Carroll M. Johnston STEM Academy

Progress and Impact in 2024–25

March 2026

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This research was supported by a Magnet Schools Assistance Program (MSAP) grant (S165A230032) awarded to Clark County School District by the U.S. Department of Education.

Clark County School District received Magnet Schools Assistance Program (MSAP) funding in October 2023 to open two new magnet schools. After using the 2023–24 school year to plan a transition, the Carroll M. Johnston STEM Academy reopened as a new magnet school in August 2024. Johnston has a long history as a middle school serving the North Las Vegas community. However, in recent years attendance had begun to drop. The goal of the MSAP funding was to revitalize instructional programming and draw in families from a broader geographic area.

Impact on Student Achievement

After transitioning to a magnet school in 2024–25, Johnston improved from a one-star school to a three-star school. A school's rating is based on a number of indicators, including proficiency on Nevada's math, English language arts, and science state tests and measures of student engagement, such as the chronic absenteeism rate. All these indicators showed improvement between the 2023–24 and 2024–25 school years.

TOTAL INDEX SCORE **51.5**

Johnston improved to a three-star school

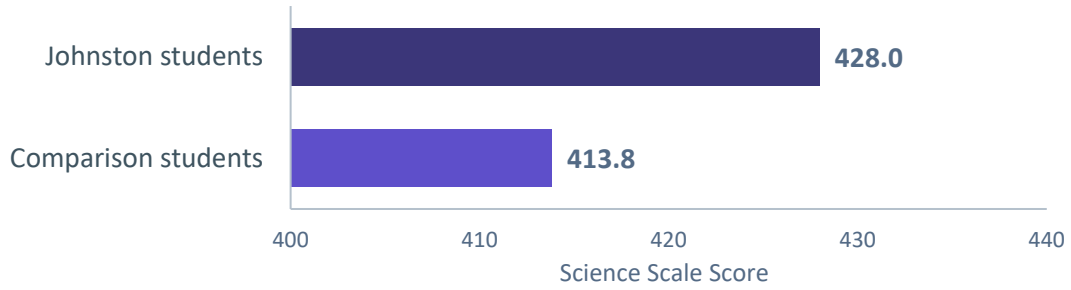
School Year	Index Score	Star Rating
2022–23	22	★
2023–24	18	★
2024–25	51.5	★★★

Although the improvement in Johnston's star rating is a positive sign, there was substantial turnover in the school's population between 2023–24 and 2024–25. This student turnover could have led to much of the improvement that went into the star rating. To examine whether attending Johnston improved student achievement, WestEd used a quasi-experimental design to identify a comparison group of students who attended nonmagnet schools in the district and who had similar demographics and prior student achievement as the Johnston students. WestEd then compared the scores on the state's 8th grade science test for the two groups. Additional details on the methodology for this analysis are included in the Appendix.

As shown in Figure 1, the scores for Johnston students included in the analysis were 14.2 points higher than were the scores for the matched comparison

students. This difference was statistically significant ($p < .001$) and is considered to have a large impact (effect size = 0.24) compared with the effects of other educational programs and interventions. Overall, the results indicate that attending Johnston was associated with improvements in the students' science achievement and that the improvements were not solely a result of student turnover.

Figure 1. Eighth Grade Science Scores for Johnston and Matched Comparison Students in 2024–25



Note. The difference between the scale scores for the Johnston ($n = 253$) and comparison students ($n = 759$) was statistically significant ($p < .001$) and controlled for prior achievement and student demographics.

Magnet Transformation

Overall, WestEd's site visits during the 2024–25 school year showed that Johnston successfully implemented its environmental science magnet program. Implementation highlights from the site visits are presented throughout this section. Details about the site visit methodology are included in the Appendix. The implementation highlights are organized into three categories: magnet theme, recruitment and parent engagement, and facilities and resources.

To assess the progress of the school's implementation, WestEd rated its observations using the following five levels: readiness, emergence, initial implementation, refinement, and sustainability. These levels are adapted from the

stages of program implementation used to evaluate educational programs.[1] Given that this was Johnston's 1st year as a magnet school, the ratings indicate effective early implementation and are consistent with the school's recognition as one of the Nevada Governor's Designated STEM Schools.

1. **Readiness:** The district and schools identify the need for magnet programs, determine program focus areas, and secure buy-in.
2. **Emergence:** Foundational supports for implementation are established, including hiring staff, providing initial training and professional development, developing curricula, and making preliminary facility or resource adjustments.
3. **Initial Implementation:** Active implementation begins as staff develop new skills, schools adjust to new program structures, and unexpected barriers are identified and addressed.
4. **Refinement:** Magnet programs are fully operational, and schools concentrate on improving quality, strengthening practices, and expanding the programs.
5. **Sustainability:** Magnet programs are maintained and strengthened over time as schools navigate ongoing challenges, such as the conclusion of initial funding, staff turnover, and districtwide enrollment changes.

Magnet Theme

During the 2024–25 school year, Johnston implemented its three pathways: architectural engineering, computer engineering, and environmental engineering. The pathways shared a common focus on stewardship and sustainable design. In the first semester, all students in 6th through 8th grades took a Project Lead the

[1] Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature* (FMHI Publication #231). University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network.

Way (PLTW) Design and Modeling class that covered the engineering design process.[2] In the second semester, students were exposed to all the pathways.

As a strategy to sustain and increase student engagement with the theme, Johnston identified three "houses" that align with the pathways and accompanying courses:

- **Computer Engineering (House Nova):** app creators, computer science for makers, cybersecurity, developing smart devices, and AI
- **Environmental Engineering (House Terra):** energy and the environment, flight and space, and hydroponics
- **Architectural Engineering (House Spire):** magic of electrons, construction, and green architecture

In late May 2025, the school held a house reveal event to generate student support and buy-in.

In future years, only 6th graders will take the PLTW Design and Modeling class, because the 7th and 8th graders will already be part of a pathway and house. The

[2] The engineering design process is a series of steps used to approach a problem. Steps include defining the problem, asking questions, imagining solutions, planning ideas, prototyping a solution, testing a solution, and iterating the design for improvement.

incoming 6th graders will be part of the Future Engineers House until they are assigned to one of the three houses that align with a pathway.

Johnston's instructional practices are rooted in project-based learning (PBL),[3] inquiry, and cross-curricular instruction. School leaders operationalized PBL as both project- and problem-based learning, and the implementation of the engineering design process was central to the school's instructional approach. During the first semester, teachers put PBL into practice individually by assigning projects that did not require students to integrate content and skills from other classes. By the second semester, all content-area teachers engaged in cross-curricular PBL, requiring students to make connections across multiple subject areas. All teachers had two directives aligned with the engineering design process: include tasks that supported problem-based learning and use scaffolding strategies to support student learning.

Table 1 summarizes these highlights.

Table 1. Johnston's Implementation Status and Highlights Related to the School's Magnet Theme in 2024–25

Area	Status	Highlights
Implementation experience and theme	Level 3: Initial implementation	• The engineering design process was a central focus across all content areas. • Three "houses" were designed and launched for the theme-related pathways. • School leaders revamped how the magnet pillars were aligned with and used across various school facets, including professional learning, professional learning community activities, and the multi-tiered system of supports.

[3] According to PBLWorks, project-based learning "is a teaching method in which students learn by actively engaging in real-world and personally meaningful projects."

Area	Status	Highlights
Curriculum development	Level 2: Emergence	• The curriculum development related to the engineering design process and the magnet theme. • Teachers worked to move away from an overreliance on district pacing guides.
Instructional practices	Level 3: Initial implementation	• During the first semester, all teachers were expected to lead at least one PBL project. • During the second semester, teachers across all grades taught a cross-curricular, schoolwide PBL unit, named Earth 2.0, on energy and the environment.
Professional development	Level 3: Initial implementation	• School leaders scaffolded professional learning to build teachers' skill levels and confidence. • The switch to grade-level, cross-curricular professional development in the second half of the year better supported teacher learning.
External partnerships	Level 3: Initial implementation	• Partnerships raised the visibility of the theme at the school, increased student awareness about what it means to be an environmental scientist, and increased student interest in environmental science. • Partnerships supported theme implementation through field trips, enrichment activities, and resources, including trips to Red Rock Canyon, Hoover Dam, and Lake Mead; participation in UNLV's Young Rebels Program, DiscoverE's Girl Day, Family STEM Night, and Bulldog STEM Camp; and the purchase of hydroponics kits.

Recruitment and Parent Engagement

Early in the 2024–25 school year, Johnston participated in and hosted numerous school- and community-based recruitment and parent engagement efforts (Table 2). The magnet recruiter sent emails and recruitment materials to elementary schools, and after returning from winter break, Johnston held a final

open house. Feedback from staff and teachers indicated that the school's reputation was improving. They credited fewer fights among students, fewer disciplinary issues, and standard student attire as contributing to a better school climate and more positive perceptions of the school.

Table 2. Johnston's Implementation Status and Highlights Related to Recruitment and Parent Engagement in 2024–25

Area	Status	Highlights
Recruitment and outreach	Level 2: Emergence	• Johnston placed an emphasis on involving teachers in outreach and recruitment. • Johnston revamped presentations to families to preempt common questions and concerns, front-loading key pieces of information that were important to parents (e.g., school safety). • Johnston established partnerships with local elementary schools both within and outside the transportation zone.
Parent and family engagement	Level 3: Initial implementation	• Weekly STEM newsletters included information about STEM careers, STEM in school, and STEM in the community. • Johnston held multiple engagement opportunities, including unique stand-alone events (e.g., Family STEM Night) and ongoing meetings (e.g., monthly parent meetings). • Staff noted that some parents wanted greater engagement with and more opportunities to connect with teachers, noting that open houses were hectic and not conducive to parent–teacher conversations.

Facilities and Resources

Most of Johnston's anticipated facilities projects were completed early in the 2024–25 school year, including installing various murals and adding flexible seating to classrooms. The largest project completed between the start of the school year and spring was the library remodel. Projects that the school planned

to complete in future years included remodeling the 7th grade hallway by adding murals, removing the lockers, and creating a tortoise habitat. Table 3 summarizes these highlights.

Table 3. Johnston's Implementation Status and Highlights Related to Facilities and Resources in 2024–25

Area	Status	Highlights
Facilities	Level 3: Initial implementation	• Johnston completed a major overhaul of the library to make it a more flexible space. • Several murals were completed in magnet pathway classrooms and various hallways, with more planned for future years. • A tortoise habitat was created.
Resources	Level 3: Initial implementation	• Hydroponics systems and other technology were purchased for use in class projects.

Areas for Future Focus

WestEd's site visits identified three priority areas Johnston could address in future years to strengthen the implementation of its magnet program:

- **Clarify cross-curricular expectations and structures.** School leaders could ensure that expectations are clear among all teachers and departments and that appropriate structures are in place to provide students with sufficient time to complete cross-curricular projects.
- **Increase teacher ownership of magnet activities.** Leadership could establish conditions that enable teachers to take greater ownership of magnet activities, reducing the burden on school leaders.
- **Balance support for teachers at different experience levels.** School leadership may need to determine how to balance the needs of less experienced teachers with those of veteran teachers, who often wish to move more quickly in advancing elements of the magnet theme.

Appendix

Quasi-Experimental Design Methodology

WestEd employed a quasi-experimental design consistent with best practices in educational program evaluation.[4] WestEd first used a multivariate matching algorithm to identify a comparison group of 8th grade students who attended nonmagnet schools during the 2024–25 school year. Students were matched on key demographic characteristics (e.g., race/ethnicity and English Learner status) and on prior academic achievement, including scores on the 2023–24 Smarter Balanced math and English language arts assessments. After establishing an equivalent comparison group, WestEd estimated a regression model that accounted for the clustering of students within schools to assess differences in science criterion-referenced test scale scores between the Johnston students and comparison students. This approach allowed WestEd to estimate the differences in test scores, accounting for any measured differences between the Johnston and nonmagnet comparison students, and to determine whether observed differences in test score outcomes were statistically significant.

Site Visit Methodology

WestEd completed site visits to Johnston in November 2024 and May 2025. During the two site visits, WestEd conducted focus groups with the school's leadership (i.e., principal, assistant principals, magnet program strategist, and magnet recruiter), teachers, and parents. In addition, WestEd toured the school and conducted brief classroom walk-throughs. The findings from each site visit were documented in site visit reports and shared with the district and school. The WestEd team used thematic analysis[5] to identify the patterns and themes in their notes from the focus groups and school tours.

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4 Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton Mifflin.

5 Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Suggested citation: Allender, S., Nakamoto, J., & Snipes, J. (2026). *Carroll M. Johnston STEM Academy: Progress and impact in 2024–25*. WestEd.

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