

# BLOOD



# BLOOD:

- Blood is a connective tissue. रक्त
- Ph of blood is 7.4 (slightly basic/alkaline in nature) \* संयोजन 3 लक्ष
- Average Volume of blood in an adult: (5-6) ltr 50kg → 3.5kg  
60kg → 4.2kg
- Weight of blood: 7% of our body weight अल्प क्षारीय  
50-60 kg

## COMPOSITION OF BLOOD:

Blood is mainly composed of 2 parts:

1. Plasma (55%): liquid part of blood, yellow in colour रक्तद्रव
2. Cells/Corpuscles (45%): solid part of blood, red in colour. रक्तकणिका

## Composition of Plasma:

1. Water: 92%
2. Plasma Protein: 7%

Plasma protein mainly consists of 4 protein: Albumin, Globulin, Prothrombin, Fibrinogen

3. Salts and Minerals: 1% (Sodium, Calcium, HCO<sub>3</sub><sup>-</sup>)

Note: Yellow colour of plasma is due to a pigments namely Bilirubin, produced by Liver.

## FUNCTION OF PLASMA:

1. Provides fluidity to blood.
2. Helps in blood clotting.
3. Regulates the Ph of blood.
4. Regulates body temperature.

Yellow Pigment Blood clotting



Salts and Minerals

\* Anti clotting agent

Hepatitis

used Liver

PH

Liver

<p>Cell/Corpuscles (45)</p>	<p>RBC RED BLOOD CORPUSCLES</p> <p>लाल रक्तिका कणिका</p>	<p>WBC WHITE BLOOD CELL</p> <p>श्वेत रक्तिका कणिका</p>	<p>PLATELETS</p> <p>थ्रॉम्बोसाइट्स</p>
<p>SCIENTIFIC NAME:</p> <p>WBC - 8000 RBC: 8000 x 600 48mm</p>	<p>ERYTHROCYTES</p> <p>Red Cells/Corp.</p>	<p>LEUKOCYTES</p> <p>White Leuks</p>	<p>THROMBOCYTES</p>
<p>NUMBER(/0.001ML):</p>	<p>(5- 5.5)MILLION* FEMALE: (4.5- 5)MILLION MALE: (5-5.5)MILLION AVERAGE NUMBER :5 MN (5-6) - (25-30) trillion 12 10</p>	<p>(4000-11,000)</p>	<p>(1.5- 4.5)LAKHS</p>
<p>DISEASE:</p> <p>RBC:WBC:Plat - 600:1:40</p>	<p>DEFICIENCY: ANAEMIA अस्थिर रक्तिका EXCESS: POLYCYTHEMIA</p>	<p>DEFICIENCY: MANY DISEASE EXCESS: BLOOD CANCER (LEUKEMIA) 20000</p>	<p>DEFICIENCY: BLEEDING/ HAEMMORHAGE EXCESS: THROMBOSIS Blee</p>

# RBC (ERYTHROCYTES):

- Red colour of RBC is due to a protein namely Hemoglobin. Blood Protein
- Hemoglobin: It is a protein found in our blood and composed of a metal IRON. Iron

## Function of HB:

(12-16) unit (gm/dl)      M: (13-16) unit  
F: (12-15) unit

1. ~~\*~~ Transportation of Oxygen throughout the body that helps in energy formation.
2. Exhalation of CO<sub>2</sub>.

## Facts:

Shape: Biconcave

Nucleus: No nucleus, No Mitochondria

Life span: 120 days

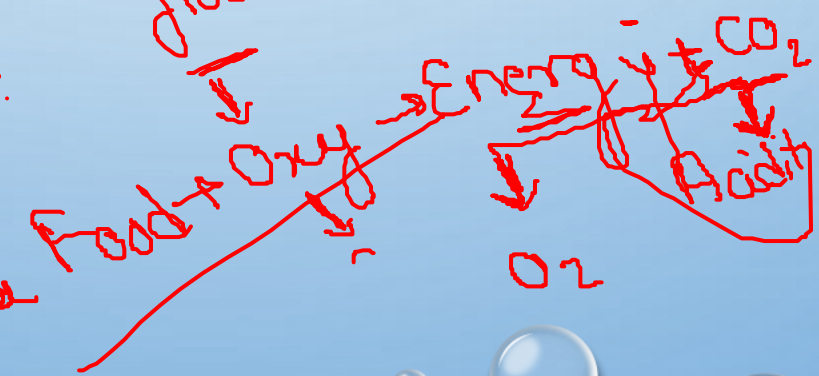
Origin: Red Bone Marrow

Graveyard: Spleen and Liver

Study of Blood:

Haematology

globin



Femur. bone  
back Camel.  
Lama  
both  
left kidney

Brain of the  
(long bone)  
Exception:



# WBC (LEUKOCYTES):

- Also known as "Soldier of body" / "bodyguard of body"
- Function: To fight against disease i.e. to provide immunity

size: RBC, WBC, Platelet  
WBC > RBC > Platelet

## Facts:

- Shape: Irregular/amoeba shape
- Nucleus: Nucleated (Present)
- Life span: (2-5) days / up to 21 days
- Origin: Bone Marrow
- Graveyard: Liver / in the blood



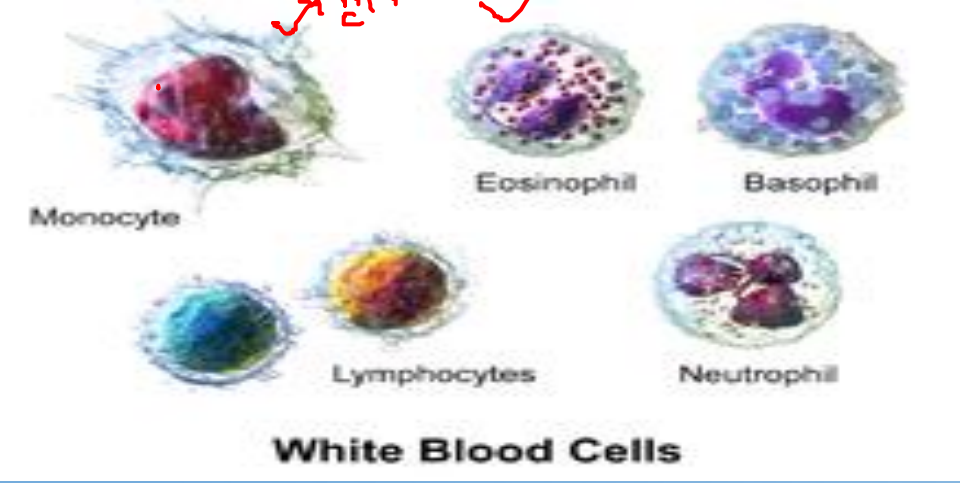
Eosinophil

Basophil - min (0.5-2)%

Neutrophil - max (60-70)%

Monocyte - Largest

Smallest WBC  
Lymphocyte  
Largest WBC



# PLATELETS (THROMBOCYTES):

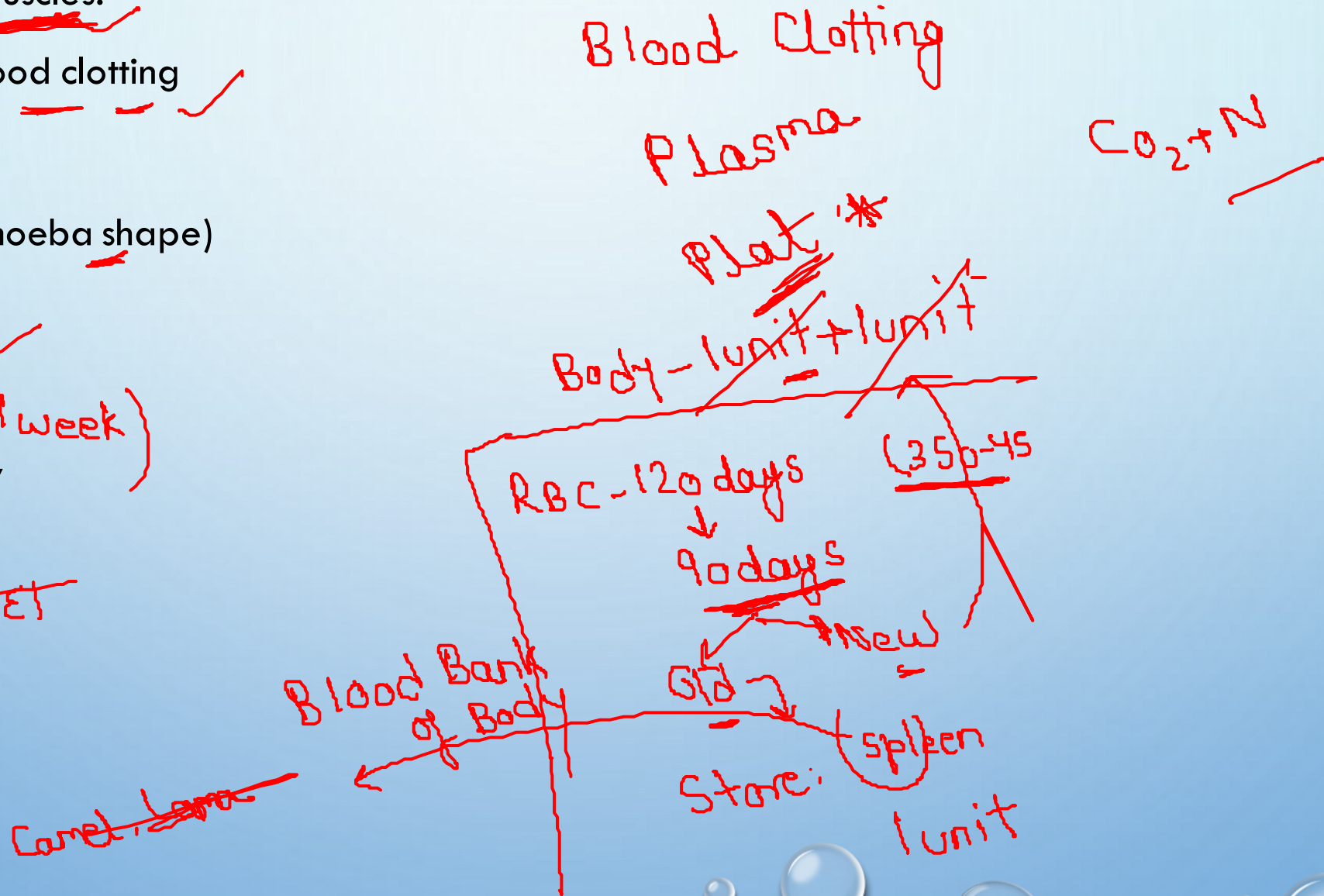
(1.5-4.5) lakh

- Smallest blood corpuscles.
- Function: Helps in blood clotting

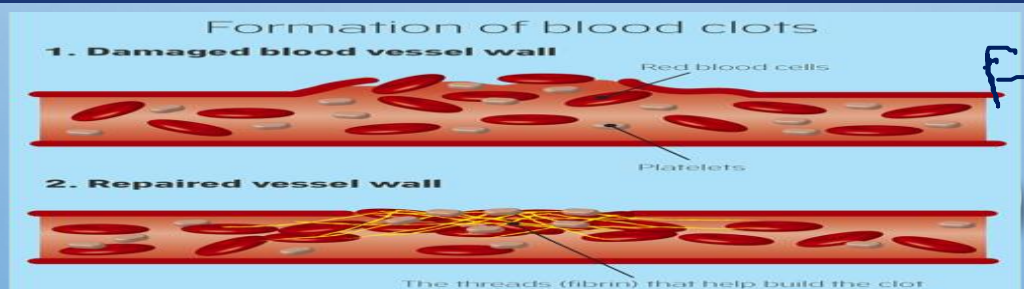
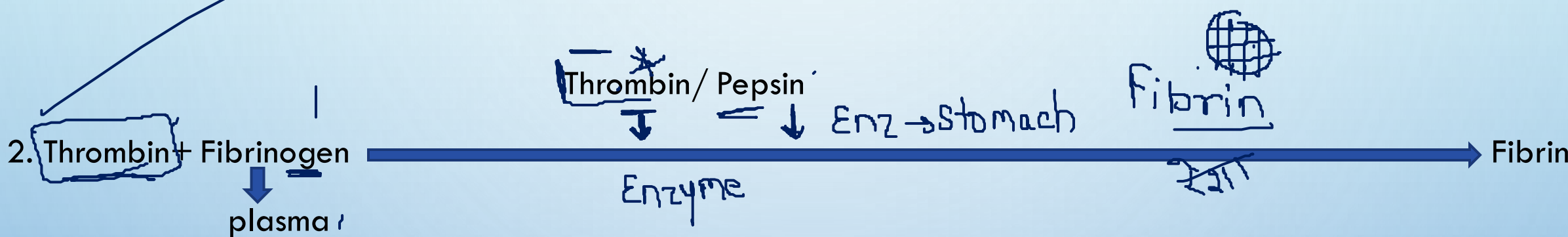
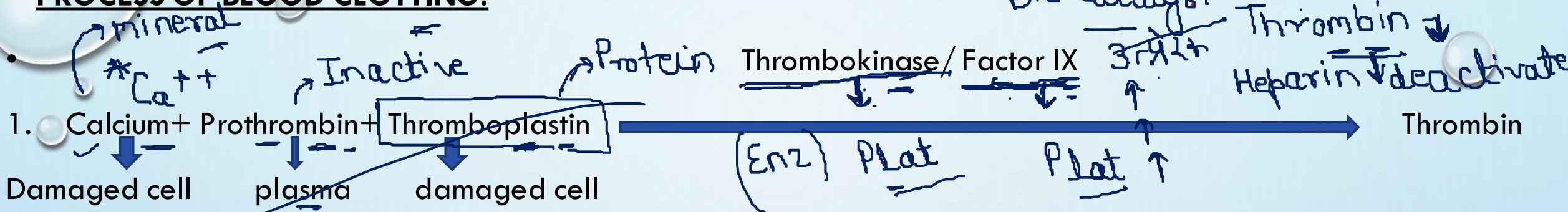
## Facts:

- Shape: Irregular (amoeba shape)
- Nucleus: No Nucleus
- Life span: 7 days (1 week)
- Origin: Bone marrow
- Graveyard: Spleen

~~Platelet~~



**PROCESS OF BLOOD CLOTTING:**



Factor IX  
Christmas factor