Penn-Trafford High School

Forensic Science 2 — October 6 to November 2, 2026

Forensic Facial Reconstruction Unit

Picking up directly where the Anthropology unit left off, students use each team's completed biological profile to physically or digitally reconstruct a likely face for their assigned individual from The Penn Ridge Incident. The unit culminates in a case study matching each finished reconstruction to a roster of people reported missing after the 1794 skirmish, defended with evidence from bone to face to historical record.

Date	Standard(s)	Daily Activity	Purpose	Assessment
Tue, Oct 6	3.5.A	Intro to facial reconstruction and The Penn Ridge Incident, phase II — recap of each team's biological profile from the anthropology unit.	Reconnects the new skill set to the specific individual each team is now working to identify.	—
Wed, Oct 7	3.5.A	History and methods overview — the American (Gatliff-Snow) clay method, the Russian (Gerasimov) muscle method, and modern digital/CT-based approximation.	Shows there is more than one accepted way to reach the same goal, each with different tools.	—
Thu, Oct 8	3.1.B	Skull landmarks and tissue-depth markers — anatomical points used to place markers, with depths that vary by sex, age, and ancestry.	Connects the biological profile directly to the physical build of the reconstruction.	—
Fri, Oct 9	3.1.B	Lab: placing tissue-depth markers on a skull cast/diagram using each team's own biological profile data.	Turns profile data into the first physical step of an actual reconstruction.	**Lab: Marker Placement**
Mon, Oct 12	—	*No School — In-Service Day*	—	—
Tue, Oct 13	3.1.B	Eyes, nose & mouth — using orbital shape, nasal aperture, nasal spine, and tooth position to approximate facial features.	Shows how skeletal shape constrains and predicts the overlying soft-tissue features.	—
Wed, Oct 14	3.5.A	Lab: building the facial structure I — teams begin the muscle/tissue layer connecting their markers.	Begins the hands-on build phase of the reconstruction.	**Lab: Structure Build I**
Thu, Oct 15	3.5.A	Lab: building the facial structure II — continuing the build, adding major facial muscle groups.	Completes the structural layer before final detailing.	**Lab: Structure Build II**
Fri, Oct 16	3.1.B	Skin, features & finishing details — final layer informed by the team's ancestry, age, and sex findings.	Brings every piece of the biological profile together in one finished face.	—
Mon, Oct 19	3.5.A	Lab: finishing the reconstruction — final detailing session; teams complete their model.	Produces the physical/visual artifact teams will use to argue an identification.	**Lab: Finished Reconstruction**
Tue, Oct 20	3.2.X	Digital and software-assisted methods — how CT scans and 3D-modeling software speed up and refine the same process in real labs.	Connects the hands-on method to the technology used in modern forensic practice.	—
Wed, Oct 21	3.5.J	Case study/discussion: how reliable is facial reconstruction? — examining documented cases where a reconstruction helped, and where it misled, an identification.	Builds critical thinking about the method's real accuracy limits before teams rely on it.	—
Thu, Oct 22	3.5.J	The missing persons file — teams receive the roster of individuals reported missing after the Penn Ridge skirmish.	Supplies the historical record teams must match their physical evidence against.	—

Date	Standard(s)	Daily Activity	Purpose	Assessment
Fri, Oct 23	3.5.J	Matching reconstructions to records — teams compare their completed face and biological profile against the missing-persons roster to propose an identification.	Requires evidence-based reasoning rather than a guess — age, sex, ancestry, stature, and face must all line up.	**Case Study (in progress)**
Mon, Oct 26	3.5.A	Building the identification case — drafting the written argument connecting bone evidence, reconstruction, and historical record to one proposed identity.	Mirrors how a real identification is formally documented and defended.	—
Tue, Oct 27	3.5.J	Case refinement and peer review — teams exchange case files with another group for a second-opinion check.	Builds in the same quality-control step used in the anthropology unit's lab practical.	**Case Study: Peer Review**
Wed, Oct 28	3.5.A	Historical context research — researching the real 1794 Westmoreland County unrest to strengthen the case's historical plausibility.	Grounds the fictional case in accurate local history, the same way a real cold case team would.	—
Thu, Oct 29	3.5.A	Finalizing reports and reconstructions — last work session before presentations.	Ensures both the physical/digital model and the written case are presentation-ready.	—
Fri, Oct 30	3.5.A	Rehearsal and Q&A prep — teams rehearse presenting their case as the lead investigators for the Penn Ridge Incident.	Builds confidence defending a conclusion under questioning, as an examiner would in court.	—
Mon, Nov 2	3.5.J	The Penn Ridge Incident: final case presentations — teams present their identified individual, from bone to face to historical record.	Culminates two months of work into one defended, evidence-based identification.	**Case Study: Penn Ridge Incident Identification**

Standards Key

PA STEELS 3.1.9-12.B – Model the hierarchical organization of interacting systems in multicellular organisms
PA STEELS 3.2.9-12.X – Communicate how devices use wave behavior to capture/transmit information
PA STEELS 3.5.9-12.A – Communicate procedures for using/assessing technological products & systems
PA STEELS 3.5.9-12.J – Synthesize data and analyze trends to make decisions

Standards are aligned to Pennsylvania's STEELS science standards (fully implemented 2025–26). All graded assessments in this course are lab-based or case-study based — there are no traditional written tests or quizzes. Pacing may shift slightly depending on class period.

The Penn Ridge Incident — Missing Persons Roster (fictional)

A starting roster teams can be assigned against once their biological profiles and reconstructions are complete. Names, ages, and roles are fictional and built for this exercise; the historical setting (the 1794 unrest in Westmoreland County) is real.

Cpl. Josiah Vance (approx. age ~35, Male) — Militia corporal, last seen trying to calm the crowd near the creek crossing
Ephraim Cassel (approx. age ~45, Male) — Local distiller and vocal tax protester, reported missing after the skirmish
Margaret "Peg" Doyle (approx. age ~30, Female) — Camp cook/laundress traveling with the militia detachment, missing since the retreat
Pvt. Thomas Bellweather (approx. age ~24, Male) — Militia scout sent to monitor unrest near Penn Ridge Creek, last reported July 1794
Isaiah Kerr (approx. age ~17, Male) — Young farmhand caught up in the crowd, never returned home