

Hawai‘i State Department of Education
Windward District

**Kūlia i ka nu‘u: Striving for Excellence in
Developing Computational Thinkers through
Enriching Computer Science and Math Education
Program Year 2 Evaluation Report**

October 31, 2025



HELIX SOLUTIONS



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Section 1: Introduction

The 2024–2025 school year represented the second implementation year (PY2) of the Kailua-Kalāheo Complex Area’s (Windward District) “Kūlia i ka nu’u: Striving for Excellence in Developing Computational Thinkers Through Enriching Computer Science and Math Education” program, supported by the Department of Defense Education Activity (DoDEA). Broadly, the program’s ultimate **goal is to prepare military-connected students for postsecondary education and/or career success, enabling them to be leading contributors in their communities and the 21st-century globalized society**. The project is guided by two primary goals: 1) Students will increase their commitment and achievement with computer science courses as evidenced by quantitative and/or qualitative measures by May 31, 2028, and 2) Students in 8th grade will increase proficiency in mathematics as evidenced by quantitative and/or qualitative measures by May 31, 2028. See Appendix A for the latest logic model. Helix Solutions, a Texas-based external program evaluation firm, was responsible for conducting the project’s evaluation efforts.

Program implementation spanned eight campuses: Mōkapu Elementary, ‘Aikahi Elementary, Kainalu Elementary, Kailua Elementary, Ka’elepulu Elementary, Maunawili Elementary, Kailua Intermediate, and Kalāheo High. In 2024–2025, the total enrollment of these schools was 4,197, of which 30% (1,270) were enrolled in an age-appropriate computer science course. This represented notable growth in computer science reach from 9% in 2022–2023 and 12% in 2023–2024. Appendix B provides an infographic of the project’s highlights.

Section 2: Site Visits

The evaluation and program administration teams coordinated a site visit in which Helix Solutions staff traveled to Oahu, Hawaii, from April 14 to 16, 2025, to observe classrooms, meet with principals and teachers, watch teacher training, and visit out-of-school time (OST) activities, including a robotics team presentation and a School Girls Who Code session. To guide classroom observations, a Computer Science (CS) and Math classroom observation forms (see Appendices C and D) were developed. Based on key components, these forms identified underlying best practices that guide the implementations.

Section 2-1: Classroom Observations

Classroom observations were conducted to assess the extent to which instructional practices matched expectations based on the CS resources deployed under Goal 1 and the innovative

Table 2-1: Computer Science Core Concepts Observed in Classroom Visits

Core Concept	Percent of Classrooms
Algorithms and Programming	80%
Computing Systems	40%
Data and Analysis	30%
Impacts of Computing	30%
Networks and the Internet	10%

Note: n = 10 observations (2 observers, 5 campuses)

math instruction training deployed under Goal 2. Note, CS teachers had the flexibility to select their curriculum, practices, and tools, allowing them to make decisions independently. Nonetheless, program staff identified five core concepts to serve as the foundation of professional development and implementation support. Table 2-1 provides a summary of the extent to which these core concepts were observed across school-day

CS classes visited. The CS observation form also included three identified problem-solving approaches across the school-day classrooms. Table 2-2 below summarizes these items.

Table 2-2: Computer Science Problem Solving Approaches Observed in Classroom Visits

Approach	Percent of Classrooms
Open-ended coding challenges that require students to break down problems into smaller steps	100%
Encouragement of different approaches to problem-solving and critical thinking	90%
Opportunities to debug their code and identify logical errors	80%

Note: n = 10 observations (2 observers, 5 campuses)

Regarding math, teachers implemented strategies based on the Building Thinking Classrooms (BTC) framework, and the observation tool was developed in accordance with those principles. Table 2-3 below summarizes the key math instructional strategies observed.

Table 2-3: Math Instructional Strategies Observed in Classroom Visits

Instructional Strategy	Percent of Classrooms
Use of evidence-based math instruction strategies	93%
Opportunities for students to engage in problem-solving and critical thinking activities	86%
Use of open-ended questions and tasks that require higher-order thinking	86%
Encouragement of multiple strategies for solving problems	86%

Note: n = 14 (2 observers, 4 campuses)

Section 2-2: Focus Groups

The evaluation team conducted three focus groups during the site visit. One session was held with campus principals, followed by another with CS teachers, and a third session with math teachers. A total of 15 participants attended the sessions.

Principals. Overall, the principals agreed that the grant positively influenced their students, suggesting that the program is off to a strong start. Principals revealed that the DoDEA grant support arrived at a critical time, coinciding with state-level mandates to implement CS instruction while also addressing local campus needs. They valued the flexibility to allocate support based on their school’s priorities. Collaboration was also highlighted as a notable driver of program implementation, particularly support from the Program Director, program staff, and the teachers. Finally, principals emphasized the importance of the grant to support military-connected students, recognizing the unique challenges those students and their families face.

CS Teachers. The focus group with teachers highlighted their experiences with navigating a new and changing landscape of CS education. Specifically, they noted that they were learning the material as they taught it, due to the state’s new focus on CS and their limited prior experience with the subject matter. As a result, teachers navigated their own path of resource identification and curriculum development, with critical program support from the CS Resource Teacher. Lastly, the teachers highlighted that students were highly interested and engaged in CS offerings.

Math Teachers. The focus group with math teachers revealed that their professional development (PD) activities were well structured, beneficial, and, more importantly, effective. They cited the importance of continuous PD in supporting successful implementation success. They also highlighted the transformative influences of the BTC framework on their teaching practices and overall instructional approach. This included new approaches to the physical arrangement of the classroom, fostering flexible and interactive activities as well as the

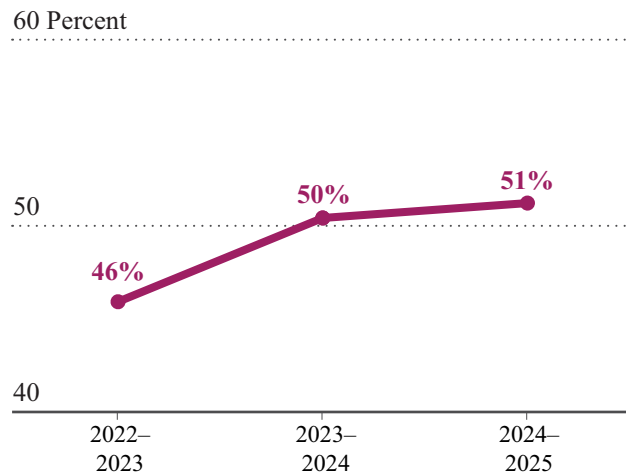
deployment of inquiry-based learning approaches. Math teachers appreciated that participation in the PD was voluntary, noting that this approach fostered buy-in among early adopters and encouraged interest through word-of-mouth and interpersonal relationships.

Section 3: Academic Data

To gain insight into progress being made under Goal 2, data on the percentage of eighth grade students meeting math testing standards was reviewed. Overall, there was a slight increase observed in the percentage of students meeting math standards from the 2022–2023 to the 2024–2025 school years, as illustrated in Figure 3-1.

In an effort to better account for exposure to program activities in the analysis, the evaluation team utilized standardized testing data to investigate potential differences in state testing outcomes between students who had taken a class with a participating teacher and those who did not. Note that available data included teachers who had participated in training from various grades and

Figure 3-1: Combined Math Meeting Standard: 8th Grade at Kailua Inter School



Source: Hawai'i Department of Education. (2025). *Combined math meeting standard: By all students & by grade & year for FSY, Kailua Inter* [Data visualization]. ARCH ADC. <https://adc.hidoe.us>

accordingly the analysis was expanded beyond looking only at 8th grade to provide further insight into the observable outcomes of program activities. Table 3-1 on the following page summarizes the results of the analyses.

The “Average Scale Score Difference” column in Table 3-1 represents the average scale score among students who did not have a participating teacher *minus* the average scale score among students who were taught by a participating teacher. In other words, **a negative value indicates that students who did have a class with a participating teacher had a higher average scale score than students who did not.**

The last column (“Effect Size (Cohen’s d)”) presented an effect size metric. Effect size is intended to contextualize the magnitude of an effect through a standardized value—

an effect size of 0.2 is considered small but meaningful, while a size of 0.5 is medium and 0.8 is large. Note that this metric is only presented in cases where an effect was observed in the direction hypothesized (i.e., a negative scale score difference). Please refer to the next section for a discussion of these findings.

Section 4: Conclusions

Key Finding 1: Observations of math and computer science classrooms revealed that expected practices are being implemented with fidelity. While visiting math and CS classrooms, the evaluation team completed observation forms to identify observed practices in alignment with expectations under the program’s implementation theory. For example, the five core concepts that form the foundation of CS instruction were observed across the classrooms visited. The most observed core concept was “Algorithms and Programming,” and the least was “Networks and Internet.” To the evaluators’ understanding, there is currently no expectation from the program

Table 3-1: SBA Math Outcomes Comparison by Grade and Teacher PD Status

Grade Level	School Year	Average Scale Score Difference	Effect Size (Cohen's d)
3	23–24 (PY 1)	-23.1	-0.28
	24–25 (PY 2)	0.29	-
4	23–24 (PY 1)	-55.7*	-0.73
	24–25 (PY 2)	-16.32	-0.20
5	23–24 (PY 1)	-60.4*	-0.71
	24–25 (PY 2)	26.77	-
6	23–24 (PY 1)	-22.8*	-0.23
	24–25 (PY 2)	8.0	-
7	23–24 (PY 1)	61.5	-
	24–25 (PY 2)	-55.8*	-0.54
8	23–24 (PY 1)	-67.2*	-0.65
	24–25 (PY 2)	14.0	-
11	23–24 (PY 1)	Insuff obs	-
	24–25 (PY 2)	-38.0*	-0.36

*Indicates statistically significant result at $p < .05$ using one-tail t-test hypothesizing that students of participating teachers would outperform their peers (i.e., negative scale score difference). The effect size estimates (Cohen's d) commonly interpreted as small effect ($d = 0.2$), medium effect ($d = 0.5$), large effect ($d = 0.8$). Sample sizes per group for reported scale score differences ranged from 42-270

regarding the extent to which CS teachers should focus on each of the core concepts. Rather, teachers can develop their CS curriculum and activities and receive support and guidance from the CS Resource Teacher to implement best practices. This state has identified CS as a priority area for instruction but has not specified a preferred curriculum. Observing the five core concepts at least once during the site visits is a promising indicator that variability in core concept coverage is occurring. Most classrooms observed demonstrated utilization of expected practices and approaches as defined by the implementation team. Further, the program supports OST CS activities, such as robotics and Girls Who Code offering, which reinforce the core concepts as well as interest in CS professions and engagement in education.

Regarding math, the implementation is guided by more defined expectations, particularly that teachers apply strategies from the BTC framework. Overall, alignment with

these expectations was evident, as observations consistently revealed a similar approach across classrooms. However, some variability was observed across classrooms in the form of adaptations or modifications, which prompted discussion among the evaluation team and program staff. The conversation pertained to the extent to which adaptations can be deployed and still be considered to meet implementation fidelity (i.e., a greenlight adaptation). The evaluation team recommends that program facilitators catalog and institutionalize definitions and expectations for best practices, with the goals of reducing ambiguity and providing a foundation for future communication and training. For example, if new teachers are hired after externally led PD has ended, they can readily access clear guidance and resources to support consistent implementation. Tools that could be developed include “Read Me” or “FAQ” style resources to highlight program aims, vision/mission, or implementation standards/expectations from the program team’s perspective. Another possibility is to develop “instructional toolkits” as repositories of instructional guidance, best practices delivered in training sessions, and material resources utilized. Such toolkits could be further refined by engaging exemplary teachers to add information on workarounds or modifications that have been tested and found to be effective in their teaching practice. Such documents could be stored in a shared drive or resource directory where personnel at any level (i.e., campus or administration) can easily access and review them.

Key Finding 2: Focus groups with campus principals and teachers revealed perceptions of strong administrative support, engagement, and excitement about the implementation.

Principals emphasized that the program benefits from clear administrative organization and support. The evaluation team noted that it is uncommon for principals to be both familiar and

actively engaged in with an externally funded program. The principals make a concerted effort to sit down and hold a frank discussion. Such participation, along with the subsequent discussion, indicated to the evaluators that program administration and communication had been functioning at a high level. The dialogue further underscored that principals demonstrated strong buy-in for the program and its goals, which is an implementation driver.

The focus group with CS teachers highlighted their efforts to be resourceful and adaptable in navigating a semi-open landscape of CS curriculum development. They discussed the importance of both external resources and internal support from the CS Resource Teacher. The math teachers shared that the structure and support around BTC were appreciated and that the strategies have improved their teaching practices and approaches. These positive perceptions reportedly contributed to the program's growing popularity and interest among teachers.

The evaluation team recommends that program facilitators brainstorm strategies that can fully maximize the buy-in and engagement of campus principals and teachers in support of bolstering the effectiveness and sustainability of implementation activities. Examples include inviting them to participate in steering committees, advisory groups, or communities of practice focused on specific tasks identified by program facilitators, or to develop strategic or practical recommendations for consideration in implementation decision-making.

Key Finding 3: Academic data provided some evidence of positive outcomes for students taught by math teachers who had received PD compared to those who did not. *However, these data provide limited inferential ability and should be interpreted with caution.* Analysis of average scale score differences indicated that students with a program teacher demonstrated some evidence of outperforming their peers. Specifically, students enrolled in grades 4, 5, 6, and 8 in the 2023–2024 school year and grades 7 and 11 in the 2024–2025 school year demonstrated higher average math scale scores (statistically significant and meaningful effect sizes) among students who had taken a class with a teacher trained in BTC. That said, these data were not collected under experimental conditions and accordingly should not be considered as completely informative of program outcomes, or lack thereof.

Overall, the evaluation team interprets this finding as promising, suggesting that the program's efforts might have the potential to contribute to improved academic outcomes among students. The evaluation team recommends identifying and documenting the most promising cases of success—instances where direct connection of program activities to improved teaching practices and student outcomes. Conduct an assessment of these cases would generate lessons about best practices that can inform implementation decisions and be communicated broadly to strengthen program effectiveness and sustainability. Finally, the evaluation will continue to monitor the district's administrative data and attempt to uncover any causal links.



As the program concluded its second program year, evaluation findings suggest that the project has made meaningful progress, including making notable inroads in participant reach and implementation of math and CS activities. Further, administrative support and teacher engagement have highlighted the program's momentum, which should continue into the third program year. While continued monitoring and more data analysis are needed, PY2 findings suggest promising student outcomes and a strong foundation, lending towards long-term sustainability and lasting success.

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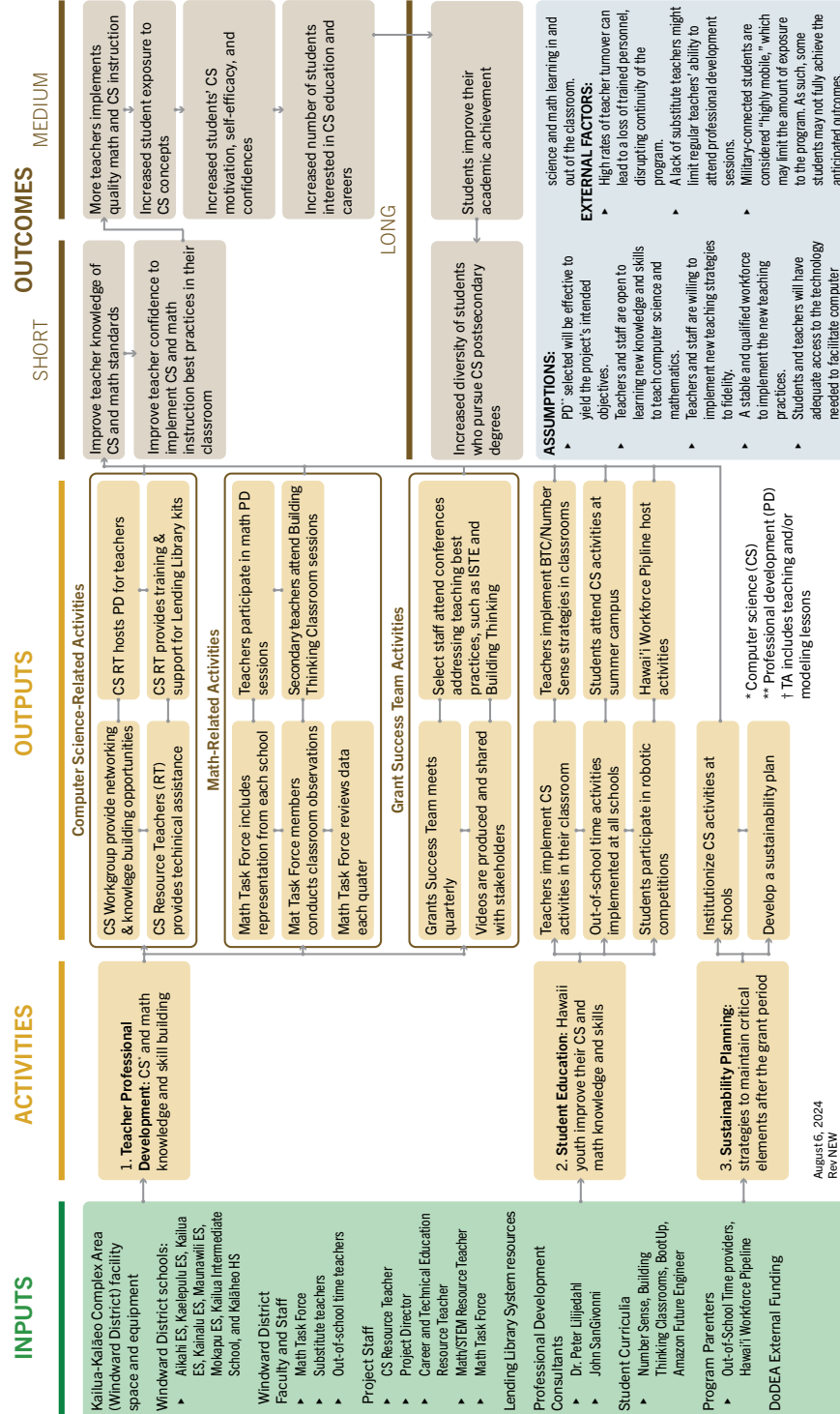


Appendix A: Logic Model

Kūlia i ka nu'u: Striving for Excellence in Developing Computational Thinkers Through Enriching Computer Science and Math Education Logic Model

Hawaii Department of Education • Kailua-Kalāheo Complex Area

The ultimate goal of the program is to prepare military-connected students for postsecondary education and/or career success, enabling them to be leading contributors in their communities and in the 21st century globalized society.





Appendix A: Kūlia i ka nu'u Program PY2 Infographic



Kūlia i ka nu'u: Striving for Excellence in Developing Computational Thinkers Through Enriching Computer Science and Math Education

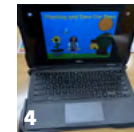
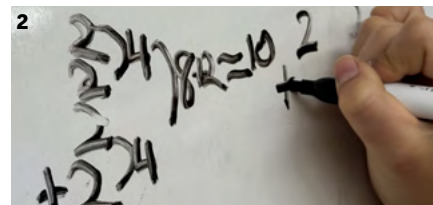
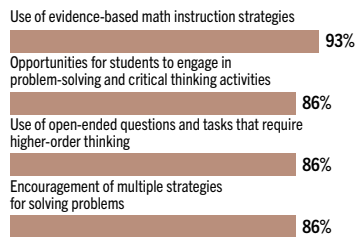
Evaluation Findings for Program Year 2 (2024–2025)

Hawaii Department of Education • Kailua-Kalāheo Complex Area

The goal of the program is to prepare military-connected students for postsecondary education and/or career success, enabling them to be leading contributors in their communities and in the 21st century globalized society

Project-Supported Activities: 1) Students collaboratively solving a math problem using a Building Thinking Classroom (BTC) method. 2) A close-up detail of a student solving a program on a project-supported whiteboard. 3) Dr. Peter Liljedahl leading BTC professional development session for Kailua-Kalāheo Complex Area math teachers. 4) Elementary students working on a computer science project. 5) Robotics team demonstrating the project before traveling to a national competition.

During Evaluators' Site Visit, Math Instructional Strategies Observed

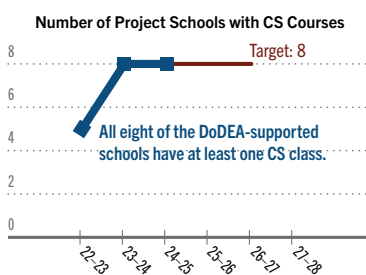
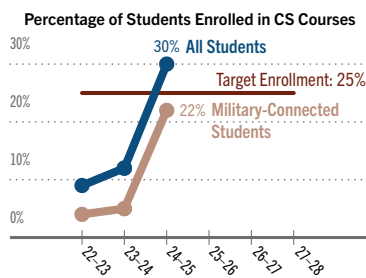


PROJECTS KEY ACTIVITIES

1 Teacher Professional Development: CS and math knowledge and skill building

2 Student Education: Hawaii youth improve their CS and math knowledge and skills

3 Sustainability Planning: strategies to maintain critical elements after the grant period



NOTABLE ACHIEVEMENTS

- Students were highly engaged CS activities, in both classroom and OST settings.
- Evaluators observed that most math teachers implemented BTC with fidelity and quality.
- Principals noted that the DoDEA grant provides critical support, especially as the state mandated CS instruction.
- Percentage of students enrolled in CS courses has notably increased.

IMPLEMENTATION CHALLENGES

- The evaluators observed one math teacher who struggled with BTC fidelity, prompting discussions to improve their understanding of student-centered instruction.
- Some CS teachers reported difficulties and challenges assessing students' learning gains from their instruction.
- While improved, the percentage of military-connected students enrolled in CS lagged behind the general population.

KEY EVALUATION FINDINGS

- KEY FINDING 1:** Observations of math and computer science classrooms revealed that expected practices are being implemented with fidelity.
- KEY FINDING 2:** Focus groups with campus principals and teachers revealed perceptions of strong administrative support, engagement, and excitement about the implementation.
- KEY FINDING 3:** Academic data provided some evidence of positive outcomes for students taught by math teachers who had received PD compared to those who did not.

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This project is supported by DoDEA.



Appendix C: Computer Science Classroom Observation Tool

Type of Computer Science Class		
Factors		
Designated CS class	Not Observed: <input type="radio"/>	Observed: <input type="radio"/>
Integrated with other content area Content Area:	Not Observed: <input type="radio"/>	Observed: <input type="radio"/>
After school program	Not Observed: <input type="radio"/>	Observed: <input type="radio"/>
Collaboration and Communication		
Factors		
Structured group work where students collaborate on coding projects, sharing ideas and strategies.	Not Observed: <input type="radio"/>	Observed: <input type="radio"/>
Opportunities for students to present their solutions to the class, fostering communication skills	Not Observed: <input type="radio"/>	Observed: <input type="radio"/>
Comments: _____ _____ _____		
Problem-Solving Approach		
Factors		
Open-ended coding challenges that require students to break down problems into smaller steps.	Not Observed: <input type="radio"/>	Observed: <input type="radio"/>
Encouragement of different approaches to problem-solving and critical thinking	Not Observed: <input type="radio"/>	Observed: <input type="radio"/>
Opportunities to debug their code and identify logical errors.	Not Observed: <input type="radio"/>	Observed: <input type="radio"/>
Comments: _____ _____ _____		

POSSIBLE OBSERVABLE ACTIONS TO LOOK FOR:

Use of Physical Computing Devices

- Ozobots – small robots students can code with color markers or block-based programming.
- Bee-Bots | Blue-Bots – floor robots for early sequencing and directional programming.
- LEGO Education SPIKE™ Essential – basic robotics kits with sensors and motors; programmable with Scratch-based languages.
- Dash and Dot (Wonder Workshop) – engaging robots students can program using block-based coding apps.
- Makey Makey – simple input device to turn everyday objects into keyboard inputs; introduces circuitry and creativity.
- Unplugged tools – though not “devices,” tangible tools like coding cards, puzzles, and games help teach computational thinking.
- Raspberry Pi – credit-card-sized computer; great for teaching Linux, Python, and project-based computing.
- Arduino (more advanced use) – supports robotics, automation, and IoT concepts.
- VEX Robotics – used in competitive robotics and engineering-focused classes.
- Drones (e.g., Tello EDU) – allow for programming in Scratch or Python while exploring flight-based challenges.
- Robotic arms or 3D printers – depending on available equipment and curriculum goals.

Use of Online Resources

- Code.org (CS Fundamentals) – block-based activities, unplugged lessons, basic coding.
- ScratchJr – introductory programming on tablets; visual and story-driven.
- Scratch – creative coding platform with drag-and-drop blocks.
- Tynker – gamified coding activities and projects.
- Blockly Games – visual puzzles that teach logic and programming concepts.
- Blowels – game-based coding and design tool.

Key Actions to Observe During Visit:

- Students are interacting with coding environments (not just watching videos).
- Students are designing or modifying programs, not just following step-by-step instructions.

Core Concept: Computing Systems
(Hardware, software, input/output, troubleshooting, device components)

- Students identify and explain parts of a computing system (e.g., CPU, memory, sensors, input/output devices).
- Students are working with or programming physical devices (e.g., Micro:bit, LEGO Spike, Ozobot).
- Teacher introduces how hardware and software interact.
- Students troubleshoot technical issues during projects or tasks.
- Instruction emphasizes digital tools and systems used to solve problems.

Core Concept: Networks and the Internet
(How devices communicate, privacy, cybersecurity, internet structure)

- Students learn how data is transmitted over networks (e.g., packets, IP addresses).
- The lesson includes cybersecurity principles, such as strong passwords or safe browsing.
- Students model or simulate a network or the internet (e.g., through unplugged activities or tools like Wireshark).
- Instruction includes discussion of online safety, digital citizenship, or privacy.

- Students explore how devices connect and communicate (e.g., client-server model, internet protocols).

Core Concept: Data and Analysis
(Collection, storage, visualization, interpretation of data)

- Students collect or generate data (e.g., via surveys, sensors, or simulations).
- Data is organized and visualized (e.g., in tables, charts, or dashboards).
- Students interpret data trends or draw conclusions from datasets.
- The lesson includes discussion about data accuracy, bias, or limitations.
- Tools like spreadsheets, Python, or Scratch data blocks are used to analyze data.

Core Concept: Algorithms and Programming
(Creating and implementing algorithms, debugging, abstraction, conditionals, loops)

- Students write or modify code that uses core programming constructs (e.g., loops, conditionals, variables, functions).
- Students design and test algorithms to solve a problem or complete a task.
- Instruction includes pseudocode or flowcharts to represent algorithmic thinking.
- Students engage in debugging or refining their programs.
- Programming is done in tools like Scratch, Code.org, Python, Replit, etc.

Core Concept: Impacts of Computing
(Ethical/social aspects, equity, history of computing, career connections)

- Students explore how computing affects society, such as automation, privacy, AI, or accessibility.
- Lesson includes discussion about diversity in tech and digital equity.
- Instruction highlights careers in computing and real-world applications.
- Students evaluate ethical implications of computing decisions.
- Projects connect computing to environmental, health, or social justice issues.

Appendix D: Math Classroom Observation Tool

Fluency and Number Sense		
Factors		
Activities that promote fluency	Not Observed: ①	Observed: ①
Instruction focused on building strong number sense and conceptual understanding	Not Observed: ②	Observed: ①

Comments: _____

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POSSIBLE OBSERVABLE ACTIONS TO LOOK FOR:

Instructional Practice: Use of Evidence-Based Math Instruction Strategies

- The lesson begins with a Number Sense Routine (e.g., quick mental math or estimation activity).
- Students engage with a Rich Task that allows for multiple entry points and solution paths.
- The task or activity requires reasoning, problem-solving, or critical thinking rather than rote procedures.
- Students are grouped strategically (randomly or intentionally) to encourage collaboration (BTC practice).
- Students are working on whiteboards or vertical surfaces to show thinking (BTC practice).
- The teacher facilitates rather than directs—walking around, observing, and providing prompts instead of direct instruction (BTC practice).
- There is an emphasis on student thinking over getting the "right" answer.
- Students are encouraged to justify their reasoning and discuss strategies with peers.

Instructional Practice: Use of Math Talk to Promote Mathematical Discourse and Reasoning

- Teacher poses open-ended or high-level questions that prompt reasoning (e.g., "Why do you think that works?").
- Students are explaining their thinking verbally to peers or the teacher.
- Students ask questions of one another (e.g., "Can you explain how you got that?" or "Do you agree with this?").
- Teacher prompts students to elaborate, compare, or clarify their ideas.
- Multiple student voices are heard; not dominated by just a few.
- Students use math vocabulary to explain ideas or reasoning.
- The teacher creates a safe environment for sharing ideas, even if they are incorrect or incomplete.
- Student ideas are recorded publicly (on the board or chart paper) and referenced during instruction.

Problem-Solving and Critical Thinking: Opportunities for students to engage in problem-solving and critical thinking activities

- Students are working on non-routine or unfamiliar problems that require thinking beyond memorized procedures.
- Students are expected to analyze, interpret, or make sense of mathematical situations.
- Tasks involve real-world applications or meaningful contexts.
- Students are asked to make decisions or justify choices based on reasoning.
- Students are encouraged to reflect on their problem-solving process.
- The teacher gives students time to grapple with challenging tasks before intervening or providing help.

Problem-Solving and Critical Thinking: Use of open-ended questions and tasks that require higher-order thinking

- The teacher poses open-ended questions with no single correct answer (e.g., "What do you notice?" "How else might we solve this?").
- Students are asked to explain why or how something works mathematically.
- Questions encourage students to analyze, evaluate, or synthesize information (e.g., "Which method is most efficient?").
- Students are asked to compare multiple strategies or justify the validity of a solution.
- Teacher avoids immediately confirming right/wrong answers; instead, probes for deeper thinking.

Problem-Solving and Critical Thinking: Encouragement of multiple strategies for solving problems

- Students are invited to solve problems using different approaches or representations (e.g., drawing, equations, manipulatives).
- The teacher explicitly states or models that multiple strategies are valued.
- Students share different solution paths during whole group or small group discussion.

- The teacher facilitates conversations around comparing and evaluating different strategies.
- The classroom displays or anchor charts include student-generated strategies or methods.

Fluency and Number Sense: Activities that promote fluency

- Students participate in fluency-building activities (e.g., number talks, math sprints, counting routines, math facts games).
- Activities emphasize efficient and accurate recall of math facts or procedures.
- Students demonstrate flexible thinking with numbers (e.g., breaking apart numbers to make calculations easier).
- The teacher highlights or models efficient strategies (e.g., using doubles, making tens).
- Fluency activities are paced appropriately to build confidence without rushing or promoting rote memorization.
- Students are encouraged to explain how they arrived at their answers, showing understanding of procedures.

Fluency and Number Sense: Instruction focused on building strong number sense and conceptual understanding

- The teacher uses visual models, manipulatives, or representations (e.g., number lines, ten frames, base-ten blocks) to develop number sense.
- Instruction connects symbols (e.g., numerals and operations) to quantities and real-world contexts.
- Students are encouraged to make estimates, reason about numbers, and justify their thinking.
- Students demonstrate understanding of part-whole relationships, place value, and the properties of operations.
- Instruction includes discussion of relationships between numbers (e.g., "How is 4×5 related to 2×5 ?").
- The teacher prompts students to use mental math strategies and explain their thinking.
- Students work with benchmarks, decomposing and composing numbers, and other strategies that reflect deep understanding.

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