Study the clotting diagram (Figure 17.14 on page 652) with the following goals: learning the stimuli for intrinsic and extrinsic initiation of clotting, recognizing the conditions which support clotting, understanding the importance of enzyme or factor activation and the availability of Ca$^{2+}$. Do not memorize the figure or the name of each factor.

Table 17.2 summarizes the formed elements of the blood. Prepare for the chapters on the respiratory system and immune system by studying this table. Be clear about the structure, function, and number of each formed element in blood.

Pages 656-658 introduce the concept of antigens/agglutinogens which form the foundation of the ABO Rh blood typing system. Your competency test on blood requires you to understand and explain this system.

Vocabulary is needed to understand and explain concepts. Sample vocabulary includes:

- plasma
- albumin
- globulin
- gamma globulin
- fibrinogen
- solute
- electrolyte
- erythrocyte
- reticulocyte
- leukocyte
- platelet
- hematocrit
- buffy coat
- neutrophil
- lymphocyte
- monocyte
- eosinophil
- basophil
- biconcave
- anucleate
- diameter
- surface area
- hemoglobin
- heme
- globin
- oxyhemoglobin
- deoxyhemoglobin
- carbaminohemoglobin
- hematopoietic
- hemocytoblast
- hypoxia
- viscosity
- bilirubin
- urobinogen
- erythropoietin
- amoeboid
- positive chemotaxis
- leukocytosis
- macrophage
- phagocyte
- polymorphonuclear
- antibody
- heme
- histamine
- oxyhemoglobin
- nitric oxide
- hemostasis
- clot
- coagulate
- vasoconstriction
- platelet plug
- von Willebrand factor
- intrinsic
- extrinsic
- clot retraction
- fibrinolysis
- heparin
- plasmin
- fibrin
- plasminogen
- fibrinogen
- tissue factor

Major concepts that you must remember and understand include:

- Gender related blood volume and RBC differences.
- Functional and structural differences between WBCs.
- Functions of blood.
- Transport function of plasma proteins.
- Osmoregulatory function of plasma proteins.
- Chemical characteristics of blood.
- Components of blood by volume and by weight.
- A description of the suspended and dissolved components of plasma.
- Structural characteristics of erythrocytes, leukocytes, and platelets.
- Composition and function of hemoglobin.
- Concept of stem cell origin of populations of cells. Hormonal control over cell selection and growth.
- Stimuli for erythropoiesis, leukopoiesis. Limits on both.
- Function and fate of RBCs, recycling of iron, elimination of waste heme.
- Function, fate, numbers of leukocytes.
- Function and fate of platelets.
- Steps in hemostasis described.
- Importance of control over coagulation.
- Process whereby clots are removed.
- Antigens and antibodies and the ABO blood type system.

Concepts you should learn on your own:
Types and causes of anemia.
Leukocyte disorders.

Concepts you can skip:
Names of intermediate cells in red and white blood cell production (with the exception of reticulocyte).