

Study Guide — PBS Unit 1: Medical Investigation (Mid-Unit Test)

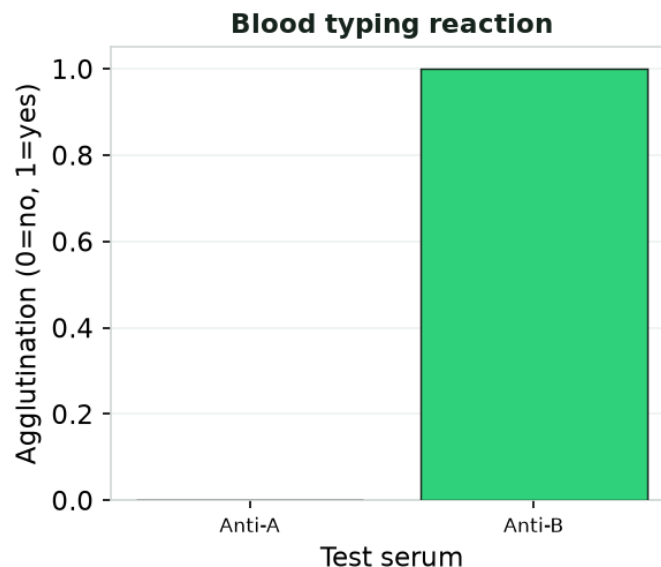
Principles of Biomedical Science · Unit 1 — Medical Investigation · Modeled on the PLTW Guided Review format

Vocabulary to know cold

Term	Definition
Anatomical position	Standing erect, facing forward, arms at sides, palms forward — the reference for all directional terms.
Medial / Lateral	Medial = toward the midline; lateral = away from the midline.
Proximal / Distal	Proximal = closer to the trunk/attachment point; distal = farther from it.
Superficial / Deep	Superficial = closer to the surface; deep = farther from the surface.
Frontal (coronal) plane	Divides the body into anterior (front) and posterior (back) portions.
Thoracic cavity	Chest cavity (heart, lungs), separated from the abdominal cavity by the diaphragm.
Diaphragm	Muscle separating the thoracic and abdominal cavities; also the main muscle of breathing.
Erythrocyte	Red blood cell; carries oxygen via hemoglobin and lacks a nucleus when mature.
Agglutination	Clumping of red blood cells when antigens meet matching antibodies; the basis of blood typing.
Rigor mortis	Postmortem stiffening of muscles, used with algor and livor mortis to estimate time of death.
Prefix peri-	Means 'around' (e.g., pericardium = membrane around the heart).
Suffix -logy	Means 'the study of' (e.g., osteology = study of bone).

Worked examples (follow the reasoning)

Example 1. A bloodstain agglutinates with anti-B serum but NOT with anti-A serum. Determine the ABO blood type and explain the reasoning.



- Agglutination means the matching antigen IS present on the red cells.
- No reaction with anti-A means the A antigen is absent.
- Reaction with anti-B means the B antigen is present.
- B antigen present + A antigen absent = type B.

Answer: Type B.

Example 2. Decode the medical term 'pericarditis' by its word parts.

- Identify the prefix: peri- means 'around'.
- Identify the root: cardi/o means 'heart'.
- Identify the suffix: -itis means 'inflammation of'.
- Combine: inflammation of the tissue around the heart.

Answer: Pericarditis = inflammation of the pericardium (the membrane around the heart).

Practice questions (with reasoning)

1. On a cadaver, a cut described as 'frontal' produces a slice that separates:

- A. Left from right
- B. Front from back
- C. Top from bottom
- D. Inside from outside

Answer: B. The frontal (coronal) plane separates the anterior (front) from the posterior (back).

2. Which sequence correctly orders postmortem changes used to estimate time of death?

- A. Algor mortis cools the body; rigor mortis stiffens muscles; livor mortis pools blood
- B. Rigor mortis cools the body
- C. Livor mortis stiffens muscles
- D. Algor mortis pools blood in the skin

Answer: A. Algor = cooling, rigor = stiffening, livor = blood pooling/discoloration.

3. Which structure is part of the thoracic cavity?

- A. Stomach
- B. Lungs
- C. Bladder
- D. Small intestine

Answer: B. The lungs (and heart) lie in the thoracic cavity; stomach, bladder, and intestine are below the diaphragm.

4. The term 'subcutaneous' uses the prefix 'sub-'. What does it indicate about location?

- A. Above the skin
- B. Below / under the skin
- C. Around the skin
- D. Within a vein

Answer: B. Sub- means below/under; subcutaneous means beneath the skin (cutane/o = skin).