CADRE

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Building the Foundation for Authentic Demonstrations of High School Learning

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A report prepared by the Center for Assessment, Design, Research and Evaluation (CADRE) at the CU Boulder School of Education.

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About CADRE

The Center for Assessment, Design, Research and Evaluation (CADRE) is housed in the School of Education at the University of Colorado Boulder. The mission of CADRE is to produce generalizable knowledge that improves the ability to assess student learning and to evaluate programs and methods that may have an effect on this learning. Projects undertaken by CADRE staff represent a collaboration with the ongoing activities in the School of Education, the University, and the broader national and international community of scholars and stakeholders involved in educational assessment and evaluation.

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Executive Summary

Centennial High School is in the first year of active Project-Based Learning (PBL) implementation as part of Pueblo District 60's five-year Magnet Schools Assistance Program grant. Through Project Heroes, Centennial has been redesigned as a STREAM-focused magnet school, and Year Two (2025–26) marks the transition from planning into classroom practice. A distinctive purpose of this case study is to situate that work within a longer-term question: what instructional conditions are needed to eventually support capstone-style, performance-based assessment as a graduation pathway? Colorado's Graduation Guidelines Menu of Options allows students to demonstrate readiness through district capstones and standards-based performance assessments, in addition to standardized tests. That possibility remains a future consideration at Centennial, but the PBL work underway this year represents the foundational instructional shift on which any capstone model would depend.

What Happened This Year

Teacher participation in Year Two was notably strong, with 43 of 45 teachers at Centennial designing and implementing at least one PBL project, representing a 95% participation rate in the first year of active classroom implementation. Teachers attended two structured professional learning sessions facilitated by PBLWorks: a three-day intensive in August 2025 and a follow-up Sustained Support Visit in January 2026. Survey data collected after each training showed meaningful movement in teacher readiness, with more educators indicating they were prepared to launch projects by midyear. Across focus groups and surveys, teachers expressed genuine enthusiasm for the work, describing observable shifts in how students engaged with learning and speaking positively about the growing network of community partnerships with local organizations and institutions. Student and parent perception surveys were largely positive, with most indicators meeting the grant's AY26 benchmark of 60% positive responses. One area warranting continued attention is the proportion of parents reporting that they feel valued and included at the school, which declined from 71% in 2025 to 56% in 2026.

Where the Work Is Still Developing

Classroom walkthrough data present a more textured picture of where implementation currently stands. Between a third and a half of all possible PBL practices were observed across 45 classes, with managing activities observed most consistently and assessing student learning observed least frequently. Classroom observations conducted by researchers at the Center for Assessment, Design, Research, and Evaluation (CADRE) at the University of Colorado Boulder confirmed this variation: some classes demonstrated authentic, standards-aligned project work, while others showed high levels of student engagement without consistent connections to grade-level learning goals. Teachers across focus groups and surveys identified time, scheduling, and competing district priorities as the most significant barriers to implementation. The midyear introduction of mandatory interim assessments led some teachers to abandon projects already underway, and many described PBL, Kagan cooperative learning strategies, and district curriculum requirements as separate and sometimes competing demands rather than elements of a coherent instructional system. Baseline SAT and PSAT data, collected prior to implementation, further underscore the longer-term challenge: Centennial students score below state averages in both math and ELA, and average scores fall below the cut scores the state uses to designate graduation readiness.

Looking Ahead

Year Two at Centennial reflects a school committed to change and navigating the complexity of that work. The priorities for Year Three follow from what the data show. Professional learning should shift from the foundations of project design toward deepening teachers' facilitation skills, particularly around assessing student learning within project contexts and supporting productive student collaboration. Additionally, greater coherence between PBL expectations and district assessment and curriculum requirements would meaningfully reduce the fragmentation that teachers currently experience. And if capstone or performance-based assessment pathways are to become a realistic option for Centennial students, that work will require deliberate planning and broad stakeholder engagement that goes well beyond what is currently in place. Year Two is a promising start to pursue this trajectory.

Introduction

This report presents a case study of Project-Based Learning (PBL) implementation during Year Two (2025–26) at Centennial High School, one of three schools participating in Pueblo District 60's five-year Magnet Schools Assistance Program (MSAP) grant. Through Project Heroes, Centennial has been redesigned as a STREAM-focused magnet school, integrating Science, Technology, Reading, Engineering, Arts, and Mathematics through project-based instructional approaches. Year Two marks the first year of active classroom implementation, and this report documents how that work is unfolding at the school level.

The central purpose of this case study is to examine what early PBL implementation looks like at Centennial and what conditions are being built to support it. That examination is guided by a longer-term question: what does it take to create the instructional foundation necessary for more sophisticated, student-driven performance assessment, including the kind of capstone work that Colorado's graduation guidelines now recognize as a valid demonstration of readiness? Colorado began implementing a Graduation Guidelines Menu of Options in the 2021–22 school year, which allows students to demonstrate readiness in Reading, Writing, and Communicating and Mathematics through non-standardized approaches, including district capstones and collaboratively developed, standards-based performance assessments.

While Centennial is not yet formally developing the PBL through capstone throughline, PBL represents the instructional groundwork from which such work could grow. Evidence from similar school contexts suggests that well-implemented PBL can produce meaningful academic outcomes even in high-poverty, majority Hispanic settings (Saavedra et al., 2022). Capstone projects are, in many respects, an extension of PBL: teacher-designed projects give way, over time, to more student-directed inquiries. Schools that move directly to capstone expectations without first building a project-based culture often find that students lack the collaboration, inquiry, and presentation skills that meaningful capstone work requires (DeLisi et al., 2025). This report is intended to document where Centennial stands at the beginning of that trajectory and where challenges are likely to arise as the work deepens over time.

The report is organized to provide a full picture of early implementation by drawing on multiple data sources and perspectives. We begin with background context on Centennial and the Colorado graduation landscape, followed by baseline outcome data establishing where students are performing prior to PBL implementation. Subsequent sections present findings from interviews with school leadership, teacher surveys and focus groups, classroom walkthrough data, student surveys and focus group, and parent and guardian perceptions. A concluding discussion synthesizes key themes and considers implications for both Year Three implementation planning and the longer-term vision for performance-based assessment at Centennial.

Two research questions guide the analysis presented throughout:

Research Question 1 (RQ1). To what extent and in what ways are educators and leaders at Centennial High School enacting and refining STREAM-integrated Project-Based Learning during the early implementation phase?

Research Question 2 (RQ2). What organizational, instructional, and professional learning conditions are facilitating PBL implementation, and what challenges are constraining educators' and leaders' efforts to integrate STREAM and PBL schoolwide?

All data presented in this report were collected during the 2025–26 school year. Findings are intended to be formative, offering an account of where implementation stands and where adjustments will be needed as the school moves forward.

Background

Centennial High School is a medium sized high school in Pueblo 60 serving 801 students in Year 1 (2024-25) and 784 students in Year 2 (2025-26) (Colorado Department of Education, n.d.-a). This decrease of 17 students occurred before the official beginning of implementation of PBL at Centennial High School. The student population is 71% Hispanic and 70% of students are eligible for FRPL. “Traditional” (pre-PBL) curriculum varies across classrooms, with many using practices like lecture, individual student work time, and worksheets. There are 45 total teachers; 43 of whom are participating in PBL.

Graduation Menu of Options

Colorado began implementing a “Graduation Guidelines Menu of Options” in the 2021-22 school year (Colorado Department of Education, n.d.-b). While specific graduation requirements are set by local school boards, the state requires that all students complete an Individual Career and Academic Plan (ICAP), take at least one Civics course, take one course that “incorporates Genocide and Holocaust studies”, and demonstrate “readiness” in Reading, Writing, and Communicating and Mathematics by meeting at least one of the available measures (Colorado Department of Education, 2026b).

Many of the available measures are standardized tests with designated cut scores, including Accuplacer, ACT, ACT WorkKeys, Advanced Placement exams, ASVAB, IB exams, and/or SAT (Colorado Department of Education, 2026b). However, the state does allow for non-standardized test approaches for demonstrating readiness, including concurrent enrollment classes, district capstones, industry certificates, and “collaboratively developed, standards-based performance assessment”.

Pueblo District 60 has three options for graduation pathways, namely “Career Plus”, “Career Options”, and “Career Now” (Pueblo School District 60, 2025). Each option aligns with Colorado’s requirements but varies in the total credits required in content areas, depending on a student’s postsecondary plans. Every option requires “1 Credit Demonstration of Competency”, either through assessment or a performance option “as prescribed by the Colorado Department of Education” (Pueblo School District 60, 2025).

It is promising that graduation rates increased 4.7 percentage points in the 2024-25 school year (Pueblo School District 60, 2026). However, it is not immediately clear which option most students pursue to demonstrate competency in Reading, Writing, and Communicating and Mathematics. Since nearly all students take the SAT in the state of Colorado and data are publicly available for SAT, we can explore to what extent students at Centennial High School are demonstrating readiness via this particular standardized assessment (Colorado Department of Education, 2026a).

Baseline SAT Data

The SAT is one option endorsed by the state of Colorado for students to demonstrate graduation readiness, requiring a score of 470 in Reading, Writing and Communicating or a score of 480 in Mathematics, represented by a red line in Figures 2a-2b (Colorado Department of Education, 2025). PSAT scores for grades 9 and 10 and average SAT scores across the state of Colorado are included as contextual information in the following figures. SAT scores are displayed separately from PSAT because the SAT is scored on a 200–800 scale, whereas the PSAT is scored on a 160–760 scale. Additional figures broken down by demographic subgroups (IEP status, gender, race, and free and reduced-price lunch eligibility) are available in the Appendix. All test scores shown here represent baseline data, as all tests were administered before the implementation of PBL in classrooms, which began in fall 2025.

Centennial High School has lower math and English Language Arts (ELA) scores on the SAT and PSAT than the Colorado state average. Further, average math and ELA scores fall below the cut scores required to demonstrate graduation readiness, except for ELA scores in 2023.

Figure 1a: PSAT Math Scores 2022-2025 by State / Centennial HS

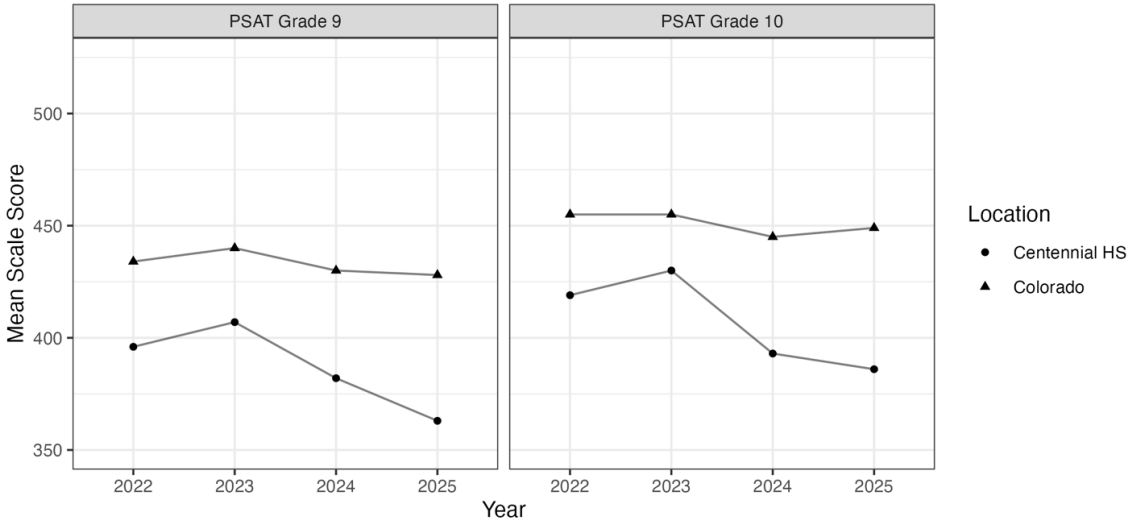


Figure 1b: PSAT ELA Scores 2022-2025 by State / Centennial HS

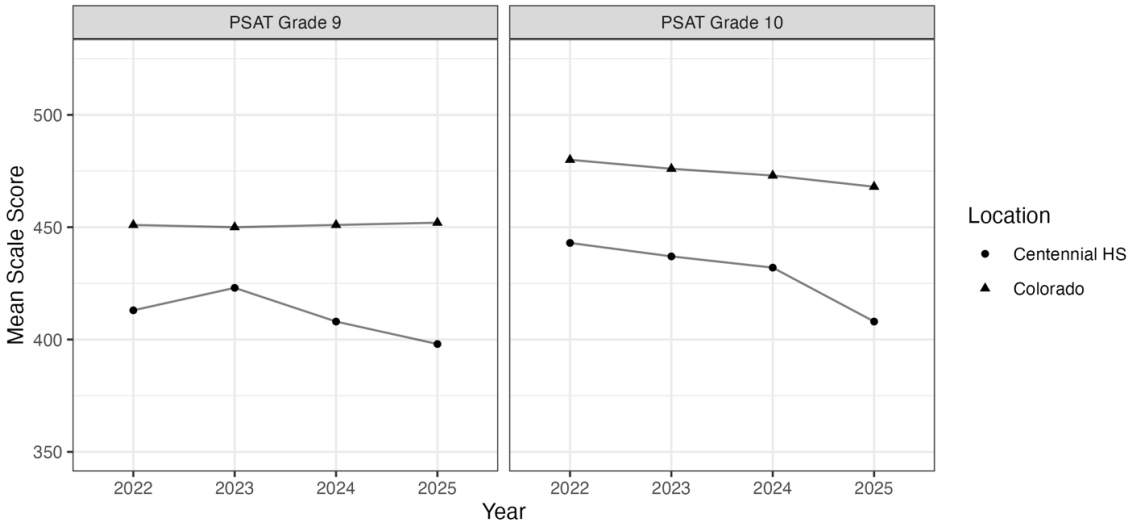


Figure 2a: SAT Math Scores 2022-2025 by State / Centennial HS

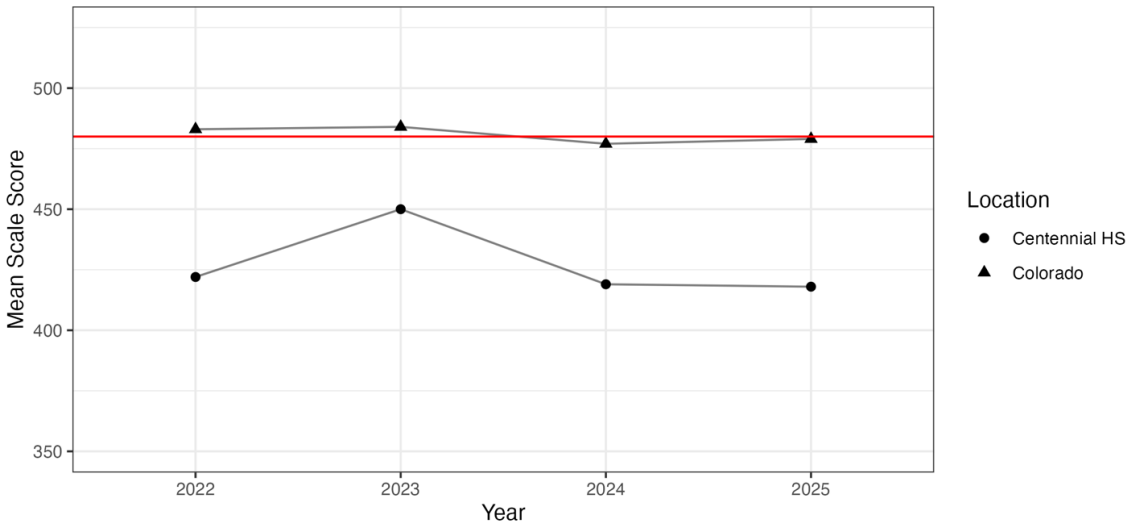
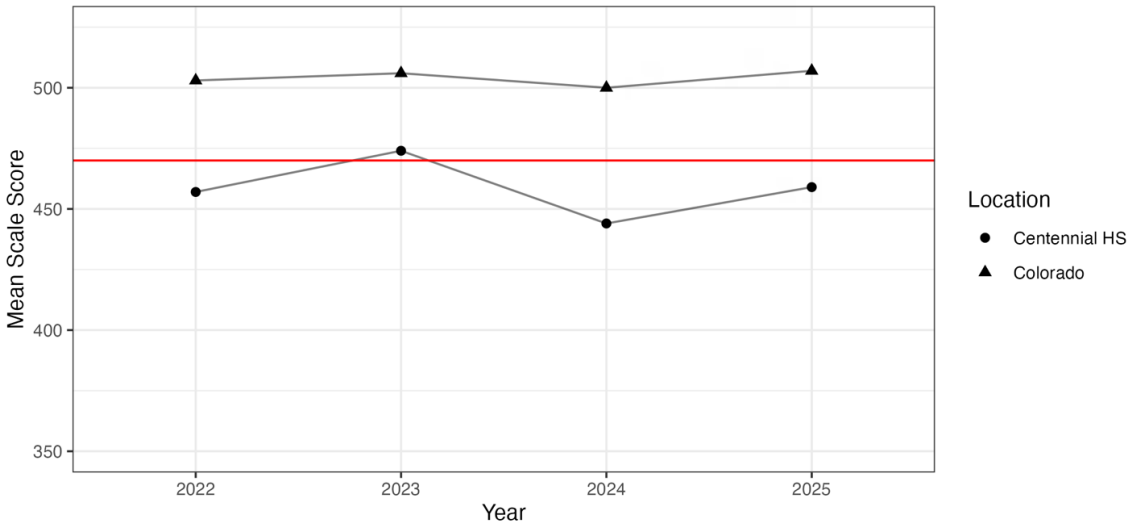


Figure 2b: SAT ELA Scores 2022-2025 by State / Centennial HS



Perspectives from Leadership on PBL Direction and Early Implementation Conditions

We examined how school leaders at Centennial High School are enacting and refining STREAM-integrated PBL during this early implementation period. Interviews with the principal and PBL coordinator, conducted in early fall, approximately one month into the school year, provide insight into how leadership is translating the Project Heroes vision into concrete structures, expectations, and instructional supports. These interviews also clarify the organizational, instructional, and professional learning conditions shaping early implementation. At the time of the interviews, some teachers were launching their first required PBL unit, and leadership teams were actively refining systems designed to support quality enactment. As such, the findings below document how leadership is structuring the work at Centennial during this transitional period from planning to active implementation.

Capstone and Graduation Readiness

At the time of the interviews, PBL projects were not yet formally integrated with graduation capstone or performance-based assessment options. Both leaders acknowledged that this possibility is in an early conceptual stage. The principal expressed interest in eventually exploring how PBL projects might serve as an additional pathway for students to demonstrate graduation competencies. However, this work has not yet begun in a formal capacity. The PBL coordinator, who previously helped implement a CTE capstone model in another district, noted that PBL units could potentially be adapted to meet capstone criteria with additional alignment to specific standards, particularly in science and mathematics. Both leaders described this as a "down the road" consideration rather than a current implementation priority.

In the immediate term, leadership is focused on ensuring that PBL units are standards-aligned and that teachers are able to implement at least one high-quality project during the school year. The long-term vision includes the possibility of public exhibitions or showcase nights that could evolve into more formalized competency demonstrations.

Vision and Alignment

Both the principal and PBL coordinator articulated a clear and consistent vision for adopting Project-Based Learning at Centennial, prior to potential Capstone implementation. The initiative is framed as part of Project Heroes, a magnet redesign effort centered on STREAM integration and desegregation goals. Centennial's stated vision emphasizes creating an inclusive and equitable environment where students from diverse racial and socioeconomic backgrounds can achieve academic excellence and social integration through STREAM-integrated PBL.

The two school leaders consistently tied PBL to broader goals of increasing student engagement, improving attendance, strengthening achievement and growth, and ultimately raising graduation rates. The principal emphasized that engagement is viewed as a leading indicator of academic improvement. The PBL coordinator similarly described the work as driven by a need to improve test scores and graduation outcomes, while also positioning the school as a magnet option within a districtwide choice enrollment system.

A shared theme across both interviews was the importance of postsecondary readiness. The two leaders described a desire to move beyond a singular focus on college attendance and toward a broader definition of readiness that includes workforce preparation, soft skills development, and career pathways. In this framing, PBL is seen as a mechanism for strengthening research, writing, collaboration, and problem-solving skills that prepare students for both higher education and technical careers.

Role of the PBL Coordinator

The PBL coordinator role is new this year, and both interviews reflected an evolving understanding of its scope. The coordinator described the position as "building the ship while flying it," noting that the role has required significant initiative and self-direction.

Responsibilities currently include developing teacher planning documents and templates, organizing a PBL calendar across departments, conducting pre-launch meetings with teachers, supporting project design and driving questions, identifying community partners and guest speakers, managing innovation and makerspace resources, and organizing a schoolwide showcase event. The coordinator also participates in learning walks and helps translate observation data into professional learning priorities.

The principal described the coordinator as central to implementation, particularly in meeting with teachers before projects launch, supporting planning during PLCs, and identifying resource needs. Both interviews suggest that much of the day-to-day implementation support rests on this role, though structures for evaluation and long-term sustainability are still being clarified.

Teacher Response and Early Implementation

Both leaders reported strong initial enthusiasm among staff following the three-day PBLWorks training at the start of the year. According to both interviews, the vast majority of teachers will be implementing their first PBL unit throughout the school year. The PBL coordinator described most teachers as having "jumped in with both feet," while acknowledging that a small number require additional encouragement and follow-up. Importantly, the requirement for Year Two is modest: each teacher is expected to implement one PBL unit during the school year. Leadership views this as a manageable entry point designed to build confidence rather than overwhelm staff.

The principal shared early walkthrough observations indicating that students were engaged and that teachers were increasingly acting as facilitators rather than delivering traditional lecture-based instruction. One example described an algebra class in which students analyzed grading practices and engaged in structured collaborative reading and discussion. Leadership characterized these shifts as encouraging, though still early in development.

Professional Learning and Instructional Supports

According to the coordinator and principal, professional learning has included the initial three-day PBLWorks training and, more recently, whole-staff training in Kagan cooperative learning strategies. Leadership identified cooperative learning as foundational to PBL classroom culture and as an area for strengthening student collaboration and shared responsibility. Learning walks are intended to be conducted monthly. Two forms are used: anonymous learning walks designed to identify schoolwide trends and individual walkthroughs connected to coaching and evaluation. Data from these walks are discussed by the administrative team and used to identify areas of strength and areas for growth.

While the two leaders described the walkthrough process as valuable, there was acknowledgment that the evaluation tool has undergone multiple revisions in an effort to balance district expectations with PBL-specific indicators.

Community Partnerships and Real-World Connections

A significant emphasis at Centennial is building community partnerships to support authentic learning experiences. The PBL coordinator described extensive outreach efforts, including cold calls, direct visits, and collaboration with local organizations. Early partnerships include connections with Colorado State University Pueblo, the Sangre de Cristo Arts Center, and local industry representatives. During focus groups, teachers said they "roll out the red carpet" for guests who come to the school. Leadership expressed interest in building a long-term database of community partners aligned to project topics.

At the student level, early examples included a composting project connected to environmental science and partnerships within the school cafeteria, as well as plans for SPED students to operate a café as part of employability skill development. These examples illustrate an emerging emphasis on applied learning and real-world relevance.

Equity and Student Supports

When asked about supports for multilingual learners and students with disabilities, responses centered primarily on existing structures rather than PBL-specific adaptations. Co-teaching models, paraeducator support, and mentorship partnerships were cited. While leadership expressed confidence that these students would benefit from PBL, explicit Universal Design for Learning strategies or differentiated PBL supports were not yet clearly articulated at the time of the interviews.

Key Takeaways

As shared in the interviews, the leadership perspectives at Centennial illustrate active systems-level enactment of STREAM-integrated PBL during Year Two (RQ1). Leaders have embedded PBL into the school vision, established clear expectations for teacher participation, invested in the dedicated coordinator role to lead the PBL work, structured professional learning supports, and initiated processes for monitoring instructional shifts. These actions represent concrete efforts to move PBL from conceptual planning into operational practice.

At the same time, the interviews highlight key implementation conditions relevant to schoolwide PBL (RQ2). Dedicated coaching support, structured professional learning, and community partnership development appear to be facilitating early implementation. Evolving evaluation tools, long-term sustainability of grant-funded roles, integration with graduation competencies, and attention to differentiated supports for diverse learners represent ongoing areas for refinement. As Centennial progresses through Year Two, the degree to which these leadership-initiated structures translate into consistent classroom enactment will be critical to the initiative's sustained success.

PBL Training

Teachers at Centennial HS attended a three-day PBL-101 in fall 2025 prior to the start of the school year and a one-day sustained support visit (SSV) training in January 2026, midway through the year. After each training, teachers completed a survey to share their levels of understanding, approach, confidence, and readiness around PBL.

PBL 101 Training

After the PBL 101 training in fall 2025, 35 out of 45 attending teachers completed the survey. All survey respondents agreed or strongly agreed that they understood what "Gold Standard Elements" of PBL projects are (including a challenging problem or question, sustained inquiry, authenticity, student voice and choice, reflection, critique and revision, and a public product) (Larmer et al., 2015). Respondents also agreed or strongly agreed that they understood how PBL supports equity.

Teachers had choice regarding how to implement their first project. The most teachers (15) came up with their own idea and turned it into a "Gold Standard" project, followed by many teachers (12) who used a PBLWorks created project and adapted it for their own classroom. All survey respondents agreed (24) or strongly agreed (11) that they felt confident to implement PBL after this initial training.

Figure 3: Understanding of PBL at Centennial

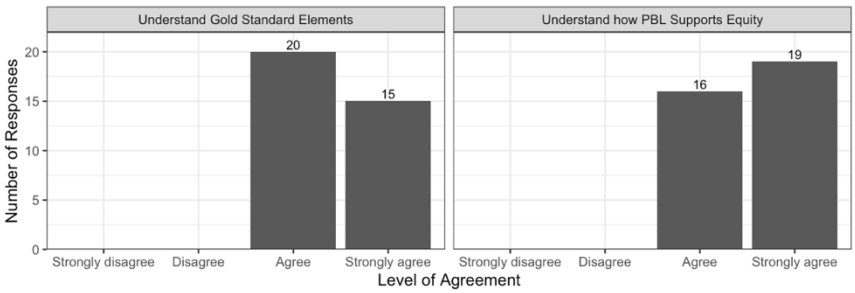


Figure 4: Approaches to Project Design at Centennial

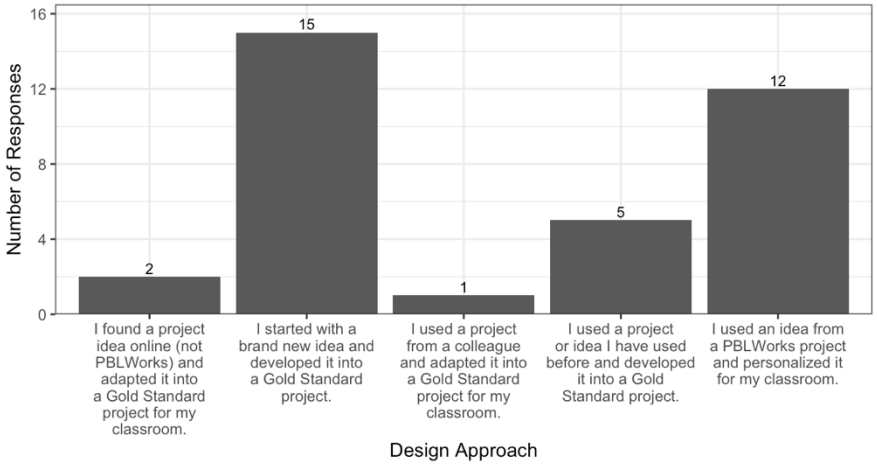
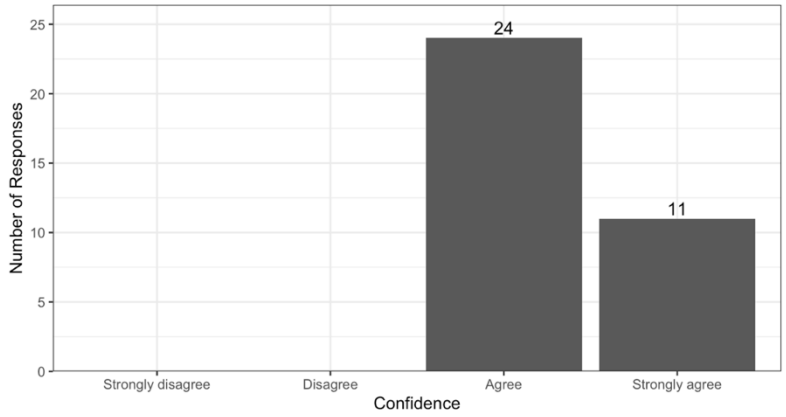


Figure 5: Confidence Implementing PBL at Centennial



After the training, many teachers (19) did not yet feel prepared to implement but felt that they could finish preparing on their own, and seven teachers indicated needing further assistance prior to implementation, potentially by the PBL Coordinator. The distribution for planned implementation time was nearly uniform, with nine teachers preparing to implement in the next month, 11 teachers planning to implement in the next three months, 10 teachers planning to implement in the next 6 months, and five within the year. This even distribution was perhaps ideal, as the school did not want all projects to occur at the same time for students' sake.

Figure 6: Readiness to Facilitate at Centennial

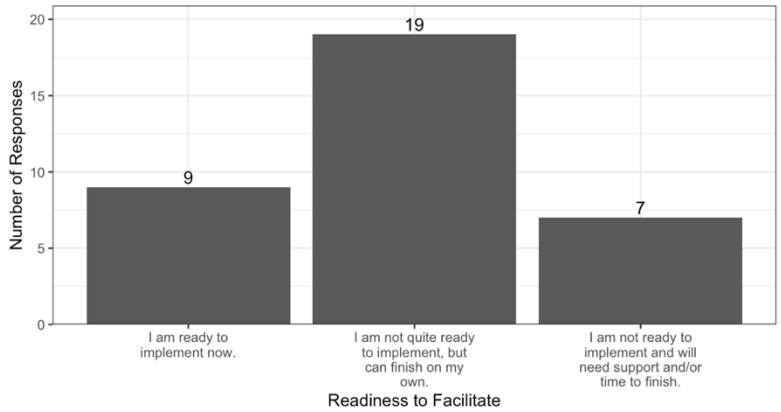
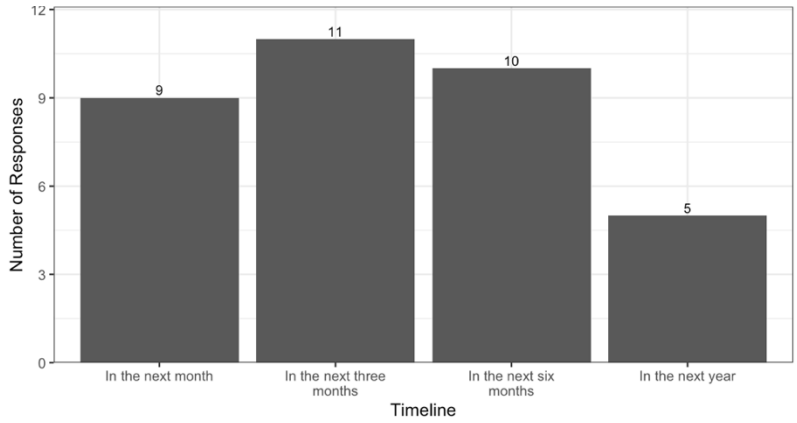


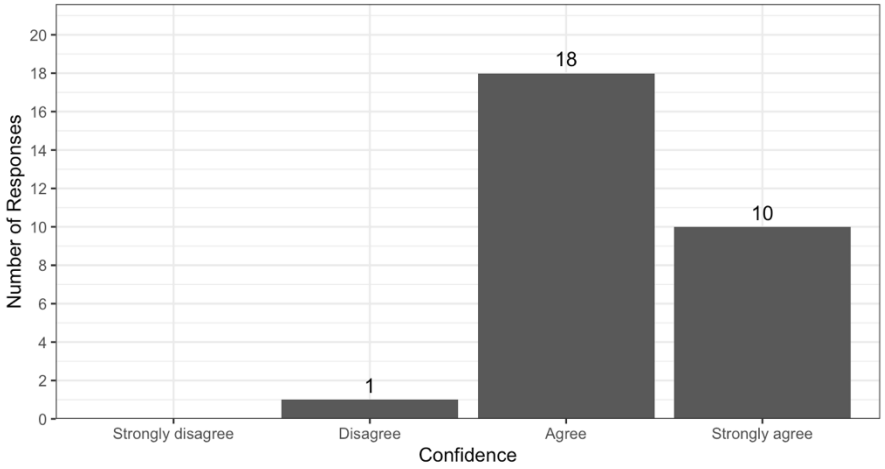
Figure 7: Expected Project Launch at Centennial



Sustained Support Visit

After the midyear follow-up training in January 2026, 29 teachers responded to the administered survey. Notably, this is a slightly different sample from the original set of respondents, so changes in percentages should be interpreted with caution. Of these respondents, most agreed (18) or strongly agreed (10) that they felt confident to implement PBL, with only one teacher disagreeing. This was similar to the distribution from the beginning of the year.

Figure 8: Sustained Support Visit Confidence Levels at Centennial



After the SSV follow up, a larger number of teachers (15) indicated readiness to implement now and fewer teachers (4) noted needing additional support or time prior to implementation than after the initial training. More teachers (13) indicated an expected launch within the next month than at the beginning of the year, with four teachers expecting to launch in the next three months, and one teacher planning to launch within the next six months. A much higher number (11) indicated a projected launch in the next year; this could include teachers who had already completed their one required project this year and were planning/looking forward to Year 3 (school year 2026-27).

Figure 9: Sustained Support Visit Readiness to Facilitate at Centennial

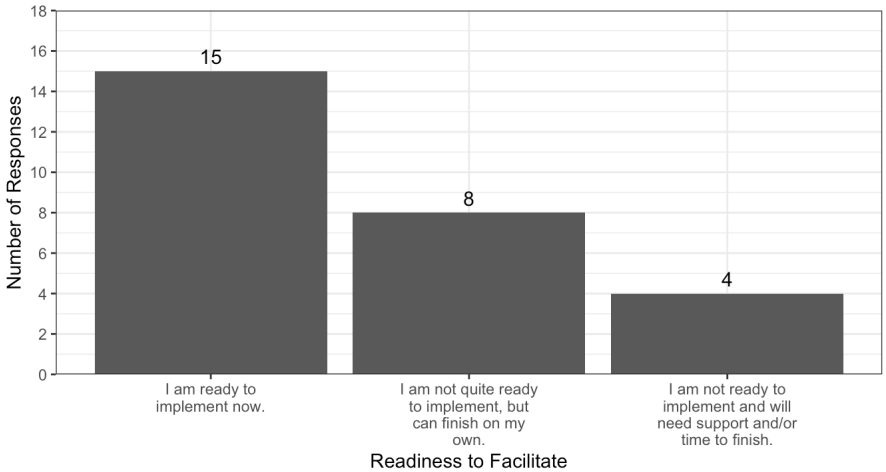
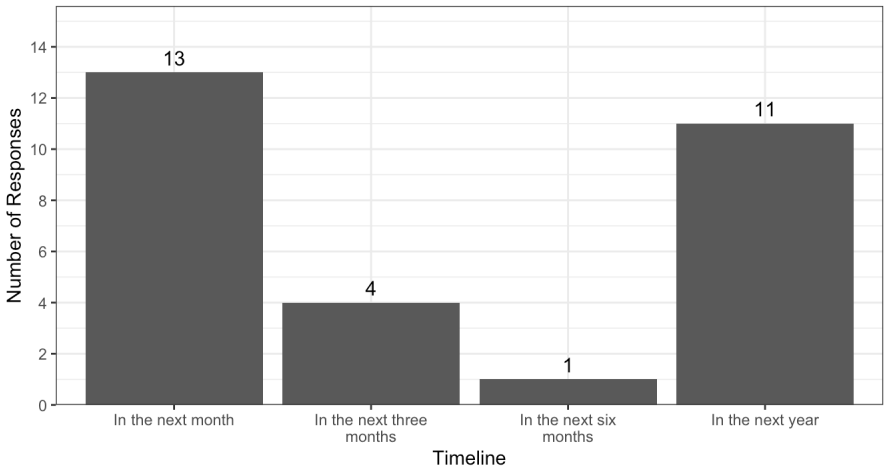


Figure 10: Sustained Support Visit Expected Project Launch at Centennial



Overall, teacher survey responses following PBL specific trainings were largely positive and indicated that teachers felt that they had what they needed to implement a project in their classrooms. We turn now to what classroom implementation of initial projects looked like.

Classroom Implementation

PBL in Practice: Classroom Walkthroughs and PLC Observations

School leadership conducted classroom walkthroughs both for individual coaching as well as to monitor schoolwide trends and progress in daily practices aimed at improving project implementation when the time came. In this section, we begin by describing schoolwide results from the walkthrough tool before moving into a description of two specific classes observed.

Centennial created its own walkthrough tool for use in fall 2025 and adapted a new tool to pilot in spring 2026. Since the tool used in spring 2026 was for pilot purposes only, we focus our analysis on data collected using the fall 2025 tool. This tool asked the observer to identify which PBL practices they observed in each of four categories: Align to Standards, Assess Student Learning, Build Culture, and Manage Activities.

Observers submitted walkthrough responses for 45 distinct classes, defined as unique teacher-by-subject combinations. Appendix A presents the number and percentage of classes in which each individual PBL practice was observed. Table 1 provides an overall summary by category. The 44.4% figure in the first row, for example, represents the number of Align to Standards practices observed across all 45 classes divided by the total possible number of such practices. In general, between a third and a half of all possible practices were observed in each category, with Assess Student Learning practices observed least frequently and Manage Activities practices observed most frequently.

Table 1: PBL Practices Observed in Walkthroughs at Centennial

Category	N Teachers by Subjects	Percent Observed
Align to Standards	45	44.4%
Assess Student Learning	45	29.6%
Build Culture	45	39.6%
Manage Activities	45	49.3%

In addition to the walkthroughs conducted by school leadership, the CADRE team conducted its own classroom observations during site visits. These observations revealed wide variation in practice. In a small computer science class, students worked collectively to diagnose and debug an IT issue. Students naturally assumed roles such as team leader and worked through a simulated IT request, while the teacher guided the process by playing the role of the person with the IT problem. Students deduced that the issue had been caused by opening a suspicious email. Most students were engaged; the teacher checked in personally with a few less engaged students and incorporated a CADRE team member as the "boss" in the scenario, expanding the lesson to include professional communication and workplace skills.

In a geometry classroom, students were observed mid-project using a PBLWorks unit in which they designed a hypothetical ice cream shop to explore volume of spheres and cones. Students had previously used kinetic sand for hands-on exploration of volume. On the day of the visit, some students were working on posters while others were modeling linear equations for costs using tables and graphs. This class illustrated a recurring tension in PBL: while the project had a clear connection to geometry, some of the work was below high school grade-level standards, and opportunities to meet those standards through extensions were limited. Time spent on algebra content and on the visual presentation of the project was time not spent on high school geometry. The challenge of ensuring content is accessible to all students while still meeting grade-level standards, alongside the pressure to cover all required content within a typical scope and sequence, creates genuine difficulty for PBL implementation.

The CADRE team also attended Professional Learning Community (PLC) meetings during site visits. Teachers were observed planning daily lessons and aligning instruction to assessments. Collaboration on PBL project design or strategies was not observed during these sessions, though one teacher discussed her project experience with the CADRE team at length. This does not mean that PBL planning never occurs during PLC time; it is possible that teachers redirect that time toward tasks they consider more pressing. Additional data would be needed to understand when and how teachers engage in PBL-specific collaborative planning.

Teacher Perspectives on PBL Implementation

Teacher Focus Groups

We conducted two focus groups with teachers at Centennial High School. Six teachers participated across two groups, though there was no representation from math or ELA teachers. Overall, teachers liked the idea of PBL, particularly hands-on, real-world learning. They spoke positively of a well-attended community Halloween trick-or-treat event full of student created health-related carnival games, learning about compost through building compost bins and partnering with their own school cafeteria, and designing tattoos for people in an advanced art class.

Teachers described several meaningful shifts following PBL implementation. One was toward greater student collaboration, which some viewed as a reversal of the withdrawal from collaborative learning that occurred during the COVID-19 pandemic. Others noted a broader cultural shift away from students being "spoon fed" toward students being expected to perform, present, or display their learning. This shift sometimes created anxiety for students, but it also created space for the kinds of compelling projects teachers described.

When asked which supports were most helpful in learning to implement PBL, teachers raved about a training where they were able to talk through a project with teachers from other departments. One teacher noted that this process, "made me understand what I wasn't doing well." The same teacher spoke highly about getting to observe projects in another teacher's classroom. While they noted potential resistance to the vulnerable process of sharing their projects openly with colleagues, these kinds of hands on, authentic collaboration experiences among teachers aided in the implementation process. Some teachers appreciated the support that they received from the PBL Coordinator, who, for instance, helped translate ideas into a daily lesson plan. Finally, one support that teachers requested but were not currently receiving was feedback from the walkthroughs that occurred in their classrooms. The request for constructive and useful feedback was also mentioned in the post implementation teacher survey.

Even with these supports in place, teachers faced several challenges during this first year. One was feeling constrained by the logistical requirements of PBL implementation itself, including mandatory planning documents, strict adherence to a PBL calendar, and required sequences of meetings. Some teachers felt these requirements conflicted with the spirit of flexibility that PBL is intended to foster.

Time was the most frequently cited challenge and appeared in multiple forms. Teachers valued PLC time and felt its loss keenly when it was redirected to other purposes. They described the additional planning required for hands-on projects and pushed back against the suggestion that PBL does not require meaningfully more preparation. Student attendance also complicated pacing: when students missed class or arrived late, project momentum and group collaboration suffered. While teachers hoped that hands-on learning would improve attendance, they had not yet seen this borne out in practice. Daily scheduling also created difficulties, as individual class periods do not always allow all students to present and make it difficult to accommodate guest speakers who are typically unavailable to repeat a session across multiple class periods. The possibility of block scheduling was raised, though teachers acknowledged it would not resolve all scheduling challenges. Creative attention to how available time is structured may be required to address some of these concerns.

A third key challenge was the district's scope and sequence. Teachers understood that a core principle of PBL is alignment to grade-level standards, but some felt pressure to address all standards within a single project, which did not seem feasible or intended. A more significant problem arose seven weeks into the school year, when the district announced mandatory interim assessments that would factor into teacher evaluations. This led some teachers to abandon projects already in progress and reorganize their calendars, as the assessments were misaligned with what teachers understood to be the goals of authentic PBL work.

More broadly, teachers described feeling pulled in multiple directions by PBL, Kagan cooperative learning strategies, and district benchmark assessments, experiencing these as separate and sometimes competing demands rather than a coherent system. A throughline connecting these priorities could exist, and in theory does: Kagan strategies support collaborative project work, which should center on standards assessed through benchmark assessments. But teachers were expected to construct those connections themselves rather than having them communicated explicitly. Clearer alignment between district and school priorities would reduce the sense of fragmentation that teachers described as a roadblock to implementation.

Teachers also raised concerns about the physical building. Despite being a new facility, they did not feel it was designed with PBL in mind. The school has one large open learning space, but it must be reserved and is not always available. This year, teachers were asked not to hang student work on the walls because tape was pulling off the new paint. Teachers identified a need for physical storage for exemplar projects, display cases, tack strips, digital displays, and a dedicated presentation area where students could authentically demonstrate their learning within the school building. In addition to cultural and pedagogical shifts, these teachers highlighted the physical infrastructure that project-based learning requires.

Each of these challenges would likely apply to capstone and performance-based assessments as well. By building a project-based instructional model before instituting capstone requirements, the school will have an opportunity to encounter and address many of these hurdles in advance.

When asked directly about the possibility of using capstone projects to demonstrate graduation readiness, teachers offered a range of views. They acknowledged that capstones could benefit students who experience test anxiety and could serve as an alternative means of demonstrating competency. At the same time, teachers had difficulty envisioning what a capstone would look like in practice: which course would host it, which grade it would occur in, whether students would choose their own topic, and whether it would genuinely measure what it is intended to assess. One teacher worried that a capstone "ends the learning," while another expressed concern that it might function as an easier alternative rather than a rigorous demonstration of competency. Concerns were also raised about delaying skill assessment until the end of a course. One teacher stated, "I can't see it in a lot of our hands-on courses. I could see them in traditional core courses," though no core subject teachers were present in the focus group to respond to that observation. Another teacher went so far as to say that capstones do not fit Centennial's curriculum and could not be imagined as a graduation pathway. These responses suggest that moving toward capstone or performance-based assessment would require a significant mindset shift among staff, along with clear guidance on what such assessments can look like and targeted coaching to support their design.

Teacher Project Reflection Surveys

We collected survey data from teachers following project implementation to gather deeper insight into their experiences. Teachers were asked their level of agreement with nine questions,

shown in Table 2, along with opportunities to provide open ended responses about what went well, what was challenging, what the teacher would change next time, and what additional trainings or support would be helpful. Of the 43 teachers participating in PBL at Centennial, only 13 teachers responded this year.

Encouragingly, teachers responded very positively that they felt that there was someone in the building that they could go to for support with their project. A large majority (92.4%) agreed or strongly agreed that PBL projects were a top priority at their school. Teachers also responded very positively that projects allowed them to identify when students needed skill-building, redirection, encouragement, or celebration. Teachers were more likely to disagree or strongly disagree that they were able to fit their project within their scope and sequence, seamlessly integrate their project with other state, district, and school priorities, or that their planned schedule needed minimal adjustments once beginning the project. Despite the relatively small number of respondents, this data offers clear distinction between where teachers feel projects are going well and where they need additional supports. These overall sentiments, that teachers are in support of PBL but need time and better alignment between district objectives, seem to align with the general sentiments found in teacher focus groups.

Table 2: Centennial Teacher Survey Responses

Item	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	N Teachers
PBL projects are a top priority in my school.	0.0%	7.7%	46.2%	46.2%	13
Students seemed excited about the project.	7.7%	7.7%	61.5%	23.1%	13
The project provided sufficient supports allowing all students (ML, SPED, etc.) to be successful.	7.7%	7.7%	61.5%	23.1%	13
The project provided insightful information about what my students know and can do on the targeted standards.	7.7%	7.7%	61.5%	23.1%	13
The project allowed me to identify when students needed skill-building, redirection, encouragement, or celebration.	0.0%	7.7%	53.8%	38.5%	13
I was able to fit my project in with my scope and sequence.	0.0%	30.8%	30.8%	38.5%	13
I was able to seamlessly integrate my project with other state, district, and school priorities.	23.1%	15.4%	38.5%	23.1%	13
After starting, project implementation required minimal scheduling adjustments.	7.7%	46.2%	23.1%	23.1%	13
I felt I could go to someone in my building to receive support with my PBL project.	0.0%	15.4%	23.1%	61.5%	13

In the open-ended portions of the survey, student engagement was consistently highlighted as a success. Time was again a recurring concern: teachers reported needing more planning time and finding that projects often ran longer than anticipated, sometimes to the point where student interest began to wane. Group dynamics emerged as another frequent challenge, with difficult group compositions sometimes hindering project progress. One teacher suggested waiting until the second quarter to begin projects to have more time to establish intentional and well-functioning groups. Other concerns included ensuring that standards were adequately addressed, particularly in math, and identifying community members who were willing and available to contribute. These findings align closely with what was heard in teacher focus groups.

Student Perspectives on PBL Implementation

We gathered student perspectives on PBL through a focus group with two senior students, a schoolwide perception survey administered in both spring 2025 and spring 2026, and a PBL Reflection survey administered after project completion. Each source offers a different window into how students are experiencing the shift toward project-based learning at Centennial.

Student Focus Groups

We conducted a focus group at Centennial in spring 2026 with two high school seniors. One student was heavily involved in the Health Academy; the other was engaged primarily in Cyber courses. Both spoke highly of PBL at their school. One stated, “I learn better when I’m actually getting to engage with things. I’m not trying to write or fill out a worksheet,” while the other described recommending their school to a prospective student by noting that classes are not “just sitting down and just busy work.” Both students saw real-world applications in what they were learning and valued the opportunity to do rather than simply watch or listen. They also spoke positively about student choice, appreciating the ability to make decisions within the parameters of a project or assignment.

These students were perceptive observers of PBL’s tensions as well. They recognized teamwork and collaboration as important life skills but acknowledged that they and their peers may not yet have fully developed the skills needed to engage productively in group work:

> *“We weren’t really told how to listen to each other, how to communicate to each other. So we argue a lot. We don’t hear other people’s ideas. So we’re kind of just sitting there trying to do things on our own, but together. And I think that makes it hard.”*

This observation echoes concerns about group work that appeared consistently across teacher data. In some classes, teachers assign groups, viewing the ability to work with any colleague as a necessary skill. In others, teachers allow students to choose their own groups, in part because, as the student hypothesized, it is harder to tell a high schooler they cannot work with their friends.

Both students also touched on the theme of time. They were aware of the time pressure teachers experience when integrating projects and noted that projects sometimes came at the expense of other content. They described the integration of projects as unfolding like chapters in a book, in which more traditional instruction occupies one chapter, a project the next, and then instruction returns to a conventional mode. While they appreciated variety in their

learning, this framing suggests there may be room for more seamless integration of project work into daily instruction.

Both students noted that the projects they described were primarily in their advanced, elective courses. They explicitly mentioned not having done projects in math or English and acknowledged difficulty envisioning what PBL would look like in those core subjects. They speculated that lower baseline engagement in required courses might be part of the challenge, noting that “nobody wants to be in math”.

Students also saw potential in the kind of feedback that PBL makes possible, appreciating its authenticity relative to traditional right-or-wrong scoring. However, both students in the focus group were self-motivated to seek feedback from their teachers, and it was unclear how consistently feedback was provided across all students and projects. They also noted limited opportunities for peer feedback in their experiences so far.

When asked about postsecondary readiness, both students identified soft skills such as communication, time management, planning, and goal-setting as important outcomes of high school. When asked specifically about using capstone projects to demonstrate graduation readiness, they expressed hesitation, similar to that of the teachers, emphasizing that such an approach would only be fair if applied in a content area where a student was personally invested and interested. They also suggested that capstones might make more sense as a supplement to rather than a replacement for demonstrations of competency in foundational English and math, a perspective that sits in some tension with the current Colorado Department of Education framework.

Student Perception Surveys

Students were given a brief three question survey about their perceptions of their school (not necessarily PBL related, though potentially influenced by its take up) regarding the overall environment, their sense of belonging, and their opportunities for involvement in both spring 2025 (before implementation) and spring 2026 (Year 1). Students were asked, “How would you describe your school’s environment?”, “Do you feel like you belong and are valued at your school?”, and “Do you feel like you have meaningful opportunities to be involved in learning and activities at school?”.

In spring 2026, a total of 440 students responded (Figure 11a). When asked about the school environment, 59% (261) rated the school “Good: My school is usually safe, welcoming, and supportive”, 25% (110) found this to be true only some of the time, and 14% (61) found it to be true all the time. Similarly, 51% (226) said they usually feel included and valued, 29% (127) reported a sense of belonging sometimes, and 16% (71) said they always feel like they belong. In a similar pattern, 53% of respondents (233) reported that they have opportunities to participate in learning and activities most of the time, 23% (100) stated they only have opportunities sometimes, and 20% (88) said they always feel encouraged to be involved.

There were fewer respondents (N=212) at Centennial High School in spring 2025 (Figure 11b). Across years and questions, the pattern of most respondents choosing “3” (Good/Mostly/Most of the time), followed by “2” (Fair/Somewhat/Sometimes), then “4” (Excellent/Completely/Always), then “1” (Poor/Not at all) held, similar to results in 2026.

Figure 11a: 2026 Centennial Student Survey Results (N=440)

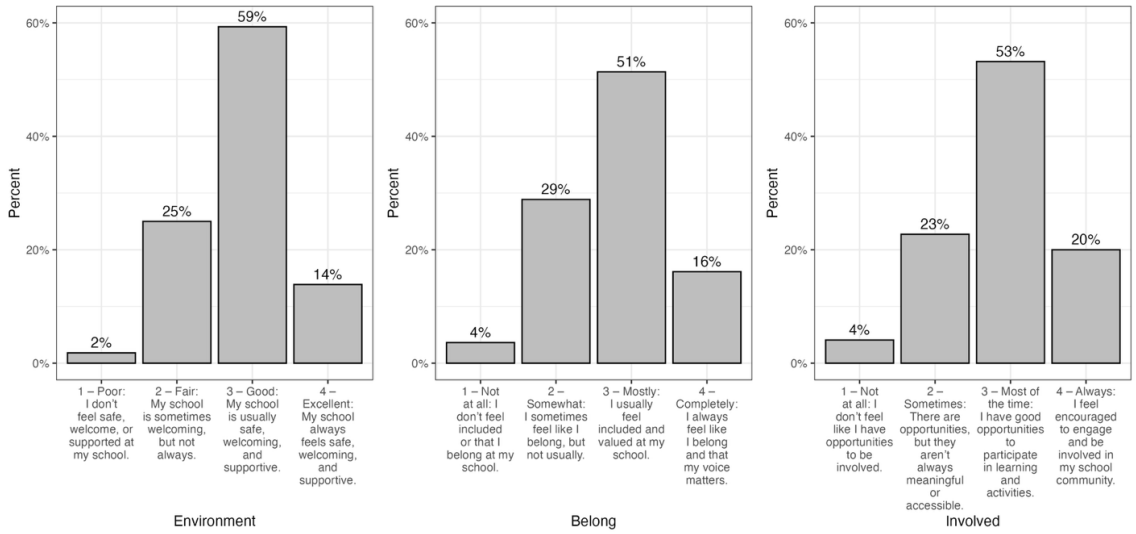
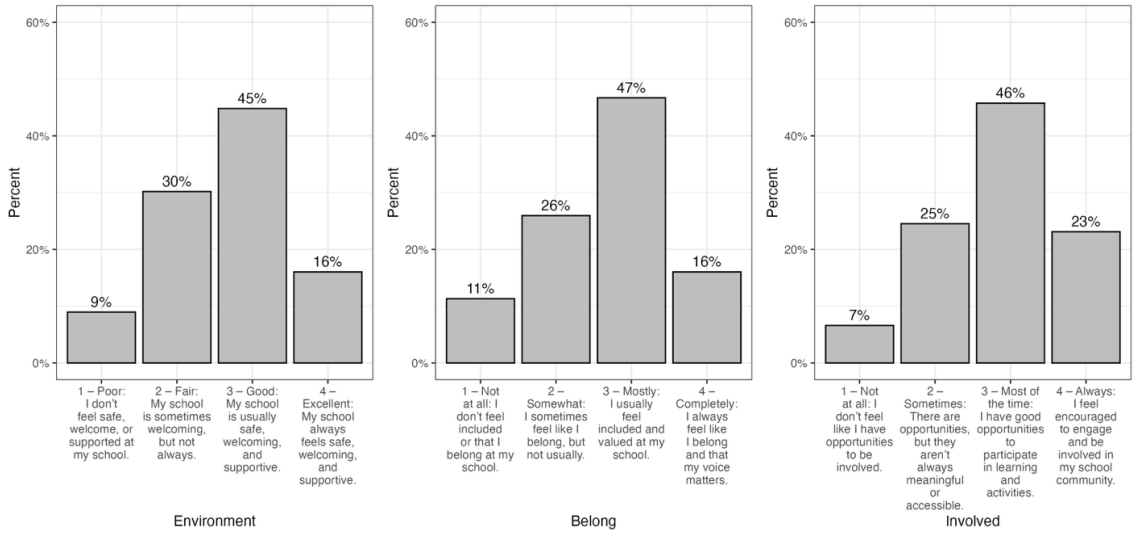


Figure 11b: 2025 Centennial Student Survey Results (N=212)



PBL Reflection Survey

After completing a project, students at Centennial High School were administered a 10 question PBL Reflection survey. All questions were open ended and centered around what students learned, what went well, what did not, and suggestions for future project improvement. Of the 97 total responses, most were for a math project about a fair grading system (N=57), many were about a project using geometry at an ice cream shop (N=15), some were for a science composting project (N=7), and others for the Veteran's Breakfast (N=6). (The remaining responses were either other projects or uncategorizable.)

Time was a recurring theme across projects. Notably, some students commented that projects took too long, while others felt they did not have enough time. This points to the challenge of pacing and differentiation in PBL: student needs and time management skills vary considerably. Student collaboration was another consistent theme. Some students noted unequal workloads

and unresponsive group members, and several requested the ability to choose their own groups. The shift to sustained group work represents a significant pedagogical and logistical change, and it will likely take time to establish the norms and skills that make it work well.

For the fair grading system project, students did not make a poster for the final project presentation. While some students found it “boring”, most comments were focused around “the math” as opposed to the presentation. Many students expressed interest in the real-world application, with one student stating, “I did my best on making calculations because I’ve been a student [whose had] a difficult time in class so knowing how it feels to have struggles [I] could help more accurately make a grading system for all students.”

For the geometry ice cream shop project, many students cited the hands-on kinetic sand activity and the poster component as their favorite part or best work. As noted in walkthrough observations of this project, the balance between time spent on mathematics content and time spent on presentation remained a tension.

Students reflecting on the composting project described varied components as most interesting or representing their best work, including the slideshow, extended writing, drawings, pricing, and design tasks. One student commented that “learning about composting was not boring, it was actually fun to learn.” Group work and workload equity were concerns here as well; one student self-reflected, noting that they felt they had not contributed as much as they should have.

Students who participated in the Veterans Day Breakfast event described learning student leadership skills and building peer connections through the project. They noted both a need for more time to produce a high-quality event and that the time dedicated to the project took them away from other coursework, consistent with the broader theme of time as a persistent constraint in PBL implementation.

Parent and Guardian Perceptions

Support from parents and guardians is a critical component of any major school change, particularly if that change eventually touches graduation requirements. Year Two represents the first year of PBL implementation, with no changes to graduation requirements yet in place. The parent and guardian data presented here reflect broader perceptions of the school, though those perceptions may be shaped in part by the shift toward PBL. On a three-question perception survey administered in both spring 2025 and spring 2026, parents and guardians were asked to rate: (1) the school’s overall climate in terms of providing a welcoming, safe, and supportive environment; (2) how included and valued they feel as partners in their child’s education; and (3) their satisfaction with opportunities for parent involvement.

A total of 52 parents responded at Centennial in spring 2026. Responses were generally positive. For the school environment and opportunities for involvement, most parents selected Good, with Excellent as the second most common response. When asked about feeling valued and included, however, the highest percentage of parents (33%) reported feeling valued and included only some of the time.

Responses from spring 2025 (N=133) were more numerous, and the year-over-year comparison reveals a concerning trend. The overall percentage of positive responses (Good or Excellent) declined between 2025 and 2026. The largest shift was in parents’ sense of inclusion: 71% of parents reported feeling valued and included in 2025, compared with 56% in 2026. Perceptions

of the school environment and satisfaction with involvement opportunities remained relatively stable across years.

Figure 12a: 2026 Centennial Parent Survey Results (N=52)

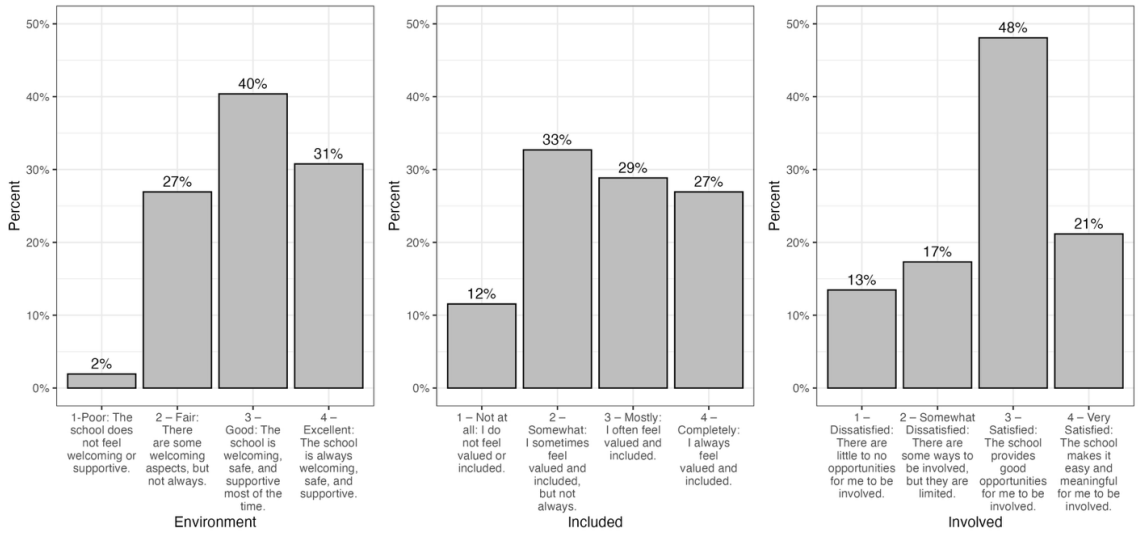
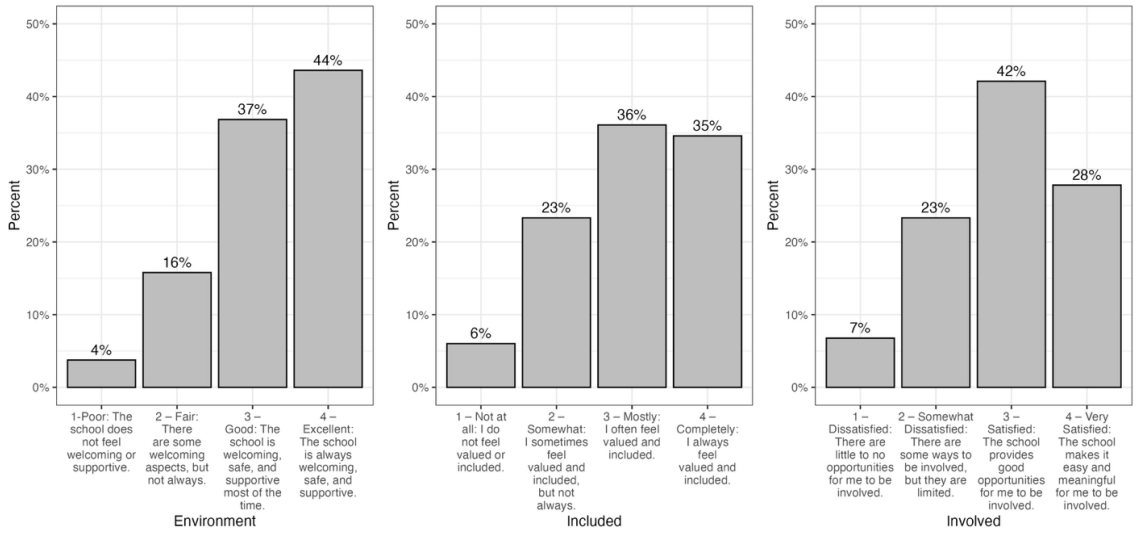


Figure 12b: 2025 Centennial Parent Survey Results (N=133)



Discussion

By drawing on data from leaders, teachers, students, and parents and guardians, this report constructs a picture of what PBL implementation has looked like at Centennial High School during Year Two. The findings identify meaningful areas of progress alongside challenges that will require sustained attention in the years ahead.

The structural supports provided this year, including the initial PBLWorks training, the midyear Sustained Support Visit, and ongoing coaching from the PBL coordinator, created conditions for strong teacher participation. Research on effective professional development suggests that learning opportunities which are content-focused, sustained over time, and embedded in collaborative practice are most likely to produce durable shifts in instructional behavior (Desimone, 2009). The degree to which Year Three professional learning builds on this foundation, rather than revisiting it, will matter for whether teachers develop the more sophisticated facilitation skills that project-based work ultimately requires.

Teacher enthusiasm across surveys and focus groups is a meaningful signal. Across both trainings and in focus group conversations, teachers were genuinely invested in PBL, a strong foundation for continued growth. At the same time, the remaining challenges for Centennial are significant. Clearer integration across district priorities, namely between the scope and sequence, interim assessments, and PBL expectations, would reduce the fragmentation that teachers currently experience as competing demands. Productive group work also emerged as a shared developmental challenge. Students and teachers alike described difficulty with unequal workloads, unproductive group dynamics, and the absence of established collaborative norms. These findings are consistent with research on cooperative learning, which underscores that students require explicit instruction in how to function effectively in teams and that collaborative skills develop incrementally with structured support over time (Johnson & Johnson, 2009). Time constraints and the alignment of project work with grade-level standards represent additional challenges that will require ongoing attention.

Walkthrough data offer useful directional information about where professional learning emphasis is most needed. The gap between “Manage Activities” (49.3%) and “Assess Student Learning” (29.6%) reflects a pattern common in early PBL implementation: teachers are establishing routines and logistics before developing the more nuanced formative assessment practices that high-quality project work requires (Boardman et al., 2024). Building teachers’ capacity to assess student learning in real time within project contexts should be a priority for Year Three professional learning, alongside deepening collaborative facilitation skills.

The possibility of using capstone projects or performance-based assessments as a graduation pathway remains a longer-term consideration. Darling-Hammond and Adamson (2014) argue that well-designed performance assessments can measure higher-order thinking and applied skills that standardized tests often fail to capture, and that they are most effective when embedded in a school culture with sustained experience in authentic, project-based work. At Centennial, that culture is still in early formation. The idea of capstones was novel for leadership, teachers, and students alike during Year Two. Most could visualize the concept as a possibility, but practical questions about structure, oversight, and how such projects would reliably demonstrate readiness remain largely unresolved. Teachers and students both expressed that meaningful capstone work would require genuine student choice and investment in the subject matter, a perspective that sits in some tension with the standardized competency

requirements in current CDE guidance. To make capstones or performance-based assessments a realistic graduation pathway at Centennial, the work will require greater emphasis from school leadership, deliberate planning, and broader stakeholder engagement.

The goal of building a project-based instructional model at a medium-sized high school currently underperforming on traditional outcome measures is an ambitious one. Centennial is taking intentional, incremental steps toward that goal. This report is intended to document where that work currently stands, where challenges remain, and what the path forward might look like as the school deepens its PBL implementation and begins to consider what more sophisticated performance-based assessment might eventually make possible.

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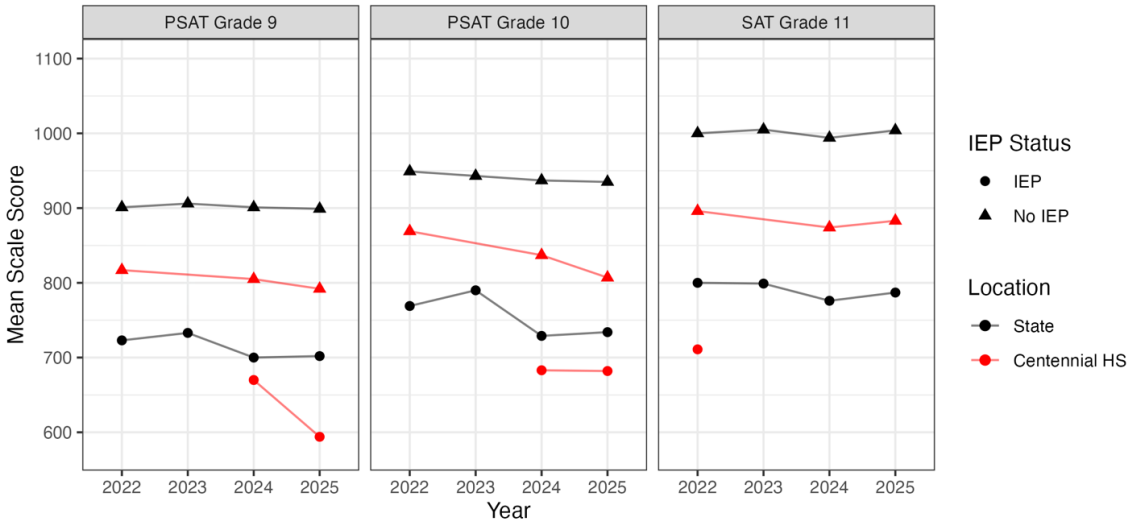
Appendix

Additional SAT / PSAT Baseline Data

Figure A1: Average Scores by IEP Status



Note. Missing data are due to missing values reported in available state data, which could be due to less than 16 persons designated as having an IEP when reporting. SAT is scored from 400-1600, while PSAT scores can range from 320-1520.

Figure A2: Average Scores by Gender

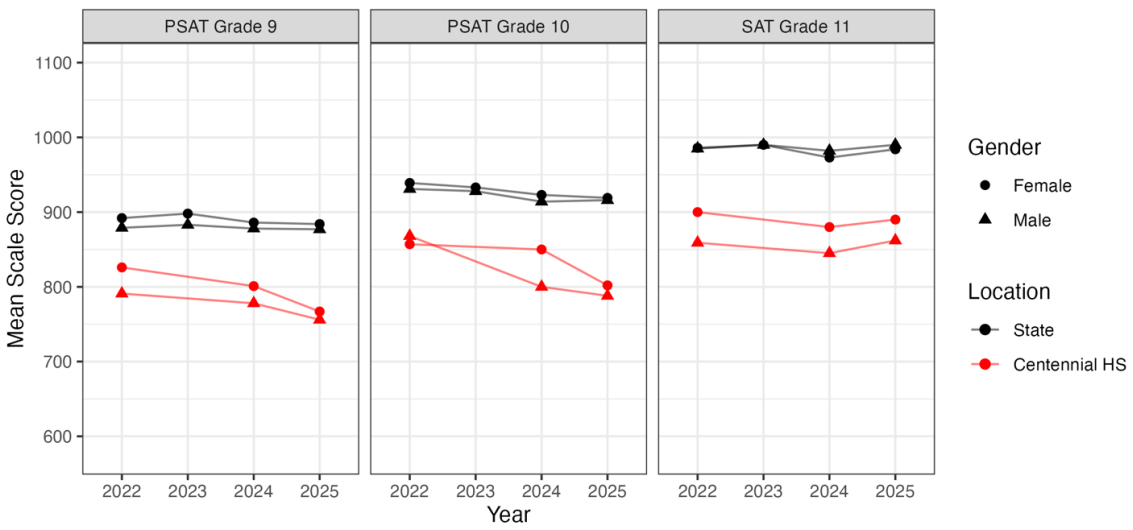
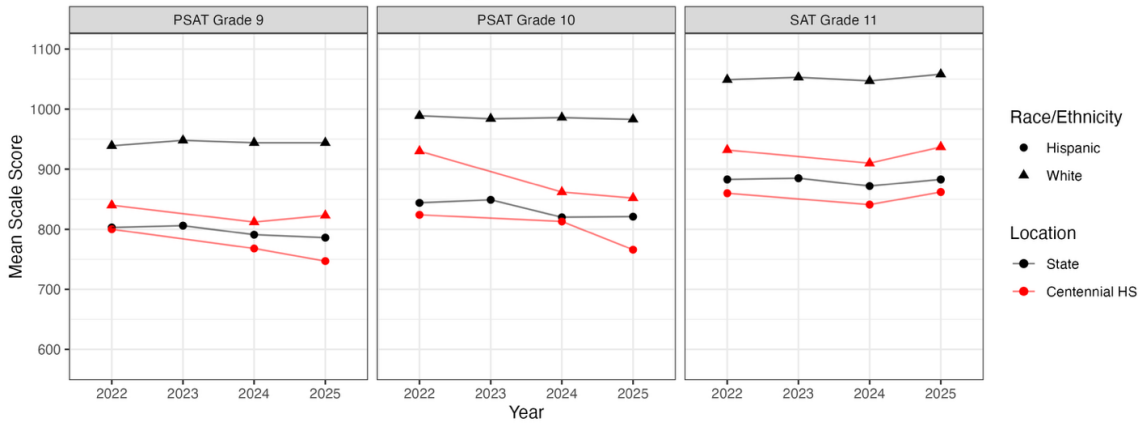
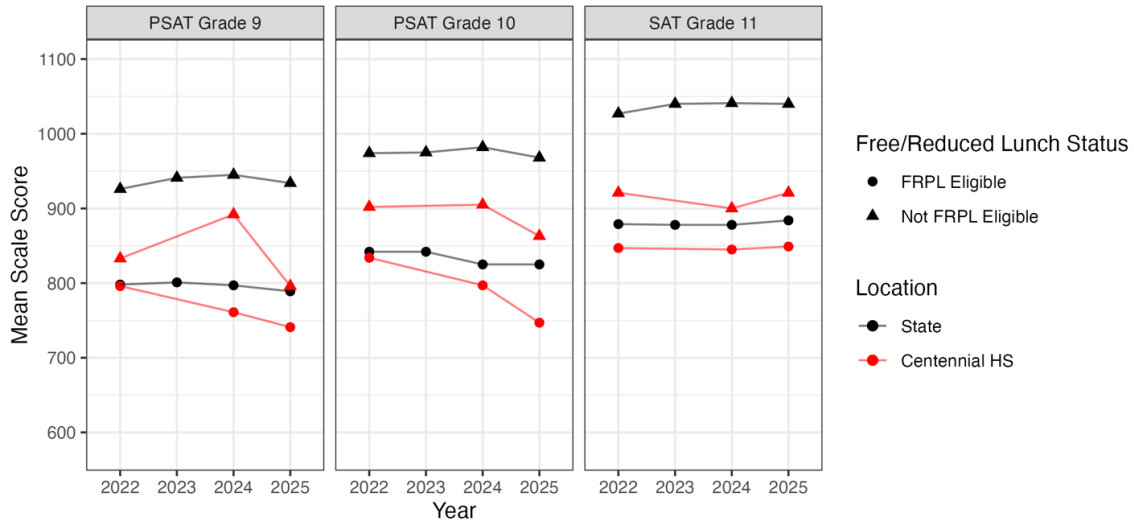


Figure A3: Average Scores by Race



Note. Only White and Hispanic students were included as sample sizes were too small for other racial categories.

Figure A4: Average Scores by FRPL Status



SAT/PSAT results are not reported here by English Learner (EL) status as most students at Centennial High School are categorized as “Not English Learner” or “Not EL: PHLOTE, NA, Not Reported” across years 2022, 2024, 2025, with less than 16 students (not reported) for English Learners (EL). Centennial’s data is not in the 2023 state report for Language Proficiency.