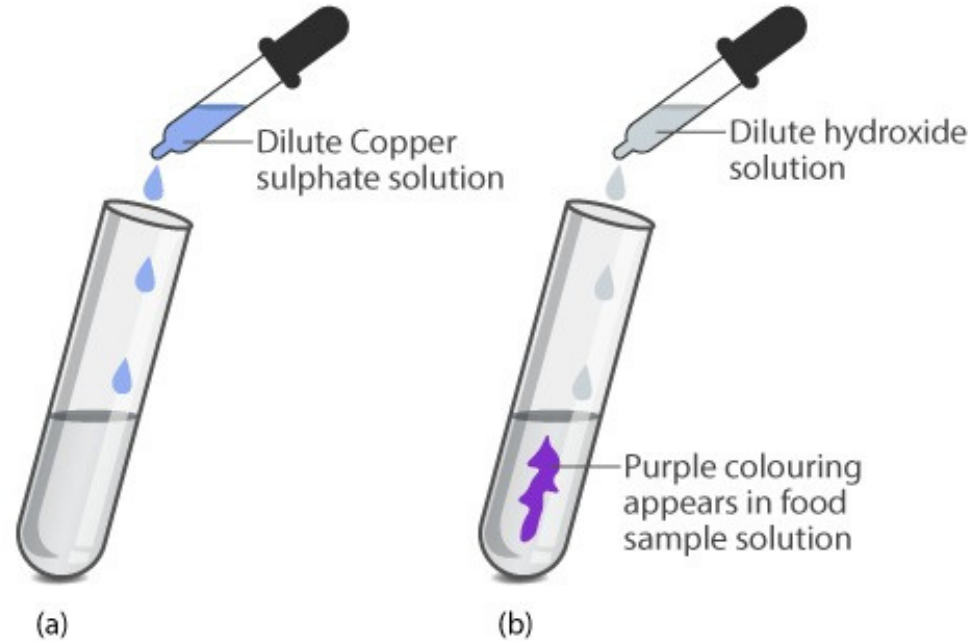
Add a required amount of water to make it slightly liquid.

Add exactly 2 drops of dilute copper sulfate solution.

Add exactly 10 drops of dilute caustic soda (sodium hydroxide) solution.

Shake the test tube well.

If the food sample turns purple or violet, it indicates the presence of proteins (testing positive). If no purple or violet color appears, protein is absent.



The Vitamin Shield

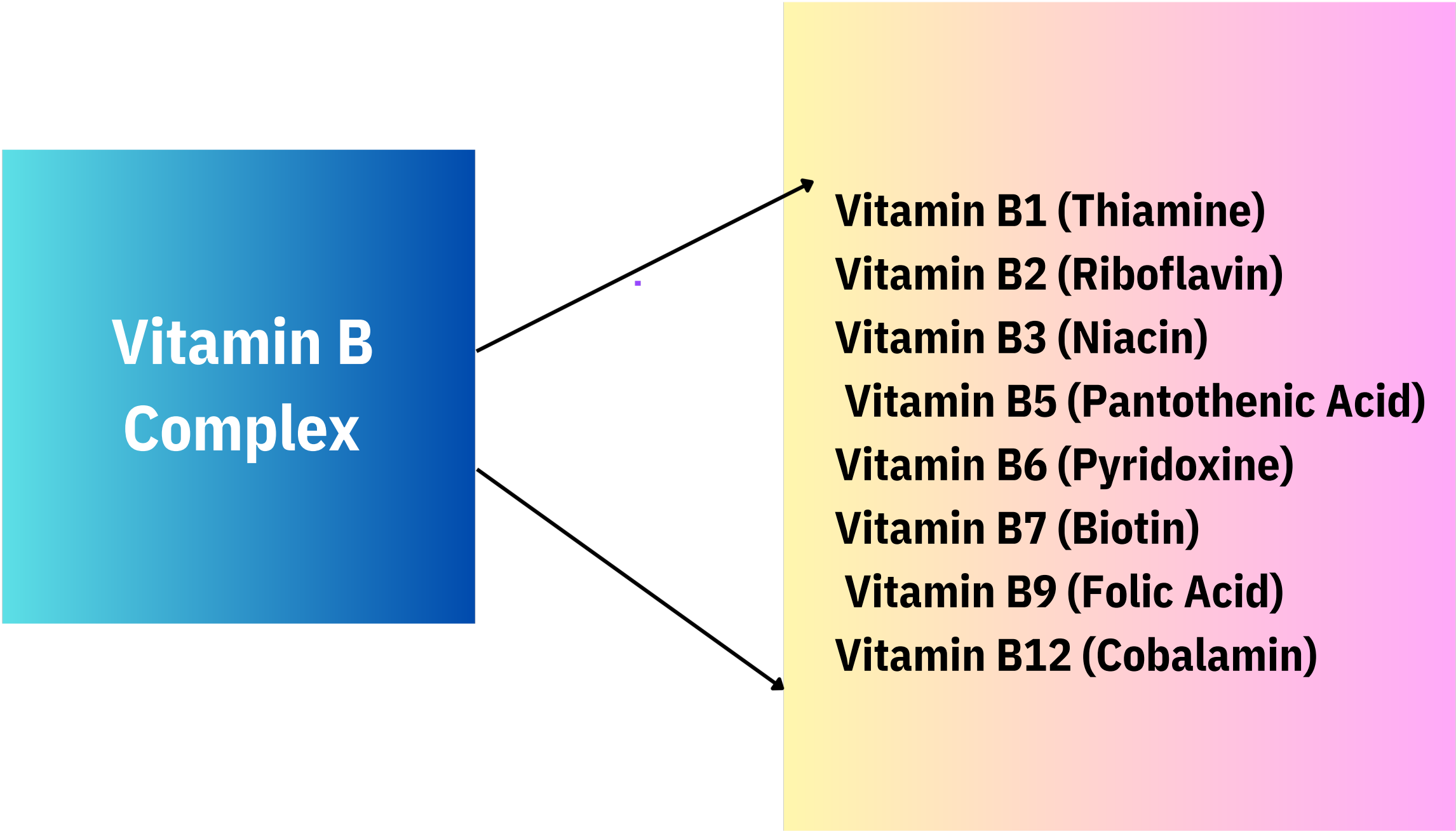
- Vitamins and minerals are required by our body in small amounts. Compared to other nutrients, the body needs them in lesser quantities, but they are absolutely essential for the proper functioning of our body.
- Vitamins and minerals are collectively called protective foods.

Vitamin	Function	Deficiency Disease
Vitamin A	Keeps eyes and skin healthy	Night Blindness
Vitamin B1	Helps body use energy	Beriberi
Vitamin B2	Keeps skin and mouth healthy.	Bad/dull skin and sores in the mouth.
Vitamin B3	Keeps the skin, nervous system, and digestive system healthy.	Pellagra
Vitamin B12	Helps in the formation of blood and proper overall growth.	Anemia

The Vitamin Shield

Vitamin	Function	Deficiency Disease
Vitamin C	Fights infections; healthy gums	Scurvy
Vitamin D	Keeps bones and teeth strong	Rickets
Vitamin	Helps in blood clotting	Excessive Bleeding
K	Protects the body from damage and helps in the formation of RBCs (Red Blood Cells).	Nerve abnormalities.
Vitamin E		

Vitamin B Complex



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graph LR; A[Vitamin B Complex] --> B[Vitamin B1 (Thiamine)]; A --> C[Vitamin B2 (Riboflavin)]; A --> D[Vitamin B3 (Niacin)]; A --> E[Vitamin B5 (Pantothenic Acid)]; A --> F[Vitamin B6 (Pyridoxine)]; A --> G[Vitamin B7 (Biotin)]; A --> H[Vitamin B9 (Folic Acid)]; A --> I[Vitamin B12 (Cobalamin)];
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Vitamin B1 (Thiamine)

Vitamin B2 (Riboflavin)

Vitamin B3 (Niacin)

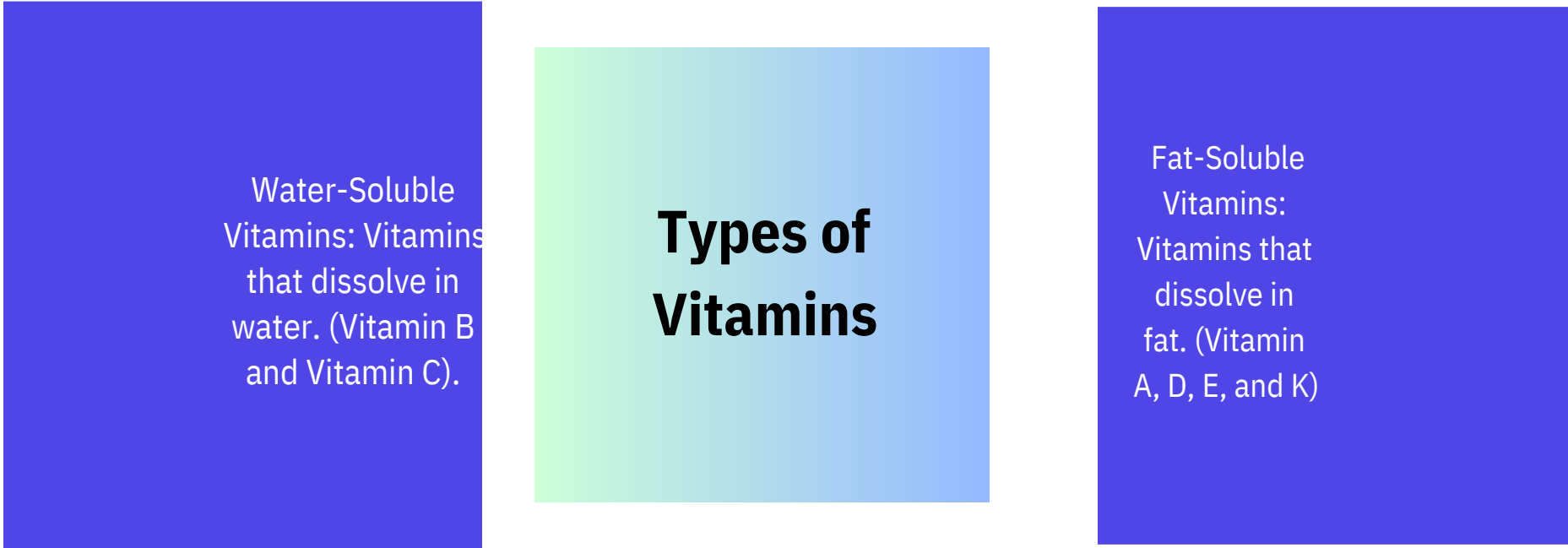
Vitamin B5 (Pantothenic Acid)

Vitamin B6 (Pyridoxine)

Vitamin B7 (Biotin)

Vitamin B9 (Folic Acid)

Vitamin B12 (Cobalamin)



The diagram consists of three rectangular boxes arranged horizontally. The central box is light blue and contains the title 'Types of Vitamins'. It is flanked by two dark blue boxes. The left dark blue box contains text about water-soluble vitamins, and the right dark blue box contains text about fat-soluble vitamins.

Types of Vitamins

Water-Soluble Vitamins: Vitamins that dissolve in water. (Vitamin B and Vitamin C).

Fat-Soluble Vitamins: Vitamins that dissolve in fat. (Vitamin A, D, E, and K)

Water-Soluble Vitamins

Vitamins B and C fall under water-soluble vitamins. These are not stored in the body. They need to be regularly supplied through food items such as citrus fruits, spinach, and other leafy vegetables.

Fat-Soluble Vitamins

Vitamins A, D, E, and K are fat-soluble. These are stored in the fat tissues of our body and are used only when the body needs them. Our body prepares Vitamin D in the presence of sunlight.