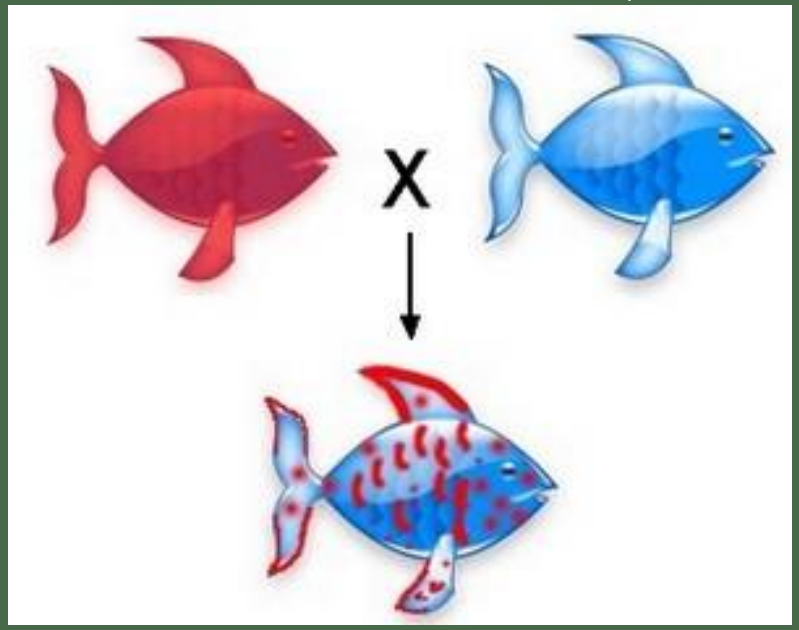
# Codominance

A. A cross between organisms with **two different** phenotypes
   1. Ex: Red x White
B. Produce offspring with a **third** phenotype that displays **BOTH** traits at the same time
   1. Ex: Red and White Striped



# Codominance

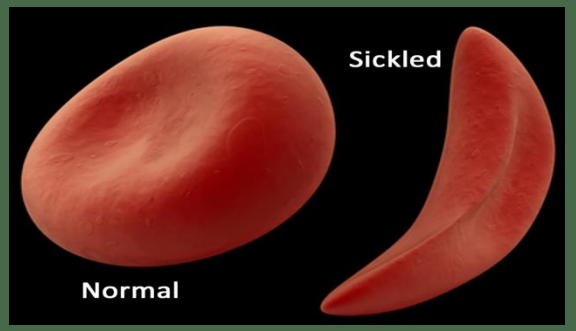
C. EXAMPLE: If a homozygous **red** flowered snap dragon plant (RR) is crossed with a homozygous **white** flowered snap dragon plant (WW), all of the F1 offspring will have **Red and white** flowers.

- RED flower x WHITE flower → RED & WHITE flower

# VIII. Human Codominance

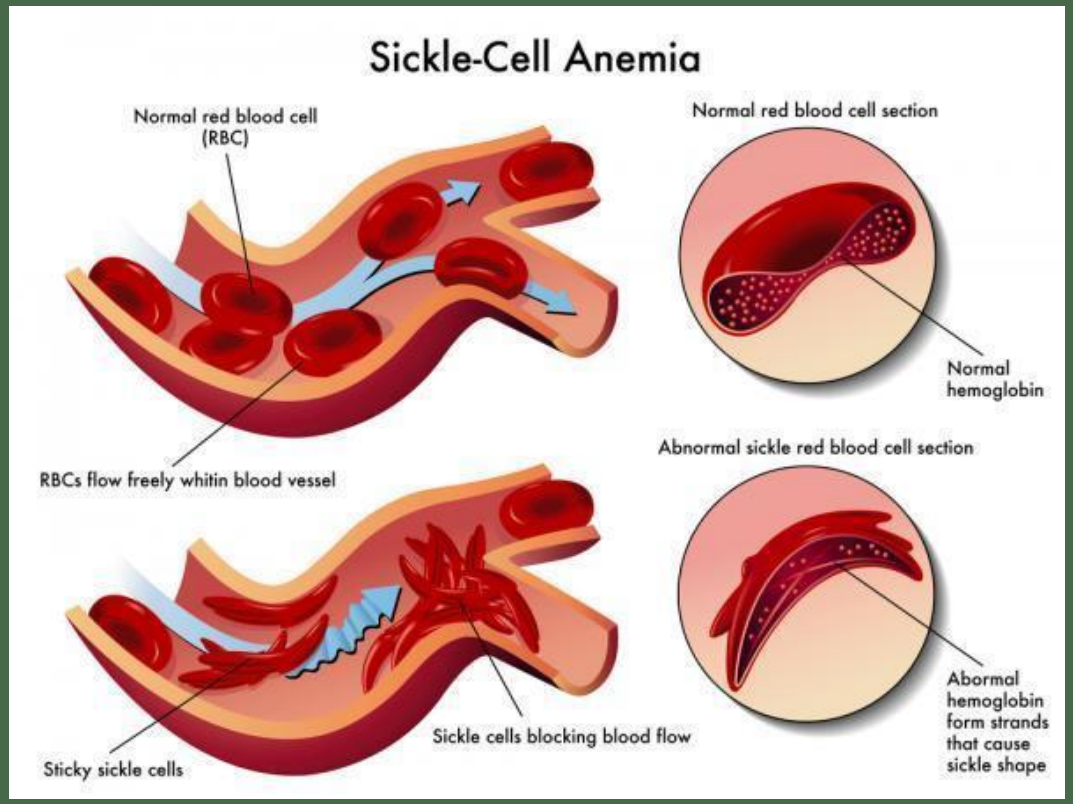
A. Sickle-Cell Anemia

1. An individual who is heterozygous (change in notes) for sickle-cell alleles will express **BOTH** **normal** and **abnormal** shaped blood cells
   - The oxygen carrying protein hemoglobin differs by one amino acid than the regular cause the shape to change: Normal RBC are **disk shaped** and abnormal are **half moon** or sickle shaped.
2. Abnormally shaped blood cells **slow blood flow**, **block vessels**, and result in tissue damage and **pain**.
3. Heterozygous individuals are said to have the sickle-cell trait because they show signs of sickle-cell related disorders if the availability of oxygen is reduced.




Normal red blood cell

Sickle cell



# VIII. Human Codominance

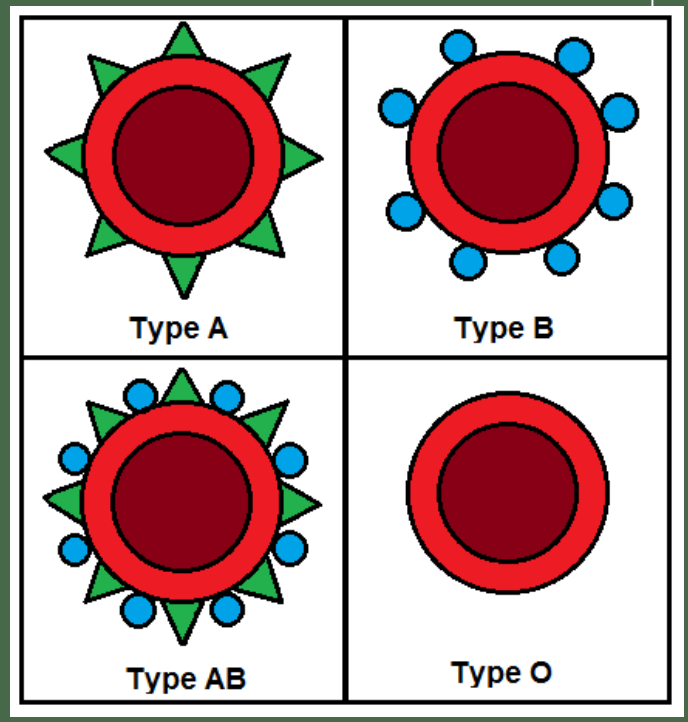
## A. Blood Types

1. Blood type is determined by **multiple** alleles. This means there are more than two types of alleles possible that can make up a paring.
   - **Allele A**: red blood cells produce A antigens (carbs) on the outside of the cell
     - Allele is expressed $I^A$ because it is **dominant**
   - **Allele B**: red blood cells produce B antigens (carbs) on the outside of the cell
     - Allele is expressed $I^B$ because it is **dominant**
   - **Allele 0**: red blood cells will **NOT** produce an antigen (carbs)
     - Allele is expressed i because it is **recessive**

# VIII. Human Codominance

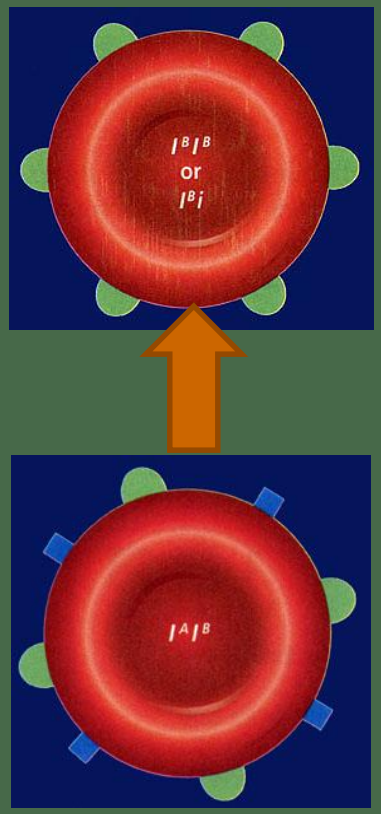
A. Blood Types

2. Determining Blood types is necessary before you receive a blood transfusion because incompatible red blood cells **clump** together or clot causing death.
3. Your immune system or antibodies recognizes the red blood cells belonging to you. If cells with a **different type** of antigen enter your body your immune system will attack them



# Will the following cause death?

- Can a person with type B blood receive type AB blood?




- Can a person with type A blood receive type O blood?