

Table of contents and navigation map

Where each method is taught, where its lab is, and which folder holds it.

HOW TO USE THIS MAP

Every row tells you three things: which document holds it, which page it starts on, and which folder the document lives in. Anything marked **PLTW restricted** carries PLTW case material and stays internal. Everything else was built for this unit and can be shared.

The shape of the unit

Part	What happens	Needs calibration?
Methods	Learn to run fingerprint, hair and chart comparison, step by step.	Comes first
Calibration	Lock a decision rule, work blind sets, compute your own error rate.	Yes, this is it
Analysis modules	Time of death, bloodstain patterns, blood and DNA. Formulas, worked examples, practice problems, then a lab.	No
Timeline	Plot, then list, then say how you know each row.	No
Case file	Organise the evidence, weigh it, write a claim you can defend, audit your own bias.	No

Where to find the lab in each document

Method content and the lab live in the same file. Page numbers below were read out of the delivered PDFs when this map was generated.

Document	Lab starts	What the lab asks students to do
Calibration Lab 1, fingerprint	p. 1	Four exercises: one finger three ways, name the features, ten blind pairs, the scene partial.
Calibration Lab 2, hair	p. 1	Feature inventory, measure a medullary index, stack transparencies, ten blind items, six hairs from one head.
Calibration Lab 3, chart	p. 1	Read the axis, measure a baseline and change, refuse the unmeasurable, stack four charts, apply a locked rule to ten records.
Module 4, time of death	p. 19	Run three clocks: cooling with Glaister, insect accumulated degree hours, rigor and lividity. Report the overlap.
Module 7, toxicology	p. 16	Build a standard curve, read unknowns off it, dilute and re-run the off-scale one, convert to milligrams per kilogram.
Module 8, histology	p. 13	Work a decision key over eight stained sections, find the one showing damage.
Module 9, case closed	p. 17	Weigh every item, try to refute both hypotheses, then name cause, mechanism and manner separately.
Extension, bloodstains	p. 13	Measure six stains, compute impact angles, find the area of convergence, estimate origin height, refuse the unmeasurable one.
Module 6, blood and DNA	p. 15	Read an agglutination plate, state how much a type narrows the field, build a standard curve from a ladder, size unknown bands.
Timeline, any level	p. 2	Plot events on an hour strip, build the record, place each person, then grade your own timeline.

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00 Teacher Lab Setup 4 pages SHAREABLE	The timeline	p. 3
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Teacher Guide 14 pages SHAREABLE	Sequence	p. 1
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00 Big Take Homes 4 pages SHAREABLE	The three clocks	p. 2
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Methods. How to run each test

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Calibration labs. Measure yourself before you measure the case

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	FP-2. Name what you see	p. 3
	FP-3. Ten pairs, rule locked first	p. 5
	FP-4. The scene partial	p. 12

Document	Section	Page
Calibration Lab 1 Fingerprint TEACHER KEY 15 pages SHAREABLE	FP-1. One finger, three impressions	p. 1
	FP-2. Name what you see	p. 3
	FP-3. Ten pairs, rule locked first	p. 6
	FP-4. The scene partial	p. 14
Calibration Lab 2 Hair STUDENT 14 pages SHAREABLE	HR-1. Name every part of one hair	p. 1
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Calibration Lab 2 Hair TEACHER KEY 16 pages SHAREABLE	HR-1. Name every part of one hair	p. 1
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Calibration Lab 3 Polygraph STUDENT 17 pages SHAREABLE	PG-1. Read the axis before you read the line	p. 1
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Calibration Lab 3 Polygraph TEACHER KEY 19 pages SHAREABLE	PG-1. Read the axis before you read the line	p. 1
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Analysis modules. The rest of the case, no calibration needed

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Module 9 Case Closed TEACHER KEY 22 pages SHAREABLE	What this analysis can and cannot tell you	p. 2
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Extension. Not a PBS activity, run only if you have time

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Timeline. Four scaffold levels

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Case file. Four scaffold levels

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	Check yourself before you hand this in	p. 19
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Careers

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00 Career Cards 34 pages SHAREABLE	Who touched this case	p. 1
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	If none of these is for you	p. 34
	What to do next, if one of these caught you	p. 34

Build spec

Document	Section	Page
Web Simulation Brief 3 pages SHAREABLE	What already exists	p. 1
	The rule that governs the whole build	p. 1
	Scope	p. 1
	Required behaviours	p. 2
	What must never be built	p. 2
	Acceptance tests	p. 3

Where the formulas are

Formula	What it gives you	Where it is explained
$PMI = (98.4 - T^{\circ}F) / 1.5$ Glaister equation	Hours since death from body temperature	Module 4, The formulas explained. Assumes a normal starting temperature and a flat cooling rate, and both assumptions fail in nameable situations.
$T(t) = T_{amb} + (T_0 - T_{amb}) e^{-kt}$ Newton cooling	The real shape of a cooling curve	Module 4. Explains why a single average rate misreads both ends.
$ADH = \Sigma (T - T_{base}) \times \text{hours}$ accumulated degree hours	Time since insect colonisation	Module 4. Hours below the base contribute nothing and do not subtract.
$\sin(\theta) = \text{width} / \text{length}$	Impact angle of a blood drop	Bloodstain extension. Measure the elliptical body, never the tail.
$\text{height} = \text{distance} \times \tan(\theta)$	Height of origin above a surface	Bloodstain extension. Biased by construction, and the bias grows with distance.
$\text{distance} = m \cdot \log_{10}(\text{size}) + b$	Fragment size from a gel	Module 6. Needs a ladder run on the same gel, same voltage, same time.
$\text{change} = \text{peak} - \text{baseline}$	Size of a physiological response	Method Card 3 and Calibration Lab 3. Both windows are agreed before measuring.

Where the take-homes are assessed

Take-home	Where a student demonstrates it
A result is a range, not a number	Module 4 overlap table; bloodstain convergence spread; every calibration confusion matrix
Inconclusive is a real answer	FP-3, HR-3, PG-3, and bloodstain BS-6
Exclusion is strong, inclusion is weak	Module 6 typing, FP-4 scene partial, HR-3
Read the scale before the shape	PG-1 three views, Module 6 gel ladder, every scale bar
Lock the rule before you see the answer	FP-3, HR-3, PG-4
Repetition fixes random error, not a bad method	Module 4 three clocks; Teacher Guide error table

Take-home	Where a student demonstrates it
Say how you know, not just what happened	Timeline, all four levels; case file source and status columns