Liver

- The liver produces a compound called *Bile*, which is stored in the gall bladder (Since not all is needed at the same time). It is also released into the Duodenum
- Bile breaks down fat droplets into many smaller droplets. This increases the digestion speed of fats & oil

After the small intestine, we enter the large intestine

Large intestine

- Not much nutrients are left when it comes to the large intestine, if the person is healthy
- Now contains water and undigested materials as well as waste products such as dead cells
- Water is reabsorbed via osmosis
  - If not enough water is reabsorbed, the person gets diarrhea
  - If too much water is reabsorbed, the person gets constipated
- *E. Coli* bacteria produce vitamins from cellulose
  - Also produce methane (Farts)

Exits from anus

The circulatory system

- Transports blood around the body
- Ca. 5-6 liters of blood in adults

Why is blood important?

- Transports oxygen (O_2) and carbon dioxide (CO_2)
- Transports nutrients
- Heals wounds
- Immune system
- Transports *antibodies* (Y shaped proteins used to identify and kill diseases)
- Transports urea (What is urea ask göran)
- Transports hormones
  - Chemical substances transported through the blood system
- Transports heat
  - Heat is transported by blood to *superficial blood vessels* (A vein that is close to the surface of the body). That allows heat to leave the body. This is why a person turns red when they exercise. Sweat is a way for the body to release heat

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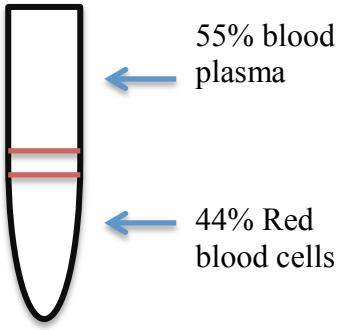
What is in the blood?

The blood consists of 4 main components

- Plasma
  - Liquid part of the blood
  - 90% of plasma is water
  - The rest 10% is dissolved salts, hormones and proteins
- Red blood cells (Erythrocytes)
  - Transports oxygen (O_2)
  - Contains a protein called *Hemoglobin* which has a primary purpose of oxygen transport



Pancreas	Abdominal cavity	Releases Pancreatic juices into Duodenum
Villi	Small intestine	Folds increasing surface area
Microvilli	Small intestine	Membrane protrusions on the villi
Superficial blood vessel	Veins close to the surface of the body	Cooling of the body
Plasma	Blood	Liquid part of the blood
Red blood cells (Erythrocytes)	Blood	Transports oxygen
Oxyhemoglobin	Red blood cell	Hemoglobin that carries oxygen
Deoxyhemoglobin	Red blood cell	Hemoglobin without oxygen
White blood cells (Leukocytes)	Blood	Part of the immune system
Phagocytes (white blood cell)	Blood	Swallow pathogens
Lymphocytes (white blood cell)	Blood	Identification of diseases and initiation of defenses
Platelets (Thrombocytes)	Blood	Blood coagulation
Vena cava	Heart	Blood into right atrium
Right and left Atrium	Heart	Top parts of the heart
Right and left ventricle	Heart	Lower parts of the heart
Pulmonary artery	Heart	Blood leaves heart, leading to the lungs
Pulmonary vein	Heart	Blood returns to heart form the lungs
Aorta	Heart	Blood leaves the heart
Veins	Body	Transport blood to the heart
Arteries	Body	Transport blood from the heart
Capillaries	Body	Connect veins and arteries
Peristalsis	Esophagus and Small intestine	Wave like muscle contractions that push food down

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Other (Proteins, bacteria etc.)	Location	Purpose
Mucin (Protein)	Saliva and Gastric Juices	Acts as lubricants making food slippery
Hemoglobin (Protein)	Red blood cell	Transports oxygen
Fibrin (Protein)	Platelets	Forming net across the hole (Blood coagulation)
Antibodies	White blood cells	Identify and neutralize pathogens
E. Coli (Bacteria)	Large intestine	Vitamins from cellulose and methane
Peptic Ulcer disease	Stomach sack	Break in the lining of stomach
Gastric Juice	Stomach sack	Acidic and contains HCl and Pepsin
Pancreatic Juice	Duodenum (Produced in Pancreas)	Alkaline and contains buffers, trypsin, amylase and lipase