

Activity 2.1.4

Routine Testing: In the Lab

Draw it, look at it, then read what the lab sent back. A simulated blood draw on a training arm, two slides under the microscope, and your patient's results in the portal. Three tasks, one data table.

DATE	PORTAL DAY	LESSON	TURN IN
Thursday 2026-10-19	Simulated bloodwork data	Lesson 2.1 Talk to Your Doc	Data table

Where this sits. Day 2 of 2. Portal calendar label for today: Simulated bloodwork data.

01 Why today matters

Yesterday you learned what the panels ask. Today you do the thing that produces them: take a sample under supervision, look at cells with your own eyes, and then read a real set of results against the ranges printed beside them.

This is the day the paperwork becomes a procedure.

02 What you already know

- You have the blood count table, the three cholesterol tables and the metabolic panel list from yesterday. You know the reference range that counts is the one printed on the report.
- You have used a microscope in Unit 1, so you know to find focus at the lowest power before you touch the higher objectives.

WHAT THIS SHEET WILL NOT TELL YOU

- This sheet tells you how to look and how to record. It does not tell you what is on the flagged slide or what the patient's results add up to.

03 Vocabulary

TERM	WHAT IT MEANS, PLAINLY
Phlebotomy	Puncturing a vein with a needle in order to take a blood sample.
Phlebotomist	The trained professional who does it. They work in hospitals, clinics, labs and donation centers, and the role has its own certification.
Median cubital vein	The large vein crossing the inside of the elbow. Easy to see and to feel, which is why it is the usual site in adults. Also called the antecubital vein.
Blood-borne pathogen	A disease-causing agent carried in blood. The reason gloves, sharps containers and single-use needles exist.
Personal protective equipment (PPE)	The barrier between you and a hazard. Gloves at this station, plus anything else your teacher specifies.

Tourniquet	A band tightened above the draw site to make the vein easier to find. It comes off before the needle does, not after.
Sharps container	The rigid sealed bin that used needles go into. Nothing sharp goes in normal waste, ever.
Blood smear	A thin film of blood spread on a slide and stained so individual cells can be seen and counted.
Cytopathology lab	The lab where cells and tissue samples are examined for signs of disease.
Hematologist	A doctor who specializes in blood and blood disorders.
Referral	A written order sending a patient to a specialist or a specific service.
Compliance	Whether a patient actually follows through with recommended care. Low compliance is usually a signal about cost, transport, fear or time rather than about the patient.

Every term on this list is flagged for the illustrated glossary, scoped to this activity only. Terms are not shared forward or backward between activities, because a definition from a later activity can hand you an answer you were supposed to derive.

04 How to do the work

Three stations, done in this order. Read the whole safety block before you go anywhere near the needle station.

- 1 Before your turn at the arm, write the seven steps of a safe blood draw in order in your notebook: gather equipment, identify and prepare the patient, choose the site, hand hygiene and gloves, disinfect the site, draw and fill the tubes, dispose of contaminated materials safely.
- 2 Watch the vacuum tube demonstration. Pay particular attention to the part before the needle: greeting the patient, confirming who they are and which test they are booked for, and asking about allergies and medicines.
- 3 At the station, treat the model as a patient. Say the greeting out loud. Confirm the name and the test. A blood draw is frightening or painful for plenty of people, and the part of the procedure that handles that is the part you are practicing.
- 4 Complete the simulated draw under supervision, then dispose of materials exactly as the posted protocol directs.
- 5 Microscope station, healthy slide first. Place the slide on the stage and secure it with the clips. Find focus at the lowest power, then move up. Scan several fields of view before you settle on one.
- 6 Draw what you actually see in colored pencil. Label the components of blood you can identify. Title the drawing.
- 7 Microscope station, flagged slide. The lab has marked this one as a possible blood disorder. Repeat the same procedure: low power first, several fields, then draw and label.
- 8 Write a comparison. What is different about the flagged slide: the proportions of cell types, the size and shape of individual cells, anything about how they are arranged. Describe what you see before you go looking for what it might be.
- 9 Only after the description is written, research what your observations are consistent with. Record the possibilities you find and what would distinguish between them.
- 10 Open the patient portal and record every result into your data table with its value, its unit and the reference range printed beside it. If you meet a test you have not studied, research it before you record what it means.
- 11 Write your summary of findings into the Patient History Report, including recommendations and any referrals you would make. Compare with a partner and argue about the differences rather than averaging them.

MATERIALS

- Phlebotomy training arm at the teacher-run station
- Syringe or butterfly needle, as directed
- Gloves and any other PPE your teacher specifies
- Sharps container
- Microscope
- Prepared slide, healthy blood smear
- Prepared slide, flagged blood smear
- Colored pencils and lab notebook
- Access to the patient portal

05 Safety

READ EVERY LINE BEFORE YOU START

- No human skin is punctured in this activity. The arm is a model. Anyone who points a needle at a person leaves the station.
- The needle station runs under direct supervision only. It does not open until your teacher opens it, and you do not touch the equipment before your turn.
- Follow the needle handling and disposal protocol your teacher posts for this station. That posted protocol is the one that counts, and it overrides anything written here or in the online activity.
- In a real clinic, every patient gets a fresh sterile needle and it goes into a sharps container immediately after use. Know that standard, and know it is the standard whether or not the classroom model is set up the same way.
- Gloves on before you handle anything at the needle station, off and disposed of before you touch a keyboard, a microscope or your own face.
- Tell your teacher before the rotation begins if you have a latex allergy. You will observe rather than handle.
- Nobody works a station alone, and nobody moves a microscope by the stage.
- If you feel faint at the needle station, sit down and say so. That is a normal response to needles and it is not something to push through.

06 Where students get stuck

- Removing the needle before the tourniquet. The tourniquet comes off first. Leaving it tight while withdrawing raises the pressure in the vein and makes bleeding and bruising worse. This is the most reliably missed step in the whole procedure.
- Skipping the part of the procedure that is not technical. Greeting, confirming identity, confirming the test, asking about allergies. On a real patient, drawing from the wrong person or running the wrong test is a bigger error than a bad stick, and it is prevented entirely in those first thirty seconds.
- Starting at high power on the microscope. You will not find the cells, you will chase the light, and you can drive the objective into the slide. Focus at the lowest power, center what you want, then step up.
- Drawing what you expected instead of what is there. Once you suspect something you start seeing it. The order on this sheet is deliberate: draw, describe, then research. If you research first, your drawing is no longer evidence.

- Naming a condition from one slide. A slide shows you cells. It does not show you a patient, a history or a count. Write what is different and what that is consistent with, and say what test would settle it. That sentence is worth more marks than a guess that happens to land.
- Recording a number without its range. The value alone is meaningless a week later, and it is meaningless to the next person who reads the chart. Value, unit, and the range printed on that report. Every line.

07 What you turn in

DATA TABLE

One labeled data table covering every result in the patient portal: test name, value, unit, the reference range printed on the report, and a flag column marking whether the value sits inside or outside that range. Attach both microscope drawings, titled and labeled, with your written comparison of the two slides. Underneath the table, write the result claim: which findings you are flagging for follow-up and, in one line each, why. Then your summary and referrals for the Patient History Report.

08 Check yourself

- ☐ Put these in the right order and say why the order matters: apply tourniquet, remove needle, remove tourniquet, confirm patient identity. (How to do the work, steps 1 and 4, and Where students get stuck)
- ☐ You have described a flagged slide accurately but you cannot name what it shows. Write the sentence that goes in the record. (Where students get stuck)
- ☐ Your table has a value of 5.1 with no unit and no range. What is wrong with that entry, in two specific ways? (Where students get stuck, the last one)