

Study Guide — PBS Unit 1: Medical Investigation (Pretest)

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

Vocabulary to know cold

Term	Definition
Anatomical position	Standard reference posture: standing erect, facing forward, arms at sides, palms facing forward.
Supine	Lying on the back, face-up.
Prone	Lying on the stomach, face-down.
Superior / Inferior	Superior = toward the head (above); inferior = toward the feet (below).
Anterior / Posterior	Anterior = toward the front; posterior = toward the back.
Sagittal plane	Vertical plane that divides the body into left and right portions.
Frontal (coronal) plane	Vertical plane that divides the body into anterior (front) and posterior (back) portions.
Transverse plane	Horizontal plane that divides the body into superior (top) and inferior (bottom) portions.
Thoracic cavity	The chest cavity; contains the heart and lungs.
Plasma	The liquid portion of blood that carries cells, nutrients, and proteins.
ABO blood typing	Classification of blood by A and B antigens on red blood cells (types A, B, AB, O).
Algor mortis	Postmortem cooling of the body toward room temperature, used to estimate time of death.
Vital signs	Measurements of basic body function: temperature, pulse, respiration, and blood pressure.

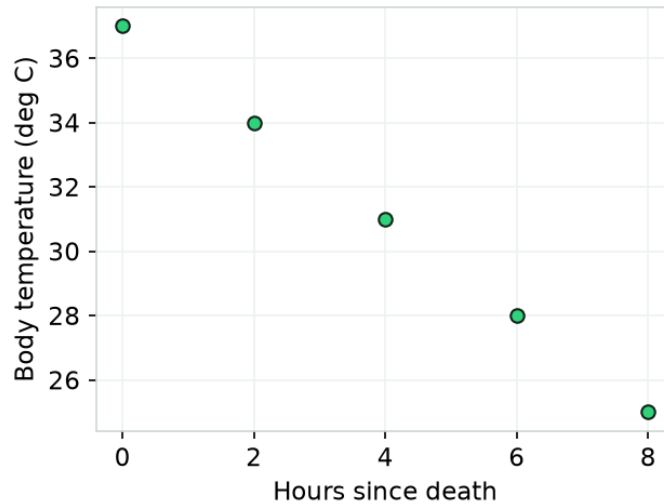
Worked examples (follow the reasoning)

Example 1. An autopsy report states: 'A wound is located on the anterior, superior region of the thorax, lateral to the sternum.' Translate this into plain language.

- Anterior = front of the body.
- Superior = toward the head / upper part.
- Thorax = chest region.
- Lateral to the sternum = to the side of the breastbone (away from midline).

Answer: The wound is on the upper-front part of the chest, off to the side of the breastbone.

Example 2. A body was discovered and the core temperature measured 30 degrees C in a room held at 21 degrees C. Roughly estimate how long the person may have been deceased, using the rule that a body cools about 1.5 degrees C per hour early after death.



- Normal living temperature is about 37 degrees C.
- Total drop = $37 - 30 = 7$ degrees C.
- At ~1.5 degrees C per hour, time = $7 / 1.5$.
- $7 / 1.5$ is approximately 4.7 hours.

Answer: Roughly 4 to 5 hours since death (an estimate; cooling slows as the body nears room temperature).

Practice questions (with reasoning)

1. A structure described as 'distal' on the arm is:

- A. Closer to the shoulder/trunk
- B. Farther from the shoulder/trunk (e.g., the hand)
- C. Toward the midline
- D. On the back surface

Answer: B. Distal means farther from the point of attachment to the trunk; the hand is distal to the elbow.

2. Which plane would a pathologist use to view a horizontal 'slice' showing both lungs and the heart at the same level?

- A. Sagittal plane
- B. Transverse plane
- C. Frontal plane
- D. Median plane

Answer: B. A transverse (horizontal) plane produces a cross-section showing structures at one level.

3. A blood sample shows A antigens but no B antigens on the red cells. The ABO blood type is:

- A. Type O
- B. Type B
- C. Type A
- D. Type AB

Answer: C. Presence of A antigen and absence of B antigen indicates type A.

4. The prefix 'hypo-' in the term 'hypothermia' means:

- A. Above / excessive
- B. Below / deficient
- C. Around
- D. Within

Answer: B. Hypo- means below or deficient; hypothermia is abnormally low body temperature.