



OHIO CSI FORENSIC DIVISION

UNIT 1 · MEDICAL INVESTIGATION · CASE RESPAWN

Period 6A-7B · Respawn, an e-sports lounge with a smoothie counter

FORM NO. CSI-1-D14-S
CASE NO. JH-26-0831-B
REV. 2026-27
PAGE ____ OF ____

FOR EDUCATIONAL USE

OHIO CSI FORENSIC DIVISION

DO NOT DISTRIBUTE ANSWER KEYS

DAILY EVIDENCE SHEET

Sep 30 · Investigation Day 14 of 18 · The Fabric Under the Lens

OFFICIAL

WEBXAM · DOMAIN 1 HANDLING, PREPARATION, STORAGE AND DISPOSAL · OHIO OUTCOMES 5.5 AND 2.1

VOCABULARY IN BOLD IS DEFINED WHERE IT FIRST APPEARS

INVESTIGATOR CODE (PERIOD + CODE, NOT YOUR NAME)	TEAM	DATE
		Sep 30, 2026

WHY TODAY MATTERS, IN PLAIN ENGLISH

SEC 00

Real pathologists put tissue under a microscope to name the process behind an organ finding, because the weave of the tissue tells a truth the naked eye misses. Today you read the case slides the same way: describe, name the pattern, then connect it to the finding it explains.

Today you will: read the case's tissue slides: learn the four tissue families, then make the **histology** calls that explain the organ findings from Day 13.

The ten-year idea: Organs are built from four tissue families. Disease and injury change the weave, and the microscope reads the weave.

HISTOLOGY: reading tissue under a microscope. Analogy to hold onto: checking the fabric weave, not just the shirt.

EDEMA: swelling from fluid where it should not be. Analogy to hold onto: a waterlogged sponge.

PART A · READ THE BRIEFING, THEN ANSWER FROM THE TEXT

SEC 01

Every organ in the body is woven from four tissue families: EPITHELIAL (covering and lining sheets), CONNECTIVE (support and transport: bone, blood, the fibrous packing), MUSCLE (contraction), NERVOUS (signaling). Analogy: check the fabric, not just the shirt: two shirts can look alike on the rack while one is cotton and one is polyester; the weave tells the truth. LIMIT: real slides mix families in one field, and staining quality varies; histologists read patterns, not single cells.

What changes under the lens in disease and injury: fluid where it should not be (**edema**: a waterlogged sponge look, widened spaces), inflammatory cells arriving (small dark nuclei crowding in: the body's response crew on

site), tissue architecture collapsing or scarring. Each is a mechanism footprint. The organ findings from Day 13 said WHERE; today's slides say WHAT PROCESS.

The case slides in this pack were selected by the examiner to answer the open questions from day 13. Your call sheet works like every comparison so far: describe the field first (what you SEE), then name the pattern (what it MATCHES), then connect it to the finding it explains (what it MEANS for the cause tree). Name first and you start seeing what the name predicts. Three columns, same discipline as day one.

Answer from the reading above. Cite the sentence you used by copying its first three words in quotation marks.

PBS-U1-
D14-A1

Name the four tissue families and one job each, from the reading. Copy the first three words of the sentence you used.

PBS-U1-
D14-A2

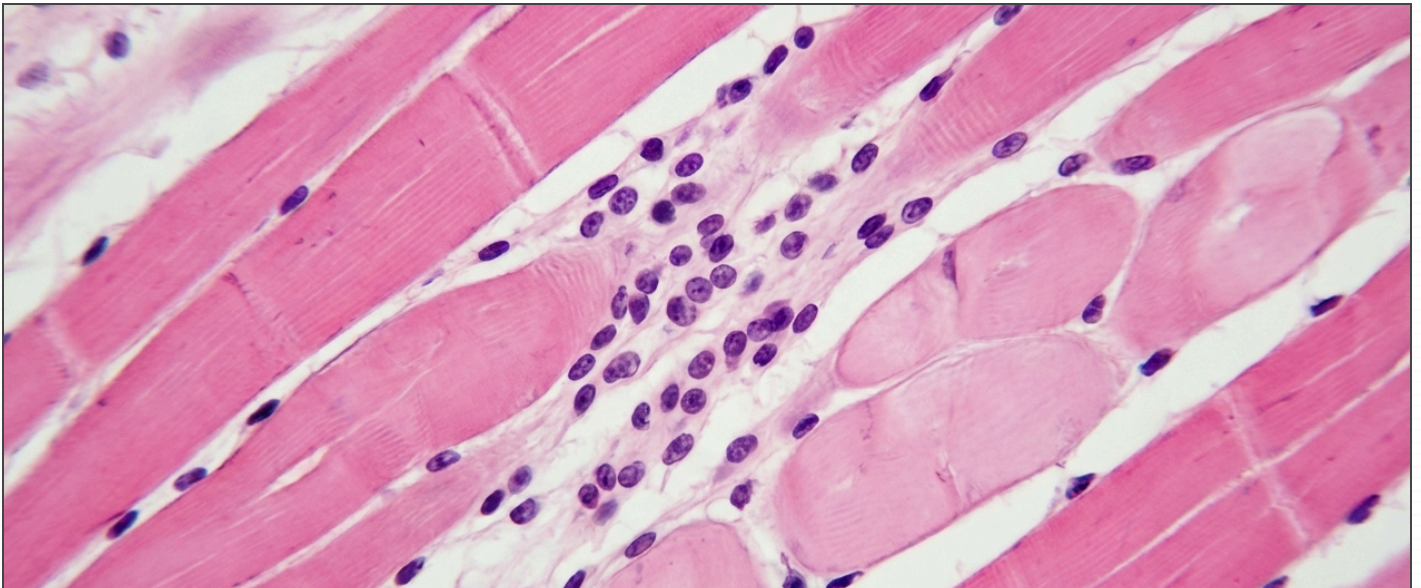
The reading gives an order for reading a slide: describe, name, connect. Why that order and not the reverse?

WORKED EXAMPLE, STEP BY STEP (A PRACTICE CASE, NOT OURS)

SEC 01A

A histology call on a practice slide (training case, not ours)

A training slide, card T-4, is labeled 'skeletal muscle, thigh, from a crush injury case' at 200x, and you must fill one call-sheet row for it.



What to notice: Notice the pale gaps between fibers (edema) and the crowd of small dark nuclei in those gaps (inflammatory cells), and compare both against the tight, evenly packed fibers a healthy reference would show.

1. Put the healthy reference for the same tissue family on the table first. Healthy skeletal muscle: long parallel fibers, fine repeating bands across them, nuclei pushed to the edges of each fiber. Result: you now know what 'normal' looks like before you look at the case card.
2. Read the magnification and turn it into a real size. At 200x the whole printed field is about 1 millimeter across in real life. Result: any feature you describe can be sized against that 1 millimeter.
3. Describe before you name. What you see: the fibers are pushed apart by wide, pale, watery spaces; many small dark nuclei crowd between the fibers; several fibers look pale and swollen. Result: three visible features written down with no pattern word yet.
4. Now name the pattern from the features. Wide pale spaces where tissue should be tight = edema (fluid where it should not be). Small dark nuclei crowding in = inflammatory cells, the body's response crew. Result: 'edema with inflammation' and each word points at a feature you already wrote.
5. Connect it to the organ finding it explains. The training case's exam sheet says 'thigh swollen and bruised.' The slide shows the process behind that: fluid and response cells in the muscle. Because a response crew only arrives in a living body, this is also a vital response: the crush happened while the person was alive. Result: the connection column names the exam finding and what the slide adds to it.
6. Estimate one size to prove the magnification step. One nucleus spans about one hundredth of the 1 millimeter field: 1 mm divided by 100 = 0.01 mm = 10 micrometers (1 mm = 1,000 micrometers), precise to about the nearest few micrometers on a printed image. Result: a number with a unit and an honest precision.
7. Write the ceiling sentence. Result: 'This slide supports a mechanism (crush injury with a living response). It cannot say what did the crushing, who was there, or the manner of death.'

Finished product: Call-sheet row: skeletal muscle (200x); healthy = tight parallel banded fibers; seen = fibers pushed apart by pale spaces, dark nuclei crowding in, swollen fibers; pattern = edema with inflammation, a vital response; connects to the exam finding 'thigh swollen and bruised'; supports a mechanism, not a manner.

Now do the same steps on today's real data in Part B. If you were in class, use your team's data. If you were absent or are new, use the canned data set below.

IF YOU WERE NOT IN CLASS: THE DATA YOU NEED

SEC 01B

ABSENT OR NEW TO THE CLASS? START HERE

The histology slide set (E12) came back: three case slides and two healthy reference cards, all marked SIMULATED. Team E led the reads (describe, then name, then connect), Team D connected slide 1 to the panel and the cassettes, and the class considered anaphylaxis as a medical hypothesis. The manner question stayed open.

Slide 1: larynx (E12, EXHIBIT 017; healthy reference EXHIBIT 016)	Tissue family: a thin fringed lining (epithelial) over a slim under-layer of connective tissue (the under-layer is called the submucosa). Healthy reference: a thin fringed surface over a slim, compact under-layer. Field: the under-layer is stretched wide and pale in a loose spidery mesh, with scattered cells full of reddish granules (allergy-associated immune cells). Pattern the class called: edema with allergy-type inflammation. Connects to: the Day 13 internal finding of severe swelling of the larynx and airway lining, and the Day 10 panel (tryptase 38 ng/mL, ref below 11; peanut IgE class 5 of 6). Magnification: 100x.
Slide 2: lung (E12, EXHIBIT 019; healthy reference EXHIBIT 018)	Tissue family: air sacs lined by very thin epithelial cells on connective-tissue walls. Healthy reference: open thin-walled air sacs like fine lace. Field: a small airway filled with a pale plug, its wall thickened and crowded with cells, the air sacs around it stretched. Pattern the class called: airway plugging with inflammation and over-inflation (air trapped behind the plug). Connects to: the Day 13 findings of mucus plugging in the airways and hyperinflated lungs.
Slide 3: brow wound margin (E12, EXHIBIT 020)	Tissue family: skin, a lining layer over connective-tissue packing (use the healthy epithelial and connective cards as references; there is no healthy skin card). Field: the surface layer is interrupted at the wound, with red blood cells and small dark immune cells in the tissue below. Pattern the class called: vital response, confirmed at tissue level. Connects to: the Day 13 external finding, a right brow laceration 2.4 cm, edge-patterned, consistent with the counter edge, with bleeding into surrounding tissue.
Mechanism chain written on the board (Day 14)	A primed immune system (peanut IgE class 5) plus peanut protein swallowed; mast cells (the body's allergy-alarm cells) dump their contents and the supplied tryptase value is elevated relative to the printed reference (E10); one value does not establish a measured rise; the airway lining swells and plugs (E11, E12); the airway closes. Working medical hypothesis: anaphylaxis following peanut exposure. The supplied sensitization, tryptase and airway findings support considering it; they do not alone establish the fatal trigger, complete sequence, manner or responsible person. The printed reference is not a validated postmortem confirming cutoff.
Tree state after today (medical hypothesis, manner open)	Recorded findings: E11 reports the hyoid bone and larynx cartilages intact, no ligature furrow, no neck bruising and no defensive wounds. E10 reports every listed drug class negative and ethanol negative. These findings do not exclude all assault mechanisms or all poisons. Screening depends on the substances tested, sample, timing and detection limits. Open: the manner branches, which turn on how peanut protein got into the open container (E4 positive, E5 sealed stock negative) and why the auto-injector was on the back office shelf (E6). Open until the records on Day 16: whose key code JW-0417 is, and what the 9:47 PM storeroom entry on DOC-6 was.

Use these values exactly as your team's data for Part B and Part E. Write "canned data set" at the top of Part B so Mr. Mendoza scores it as make-up work. Where the case file does not fix a number (room measurements,

clock times, hair features), the value here is a classroom placeholder; your room's real numbers replace it.

PART B · WORK THE EVIDENCE

SEC 02

One row per case slide. Keep the healthy reference card for that tissue family on the table while you read. Describe what you SEE before you name what it MATCHES.

FIELD: the circle you see through the microscope (or the printed micrograph). Describe the whole field, not one corner.

MAGNIFICATION: how many times larger the image is than the real tissue. At 100x, a feature 1 millimeter wide on the image is 0.01 millimeter in real life.

INFLAMMATORY CELLS: the body's response crew: small cells with dark nuclei that crowd into injured or infected tissue.

SLIDE (MAGNIFICATION)	TISSUE FAMILY AND WHAT THE HEALTHY REFERENCE LOOKS LIKE	DESCRIPTION: WHAT YOU SEE (SPACES, CELLS, STRUCTURE)	PATTERN CALL AND THE FINDING FROM DAY 13 IT CONNECTS TO

PBS-U1-D14-B1

Call sheet complete: every slide described before it is named, every call citing a visible feature, every connection naming a Day 13 finding. (Scored on the table.)

PBS-U1-D14-B2

Pick the slide that differs most from its healthy reference. Write the two visible differences and the pattern name they earn.

PBS-U1-
D14-B3

Practice numbers. Through the microscope, the field you see is 2 millimeters across in real life. A cell spans one twentieth of the field. How wide is the cell in millimeters? In micrometers (1 millimeter = 1,000 micrometers)? State the precision your estimate deserves.

PART C · WRITE THE CALL

SEC 03

Write the histology paragraph for the case file. For two slides, the description, the pattern, and the Day 13 finding it explains; then the sentence that says what tissue findings can support (a mechanism) and what they cannot name (a manner).

Claim ceiling. Tissue findings support mechanisms; they do not name manners. The tree prunes further today, but it does not resolve.

PBS-U1-
D14-C1

Your writing:

PART D · VOCABULARY IN USE

SEC 04

PBS-U1-
D14-D1

Use **histology** and **edema** correctly in one or two sentences about today's work. A definition alone does not count; use the words about something real.

PART E · SELF-CHECK AND EXIT

SEC 05

One line each. These come from today's pack; answer from memory first, then check.

PBS-U1-
D14-E1

☐

Widened, pale spaces in tissue that should be tight. Pattern?

PBS-U1-
D14-E2

☐

Why describe before naming?

PBS-U1-
D14-E3

☐

What are the four tissue families?

TURN IN

SLIP

Histology call sheet: Per-slide: description, pattern, connection; Logic tree pruning noted; One remaining open question.

Submit the complete Day 14 sheet as one PDF to Wk6 D14 · The Fabric Under the Lens (PLTW 1.2.4) in Schoology by 11:59 PM. The notebook pages named on today's pack stay in your Investigative Notebook. Pre-lab gate: Histology: Four Tissue Types simulation at mendozabiomed.org/learn/lab-sim/pbs-histology-four-tissue.

STANDARDS CITED ON THIS SHEET, AND HOW IT IS USED IN DATA-DRIVEN INSTRUCTION

REF

WebXam alignment. Principles and Practice of Biomedical Technology (code 072110), Handling, Preparation, Storage and Disposal (53.93 percent of the test), Ohio outcome 5.5 Laboratory Standard Operational Procedures.

Ohio Health Science	5.5.5	Explain the principles of microscopy and process a specimen for light microscopy.
Ohio Health Science	2.1.14	Describe the difference between pathology and physiology and the conditions typically observed during a disease state.
Ohio Health Science	2.1.15	Explain the pathophysiology changes associated with or resulting from disease or injury for each body system.
PLTW PBS framework	ANP-A.4	Demonstrate how a change in structure in the body impacts function.
PLTW PBS framework	GLP-B.5	Demonstrate proper use of a microscope to view biological samples.
PLTW PBS framework	EXD-B.4	Draw logical conclusions from experimental data.
Common Core	RST.9-10.4	Determine the meaning of symbols, key terms, and domain-specific words as used in a scientific or technical context.
Common Core	RST.9-10.7	Translate quantitative or technical information expressed in words into visual form (a table or chart) and translate information expressed visually or mathematically into words.
Common Core	WHST.9-10.2	Write informative or explanatory texts, including scientific procedures and technical processes, with precise language and domain-specific vocabulary.
Common Core	HSN-Q.A.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
NGSS	SEP-6	Constructing explanations: construct an explanation based on valid and reliable evidence.

How this sheet is used in DDI. Each item carries a code (for example PBS-U1-D14-B2). Mr. Mendoza scores every item 0, 1, or 2 (2 = complete and correct, 1 = partly, 0 = missing or wrong) and records the scores by period and investigator code, never by name. The scores roll up into these skills:

PBS.S.14a	Name the four tissue families and what each does	items A1, E3
PBS.S.14b	Describe a field before naming a pattern, and cite the visible feature	items B1, E2, C1
PBS.S.14c	Recognize edema and inflammation on a slide against a healthy reference	items B2, E1, D1
PBS.S.14d	Use magnification to estimate real size	items B3

Mastery rule. A skill is on track when at least two of its items score 2 (or its single item scores 2). A skill below that routes you to today's pack, SEC 02 (Background and briefing), and to the matching page on the portal, and it comes back as a warm-up question next week. These scores are Mr. Mendoza's instructional record for deciding what to reteach. They are not the report-card grade, which lives in Schoology.