OVERVIEW

To assist subgrantees with meeting state evaluation requirements, for SY2017-18 the HIDOE is implementing a standardized template for evaluations of the 21st CCLC programs. Each subgrantee is required to complete this template with SY2017-18 information. The checklist below serves as a list of required elements and provides a tracking tool for completion.

Evaluation Element	Complete?
1. General Information	☐
Exhibit 1: Basic Information Table	☐
Exhibit 2: Center Information Table	☐
2. Executive Summary	☐
3. Program Description	☐
3.A. Program Description	☐
3.B.1 Goals	☐
3.B.2 Objectives	☐
Exhibit 3: Students Served	☐
Attendance Discussion	☐
Exhibit 4: Characteristics of Students Served	☐
Exhibit 5: Race/Ethnicity of Students Served	☐
3.D. Summer and Intersession Programming	☐
Exhibit 6: Students Served During Summer	☐
3.E.1 Program Materials	☐
3.E.2 Resources	☐
3.F. Staff and Others Involved in the Program	☐
Exhibit 7: Number of Staff by Position	☐
Exhibit 8: Average Hours per Week by Position	☐
Exhibit 9: Partners	☐
Partnership Description	☐
3.H. Parent/Family Involvement	☐
4. Evaluation	☐
4.A.1. Evaluation Design Overview	☐
4.A.2. Implementation Evaluation	☐
4.A.3. Outcomes Evaluation	☐
4.B.1. Implementation of Evaluation Results	☐
Exhibit 10: Performance on KPI Objective 1 – Turning in Homework and Classroom Participation	☐
Exhibit 11: Performance on KPI Objective 1 – Student Classroom Behavior	☐
KPI Objective 1 Discussion	☐
Exhibit 12: Performance on KPI Objective 2 – Core Educational Services	☐
Core Educational Services	☐
Exhibit 13: Performance on KPI Objective 2 – Enrichment Activities	☐
4.B.3. Key Performance Indicators – Objective 2	☐

Evaluation Element	Complete?
Exhibit 14: Performance on KPI Objective 2 – Services to Parents and Family Members	☐
Parent/Family Services	☐
Exhibit 15: Performance on KPI Objective 2 – Hours per Week	☐
Exhibit 16: Performance on KPI Objective 4 – Academic Improvement in Reading/Language Arts	☐
Exhibit 17: Performance on KPI Objective 4 – Academic Improvement in Math	☐
KPI Objective 4 Discussion	☐
4.B.5. Achievement of Program-Specific Objectives	☐
Exhibit 18: Progress on Program-Specific Objectives	☐
Achievement of Program-Specific Objectives Discussion	☐
4.C.1. Success Stories	☐
4.C.2 Best Practices	☐
4.C.3 Student, Teacher, Parent, Staff, or Community Input	☐
4.C.4 Pictures	☐
5. Sustainability Plan	☐
5.A. Original Sustainability Plan	☐
5.B. Updated Sustainability Plan	☐
6. Conclusions and Recommendations	☐
6.A. Conclusions	☐
6.B. Recommendations	☐
6.C. Evaluation Dissemination	☐

1. General Information

Exhibit 1: Basic Information Table

Required Information	Enter Information
Date Evaluation Report Submitted	12/15/2018
Grantee Name	Maui Economic Development Board
Program Director Name	Melinda White
Program Director Email	melinda@medb.org
Evaluator Name	Shawna J. Sodersten
Evaluator Email	shawnasodersten@gmail.com
Year of Grant	2017-2018

Exhibit 2: Center Information Table

Center	Name of Center	Grade Levels Served
Center 1	Maui Waena Intermediate	6, 7, 8
Center 2	Lahaina Intermediate	6, 7, 8
Center 3	Lokelani Intermediate	6, 7, 8
Center 4	Lanai High and Elementary	2, 3, 5, 6, 7
Center 5	Pukalani Elementary	K, 1, 2, 3, 4, 5

Moving forward, please enter the centers in the same order for the tables to come.

2. Executive Summary

This section of the report is a brief overview of the evaluation, explaining why it was conducted and listing its major conclusions and recommendations. Although the executive summary is placed first, it is typically the section that you write *last*.

Include a **brief summary (no more than 2 pages, 12 pt.)** of the key points from each section of the report:

1. Program description
2. Evaluation Design
3. Evaluation Results
4. Conclusions and Recommendations

STEMworks AFTERschool™ is a multi-faceted, culturally aligned, hands-on program where students get to use the most current, high-end technologies applied to community service learning or engineering design projects. Students in STEMworks AFTERschool are challenged to be self-directed, responsible individuals while developing the skills to navigate building collaborative team relationships. All activities are student centered, creating an environment where teachers become facilitators, navigating student learning through community based and culturally relevant projects that use technology to solve problems.

Each site has its own "STEM flavor" reflecting contractor expertise, local industry partners as well as K-12 grade-appropriate skill alignment, and a variety of industry aligned skills. STEMworks AFTERschool program includes: Digital Media (Adobe Creative Suite Software for Movie Making, PSA, Digital Photography), Drone technologies (including circuitry, GIS & Digital Media), Coding (Programming for both Software and Hardware), VEX robotics, Computer Aided Design (CAD) (Including Autodesk Fusion 360 and TinkerCAD), Virtual Reality & Agriculture. By the end of the year 464 students had participated in STEM programming.

The program has procedures in place to document implementation by collecting data regarding program attendance, coordination and communication between in-school and after-school staff, contact and communication with parents, community outreach efforts, and curricula. The evaluation used data from survey instruments and both formal and informal observation tools, that gathered feedback from teachers, students, staff, parents, and community members regarding their experience of the program and its impacts; student performance in math, science, reading, and development in an array of core skills; student behavior; student perceptions and goals in STEM; and student development of leadership and teamwork skills.

The evaluation concludes that the program effectively engaged the intended participants and provided high-quality services supporting core subjects, including math, science and language arts. The program also provided an impressive array of high-quality, hands-on, technology-based enrichment activities. Now that the program is in its third year, there is an appreciable benefit to the program deriving from experienced teachers, and also from experienced

students who can function as mentors and elevate the overall sophistication of program offerings.

The program excels at involving community partners (private business; federal, state, and county government, institutions of higher learning) and generating in-kind donations of personnel hours or software.

Based on the self-reporting of students, program participants at all sites benefitted in a wide range of academic and job-readiness and life skills. The program is meeting or exceeding expectations for family engagement, improving student performance in the areas of classroom participation, homework completion, turning in homework on time, classroom behavior, and attendance. 100% of students participating 90 days or more showed improvement in all of these areas.

In every participant school, teachers report marked improvement in participants' school day performance in the core subjects of math, language arts, and science. The available data shows program-wide impacts of improvement as follows: 69-100% math, 78-100% ELA. Data on standardized testing from the HI DOE shows program participants in MEDB's programs out-performing non-participants. Within the population of students participating in MEDB programs, the achievement gap typically present between SED and non-SED students was overcome.

In addition to meeting or exceeding 21st CLCC standards for program success, the program met its self-created, program-specific objectives regarding teacher-assessed academic improvement, student interest in STEM careers, student perceptions of mastery of the engineering design process, and family participation and engagement. The program is still working towards meeting its program-specific objectives regarding student self-assessed academic improvement, confidence in their abilities to complete tasks and achieve goals; work well and collaborate with others on a team.

It is recommended that the program:

- Continue to increase the challenge/sophistication level of STEM offerings so that experienced students can move beyond the initial skill-building orientation of prior years.
- Continue to experiment with the balance of program reach (number of students) and curriculum depth at programs where demand outstrips capacity.
- Experiment with providing students more feedback on their improvement and see if that brings their self-assessments more into alignment teacher assessments.
- Adjust the data collection on family engagement to allow for reporting on the percentage of students who have family members attend (vs. simply the total number of family member engaged).
- Evaluate the sustainability of continuing MEDB programming on Lanai in planning beyond the 2018-19 program year and the possibility of the need for culturally specific outreach.
- Continue to implement its evaluation plan as structured.

- Continue to provide summarized data from survey instruments from each site to all staff from the respective site during informal site visits so that this information can shape the program and its delivery, including by further revising data collection instruments to best serve the goals of the grant and the individual sites.

3. Program Description

3.A. PROGRAM DESCRIPTION

Provide a brief description of the program, including the following bullet points:

- Describe the organization operating the grant program.
- Provide the grant year (i.e., Year 1, Year 2, Year 3, etc.).
- Describe the community and schools involved in the program, including evidence that these are high-poverty communities.
- Did the organization offer any afterschool programming prior to the grant? If so, when was such programming first offered?

Describe the organization operating the grant program.

Established in 1982 as a private, not-for-profit 501(c) 3 organization, MEDB's mission is to provide leadership and vision in the community for the responsible design and development of a strong and diversified economy. The organization's priority focus has been to diversify Maui's economy by creating the requisite infrastructure to develop an innovation sector on Maui and within the state.

Creating and supporting a STEM pipeline from elementary school education through to employment is a central pillar MEDB's work, and MEDB has long held and actualized a commitment to fostering awareness of common needs, and facilitating collaboration and communication between tech employers, service providers, higher education, the workforce investment system, the school district system and associated institutions.

MEDB has been delivering STEM initiatives in an after-school format since 2000, including programming during intercessions and summer. MEDB programs for students have included offerings in computer programming, robotics, and engineering. MEDB develops original curriculum and professional development programming, including STEMworks™, the first service-learning program in the state. MEDB also developed Island Energy Inquiry™, the state's first original, place-based clean energy science interactive curriculum aligned with standards. MEDB also has a menu of career awareness building and job shadowing programs including Tech Careers: I am the Future™, Industry Connections, Tech Connect, Introduce a Girl to Engineering, mentoring, and a variety of internship programs.

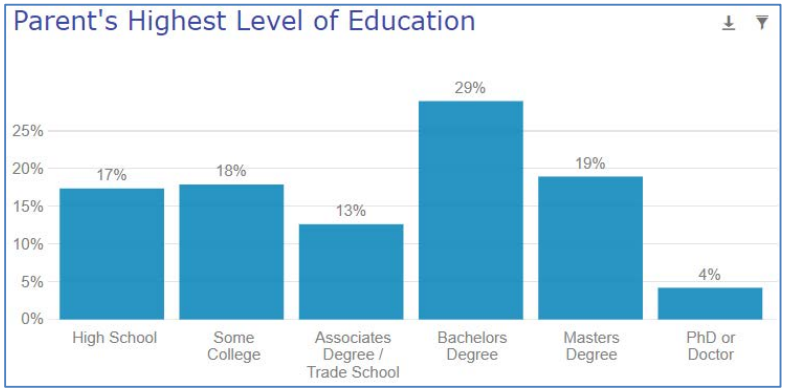
MEDB currently has 20 employees with projects spanning business development, conference services, and education and workforce development. The education and workforce development project reach includes serving over 200 schools and organizations statewide, 500 teachers and 40,000 students annually supported by
an average annual budget of $4 million – with $2 million utilized for education/workforce. Funding sources include federal, state, county, and private funding.

Grant year: The 2017-2018 was year 3. (Note: Grant award funding for 2014-2015 was delivered in the summer of 2015).

Describe the community and schools involved in the program, including evidence that these are high-poverty communities.
Risk factors present within the population of students attending the target intermediate and one elementary through high school (on Lanai) include English language-learning, low-income and low educational-attainment households. Data from the U.S. Census Bureau's American FactFinder 2008-2012 American Community Survey 5-Year Estimates report indicates that, in all but one of these communities, fewer than half of the population has attained a Bachelor's degree or higher, and in many cases, fewer than one quarter of the population has this degree of educational attainment.

Program participants included 126 elementary school students (from Pukalani and Lanai High and Elementary) and 338 intermediate school students (Maui Waena, Lokelani, Lahaina Intermediate, Lanai High and Elementary). In total, the program reached 464 students at 5 schools.

The program surveyed students about their parent's highest level of education and discovered that 17% of students had parents had only graduated from high school, and an additional 18% had taken some college courses, but did not obtain a degree. The program served a population of students where 48% grow up in households where students have the opportunity to be the first person to earn a 4-year college degree.



Specific Program Demographics (students in program)
**Note-Parents were surveyed to provide their child's demographic information below:*

	Free/Reduced Price Lunch in program (% in program)	English Learner, ELL	Special Needs	Female	Male
Lahaina	20 (35%)	8	2	16	41
Lanai (LHES)	3 (50%)	0	0	1	5
Lokelani	55 (42%)	33	6	67	64
Maui Waena	37 (25%)	33	3	89	58
Pukalani	41 (33%)	26	12	51	72
Total	156 (34%)	100	23	224	240

• **Did the organization offer any afterschool programming prior to the grant? If so, when was such programming first offered?** MEDB has offered or supported afterschool, summer and

school break programming in the areas of science, technology, engineering and math via robotics, STEMworks, and other initiatives since 2000 at various schools throughout the state.

3.B. PROGRAM GOALS AND OBJECTIVES

All Hawai'i 21st CCLC grant programs are accountable to the state's Key Performance Indicators (KPIs) – see Section 4B: Evaluation Results. In addition to these KPIs, subgrantees must articulate their own program-specific goals and objectives.

- **Goals** are brief, general statements about what the program hopes to achieve.
- **Objectives** are more detailed, specific statements that articulate exactly what will change as a result of the program.
- **Measures** must also be identified that will be used to assess progress toward *each* objective. Goals, objectives and measures should be clearly linked. See below for guidance.

3.B.1. Goals

What are the overall goals of your particular program? Please number each major goal. See example in grey. It is not necessary to have five goals, but space is provided in case you do.

	Goals
1.	Program participants will achieve measurable improvement in Language Arts, Mathematics and Science.
2.	Program participants will develop interest in STEM education and careers, and an increased ability/practice in the engineering design process.
3.	Participants will show measurable improvement in self-efficacy, social skills, and ethical responsibility
4.	The families of program participants will engage in program activities and support the success of their children

3.B.2. Objectives

What specific measurable objectives are being used to address your program's goals? It is not necessary to have four objectives per goal, but space is provided just in case. Link objectives to the specific goals articulated above in section 3.B.1. See examples in grey below. Enter all that apply.

Goal	Objectives	Measures
1	70% of students with room to improve will improve ELA, Math, and Science grades.	Teacher Grades
	70% of students will self-report improvement in ELA, Math and Science.	Student surveys
2	80% of students express interest in STEM careers	Student surveys
	80% of students self-report use and mastery of elements of engineering design process	Student surveys,
3	90% of students express confidence in their abilities to complete tasks and achieve goals	Student surveys, Teacher Survey
	90% of students demonstrate an ability to work well and collaborate with others on a team, and develop of team-building and teamwork skills.	Student surveys, Teacher Surveys, Site Visit Observation Logs
	90% of students recognize and act on their role in building collaborative teams.	Student surveys

4	70% of program families participate in at least one program activity.	Program attendance logs
	70% of families engage with student progress.	Parent Surveys, Student surveys

3.C. PARTICIPANTS INVOLVED IN THE PROGRAM

3.C.1. Attendance

Exhibit 3: Students Served in 2017-18 (including summer)

Center	2017-18 Enrollment – Total	2017 -18 Enrollment – Regular*	Grade Levels
Maui Waena Intermediate	147	85	6, 7, 8
Lahaina Intermediate	57	16	6, 7, 8
Lokelani Intermediate	131	36	6, 7, 8
Lanai High and Elementary	6	1	2, 3, 5, 6, 7
Pukalani Elementary	123	62	K, 1, 2, 3, 4, 5
Subgrantee Total	464	200	K, 1, 2, 3, 4, 5, 6, 7, 8

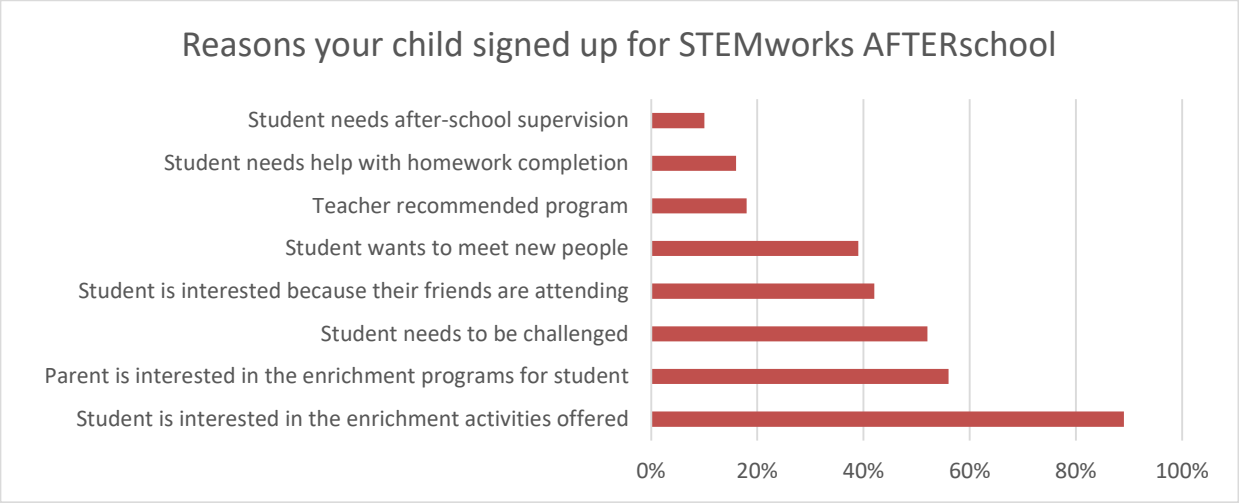
** Regular attendees are those who have attended the program for 30 or more days.*

Attendance Discussion

Describe attendance at each center and at the subgrantee level. Do you have any challenges with attendance? How have you encouraged attendance?

Demand for this programming far exceeds the capacity of current funding levels. The program could not continue at 2015-16 levels (with 685 participants), and sought to strike a balance between accepting as many students as possible and achieving a desired depth of impact with each participant. Sites with highest demand had to temporarily waitlist some students. With a goal of 250 participating students, program was already exceeded by mid-September, with 325 students attending the program across the 5 sites. Previous year's grant guidance included discussions of limiting enrollees vs. exposing as many students as possible to STEM opportunity, guidance was given to choose what the program felt would best served our community. Our program implemented a process to increase student days, reach fewer students, but still expose students beyond the 250 participant capacity. So although rotating schedules allowed for more students to be accepted, we prioritized allowing each student more daily access, which reduced the total number of students participating as compared to the previous year. By the end of year, 464 students had participated in STEM programming with 200 participating more than 30 days.

We surveyed parents when registering (Fall 2018), asking parents to choose reasons for enrollment (parents could choose multiple areas) and by far both parents and students were highly interested in the enrichment activities offered. Additionally, over half of families chose to enroll students because they needed to be challenged!



Pukalani Elementary is the site with the largest demand, with over half of the school's student population wanting to participate. The program expanded from one day a week (offered during 16-17) to two/three days, increasing depth of study per student. Students who were waitlisted in the fall were given priority in the spring, but many of these students were by then engaged in the alternatives they turned to when they could not get into the program in the fall semester. Those students who participated in the fall (and program teachers) liked having more days to practice skills in more depth, and sought to continue in the spring. However, many families shared that they had preferred the one day a week program. Informal feedback suggests: parents preferred to not be waitlisted, one day was easier to fit into their personal schedules, one day was easier when managing schedules with multiple siblings. In contrast, it had been a program goal to increase the number of student days per child, however this programmatic goal was not entirely met, since many students ended up not regularly attending multiple days. Another challenge is students wanting to attend but then having conflicts with other opportunities at Pukalani School- especially basketball, track, and math team. To encourage attendance, parents are required to attend a parent meeting at the beginning of each semester session. During the STEMworks parent meeting/sign ups, coordinators review the attendance policy. Parents are notified that attendance will be closely monitored and students with excessive absences are dropped to make room for other students on the waiting list.

At Lokelani, program days were adjusted and schedules were altered each quarter to accommodate multiday access for students. Program interest was very high, especially in robotics and coding, and since many students were initially not able to have access to their first choice every day of the week, the program encouraged students to rotate through a variety of offerings, which helped grow student experiences and interest in agriculture and photography classes, while allowing students to attend more days as compared to the previous grant year. The expectation was for students to be able to attend multiples days, and while rotations grew new interest in some classes, thereby increasing attendance, other students preferred to not rotate through other offerings, which did drop some students' attendance overall.

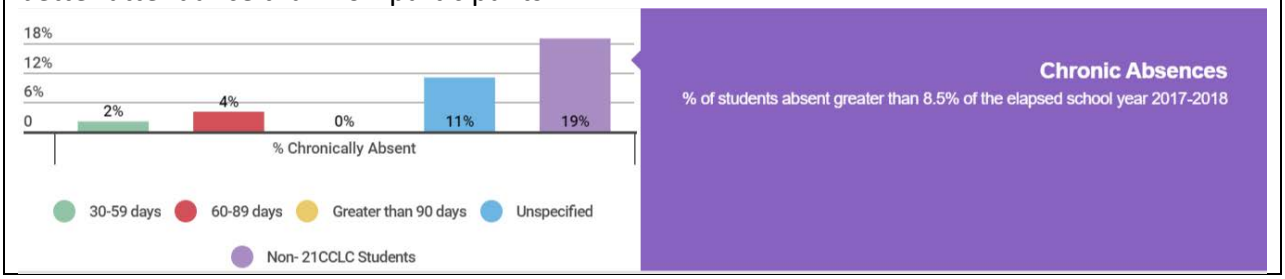
At Lahaina Intermediate, attendance was mostly consistent with the prior year. However, competing activities (primarily sports) were a significant challenge to attendance for some students, who would miss days and/or partial days in order to participate in other activities. A very small number of students couldn't attend because transportation was an issue. The

program teachers explored options for transportation with the MEO service but were unable to negotiate an agreement.

On Lanai, program attendance was low year round. The site coordinator advertised in the local grocery stores, through emails to parents, and locally on Facebook. At Lanai's community College and Career day, the STEMworks team engaged classrooms of students with hands on activities and talked with 6-12th grade students about opportunities and passed out flyers. Students even brainstormed how to raise awareness about the program. Yet the numbers still remained low. Informal inquiries with students and parents revealed three factors impacting attendance: (1) students are in walking distance of home and the majority of students have obligations to watch younger siblings right after school, (2) many students are engaged in sports and fitness activities and (3) the school is also served by another 21st CCLC grant with competing activities. To try to spur attendance in the upcoming 18-19 program year, a Movie Making Summer Workshop Camp was planned at the end of summer to engage and recruit students. This STEM area was popular during a pilot run during in-school program. As the first two factors were present during prior program years, it is possible that the biggest driver of the low numbers is the creation of a second 21st CCLC grant program at the same school with a small island population.

Site	TOTAL Student attending SY 16-17	TOTAL Student attending SY 17-18
Maui Waena Inter	172 students, 120 adults	147 students, 125 adults
Pukalani Elem	230 students, 187 adults	123 students, 215 adults
Lahaina Inter	60 students, 15 adults	57 students, 18 adults
Lanai High and Elem	66 students, 26 adults	6 students, 5 adults
Lokelani Inter	157 students, 103 adults	131 students, 29 adults (note, total is estimated to be at least 30+ adults higher based on lost digital sign in data)
Total	**685 students, 451 adults**	**464 students, 392 adults**

Data from the HI DOE shows that students participating in MEDB after-school programming had better attendance than non-participants:



3.C.2 Participant Characteristics

What are the characteristics of program participants – use the following two tables to indicate for each site the characteristics of program participants including:

- F/R Lunch
- Special Needs
- English Language Learners
- Gender
- Race/ethnicity

The table will automatically compute totals in the final row.

Exhibit 4: Characteristics of Students Served

Center	F/R Lunch		Special Needs		ELL		Male		Female	
Maui Waena Intermediate	37	25%	3	2%	33	22%	58	39%	89	61%
Lahaina Intermediate	20	35%	2	4%	8	14%	41	72%	16	28%
Lokelani Intermediate	55	42%	6	5%	33	25%	64	49%	67	51%
Lanai High and Elementary	3	50%	0	0%	0	0%	5	83%	1	17%
Pukalani Elementary	41	33%	12	10%	26	21%	72	59%	51	41%
Subgrantee Total	156		23		100		240		224	

Exhibit 5: Race/Ethnicity of Students Served

All Sites Total Students of Multiple Race/Ethnicity: 167 (36%) and 4 (1%) unknown

- *Maui Waena students: 29 (20%) multiple Race/Ethnicity, 4 students (3%) unknown*
- *Lahaina Intermediate students: 21 (37%) multiple Race/Ethnicity*
- *Lokelani Intermediate: students: 43(33%) multiple Race/Ethnicity*
- *Lanai High and Elementary students: 3 (50%) multiple Race/Ethnicity*
- *Pukalani Intermediate students: 71 (58%) multiple Race/Ethnicity*

Center	# AI/AN	% AI/AN	# Asian	% Asian	# NH/PI	% NH/PI	# Black	% Black	# Latino	% Latino	# White	% White
Maui Waena Intermediate	1	1%	99	67%	8	5%	0	0%	1	1	5	3%
Lahaina Intermediate	0	0%	17	30%	3	5%	0	0%	4	7%	12	21%
Lokelani Intermediate	0	0%	46	35%	6	6%	0	0%	6	6%	30	23%
Lanai High & Elementary	0	0%	2	33%	0	0%	0	0%	0	0%	1	17%
Pukalani Elementary	0	0%	19	15%	16	16%	0	0%	0	0%	17	14%
Subgrantee Total	1	0.2%	183	39%	33	7%	0	0%	11	2%	65	14%

Note: AI/AN refers to American Indian/Alaska Natives; NH/PI refers to Native Hawaiian/Pacific Islander.

3.D SUMMER AND INTERSESSION PROGRAMMING

Describe activities offered during summer and intersession.

Summer and Intersession Programs were *not* a part of 21st CCLC Grant Funding during the 2017-2018 school year. However, students were still able to participate in the STEM programs outlined below, thanks to leveraged funding from other sources.

Summer 2017: In partnership with Pukalani Elementary school, the STEMworks AFTERschool program continued to run during the summer of 2017 and served 64 students offering 112 hours of total programming. The program ran for six weeks, with the exclusion of holidays, from 8am-12pm for 20 hours per week (Monday through Friday). To continue the program for students in the summer, 15 teachers were leveraged (all these instructors were paid for by Pukalani Elementary School) and MEDB leveraged other grant funding for experiential learning in the field. Since specific

funding was not allotted from the 21st CCLC grant for summer intersession, this partnership enabled at-risk youth to continue learning in an engaging and hands-on way. Program offerings focused on providing students with STEM Exploration. Rotating classes included Coding & Robotics, Math, Literacy and two Watershed Field Trips with career professionals. STEMworks AFTERschool STEM supplies were used during the program to engage students. Coding and Robotics included opportunities for students to write about what they learned and make connections to math through STEM.

Fall Intersession 2017: With support from the STEMworks program, a STEMworks high school senior student at King Kaulike delivered a summer camp for elementary students from Oct 9-12, 2017. Ten Pukalani Elementary students attended STEMworks Camp at King Kaulike. Students engaged in coding, robotics, and prototyping. Supplies were provided by MEDB's STEMworks program.

In the table below, provide enrollment numbers and grade levels. The table will automatically compute total enrollment.

Exhibit 6: Students Served During Summer

Center	Summer Enrollment – Total	Grade Levels
Pukalani Elementary School	63	Rising: 2, 3, 4, 5, 6
Subgrantee Total	63	Rising: 2, 3, 4, 5, 6

3.E. CHARACTERISTICS OF PROGRAM MATERIALS AND RESOURCES

3.E.1. Program Materials

What program materials were used (e.g., curriculum, online programs, reading materials, hands-on materials, equipment, tools)?

All sites continue to have access to STEMworks Engineering Design Process Curriculum, STEMworks Service Learning Curriculum, STEMworks Team Role Cards and Oration toolkit, and STEMworks THINKit tools that support hands on engagement and application with coding, prototyping, digital media, drone/GIS, virtual reality, and circuitry and hardware.

Professional development for the resources and implementation of tools/curriculum was provided for teachers from across the state, including 12 STEMworks AFTERschool facilitators. STEMworks™ professional development provides training in project based and culturally aligned STEMworks™ methodology. This training focused on the engineering design process, and is aligned with a multitude of standards, including: NGSS, Common Core Math & Literacy, CTE, ISTE, and the Nā Hopena A'o (HĀ) program. The workshops supported methodology to become facilitators of student centered service learning projects where students apply technology tools to solve an issue or problem in their communities using the engineering design process as a guide. The professional development furthermore engaged teachers in how to use the STEMworks College Toolkit for career pathway planning with middle school and high school students, and resources such as STEMjobs and Lynda.com for developing professional and career alignment pathways/skills. This professional development training also provided teachers with the opportunity to earn three credits through the Hawaii PDE3 system.

Program sites with robotics also utilized curricular resources from VEX and VEX IQ robotics and Lahaina Intermediate utilized curricular resources for Math Counts and Minecraft Education. Lokelani's agriculture program aligns with Future Farmers of America. All sites utilized Autodesk CAD software, TinkerCAD and/or Fusion 360, and most site utilized Adobe CS6 through photoshop, design and media, as well as After Effects software.

MEDB's STEMworks AFTERschool™ at Lahaina Intermediate School (LIS), Lanai High & Elementary School (LHES), Lokelani Intermediate (LOIS), Pukalani Elementary School (PES) and Maui Waena Intermediate (MWIS) continued to utilize STEM supplies that retrofit their STEMworks AFTERschool™ labs. Supplies for expanding application of coding, robotics, digital media, and 3D printing were purchased as needed.

Funding supported the inclusion of STEMjobs career curriculum posters and magazines for all sites. These classroom toolkits provide relevant career stories and information about STEM career possibilities, including alignment to prerequisites and lists of colleges that offer pertinent degrees, and information about companies that are hiring.

Site Supply Summary for STEMworks AFTERschool™ purchased during the 2015-2018 program years:

LHES
Digital Media: Cameras, Camcorders, Color Printer
Robotics & Programming: Littlebits and Arduino kits, Spheros, Ozobots
3D Printer & Filament, TinkerCAD, Fusion 360
Computers: Set of Laptops, tablets/cases
Drones: Phantom 3, drone parts (such as batteries, motors, propellers), repair toolkits
Securing supplies: Combination Locks

Note: Leveraged funding and partnership were utilized during the program year at LHES, which provided students with access to more laptops.

MWIS
Computers: Set of MacBooks and iMacs, Apple TV, adapter, and mice
Digital Media: Cameras, video mic sets, tripods, SD cards, Bloxels, Adobe Creative Suite, After Effects
Robotics: VEX and VEX IQ kits (Foundation, Add-on, Booster, and Super Kits)
3D Printer/Engraver, print filament & engraving supplies, gimbal kit builder, Fusion 360
Drone design kits (frame, circuitry, batteries, motors, propellers), repair toolkits

Note: Considerable leveraged funding was utilized during the program year at Maui Waena, which provided students with access to more cameras, camcorders, tripods, iMacs and MacBooks.

LIS
Digital Media: Cameras, video mic sets, tripods, SD cards, Bloxels, Adobe Creative Suite, After Effects, macbooks
CAD and 3D Printing: PCs, 3D printer & filament, 3D design mice, TinkerCAD, Fusion 360

Robotics: VEX IQ Starter Kits, Littlebits Coding and Smart Home Kits
Programming: Littlebits, Raspberry Pi kits, Arduino kits, Spheros, Ozobots, Cubelets, Parts and tools for building computer server to host & program, Minecraft EDU accounts, microbits

Note: Leveraged funding was utilized during the program year at LIS, which provided students with access to more laptops.

Lokelani
Programming: Littlebits, Raspberry Pi kits, Arduino kits, Spheros, Ozobots, Cubelets
Digital Media Supplies: Macbook, laptops, Shortcut keyboard covers, cameras, SD card, mice, Bloxels, Adobe Creative Suite
Agriculture: Tools and supplies
CAD and 3D Printing: 3D printer & filament, TinkerCad Fusion 360
Robotics: VEX Kits: Super, Booster, Challenge, Add-ons, motors
Drones: Codable drones, drone parts (such as batteries, motors, propellers), repair toolkits

Note: Leveraged funding was utilized during the program year at Lokelani, which provided students with access to more laptops.

Pukalani
Programming: Littlebits, Spheros, Ozobots, Dash & Dot, Osmos, Cubelets, Code-a-Pillars, microbits
Digital & Graphic Media Supplies: Macbook, laptops, cameras, design tablets, SD card, mice, Adobe Photoshop, After Effects
3D printer with flament, TinkerCad
Robotics: VEX Kits: Super kits & add-ons
Early Elem Academics: Tiggly, Osmo letter and numbers

Note: Leveraged funding was utilized during the program year at Pukalani, which provided students with access to Watershed field experiences and supplies.

3.E.2 Resources

What resources (e.g., grant funds, physical facilities, in-kind personnel, community partnerships) were available?

Grant Funds: The program expended its entire budget of $200,000 in grant funds. Additional Supplemental Funding of $56,477, along with the regular award, were utilized for STEM supplies and staffing during the last week of September 2017.

Leveraged funding supported facilitator pay during the summer of 2017 for Pukalani Elementary program, two watershed field experiences for Pukalani students in June and July, and the following activities:

- Maui Waena program teacher runs STEMworks Fusion 360 Software workshop for students
- ISTE Conference attended by STEMworks team
- Maui Excite Camps for Girls attended by Maui Wanea and Lahaina Intermediate students

- Lokelani Career Fair, STEMworks presented STEM careers to 60 students and advertised STEMworks AFTERschool opportunities
- LIS attends Robotics Tournaments: 2017 Valley Isle VEXIQ (2 teams) and Lahaina Vex IQ Tournament (3 teams)
- STEMworks Professional Development (3-PDE3 credit course in Service Learning Engineering Design Process) 12 STEMworks AS teachers from LHES, LIS, MWIS, PES, Lokelani)
- Lahaina program teacher awarded Math software grant from MEDB Ke Alahele Education Fund to support math integration into the classroom with software and supplies.
- Maui Waena program mentor and volunteer awarded robotics grant from MEDB Ke Alahele Education Fund for support and transportation of Botball competitions.
- Pukalani program teacher attends "Exploring Geographic Thinking, Inquiry, and Literacy in the C3 Classroom at Manoa Heritage Center" The workshops followed the Inquiry Design Model and promotes Place-Based Learning and summer plans to bring the GIS program called iNaturalist into the classroom. The whole PD is through the Hawaii Geographic Alliance.
- Over 10 PES students attend STEMworks Camp at King Kaulike HS (supported by STEMworks THINKit lending library supplies.
- Pukalani awarded robotics grant from MEDB Ke Alahele Education Fund and traveled in April 2018 to completed in the US Create Competition in Iowa. They made it to the finals and ended up in 18th place out of 70 teams. Their STEM Research Project team won the National STEM Project award.
- Lahaina Inter program teacher awarded MEDB Ke Alahele Education Fund for support for students to attend the 2018 Hawaii STEM Conference.
- MWIS, Lokelani and Lahaina Intermediate, Iao and St. Anthony students explore STEM Careers with professionals: Satellite Communications, Radio Communications, Digital Networking, Cybersecurity and Cyber Operations, Power production and Heating, Ventilation & Air Conditioning, Mechanic. Hands-on: Circuitry for setting up a 2-way phone system for field Communications Hawaii Air Force.
- Maui Waena attends Student Television Network convention (STN in Nashville, TN). Students won 1st place in three competitions, 8 overall awards: 1st Public service Announcement, 1st Movie Tiler, 1st Silent film. *Article in Maui News on April 4, 2018 "Maui Waena's media program was group to beat at Mainland confab*".

In-Kind Donations: Flash drives were donated to Maui Waena's program in sept 2017 ($800 value). At Lokelani two businesses continue to donate prizes for Family STEM Passport nights, Makai Glass donated glass wave sculptures for the Lokelani Waveriders and Ace Hardware donated a variety of supplies. At Pukalani and Lokelani parents and community members made donations for funding/snacks for students. At Pukalani, trophies and medals were donated for Science Olympiad participants.

In-Kind Access to Software:
30 seats for each: Esri ($2500 per seat) and SketchUp ($1500 per seat). Autodesk CAD products including Fusion 360 ($1,470 per seat), Tinkercad and 123D Apps.

In-Kind Physical Facilities:

MWIS (1 room, 4-5 days a week), LIS (1-2 rooms, 4 days a week), LHES (1-2 rooms, 3 days a week), PES (4-5 rooms, 5 days a week), Lokelani (3 rooms, 4 days a week).

Partnerships:
For the past several grant years, program participants have had access to learning from local industry professionals about relevant career pathways through Introduce a Girl to Engineering Day (IGED), Introduce a girl to Astronomy Day (AGAD) and the 9th Annual Space Exploration Day at AMOS. All three partnerships utilize leveraged funding to connect students with hands-on engagement and career pathway connections alongside immersive site tours with industry for students and their facilitators.

Introduce A Girl To Engineering Day (IGED) MAUI – in its 18th year, WIT/STEMworks hosted 35 middle school girls, including students from Maui Waena, Lokelani, and Lahaina. Participating students visited Maui Electric and Kihei's Waste Water Treatment plant. IGED is a nationally recognized program that promotes the engineering discipline to help excite, encourage and expose female students to engineering.

Introduce A Girl To Astronomy Day (IGAD) – IGAD showcases astronomy as a viable and exciting career choice that requires skills in science, technology, math, engineering and communication. For the 3rd year, the Maui Space Surveillance System (MSSS) hosted 75 middle school girls, including students from Lahaina, Lokelani, and Maui Waena.

Annual Space Exploration Day at AMOS- Sept 22, 2017
160 middle school students attended the 9th Space Exploration Day, including students from Lokelani, Maui Waena, and Lahaina. As part of an international conference, the student event exposes young students to various career paths in space surveillance. Hands on demos were the highlight of the day and students learned from astronaut Dr. Janet Kavandi who shared about her journey to space. The following companies took part in student hands on activities and demonstrations for Space Exploration Day - Boeing, Lockheed Martin, AGI, CACI, University of Hawaii, Institute for Astronomy, Air Force Research Lab, AFOSR, National Solar Observatory, and Northrop Grumman.

Additional site-specific partnerships:

Maui Waena Community partners and volunteers:

- Two student course instructors were industry professionals: A Computer Scientist and an ongoing robotics mentorship from Electrical Engineer, Morikawa & Associates (150+ hours of assistance with robotics).
- Institute for Astronomy (IFA)- Students worked with astronomers to create videos for a series called "Astronomy at the Speed of Light" which was used on IFA's YouTube channel and website.
- Hale Mahaolu- Opportunity to practice our skills by filming their Caregivers walk
- Child Welfare Services- Collaborated with students to create the CWS Mandatory Reporting video that is used statewide to educate teachers.
- Kihei/Wailea Rotary Club- Worked with students to create PSA and informational video for the Rescue Tubes which were installed by the Rotary Club along beaches in Kihei

- Cupies, American Savings Bank, Hawaii Assc. of Dealers of Autos (HADA) – student created event recap videos for these companies and organizations
- PBS, PBS Hawaii-Both PBS Student Reporting Labs and PBS Hawaii, provided valuable feedback on videos created by students for broadcast and web viewing.
- Tante's Island Cuisine—Provided space for school-based fundraisers that supported program in addition to students creating videos for the restaurant.
- Maui Science Center for "Explore Science Earth and Space" – MWIS student led hands on activities for other students with coding, magnetic and topography, and a robotic rover
- **Volunteers**: Two Institute for Astronomy industry professionals (8 hours, constructing a 3D printer), two college students (totaling 30 hours), 8 high school students (totaling 360 hours), and three community member volunteers (industry professionals in engineering and computer science, totaling 160 hours).

Lokelani community partners and volunteers:

- Two student course instructors were professionals: Photographer, CAD Drafter
- Boeing: Hands on activities with engineering, astronomy and spectroscopy in the classroom, high school pathways to college and career presentation
- Ace Hardware Science: Ongoing program teacher, family engagement night volunteer, donations from Ace Hardware for STEM passport family nights
- Makai Glass: Hosted student field learning experience, donated sculptures for parent night passport awards, hosted fundraiser to help students attend Hawaii STEM Conference
- **Volunteers:** Two high school students (70 total hours)

Lanai High & Elementary community partners and volunteers:

- LHES College and Career Day (2017)- half day of hands on activities and college and career booths that were led by industry, non-profits, and colleges to expose students to career pathways from across all islands
- Hawaii Drone Services volunteer- Guidance in FAA rules, regulations and flight
- Rik Kretzinger, support for aquaponics

Pukalani community partners and volunteers:

- Two student course instructors were industry professionals
- Maui County Emergency Management Agency- Students and facilitators met with staff to learn about our county's emergency system for research on a student STEM Research Project.
- Nick Fournier Designs (50 hours)- taught 3-D printing class and mentored a college student to teach the 3D printing class in the following semester
- Peter Lin Graphic Designs (15 hours)- taught graphic design class and volunteered additional time by guiding students to paint the stairwell with art based on 'The 7 Habits of Highly Effective People'.
- Watershed Field Experiential Learning- two field experiences during summer program, led by local GIS specialist into Waihee Wetlands, leveraged funding
- Maui Garden Network: Success with partnership: 'aka Garden Mama' brought her expertise to the campus to establish a thriving garden for participating students to learn in. In addition to learning the basics about plants, students developed a deeper understanding of environmental stewardship ("malama the aina") in order to achieve sustainability.

- **Volunteers:** Two parents for VEX robotics (100 hrs total) helped students build and drive their robots and assist with STEM research project. Three King Kaulike HS Students (24 hours total) assisted families with Science Olympiad, 11 parents assisted and coached students in Science Olympiad (300 hrs).

Lahaina Inter Community Partners and volunteers:

- Mechanical engineer from Vancouver, B.C. spoke about her career interests, education, and career pathways with students.
- Of all the communities, Lahaina has been the most responsive to requests for monetary donations for snack support of the Lahaina STEMworks AFTERschool program.

3.F. STAFF AND OTHERS INVOLVED IN THE PROGRAM

Provide a brief description of staff and roles. Complete the following tables as they apply to your program. Totals will be automatically computed.

Title: Project Director
Number on staff: 1
Hours: 15 to 30 hours per week to support sites through phone/email communication, program planning for events, documenting activities, analyzing and summarizing data, and writing final reports on program activities.

Roles: Regular communication and support in record-keeping. Ensure timely communication and reminders to Project Coordinator of Sites and Site Coordinators regarding student attendance data, survey data, and self-assessment measures being completed. Provide professional development and training to all Site Coordinators to ensure adequate understanding of the processes and measures. Disseminate and collect school partner and community partner surveys. Participate in the program improvement meeting each year and in the identification of areas for improvement and development of associated strategies. Solicit feedback from site coordinators and consult with the external evaluator to understand contextual issues that might impact data or reporting. Work with the Site Coordinators to collect and handle data in a confidential way, adhering to Family and Educational Rights and Privacy Act guidelines. Maintain and enter data to state and federal systems as required.

Title: Project Coordinator of Sites
Number on staff: 1
Hours: About 20 hours per week to support Project director with sites through phone/email communication and site visits, program planning for events and family engagements, documenting activities, organizing, analyzing and summarizing data and site activities.

Roles: Support Project Director with regular communication and support in record-keeping. Ensure timely communication and reminders to Site Coordinators regarding student attendance data, survey data, and self-assessment measures being completed. Provide professional development and training to all Site Coordinators to ensure adequate understanding of the processes and measures. Disseminate and collect school partner and community partner surveys. Participate in the program improvement meeting each year and in the identification of areas for improvement

and development of associated strategies. Solicit feedback from site coordinators and consult with the external evaluator to understand contextual issues that might impact data or reporting. Work with the Site Coordinators to collect and handle data in a confidential way, adhering to Family and Educational Rights and Privacy Act guidelines. Maintain and enter data to state and federal systems as required.

Title: Site Coordinator
Number on staff: 5
Hours: Weekly hours at MWIS, LHES, PES, Lokelani and LIS; averaging between 9 to 15 hours per week. Often, the Site Coordinator facilitates their class and overlaps with other instructor courses to co-teach and support as needed which averages about 5 hours per week.

Roles: Instructional and program planning; maintain accurate and clear attendance records for every student served, disseminate and collect evaluation surveys (teacher, parent, student), participate in the program improvement meetings each year and support identification of areas for improvement and development of associated strategies. Site Coordinators use the STEMworks model during teaching. Site coordinators also interview staff in the programs to identify at least one student or family success story per year to share with the Project Director for inclusion in annual reporting. Site coordinators work with the Project Director in planning engaging community nights for both students and families to attend.

Title: Site Instructor
Number on staff: 14
Hours: Varied by course taught. Some instructors supported activities that met less frequently whereas others taught classes that met daily. Thus instructor hours varied between 2 to 15 hours per week.

Roles: Uses STEMworks™ model, attends at least two PD sessions offered by Women in Technology, attends STEM Conference. In charge of course program planning, implementation and facilitating the learning of students, supports site coordinator in monitoring student progress, attends all parent evenings. Aligns site program with student needs (skills and in-school standards), collaborates with Curriculum coordinator and uses feedback to improve project alignment to STEMworks™ model. Sessions may include academic support for in-school subject areas. Collects daily student attendance, supports site coordinator in collecting documentation, and distributing forms. Documents program through supporting with monthly project/curriculum summaries and photo-logs (images with descriptions). Supports in summarizing student success stories/student of the month. Maintains timely communication with Project Director.

Title: Educational Assistant
Number on staff: 5
Hours: 8-15 hours per week.

Roles: Assists program instructors & coordinators; assists all students in projects, supports students' critical thinking skills using the engineering design process to research, implement, edit, and revise work; may sub as needed for absent instructors; attends all parent evenings. Maintains timely communication with Project Director. May attend PD sessions offered by Women in Technology, invited to attend STEM Conference.

Title: Volunteer
Number on staff: Varies
Roles: High school student or professional expert offering content support/guidance for students in STEMworks AFTERschool™ labs.

Exhibit 7. Number of Staff by Position

(Note: Administrators and Subcontracted Staff serve all programs. Administrators are Project director and Coordinator of Sites, Subcontracted staff is External Evaluator)

Center	Adminis-trators		College Students		Community Members		High School Students		Parents		School Day Teachers		Non-Teaching School Staff		Sub-contracted Staff		Other	
	Paid	Vol	Paid	Vol	Paid	Vol	Paid	Vol	Paid	Vol	Paid	Vol	Paid	Vol	Paid	Vol	Paid	Vol
Maui Waena Inter	1	0	1	2	3	2	0	8	0	0	2	0	0	0	1	0	0	0
Lahaina Inter	1	0	0	0	0	1	0	0	0	0	4	0	0	0	0	0	0	0
Lokelani Inter	0	0	0	0	4	4	0	2	0	0	4	0	0	0	0	0	0	0
Lanai High and Elem	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0
Pukalani Elem	0	0	3	0	1	3	0	0	1	11	4	0	0	0	0	0	0	0
Subgrantee Total	2	0	4	2	9	11	0	10	1	11	15	0	0	0	1	0	0	0

Exhibit 8. Average Hours per Week by Position

Center	Adminis-trators	College Students	Community Members	High School Students	Parents	School Day Teachers	Non-Teaching School Staff	Sub-contracted Staff	Other
Maui Waena Intermediate	8	12	22	11	0	19	0	0.5	0
Lahaina Intermediate	8	0	0	0	0	18	0	0.5	0
Lokelani Intermediate	8	0	14.5	2	0	20	0	0.5	0
Lanai High and Elementary	8	0	6.1	0	0	2	0	0.5	0
Pukalani Elementary	8	9.5	8.6	0	9	19	0	0.5	0
Subgrantee Total	40	21.5	51.2	13	9	78	0	2.5	0

- Note: The hours above include volunteers as listed in Exhibit 7.

3.G. PARTNERSHIPS

Partnership Data

Enter subgrantee-level partnership data in the appropriate fields in the table below.

Exhibit 9: Partners

Partner Contributions	Total Number of Partners	
Contribution Type	# Paid Partners	# Unpaid Partners
Provide evaluation services	1	#
Raise funds	#	#
Provide programming/activity related services	3	5
Provide goods	3	#
Provide volunteer staffing	#	4
Provide Paid Staffing	#	#
Other	#	#
Subgrantee Total	7	16

Partnership Description

Provide a brief description of successes with partnerships.

Major success areas/ideas to summarize:

See above description of partnerships under "Resources."

- IGED, IGAD, and AMOS have been consistent opportunities for students for several grant program years- all provided by leveraged funds, these opportunities are provided directly by these companies (and are all based at the site of the company/company meeting location). Consistent delivery is supported by strong alignment between the goal/objective of these industry partners and the 21st CCLC goal of increasing STEM career interest among pre-college students.
- Other partnerships change from year to year and have been driven by specific student projects (especially at Maui Waena, Lokelani, and Pukalani). For example, students at Maui Waena choose a wide variety of topics, like ocean safety for Kihei/Wailea Rotary Clubs for their digital media PSA's, the Pukalani Robotics student's STEM Research Projects connected them with the Maui County Emergency Management Agency, and student's projects in astronomy at Lokelani led to further connections with Boeing.
- Ongoing parent volunteers from previous program years have grown their skills over time and are now full-fledged facilitators at Pukalani Elementary.
- Ongoing agriculture volunteer, and Lokelani science teacher was able to be hired to bring agriculture to STEMworks AFTERschool at Lokelani.
- Maui Waena, Lokelani, Pukalani students have benefited directly from STEM industry connections in the classroom by having professionals as instructors for a semester or more: professional photographers, graphics designers, CAD designers, computer scientists and engineers.
- One STEMworks program alumni who taught robotics and media decided to return to college to pursue a teaching career based on the experience. Another STEMworks program alumni who taught CAD and programming was hired by a local civil engineering firm as a drafter. The program is not only providing K-8 student to young professional mentorship, it is connecting graduated young adults to their future career pathways.
- Lanai has a wonderful College and Career day each year that the STEMworks AFTERschool site coordinator helps to organize in cooperation with the other 21st CCL grantee on Lanai, to bring industry, non-profit and college representatives to the

island. The STEMworks team shared STEM career jobs, delivered hands on coding activities in the classroom, shared information about STEMworks AFTERschool program and talked with high school students about upcoming internship opportunities for summer 2018.

Provide a brief description of challenges with partnerships.

The program sees a benefit to students in having more direct connection on coursework in photography, graphics design, CAD & 3D print, and computer science from industry professional as instructors. It has been difficult to find professionals who are able commit to more than 1-2 days a week or to assisting for two consecutive semesters. This creates the challenge of finding instructor replacements mid-year, and imposes limits on how many days a week students can receive instruction. It can also be challenging to coordinate the provision of support for industry partners from site coordinators in developing classroom management skills.

Finding partners to work directly with the most isolated schools (Lahaina and Lanai) has been difficult.
Lanai is very remote and difficult to travel to. Lahaina Intermediate's campus is geographically removed from industry and it has been difficult for students to directly connect with industry partners during their program hours.

The Pukalani/Maui Garden Network partnership faced some scheduling, communication, and staffing issues at times but nothing that had long term effects.

For opportunities where students are partnering with the community for digital media projects, sometimes industry partners were not as responsive and timely as students desired or needed for their projects.

Due to challenges with business/work hours overall, the most successful industry to program connections have been larger organized 'events', where many students are brought together to meet and learn directly from many industry professionals all at one time for focused STEM hands-on activities (e.g. Lanai's College and Career Day, IGED, IGAD, STEM Celebration at Queen K, and the Hawaii STEM Conference).

3.H. PARENT/FAMILY INVOLVEMENT

Provide a brief description of your program's parent/family involvement component, including communications and outreach to parents and families, family programming and events, challenges and successes.

Methods of Parent Engagement:

Parent Input into program focus: Parent Surveys
Ongoing Information/Data Dissemination:

- **Flyers**: "By the Numbers" program data from 16-17 program year, site schedule, notices/event information given to families (All sites) and shared at MEDB board meetings and STEMworks conference events/presentations
- **Websites:** Lahaina Intermediate (https://hi02225532.schoolwires.net/domain/18), Maui Waena (https://mwisstem.com/), Lokelani (https://www.lokelani.k12.hi.us/197851_2), and the STEMworks program (http://stemworkshawaii.org/stemworks-afterschool-2/)
- **Email:** All sites (especially Lokelani, Pukalani and Maui Waena). Parent emails are collected in the parent survey. Parents are also surveyed regarding whether they are able to volunteer.
- **School Newsletter**: Lokelani Intermediate
- **Quarterly Digital Newsletter (Mailchimp)**: Maui Waena
- **Google Classroom/Forms:** Lokelani Intermediate, Maui Waena
- **Facebook**: STEMworks (https://www.facebook.com/STEMworkshawaii/), Lokelani School social media (https://www.facebook.com/LokelaniSchool/)

Parent and Community Engagements:

- August: Maui Waena Parent Information Meeting and Program sign up
- Sept: Maui Waena Family Night- program forms, offerings, 3-d print station, Volunteers: Electrical engineer & college student; Pukalani Family Night & Program Kick-off, hands-on stem activities for families and meet the instructors
- Oct: Pukalani- Family Pumpkin Math Night
- Nov: Lokelani- Parent Engagement Night. Students had different STEM stations to demonstrate the use of the technology that they have learned with parents and other teachers.
- Dec: Lahaina, Lokelani, Maui Waena, Pukalani: STEM Celebration at Queen Kaahumanu Mall Parent & Community engagement; students lead hands-on STEM stations in coding, robotics, 3-D printing and more. Students present on projects on stage, industry partner, Geospatial Analyst leads activities on a 25 x35ft map of the Pacific, and Ace Hardware Science professional leads hands-on team building and science activities.
- Jan: Pukalani – Family night: Students and teachers did hands on demonstrations on the different courses that are offered in the program. The parents also signed up for the Spring course for their children. An overview of the program and the grant was communicated to the parents. The expectations for attendance were also reviewed with the parents.
- March: LIS- Ke Ali'i Day – Parent Engagement Evening- Students led hands-on activities at STEMworks Booth and explained current projects in Digital media, 3D printing, photography and more.
- April: Maui Waena- Partner with Maui Science Center for "Explore Science Earth and Space" –MWIS student led hands on activities for other students with coding, magnetic and topography, and a rover; Lokelani Agriculture FFA students practice entrepreneurship skills by doing a plant sale at the 4th Friday Community event in Kihei, celebrating Arbor Day; Maui Waena Family STEM day, students exhibit robotics, 3-D printing, virtual reality, movie making, and prism science. Students teach their

families about STEM projects. Students created a recap video that is available for viewing online: https://drive.google.com/file/d/1bp7wyaikwtkJm0eDv0BQ9W4C1IYMrfXy/view

- May: Lanai High and Elementary STEM family night with a STEMworks AFTERschool booth (hosted in part by LHES school). Two Lanai facilitators have STEM activities for families and 12 students sign up for summer software camps: Movie Making (on July 24 & 25th); Pukalani Elementary hosts a family STEM night to advertise Summer STEM program and sign up. Families with students that have the most academic and social need are given preference with a personal invitation for the summer program (84 students sign up for summer STEM program); Lokelani hosts a school wide parent evening about all school opportunities, including STEMworks AFTERschool. Students run a STEM booth and showcase hands-on engagement for incoming families.

Community Events/Presentations

- Sept: Program Director and STEMworks team attended Envision Strategize Actualize 2017: An Action Plan for Tech-Based Workforce Development on Oahu. Cross section of K-12, College, and Industry partners. Successful program activities & data from 16-17 STEMworks AFTERschool program was shared with 50 attendees; Isla Young presents on STEMworks program, which includes STEMworks AFTERschool.
- Sept: STEMworks team met at OSSIS with head of DOE Computer Science planning team. STEMworks AFTERschool data and program was shared, and conversations include Code.org teacher training for K-12 coding.
- Oct: Afterschool Alliance Summit- STEMworks team presented STEMworks AFTERschool data and hands on coding/math activities with Ozobot and Sphero.
- Dec: Lahaina, Lokelani, Maui Waena, Pukalani: STEM Celebration at Queen Kaahumanu Mall Parent & Community engagement; students led hands-on STEM stations in coding, robotics, 3-D printing and more. Students presented on projects on stage, industry partner, Geospatial Analyst leads activities on a 25 x35ft map of the Pacific, and Ace Hardware Science professional leads hands-on team building and science activities.
- March: Pukalani- Student Leadership Day from 8-12:30 featured STEMworks AFTERschool alongside in-school projects to about 35 members of the community, ending in a round table meeting with teachers and community leaders to discuss and inform school improvement. Robotics, movie making performances and videos, and coding were featured through student led & students taught sessions, STEMworks team attended.

Maui Economic Development Board: STEMworks AFTERschool Program data via By the Numbers Flyers- distributed at all events and with all partners including parent engagement evenings, MEDB board meetings, potential partner meetings and events, STEMworks and MEDB presentations and conferences.

Local News: Highlights Program Activities, Shares Data and/or invite Public to STEM events

- October: Lokelani & Maui Waena – Focus Maui Nui Article in Maui News, "AMOS 2017 Hosts Next-Generation Explorers" http://www.focusmauinui.com/amos-2017-hosts-next-generation-explorers/and Lanai High & Elementary Article in "*Lanai Today*-

Volume 9, Issue 11" about STEM at LHES; includes facilitator and professional volunteer with STEMworks AFTERschool program with drones, THINKit and 3-D printing.

- November: Focus Maui Nui Article in Maui News, "*STEM Works After School"* in Maui News http://www.focusmauinui.com/stem-works-school/ Highlights program success and activities while inviting public to STEM Celebration where program students will teach the community; and STEMworks AFTERschool Project Director on KAKU Radio talk Show (15 min Segment)- Promoted the STEMworks AFTERschool program, along with sharing activities and data and invites community to the STEM Celebration at Queen K on Dec 6th where program students would lead and teach STEM activities alongside industry partners.
- January: Maui News, focus Maui Nui Article*, "STEMworks™ Celebrated at Queen Ka'ahumanu Center"* highlights the STEMworks AFTERschool Community STEM night where students from Maui Waena, Pukalani Elem, Lahaina Inter, and Lokelani students taught hands-on STEM stations to the community and shared about projects and program on stage. http://www.focusmauinui.com/stemworks-celebrated-queen-kaahumanu-center/
- March: Maui News article, *"Future leaders show their stuff at Pukalani school"*. http://www.mauinews.com/news/local-news/2018/03/future-leaders-show-their-stuff-at-pukalani-school/ Article highlights some STEMworks AFTERschool program opportunities for students at PES, highlighting the day which was led by student leaders who shared with community members visiting the school, from the 21st CCLC grant.
- April: Focus Maui Nui Article in the Maui News, *"Makai Glass and Marty Dread Supporting in STEM"*, summarizes the STEMworks program (including STEMworks AFTERschool activities at Lokelani) as well as the fundraising event in support of bringing students to the 9th annual Hawaii STEM Conference; http://www.focusmauinui.com/makai-glass-and-marty-dread-advancing-stem/
- April: Maui News article, '*9th Annual Hawaii STEM Conference Aims to empower next Generation'*, features Pukalani Elementary teacher. http://mauinow.com/2018/04/06/9th-hawaii-stem-conference-aims-to-empower-next-generation/
- May: Maui News article, *"Taking science to the sky*" http://www.mauinews.com/news/local-news/2018/05/taking-science-to-the-sky/ ." Pukalani participated in the Science Olympiad Competition alongside 6 parents. 70% of participating Pukalani students are with STEMworks AFTERschool. Also, Lahaina News Article, "*Lahaina Intermediate students learn about technology and careers at Introduce a Girl to Astronomy Day*", the article featured the MEDB WIT program where 75 middle school girls from Maui County learned about the optics by touring the Maui Surveillance Space System facilities atop Haleakala. http://www.lahainanews.com/page/content.detail/id/564834/Lahaina-Intermediate-students-learn-about-technology-and-careers-at-Introduce-a-Girl-to-Astronomy-Day.html?nav=19

4. Evaluation

4.A. EVALUATION PLAN

4.A.1. Evaluation Design Overview

Provide a one-paragraph brief overview of the evaluation design.

The evaluation plan includes survey instruments (Appendix A) and observation tools (Appendix B) to gather feedback from teachers, students, staff, parents, and community members regarding their experience of the program and its impacts; student performance in math, science, reading, and development in an array of core skills; student behavior; student perceptions and goals in STEM; and student development of leadership and teamwork skills.

4.A.2. Implementation Evaluation

Describe how program implementation is being documented.

Sample Implementation Questions:

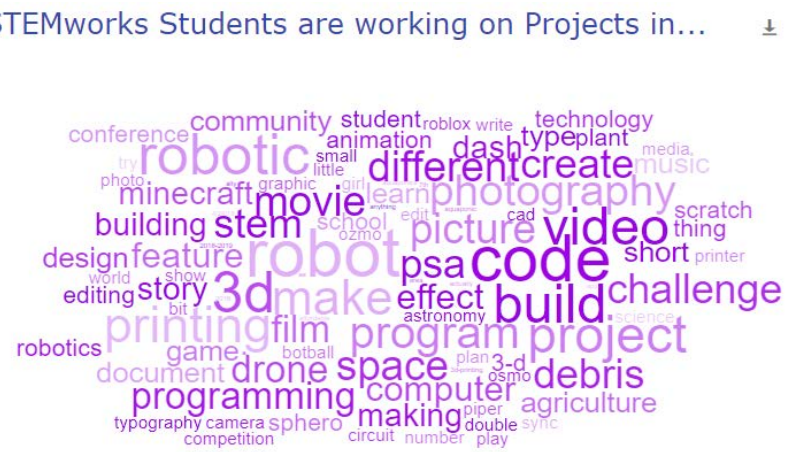
- Has the program been implemented as planned in the grant application? If no, what changes were made, and why?
- What challenges have been faced in implementing the program, and how are those challenges being addressed?
- Which community-based partnerships, as planned in the grant application, have been established and maintained, and which ones were not? Why?
- Are program activities interesting and valuable to students, teachers, administrators, and community partners?
- What are the plans to ensure effective program implementation next year?

What implementation questions are being answered?	Has the program been implemented as planned following the last annual evaluation? Were there challenges to implementation and, if so, how were they addressed? Has the Continuous Improvement Plan produced any ideas for improving implementation? Are program activities still experienced as interesting and valuable to students, teachers, administrators and community partners?
What data collection methods are being used (e.g. interviews, observations)?	The program collects data via formal reporting regarding daily after-school attendance, workshop attendance, meeting notes/coordination and communication between in-school and after-school staff, contact and communication with parents, community outreach efforts, and program course content. Parents are surveys at the beginning of the program year to inform program focus and students' needs. Students are surveyed twice per year: entry surveys support data on student interest, perceived strengths and needs; end of year student survey supports data success or area for program improvement. Classroom course teachers are surveyed about student behaviors using the 21st CCLC teacher survey at the end of the year along with student course grades being compared from semester 1 to 2. Facilitators working directly with students during afterschool time complete

	monthly summaries of the STEM activities and skill focus areas practiced and implemented during that month in their classes. Formal site observations are recorded on a summary sheet that is aligned with 21st CCLC program goals (see Appendix 1). The form captures anecdotal data and verifies activities aligned with program goals. Through communication with on-site teachers, the form also documents areas of success and identifies areas of need or follow ups needed for improvement. Informal site visits and communication occur between the formal site observations. These provide a venue for staff to voice their needs and suggest areas for improvement. Matters reviewed include program organization, data collection, staffing needs, supply inventory, orientation support on new supplies/software, meetings to align program with in-school courses and STEM, support with community connections or advice on projects and planning for parent engagement. Phone calls and emails are used to provide additional support as needed.
What is the timing of data collection?	Before the fall term, grant goals and annual evaluation recommendations from the program evaluator are reviewed and goals for individual site program improvement during fall semester program are defined. After the fall term, staff reviews survey data from parents and students, evaluates program successes and needs, and choose three to five focal areas at each site for improvement to be implemented in spring. Site observations are conducted at least once per semester. The completed form is provided to each site, along with summaries regarding noted areas of excellence, areas for improvement, and areas for support. All program staff participate in data collection, review and progress/improvement meetings each December/January. Site coordinators collect success stories each February. Students are surveyed each semester and parents are surveyed each fall. Teachers are surveyed each spring. The program gains access to some data on standardized testing results from participants though aggregated reporting at the state level. Data for the 2017-18 school year was released in December 2018.

Description of Program Implemented and Activities at each site:

STEMworks AFTERschool™ is a multi-faceted, culturally aligned, hands-on program where students get to use the most current, high-end technologies applied to community service learning or engineering design projects. Students in STEMworks AFTERschool are challenged to be self-directed, responsible individuals while developing the skills to navigate building collaborative team relationships. All activities are student centered, creating an environment where teachers become facilitators, navigating student learning through community based and culturally relevant projects that use technology to solve problems.



Each site has its own "STEM flavor" reflecting contractor expertise, local industry partners as well as K-12 grade-appropriate skill alignment, and a variety of industry aligned skills. STEMworks AFTERschool program includes: Digital Media (Adobe Creative Suite Software for Movie Making, PSA, Digital Photography), Drone technologies (including circuitry, GIS & Digital Media), Coding (Programming for both Software and Hardware), VEX robotics, Computer Aided Design (CAD) (Including Autodesk Fusion 360 and TinkerCAD), Virtual Reality & Agriculture. Each site began to notify students and parents during August about the STEMworks AFTERschool program offerings. Each site began fall program during August (Lokelani intermediate) or September (Lanai High & Elementary, Pukalani Elementary, Maui Waena Intermediate, and Lahaina Intermediate). The program was already overfull by mid-September with 325 students attending across the 5 sites. By the end of the year 464 students had participated in STEM programming.

All five program sites participated in a Grant Planning and Data Review Meeting to begin the program year. Participants engaged in: (1) Sample STEM activity that included both math & coding, (2) reviewed all 16-17 program impact data that was collected from the 16-17 school year programs, (3) networked and shared program highlights and areas that each site was working towards improving, (4) used all insights from data and networking to engage in planning activities for the upcoming 17-18 year.

In September, teachers from across the state, including 12 STEMworks AFTERschool facilitators, attended the 2017 STEMworks™ professional development course, which locally provides training in project based and culturally aligned STEMworks™ methodology. This training focused on the engineering design process, and is aligned with NGSS, Common Core Math & Literacy, CTE, ISTE, and the Ha program. The workshops develop participants into facilitators of student-centered service learning projects where students apply technology tools to solve an issue or problem in their communities using the engineering design process as a guide. The professional development further engaged teachers in the use of the STEMworks College Toolkit (which guides students towards successful career pathway planning starting in

middle school through high school), and resources such as STEMjobs and Lynda.com for developing professional and career alignment pathways/skills. This professional development training also provided teachers with the opportunity to earn three credits through the Hawaii PDE3 system.

Each quarter, the sites engaged in STEM programming that was highly engaging and relevant for student interests as well as career exploration.

First Quarter

Lahaina Intermediate (LIS) Quarter 1 2017: Students were provided with academic/homework support for math and a few social studies assignments. During the afterschool program the students engaged in graphics, media, coding, 3D printing, and robotics. The graphics and media initially peaked the interests of the students due to alignment with their class projects. In the robotics classroom, the students built robots for the VEX IQ Ringmaster Challenge. Students learned about the Engineering Design Process and focused on how to apply it as they built, tested, redesigned and improved their robots, and began to keep a log of their daily activity in an engineering notebook. In September, students began programing parrot drones. To support alignment with student interest, the teaching focused on robotics, coding, Video production, & CAD/3D printing. A CS-First club (gaming) was started, and posted programming tips for mini-drone & Tynker app. A new 3D printer was set up. Students learned the new software and hardware. The students started on TinkerCAD, where they use math to scale shapes and convert between units of measurement.

Lanai High and Elementary (LHES) Quarter 1 2017: This quarter the students reviewed the FAA rule and regulations for drone operation. The THINKit kits were organized. A spreadsheet and flyers were created to advertise the afterschool program. Site coordinator worked with Rik Kretzinger, to get the aquaponics area online and ready to plant, the WIFI was updated to support data collection.

Lokelani (LOIS) Quarter 1 2017: In this quarter, the LOIS team traveled to Wailua High on Oahu for students to compete in their first Vex competition. The students placed 28 & 31 out of 40 teams. This was a great eye-opener for students to see how the high school teams performed. One of the 7th graders started watching autonomous programming Instructables and ran our first autonomous program for Vex IQ! Students spent a lot of time constructing their robot, and constantly used their critical thinking skills to overcome different obstacles that arose in each build. A Maui League for VEX IQ was started. The students have been focusing on the engineering design process steps while reading engineering design articles. The students then verbally reflect on the different ways to use the engineering design process in daily life. Another focus was organization skills and time management in the classroom. Students begin writing reflections on their iPads on a weekly basis to recap their personal progress on STEM projects with their after school program classes.

Maui Waena (MWIS) Quarter 1 2017: This quarter began with student orientation and an introduction to the engineering process as used in video production. Student led mentoring groups formed. First videos were completed. The robot design process began, with an emphasis on function before form, basic overview of gear ratios and drive trains. Additionally, the students used CAD/CAM to complete their first design projects in Fusion 360 and 3D

printed them on Boxzy. They used mathematical calculations pertaining to design. They also use the following skills: critical thinking, problem solving, resilience, perseverance, and collaboration when working on their projects.
Lastly, during the month of September, the teachers helped students with their video ideas, planning, and editing. Experienced students were paired with newer students. Program staff created a method to track the students' work content, give them ideas on next steps, organization and planning.

Pukalani (PES) Quarter 1 2017: In TinkerCAD & 3D print, the students began to draw a rough draft of an item they wanted to create in 2D and then recognize and learn the program names for the 3D shapes in their designs. Students learned to visualize a 3D perspective and the Z plane. Students worked through basic program tutorials and some made it all the way through the project of designing a personalized key chain.
In coding & robotics, the 1st and 2nd grade students used code.org to learn the basics of drag and drop coding, problem solving, and completing mazes. The students used critical thinking skills in order to complete each task presented through the code.org lesson. 1st grade students had a hands-on experience with code-pillars in a team setting and created their own programs using basic commands.
An email system was created to notify the parents about their children's classes. An attendance system was established and taught to the instructors.
Robotics students had an introduction robotics and programming, and engaged in the building of their first clawbot and learned about teamwork and the engineering process. Students were also instructed on presentation skills. Students used software to program Dash and learn basic functions. They integrated math with distance & degrees. They also did a lesson on electricity and circuits and their use in robotics. Students practiced making circuits with "Span Circuit boards." Lesson on geometry was done where they learned to program Dash with loops to drive various shapes.

Second Quarter:

LIS:

Robotics: The students focused on the Engineering Design Process for designing their robots using Graphical ROBTOC software. Students used the EDP to develop a task in Minecraft, and to build, test, and modify their robots. Some students are developed autonomous programs for their robots. Students also began Math Counts practice sessions using different approaches to the problems. Additionally,
Digital Media: Students worked on their videos using a streamlined process that they observed from other schools. They also participated in grading each other and critiquing their own videos using a standardized rubric. The students improved their videos from quarter 1 and the beginning of quarter 2, began a new video challenge, and created advertisements for a mini course in digital media to increase student interest in media production.
3D printing: Two students continued to work on 3D projects.

LOIS

Robotics: The students prepared for numerous tournaments using building and deconstructing skills. Some students also prepared for the Robot Virtual Worlds Competition for Vex IQ. The students participated in the Queen K STEM Celebration. They worked through teamwork issues and used problem solving and critical thinking to regroup as teams. Two of their teams

qualified for the 2017 Hawaii VEX State Championships. The students hosted the first parent night of the year. LOIS robotics hosted 2 robotics VEX IQ league matches at the school, and hosted the finale for the Maui League for the 2nd year in a row. One team won the judges award. Lastly, the Lokelani robotics team hosted the 2017 Valley Isle VEX IQ tournament with new teams from Hana, Kula, and Lanai.

Digital Media: The students practiced their presentation skills and prepared for the parent night. The students researched Lynda.com for editing tips for final cut pro. The students worked on composition techniques such as framing, macro shots, landscaping, and more. The students worked individually and in groups using DSLR cameras.

3D Printing/Coding/Drones: The students used Lynda.com for 3D printing tips. The students used block coding to work on their ozobots. The students also worked on troubleshooting mini drones and bebop drones.

LHES

The students and teachers worked to get the 3D printer up and running. The teachers also worked to determine which software would be best for the students and to get aquaponics ready before winter break. Seven students had a field trip to Larry Ellison's private plane. They met two pilots and a flight attendant to learn about possible career opportunities. The students have focused on homework completion each day, followed by flying drones and TinkerCAD.

PES

3D Printing: The students' 3D projects were printed. The students also learned how to use the new 3D pens. At the end of the semester, the students enjoyed creating 3D items using paper outlines and sketches. They especially got excited to do more complex 3D shapes by lifting the filament tip upwards from the 2D field. The students started working on their engineering design notebooks.

Coding: The students learned conditional statements, "If/Then" with connections to their everyday lives. The students also worked on coding and programing Dash dots in groups. They learned how to work in teams and how to share. Throughout the quarter, the students continued to work as teams using the Dash dots. They learned new vocabulary words such as algorithms, program, and conditional statements. The students used the engineering design process to build plows for the Dash's out of Legos. They also used it to play soccer. The students used the Roboterra kits to build motorcycles and scales. This resulted in an extension of the lesson on levers and fulcrums. All students in the program did Hour of Code. The students also worked to prepare for the STEM celebration at Queen K shopping mall.

Robotics: The students visited the county's civil defense center to speak with the county officials about their current practices for keeping hikers safe. This allowed the students to practice their communication and presentation skills, they also gained valuable information on their current project. The robotics team triumphed over adversity when another school's accident destroyed their robot. The team used problem solving techniques, and collaboration in a stressful situation to rebuild their robot. The students used math skills to determine the % rotation for their robots. The students also learned block coding with MODKIT, and continued work redesigning their robots.

Digital Media: The students worked on broadcast production, from research interviews to scripts and storyboarding to filming and editing. The student's broadcasts were showcased at the school and family nights.

MWIS:
3D Printing: Students designed projects in Fusions 360 & Boxzy. They used mathematical calculations to determine the cost of goods for their projects. They also used critical thinking and problem-solving skills.
Digital Media: Students continued work on Falcon Features, learning new camera skills each week. Also, the students are working in After Effects by adding it to their informational videos. The students also got direct feedback on their proposed content (characters and storyline).
Agriculture: The students planted pineapple starters and weeded around the kalo. They also mulched the papayas, citrus, breadfruit, and figs, and applied compost and fertilizer (persevering though unwelcome odors). The students practiced listening and attention to detail skills as they learned to prune plants and harvest mature fruits.

Third Quarter:

LHES: Student work with 3D printing focused on ideas for making 3D items for the school awards for the following school year. The students also discussed making a 3D map of the campus. Throughout the quarter students worked on math homework by using multiple ways to solve problems. The students also used K'nex and Legos to explore building design and robots. The students also discussed different ways that they can work with others. Towards the end of the quarter, the students became interested in drones and troubleshooting battery function and repairs. They studied the FAA rules and regulations for drones. Students also worked on STEM conference projects throughout the quarter.

LOIS:
New teachers and programs were started at LOIS this quarter. An Industry partner from Ace Hardware Science took over the photography class from the professional photographer (whose schedule became too busy to continue teaching) and an ag volunteer and science teacher joined the AFTERschool program to create an Agriculture course.
In photography, students learned the basics of creating folders and transferring files from SD cards to lap tops and also the relationship between ISO and shutter speed. They also had discussions on professionalism. In February, the photography class focused on submissions for the STEM conference, including studying the entries of last year's winners. The students ended the quarter with daily assignments such as "A Picture is worth 1,000 words" and "Tell a Story in 5 Pictures".
In the new agriculture program, the semester began with making needed improvements to the nursery area. This involved checking plants for diseases, nutrient deficiencies, etc., weeding the foundation, leveling it, fill in with dirt/gravel, and layered in cardboard as a weed suppressant. The students also assembled a new planter bench. The agriculture students did a presentation on vermiculture principles of worm composting and harvesting. The students engaged in teamwork and practiced prioritization in conducting a plant. Produce, and worm castings sale. They also organized the plants in the nursery and set up mini fertilizer trails. The students signed up for and continued working on Career Development Events (CDEs) for upcoming FFA State Convention in Hilo (e.g., vegetable judging, Prepared Public speaking, educational display, and Creed CDE competition). The students researched their topics, including interviewing industry professionals.

In robotics, the students prepared for a variety of contests and projects. Students worked on "Girl powered Hero's" sponsored by Google, entered a video for TECH Reverse Engineering by Texas Instruments; and other STEM competition projects, such as pictures, t-shirts, and game designs. They also worked on organization and public speaking skills in preparation for the STEM conference. The students worked on a VEX robot and worked on preparing an announcement for the new VEX/VEX IQ games for next year.
In Coding and Aerial Drones, the students worked on a variety of coding tools for the STEM competition. They also began the semester troubleshooting drone repairs. The students were also encouraged to use 3D designs for STEM projects. In February, the students focused on their STEM conference entries. They worked on their photos and editing, on designing a STEM shirt with illustrator, and game designing ideas. The students also worked on their public speaking skills in preparation for the STEM competition. Teachers also worked on logistics for travel and held a couple of parent meetings to keep the parents informed.

PES:
In 3D Printing, student interest has increased, with students devoting additional time outside of class designing their 3D projects. There was a lot of interest in designing (and redesigning) rockets using TinkerCAD.
In coding & robotics, the students worked in teams and individually on Hour of Code, practiced programming commands with Dash and learned patterns in coding. They also worked on coding songs using Osmo Jam. The first graders worked on right/left directions and programming bee bots. Students did planning for a new robot. They developed an illustrated timeline, and documented it in their engineering journals. They also researched gear ratios to increase speed. Students worked on code-a-pillars, bee-bots, Osmo monster, and Osmo Jam. Students were introduced to vocabulary for coding and robotics. They worked together in pairs and teams to learn teamwork, communication, and collaboration. Students also worked on Ozobots. Students utilized Code.org every Tuesday to emphasize new vocabulary learned. The students also used Osmo Coding and Tangram to visualize learning and coding by following directions and commands. Student's learned about Ozobots and color coding to navigate their robots. The students were encouraged to use STEM vocabulary and recognize themselves as coders, engineers, and navigators of robots.
In STEM exploration, students practiced if/then statements by programming Dot. Students programmed games. They also did code.org where they learned the difference between command, code, and program. The students used the engineering design process to design a bookshelf with K'nex. They also created programs on Wonder Workshop that include loops and conditional statements. The students practiced geometry through coding with dash. They were challenged to program various shapes on the floor after being taught how to find angles and measure distances. They also learned about interior and exterior angles.
In movie making, the STEM team is worked on preparing for the US Open Championships in Iowa. They refined their research project and 10-minute video presentation. The students choreographed a piece for the King Kekaulike Carnival Lip-sync Battle. They also got to coach, collaborate, practice acting, and directing their peers that are not in movie making. The students directed and produced a video for leadership day. They also worked with the robotics team to create a video for their competition.
In computer technology, the students are learning to read electronic schematics and used coding skills to build physical circuits. They also researched sensors. In order to complete the projects, the students did research and used critical thinking, teamwork and perseverance.

Math competition team, was also created, they focused on participating students' areas of weaknesses.

MWIS:

In Engineering, CAD, 3D printing, students focused on designing 3D projects in Fusion 360 & Boxy throughout the quarter. The students also worked on Piper and Arduino experiments. The students used mathematics to design and manufacture 3D projects. The students had to use critical thinking/problem solving, resilience and perseverance to complete their projects.
In Digital Media and Robotics, the students began the quarter by regrouping and reviewing the basics. The students also learned how to use new equipment such as Gimble and Slider. The continuing students worked with newer students how to use After Effects. They also worked on submissions for Olelo, 808Digital Storytellers, and the STEM conference. Teachers helped students with their digital media stories to help them navigate through After Effects and taught some students the basics of Premiere. In February, the students worked on video editing, After Effects, and speed ramping. They worked on videos on the Blue Moon for the Institute Astronomy, aquaponics for PBS/NSF, and affordable housing for Hiki No, which won the middle school challenge. The students attended the Kakou Community Hall meeting, worked on building drones, and worked on their scripts and videos for Olelo. Several students learned how to use the lavelier mics for voiceovers, and 3-point lighting. Students learned shortcuts while editing using Final Cut Pro. In March, the students focused on preparing for STN convention and STEM conference. All the while, the students worked on producing a weekly show, which won a national competition for middle school productions.
In the Agriculture class, the students focused on fertilizing the trees. They also harvested sweet potatoes, kumquats, papayas and bananas. The students learned about pollinating flowers and how aphids are farmed by ants. They also made a fermented anaerobic tea that they sprayed onto the trees and plants to feed beneficial microbial populations. The students have to work together in teams and use communication to complete these tasks. Unfortunately, Ag teacher's personal work schedule became more intensive and the agriculture program at MWIS had to be ended for the time being.

LIS:

In Robotics, Engineering, and Math Counts students practiced a range of math skills using Math Counts practice program in preparation for the Maui competition (e.g., probability, geometry, measurement, and algebra). The students also focused on the engineering design process in building, testing, and modifying their robots. Some students built autonomous programs through Graphical ROBOTC. In February, the students focused on STEM conference projects in T-shirt designs in Photoshop. They also worked on their Spotlight events. The students continued to work on the EDP to build, modify, test, and improve their robot designs using VEX IQ. Some students took measurements and created a scale to develop a model. Students worked on projects for the upcoming parent week. Some researched topics to write a script and create an informative video about their project areas.
In digital media, the students took on new video game assignments to enter into the Olelo challenge, and learned about stop motion. One video from the Olelo challenge made it into the finals. The teachers also worked with the students to determine who would attend the STEM conference and which competitions to enter. In March, the students worked to complete their STEM conference entries and focused on public speaking for Spotlight. One student in the Olelo challenge was a finalist and attended an award luncheon on Oahu!

In CAD/3D printing, Virtual Worlds, Drones, Coding, and Engineering students worked on a variety of projects for the STEM competition. The students worked on Hawaii STEM Conference competition projects; such as t-shirt design, spotlight presentation, 3D printing, Bloxels, and Minecraft. The site coordinator also worked on administrative activities for the STEM conference to book rooms, flights, and gather registrations. The students learned how to use stop motion video software and cameras. They had to use math to figure out how many frames/second would work best for their films. A student at LIS made it as a finalist for a video competition. The students also ended the quarter with projects to show parents during the Family Week Presentations.

Fourth Quarter:

LHES: The students spent time preparing for the Hawaii STEM Conference and brainstorming on how to create interest in the STEM program on Lanai. One idea included a mini STEM conference on Lanai and utilizing students who have been a part of the program afterschool and during to provide feedback and showcase their projects. The students also used the time to work on homework and fix a drone that was broken. In STEM, the students used most of the class time to complete their homework, with staff assisting students with comprehension. They explored items in the THINKit kit.

LIS:
In Robotics, Engineering, and Math Counts, the students focused on the STEM conference spotlight by discussing engineering design process, working on 3D printing issues, and presentation skills. They also focused on how to design different mechanisms for a robot and problem-solved design issues. Some students were also guided on Lynda.com and discussed topics to focus on for the parent week. Staff focused on students who were interested in CAD and 3D printing, and offered assistance with Adobe Photoshop. A few students received help preparing for an upcoming Algebra exam.
In digital media, the students focused on the STEM conference and projects for parent week showcasing what they had learned in the AFTERschool program. The students created a project for teacher appreciation week using Photoshop, a 3D printer, and stop motion animation.
In CAD/3D printing, Virtual Worlds, Drones, Coding, and Engineering, students learned about a new software called Fruity Loops, a digital audio workshop, which involves applied math.

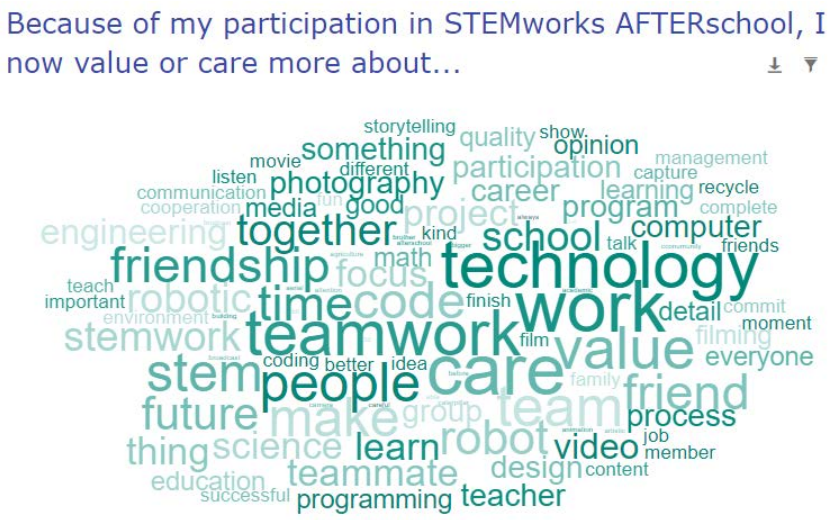
PES: The site coordinators supported completion of the EOY surveys, prepared for summer STEM camp organization with parents, instructors, curriculum, and prioritizing at-risk students; and hosted a parent informational meeting for the summer program. The robotics team held summer try outs. The PES team dedicated time to the "Science Olympiad" family day. They supported families in "Describe it and Build it" where students refined their observation and communication skills. One of the Pukalani student teams finished in 1st place and two others placed 2nd and 3rd, teams team practiced organization and study skills by writing study guides and testing each other. All of the students experienced preparing for a competition and managing stress which was a valuable learning experience.
In coding & robotics, the students were challenged to program their own dash dance and dance along. The students also used Osmo to learn left vs. right. They also practiced geometry and shapes using Osmo tangrams. Students collaborated and demonstrated critical thinking

skills in coding. They were challenged to work as a team to generate the code to succeed within the engineering design process. Students learned the vocabulary required to advance a level in coding. Students ended the semester by revisiting Osmo Jam, Dash, and Code.org. They played a game where they had to use coding language to program each other. The students got creative and added dance moves as the commands.
In TinkerCAD and 3D printing, the students were introduced to professions in STEM and how their everyday interests relate to potential future careers. They also continued to use the 3D pens and TinkerCAD to design more 3D projects.
The movie makers finished their first short film. They hosted a film premiere in the school cafeteria and invited their families to attend.

LOIS:
In Coding and Aerial Drones, students were encouraged to follow their interests with STEMworks supplies; and to adopt problem-solving methodology, including getting used to getting stuck and asking for help. Some students gravitated to coding and Arduino based projects while others focused on 3D modeling and printing or drone building/coding. The students also focused on public speaking skills and practiced mock interviews with small audiences to prepare for the STEM conference.
In robotics, the students were excited to attend the STEM conference, showcasing a project that the VEX IQ Team 5777A had been working on since August. They also collaborated with 2 Kihei Elementary teachers for their upcoming VEX IQ Season. The students were also excited for the new VEX IQ game, Turning Point. Students supported a parent night where prospective students were recruited and over 100 attendees were introduced to the program.
In agriculture, the students prepared for the 4th Friday plant sale, Earth day, and the Lokelani Community work day. The students prepared for the workday by creating a list and prioritizing activities. They determined the supply of plants that they had for sale and touched up pots and decorations for the plants. One student, gave a presentation on the Wiliwili tree to other FFA students and staff, another student prepared and delivered a speech on FFA at the parent night. The students then connected this information to a hike that they did in Makena where they saw native lowland dry forest plants. The students also obtained cuttings of rare Hawaiian plants and learned about the Hawaiian culture in the area. Students drew up possible design plans for nursery irrigation, made measurements, cut pipes, and then installed irrigation in the cage. Students helped shut down worm bins, (harvested and measured worm castings, relocated worms to separate bins for the summer). Students made succulent pots for Mother's day, organized plants outside, did final inventory of plants, weeded and did selected pest management.
The photography class selected pictures for the EOY cut and completed short videos for "what I love about STEM" and "How has STEM helped Me in Thinking about my Future Career." They also cleaned and inventoried camera equipment.

MWIS:
In 3D printing, CAD, and engineering the students worked on mCookie Arduino projects and Arduino sound gadget demo. They also discussed and worked on assembling the projector to learn its parts and functions.
In digital media and robotics, the students worked on After Effects by focusing on the basic components (Key framing the objects' actions). This month students planned for and participated in the end of the year STEMMYS celebration, botball tournament, and reflected on

their first STEM exploration day. They also participated in the STEM PBS film festival and were able to learn about advances in technology from around the country. Planning for next year's Falcon Features and club government was discussed.



4.A.3. Outcomes Evaluation

Describe how program outcomes are being evaluated.

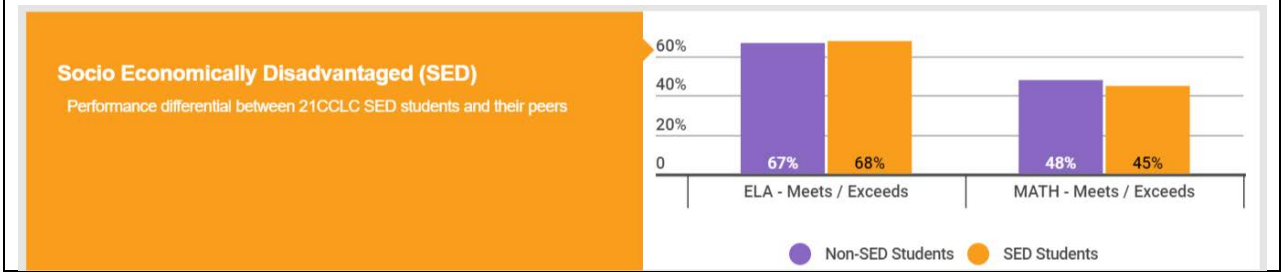
Sample Outcomes Questions:

- To what extent do students who participate in the program show improvements in behavior?
- To what extent do students who participate in the programs show academic gains?
- To what extent has the program achieved its objectives?
- What factors have affected program success?

What outcomes questions are being answered?	The program asks the following questions to assess performance in accordance with the Key Performance Indicators described in section 4.B. below: To what extent do students who participate in the program demonstrate improvement academically? To what extent do students who participate in the program demonstrate improvement socially? To what extent do students who participate in the program demonstrate improvement behaviorally? In addition, the Program researches the following: How do students perceive their own strengths and areas for improvement? To what extent are students in the program interested in STEM careers? Are students progressing towards mastery of elements of the engineering design process? Are students progressing in their development of team-building and teamwork skills? To what extent has the program achieved its objectives? What factors have affected program success?

For each outcome, what measures and data collection methods are being used (e.g. attendance, grades, behavior incidents)?	The evaluation plan includes survey instruments and observation tools (attached in appendix to this report) to gather feedback from teachers, students, staff, parents, and community members regarding their experience of the program and its impacts; student performance in math, science, language arts, and development in an array of core skills; classroom participation; student behavior; student perceptions and goals in STEM; and student development of leadership and teamwork skills.
What is the timing of data collection?	Site observations are conducted at least once per semester. The completed form is provided to each site, along with summaries regarding noted areas of excellence, areas for improvement, and areas for support. As with implementation evaluation, before the fall term, grant goals and annual evaluation recommendations from the program evaluator regarding outcomes are reviewed and goals for individual site program improvement during fall semester program are defined. After the fall term, staff reviews survey data from parents and students, evaluates program successes and needs, and choose three to five focal areas at each site for improvement to be implemented in spring. All program staff participate in data collection, review and progress/improvement meetings each November/December. Site coordinators collect success stories each February. Students are surveyed each semester and parents are surveyed each fall. Teachers are surveyed each spring. Informal check-ins are also used to check in with program students, to ask what they are learning and working on in their projects. Informal site visits occur as often as needed, averaging about twice per quarter or more.

Reporting from the HI DOE shows that, within the population of students participating in MEDB programs, the achievement gap between SED and non-SED students was overcome:



4.B. EVALUATION RESULTS

4.B.1. Implementation Evaluation Results

Describe the results of the implementation evaluation, addressing the implementation questions described in your response to Section 4.A.2 above.

Has the program been implemented as planned following the last annual evaluation?

The last annual evaluation recommended that the program continue to:

- monitor the balance of staffing numbers and hours worked per week to minimize burnout and maximize depth of instruction;
- experiment with the balance of program reach and program depth;
- experiment with data collection methods and systems to maximize data collection reach;
- refine efforts to maximize impact on subject-area academic improvement (e.g. staffing with core-subject teacher, setting aside the first time-segment for academic support).

To support continuous improvement and ensure program quality, it was recommended that the program continue to:

- implement its evaluation plan as structured;
- share summarized data from survey instruments from each site with all staff from the respective site during informal site visits so that this information can shape the program and its delivery, including by further revising data collection instruments to best serve the goals of the grant and the individual sites.

Each of these recommendations was followed and fulfilled. The balance of program reach and depth continues to be a challenge at sites where demand far outstrips capacity and these challenges are discussed in some detail in the sections of this report regarding attendance and programmatic challenges. A new data management software system that was implemented mid-year allowed for interactivity of data and offers the future ability to analyze and share data in real time with community stakeholders.

Maui Waena
When new students joined, returning students trained them in the various program options. Students formed study groups and helped each other understand concepts and complete work. In the rare instance where behavior was an issue, the staff viewed the situation as a learning opportunity and helped students make better decisions. Throughout the year there were more students wanting to join and about 70-80% of those who started to come at the beginning of the year continued through the year.

Lokelani
Parent nights are well attended, donations from the community have been given to support robotics fundraisers (car wash supplies and items for silent auction events.) Offering a large variety of STEM classes was another success; having a variety of classes increased student interest and exposure to STEM careers and opportunity. These successes brought the school and community together, which further supported fundraising and program awareness (showcasing student work).

Teachers and students honored a routine of homework time before STEM classes began. Grade checks once a month were helpful to make sure students were keeping up with their daily academic responsibilities. Expectations and protocol were communicated to students. Students were also guided in the responsible use of STEM supplies. Students who want to be in the program are very engaged.

Lahaina
A group of students focused intensively on CAD and 3-D printing, becoming leaders in this area and created a variety of items. In general, attending students did well in school and many would spend time during the program to work on homework even beyond the required period. Many students were helpful in sharing their knowledge with other students, especially new students. A core of about 20 students were regular attendees to the program.

Pukalani
Due to registering a smaller number of students for classes (100 per semester instead of 200), implementation went more smoothly than the year before. Implementation was also easier for site coordinators and returning instructors because they had a year of experience with the grant and program. Parents also had a better understanding of the STEMworks program so they were better prepared to complete program parent requirements.

Parents completed an interest survey which helped inform enrollment and class offerings. Having site teacher input was helpful when trying to match student interest with grade level appropriate offerings, sometimes mature or skills-ready students could be placed by their first interest in a higher grade level using the guidance from in-school teachers. Upper grade levels were given more variety since these students had broader emerging interests based on attending previous program years. Program added grade K only during the second semester, an application of lessons learned that first semester STEM focus is difficult for these young students after a full day of school

If students had problems with homework completion or needed support with homework, instructors had time to help work on it. Smaller class sizes contributed to better experiences for both students and teachers. Teachers were able to give individualized instruction and support when students needed it. Instructors shared what worked for their classes with other instructors. All students do very well in class and enjoy participating and learning.

Lanai
Students checked in with instructor on their homework and received support first. Some students came just for homework. When attending, students are excited, engaged the whole time and involved in team activities. Students gained confidence in their STEM skills and being able to collaborate with students of various ages.

Were there challenges to implementation and, if so, how were they addressed?

Maui Waena Intermediate
The primary challenge was in the ratio of students to staff. It was sometimes difficult to effectively teach skills with 70-90 students so in addition to facilitators, volunteers were utilized to support program numbers whenever possible.

Lokelani Intermediate
Limited support from the community in providing snack donations. Difficulty funding travel for Robotics competitions throughout the year. Funding challenges reduce the number of students who would otherwise be able to experience the off-island competitions. Leveraged funding through MEDB's Ke Alahele Education Fund provided opportunities to offset some of these costs.

It was sometimes challenging keeping students on track with the homework routine. Students would get wrapped up with their projects and would want to try to skip homework time. Staff responded by reminding students of the importance of completing homework, and ensuring time was devoted to homework.

Staff noticed that students whose participation was prompted by parents (rather than being self-directed) were less engaged. Staff responded with additional effort to connect these students to curriculum that reflected the students' own interests.

Lahaina Intermediate:
The STEM exploratory program practice of allowing students to pursue their individual interests worked well for more self-directed students, however, some other students were more challenged to use the time well. The open/exploratory nature of the program's launch may also have contributed to attrition in participation. The program also experienced challenges with some students saying they didn't have homework, and the temptation to play video games instead of their coding assignments. Staff responded by providing more direction and less free choice about activities.

Pukalani Elementary- College students or industry partners who were new to classroom management needed more support from site coordinators. The program responded by making class size smaller for college student teachers or industry partner instructors. Sometimes behaviors stemmed from having to cope with a disparity of skill levels within the class. To combat this, smaller class sizes were implemented and students who had taken classes before were able to take an advanced class. There are a handful of students with behavioral challenges both during and after school. The program's behavior policy is shared with parents during the initial parent/sign up meeting. Parents and students are made aware that the program expects students to be ready to learn, respectful of their instructors and peers, and any behavior that is not conducive to allowing all participants to learn will not be tolerated. Instructors are aware that they can call the site coordinators if students display non-participation or disrespectful behaviors. Students are immediately removed from the classroom and parents are notified. Because of clear expectations, there are few problems and students are able to flourish.

Lanai High and Elementary
The primary challenge is low program enrollment. The site coordinator has posted in the community, locally on Facebook, asked the parents of students involved to share with other parents, talked with families and classrooms, and personally invited students who have parents working after school to come. Students seem excited to attend and are asked to bring a friend, but enrollment remains low. Students who are enrolled attend only sporadically.

Has the Continuous Improvement Plan produced any ideas for improving implementation?

Responses to each of the challenges described above were generated through the process of continuous improvement.

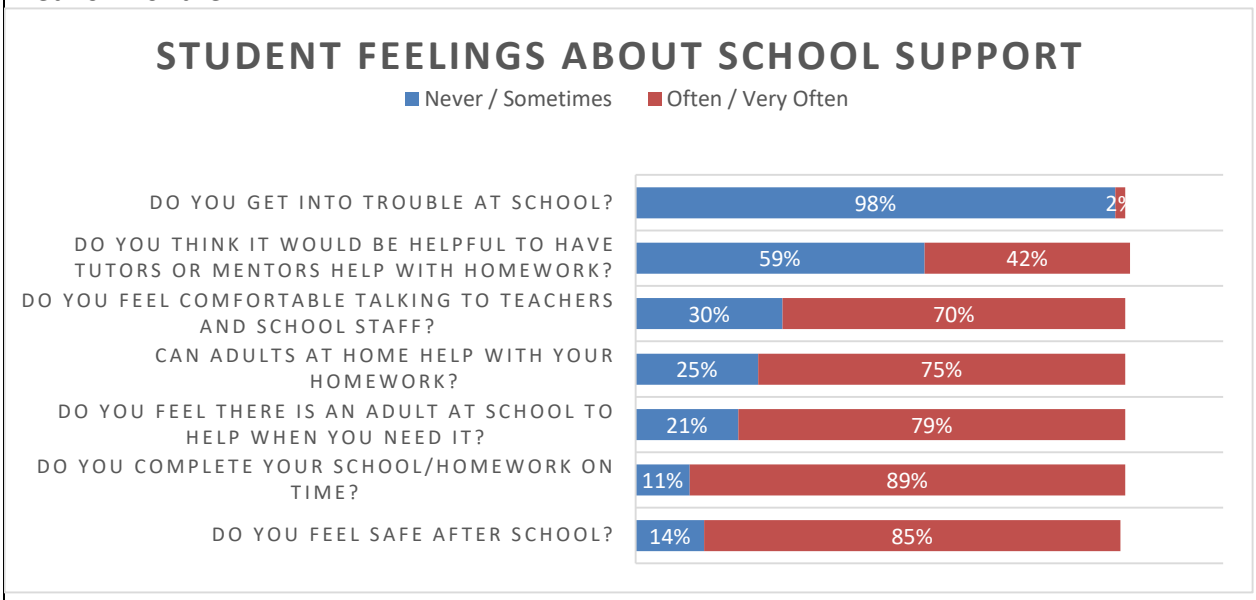
In August, all five program sites participated in a full day Grant Planning and a Data Review Meeting, reaching 17 STEMworks AFTERschool facilitators, the program director, and MEDB's Women in Technology team. Participants engaged in: (1) Sample STEM activity that included both math & coding, (2) reviewed all 16-17 program impact data that was collected from the 16-17 school year programs as well as the 15-16 program year annual report with recommendation for program evaluator (3) networked and shared program highlights and areas that each site was working towards improving, (4) used all insights from data and networking to engage in planning activities for the upcoming 17-18 year.
In addition to this, sites considered that as they got to know their new students there may be shifts in students need.

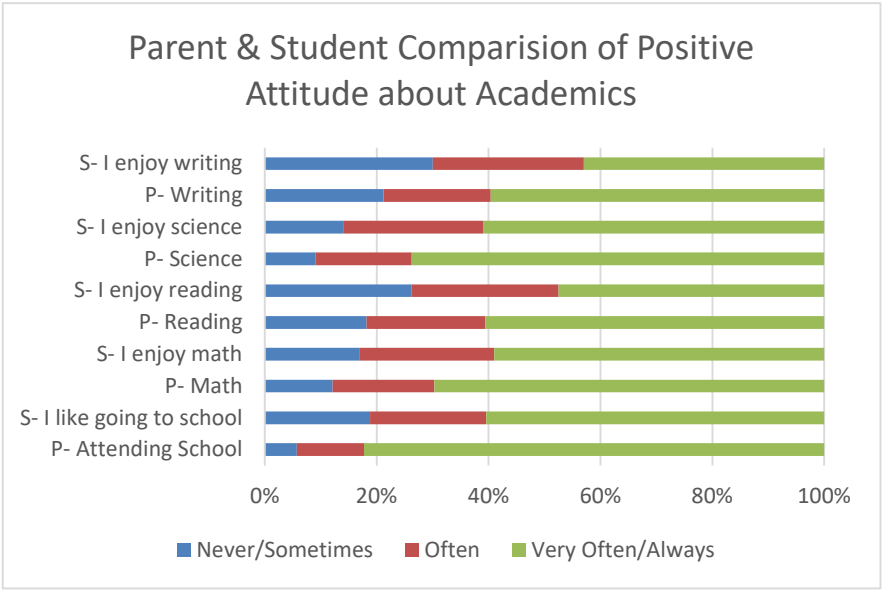
Parents and students were surveyed at the start of the program year to inform program focus. Out of 29 options, both parents and students chose similar top 10 results for strengths and weaknesses (see highlights where choices overlap). Consensus on student strengths was greater than agreement on weakness (or areas to improve). This meant that initial survey data on weaknesses was less actionable program-wide and that facilitators were encouraged to consider the data for their specific classrooms. Math showed up in both perceived strengths and weaknesses, but based on Hawaii state testing this is a definitive area of student need.

	Student Responses		Parent Responses	
	What are your best strengths at school?		**What are your child's strengths at school?**	
1	Using Technology	72%	Teamwork	76%
2	Math	68%	Positive Attitude	69%
3	Creativity	64%	Math	65%
4	Positive Attitude	64%	Creativity	65%
5	Teamwork	62%	Using Technology	61%
6	Making Friendships	59%	Listening	63%
7	Learning New Technologies	58%	Learning New Technologies	61%
8	Science	56%	Artistic	59%
9	Participation	56%	Help/Mentor Others	57%
10	Quick Learner	56%	Science	18%
	What areas do you need help with in school?		**My child needs support in the following:**	
1	Language Arts	29%	Writing	36%
2	Writing	29%	Staying Focused	28%
3	Presenting	28%	Organization	27%
4	Math	25%	Confidence	26%
5	Confidence	23%	Presenting	25%
6	Staying Focused	23%	Language Arts	24%
7	Social Studies	20%	Math	23%
8	Logical Reasoning	20%	Reading	21%
9	Reading	19%	Leadership	20%
10	Organization	18%	Social Studies	19%

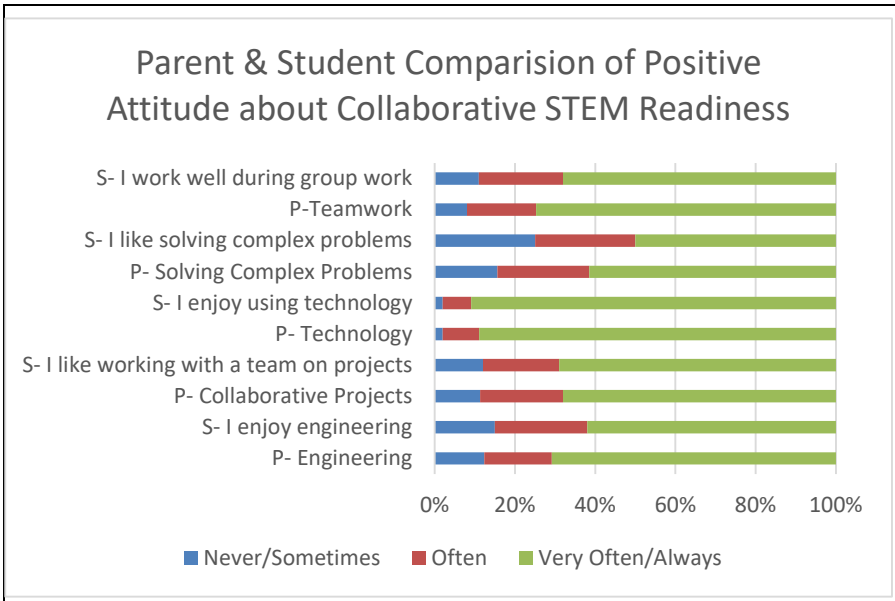
Students were also surveyed about their feelings about school to help determine areas for extra support. 42% of students wanted support for homework, out of which 25% did not have an adult that could help them at home. Also, it was important to identify the 14% of students who did not feel safe afterschool as well as the 30% of students who did not have a school teacher

or staff that they felt they could talk to and 21% felt that there wasn't an adult at the school that could help them if they needed it. Some of this data may be due to incoming 6th graders to a new middle school, but surveying the students in order to identify needs helped to build a network for them.





Parents and students were initially surveyed about attitudes about school academics. Over 55% of students have positive attitudes of school. For all areas surveyed it was found that parents were more optimistic about their child's attitude as compared to the children themselves.



Parents and students were also initially surveyed about attitudes that were considered "collaborative STEM readiness" areas of importance for work on STEM projects in teams. In general, over 60% of students had positive attitudes. For all areas surveyed it was found that parents rated their child's attitude higher than did the children themselves.

Maui Waena: Increased quantity and quality of front-end teaching of basic skills in a variety of STEM areas, including digital media, coding, CAD and robotics. In the fourth quarter, STEM exploration days were implemented with high success to bring in more community and have students become experts in a variety of areas. During STEM Exploration Saturdays, which continue into the 18-19 program year, students teach the community skills in digital media, coding, robotics, computer science, prototyping, CAD, and more; the setting is a technology playground where families come to learn.

Maui Waena Skill Focus during 17-18

a. Presentation: students took turns presenting the program to visitors and companies
b. Interviewing skills: students had the opportunity to speak with a variety of community members, students, and staff.
c. Organization: students took leadership roles in organizing an equipment check out system, STEM exploration days, and the summer enrichment program.

Lokelani: Lokelani's program continues to improve by offering a greater variety of classes connected to future STEM career skills. The program also worked to maintain support from the community members for student travel to robotics competitions through fund raisers as well as applying for MEDB's Ke Alahele Education Fund Grant.

Lokelani's skill focus during 17-18:

a. Student public speaking
b. Organization and responsibility
c. Practicing the Engineering Design Process, including purposefully referencing steps during activities.

Lahaina Intermediate: As discussed above, the program found that some students needed more direction. Staff responded by providing more structure and standards for outcomes of student work.

Lahaina's skill focus during 17-18

a. Expanding student interest in a larger variety of STEM areas through supported exploration (beyond their established interest in Minecraft EDU)
b. Improving academic grades
c. Time and support for students to complete homework before other activities

Pukalani: Program focus shifted from "quantity" to "quality." Last year the program attempted to satisfy the demand for participation but, while 200 students were thereby exposed to STEM education, it was hard to achieve 30 days of attendance. This year the overall participation level was dropped to 100 students with an attendance goal of two or even three times per week. This experiment resulted in new challenges: disappointing students who weren't able to get the classes that they wanted; discovering some parents preferred the single-day schedule, and turning off students who were daunted by a strict attendance policy. Additionally, the decision to start kindergarteners in the second half of the year was met with some disappointment, but the prior year had shown it is difficult for these youngest students add the after-school program to their school day. It was also a slight challenge to find enough instructors who were available for the multi day schedule. In all, more program days benefited students who had access.
Pukalani's skill focus during 17-18

a. 2017 Summer school: Time Management, Self-motivation, Self-management, Willingness to learn, Resilience.
b. 17-18 After-school Program: Teamwork, Be proactive--Positive attitude, adaptability, willingness to learn; Competitive Robotics team additionally focused on: Leadership, Teamwork, Time Management, Ability to Work Under Pressure, Problem Solving

Lanai High & Elementary: The program tried many strategies to increase enrollment (as described in detail in other sections of this report), since the main goal was to increase student participation, support students in homework/academics and explore areas of STEM, building on the drone program from previous year. The solution to this issue remains unknown/unanswered.

Are program activities still experienced as interesting and valuable to students, teachers, administrators and community partners?
Site observations; surveys of students, parents and teachers; planning meetings with teachers and administrators, and consultation and collaboration with community partners, all indicate that the program activities are useful, relevant, interesting, valuable and engaging. Even on Lanai, where the program struggles to recruit and retain participants, those who attend seem to greatly enjoy the program.

4.B.2 Key Performance Indicators (KPIs) – Objective 1

Objective 1: Participants will demonstrate educational and social benefits and exhibit positive behavioral changes.

Exhibit 10: Performance on KPI Objective 1 – Turning in Homework and Classroom Participation

Objective 1.2: Percentage of REGULAR program participants with teacher-reported improvements in turning in homework and participating in class.	
Center	**Percentage of REGULAR program participants with teacher-reported improvement in turning in homework and classroom participation (INSERT ONLY ONE PERCENTAGE FOR EACH CENTER)**
Maui Waena Intermediate	99%
Lahaina Intermediate	81%
Lokelani Intermediate	89%
Lanai High and Elementary	100%
Pukalani Elementary	98%

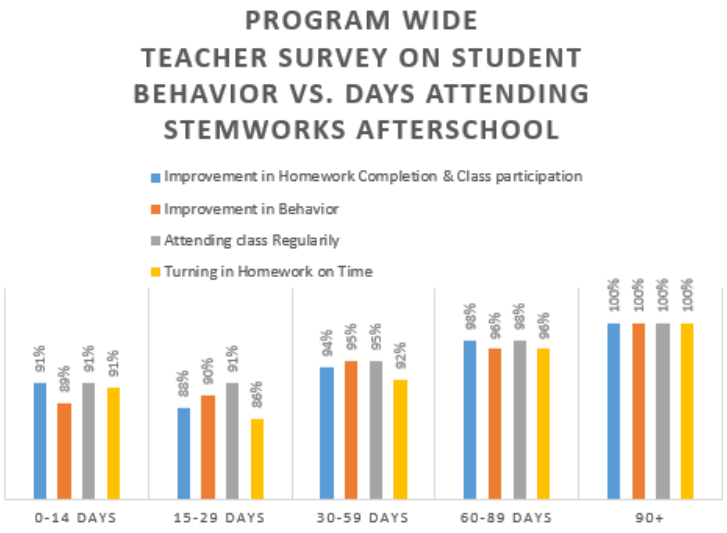
Exhibit 11: Performance on KPI Objective 1 – Student Classroom Behavior

Objective 1.2: Percentage of REGULAR program participants with teacher-reported improvement in student classroom behavior.	
Center	**Percentage of REGULAR program participants with teacher-reported improvement in teacher-reported student classroom behavior**
Maui Waena Intermediate	99%
Lahaina Intermediate	81%
Lokelani Intermediate	89%
Lanai High and Elementary	100%
Pukalani Elementary	98%

KPI Objective 1 Discussion

Please describe particular successes related to Objective 1. What data/evidence are these success and challenges based on?

Based on teacher surveys, the graph below shows a pattern across the sites shows that students who participated in program more days exhibited more improvement on (1) Homework Completion and Class participation, (2) Behavior, (3) Attending Class regularly and (4) turning in homework on time.



Site specific reflections from instructors on how program supported homework, participation and classroom behavior is noted below.

Maui Waena

1. Homework completion: Students formed study groups and helped each other understand concepts and complete work.
2. Participation: Throughout the year there were more students wanting to join and about 70-80% of those who started to come at the beginning of the year. New students were mentored by participating students, which built relationships as well as participation skills. Students worked in small teams where each person had a role, thereby helping students practice daily participation in projects.
3. Classroom behavior: Whenever there was an instance with one of our students (although there very few) program used it as a learning opportunity and helped them make better decisions.

Lokelani Intermediate:

1. Homework completion: Program has a routine for the teacher and students to set aside homework time before STEM classes begun. Grade checks once a month were helpful to make sure students were keeping up with their daily academic responsibilities.
2. Participation: Students who self-opted into the program are very engaged and participate effectively. Students whose parents opted them in tended to be less involved. The site's assessment of this was immediate and the instructors worked on getting curriculum or classes that supported those student's interest and engagement.
3. Classroom behavior: Program had clear expectations and protocol communicated with students. The students know their role and expectations in the classroom environment. Program worked a lot with STEM supply responsible use which I believe was the most helpful for students when using technology appropriately.
   Challenges: The protocol for negative student behavior is to contact home and communicate with the student and family to review the expectations.

Lahaina Intermediate

1. Homework completion: In general attending students did well in school and many would spend time during the program to work on it even beyond the initial period. Challenges: Some students would regularly say they had no homework, even if they did, so daily time needed to be set aside for student academic work.
2. Participation: A core of about 20 students were regular attendees to the program and a group of students especially focused on CAD and 3-D printing, becoming leaders in this area, sharing their knowledge with other students. Students really worked together and developed helpful mentorship skills.
3. Classroom behavior: Many students were helpful in sharing their knowledge with other students, especially with new students beginning after the start of the year. A few students struggled with focus, or off task behaviors (wanting to play video games instead of code), so more structure was needed for some software activities.

Pukalani Elementary

1. Homework completion: If students had problems with homework completion or needed support with homework, instructors had time to help work on it. Since classes were only two days a week and 1 ½ hours a day, most time was spent on having kids engage in the learning of STEM skills and homework was not the focus.
2. Participation: Students worked in small groups to solve challenges and were always encouraged to help each other. Often students were asked to give positive feedback and suggest ways to improve. This development of social skills supported students confidence and participation which extended to several opportunities to present and share learning at parent nights.
3. Classroom behavior: Smaller class sizes contributed to better experiences for both students and teachers. Teachers were able to give individualized instruction and support when students needed it. Instructors openly shared what worked for their classes with other instructors

Lanai High and Elementary

1. Homework completion: Students checked in with instructor on their homework and received support first. Some students came just for homework.
2. Participation: Students gained confidence in their STEM skills and being able to collaborate with students of various ages. It was a unique opportunity to have all ages work together. Low program enrollment was an ongoing issue, as was having students attend inconsistently.
3. Classroom behavior: When attending, students were excited, engaged the whole time and involved in team activities.

Please describe particular challenges related to Objective 1. What data/evidence are these success and challenges based on?

Overall challenges in these areas were very minor. However, across sites these challenges arose:

1. Homework – There are always a handful of participating students who say they have no homework, even when they do. When possible, teachers had students check in digitally with their grades, but up-to-date grades/missing assignments were not always digitally available at all schools. Providing a set time for all students to complete homework in middle school at the beginning of the period, helped to avoid this issue. In a few programs there were some students who needed to spend most of their time on homework, which led to less exposure to the project and STEM goals, but did provide a safe and supportive place for students to work on academics.
2. Participation- (a) Whenever possible, the program accepted new students, including allowing students to join mid-semester. Students joining mid-semester missed early sessions and skill building, which was addressed via student mentorship and work in groups on ongoing projects. Student mentorship worked best during the second semester, when there were already a cohort of students who understood the program culture and had built skills. In programs that have returning students, or

summer sessions, mentorship support was also a viable option for new students. (b) Most students joined due to personal interest, however in some cases where parents directed students into the program it took more time from instructors to develop student interest. Those who struggled to find their niche were encouraged to try out several different areas of STEM offered by the program.

3. Classroom behavior- There were very few behavior issues across the sites. Most issues arose at the elementary level and seemed to correlate with a high population of distressed and/or special needs students (identified as qualifying as for services for being at risk, special education or 504). Site coordinators were given more time to overlap and co-teach/support classes that were led by industry partners and college students who may have less classroom management experience. This kind of scheduling was helpful in supporting specific student needs.

4.B.3 Key Performance Indicators – Objective 2

Objective 2: 21st Century Community Learning Centers will offer a range of high-quality educational, developmental, and recreational services.

Exhibit 12: Performance on KPI Objective 2 – Core Educational Services

Objective 2.1: Centers will offer high-quality services in at least one core academic area, such as reading and literacy, mathematics, or science. (Click Yes or No for each academic area)				
Center	**Reading & Literacy**	**Math**	**Science & Technology**	**Other (specify)**
Maui Waena Intermediate	Yes	Yes	Yes	Math Concepts: CAD, 3D printing, coding; ELA: Project Research and Script Writing, Sequencing and Editing; Homework Support
Lahaina Intermediate	No	Yes	Yes	Math Concepts: CAD, 3D printing, coding; ELA: Project Research and Script Sequencing and Editing; Homework Support
Lokelani Intermediate	No	Yes	Yes	Math Concepts: CAD, 3D printing, coding; ELA: Project Research and Script Writing, Sequencing and Editing; Homework Support
Lanai High and Elementary	No	Yes	Yes	Math Concepts: CAD, 3D printing, homework support; ELA: Project Research; Homework Support
Pukalani Elementary	Yes	Yes	Yes	Math Concepts: CAD, 3D printing, coding; ELA: Project Research and Script Writing, Sequencing and Editing; Homework Support

Core Educational Services Discussion

Provide a brief description of evidence that these services are of high quality.

Program curriculum and approach is largely project-based, in recognition of the evidence that this method is highly effective. Project-based learning is a form of problem-based learning (PBL) that focuses on the student's ability to gain knowledge and skills by working on a complex question or problem. Strobel and van Barneveld (2009) in their meta-analysis of several studies comparing problem-based learning to conventional classrooms report distinct benefits in the effective implementation of this pedagogical practice. As summarized in the paper (pages 34-35), these benefits would include:

- enhanced professionalism and collaboration on the part of students and teachers, increased attendance, self-reliance, and improved attitudes towards learning on the part of student
- gains in general academic achievement and for developing lower-level cognitive skills in traditional subject matter areas.
- Improvement in performing complex processes such as planning, communicating, problem solving, and decision making
- enhanced quality of student learning in subject matter areas leading to the tentative claim that learning higher-level cognitive skills via PBL is associated with increased capability on the part of students for apply those learnings in novel, problem-solving contexts.

These and other studies (e.g., Walker and Leary, 2009; Wiesman and Cadwell, 2005) demonstrate the effectiveness of PBL at various educational levels.

The program also works diligently to provide students hands-on experience with the latest technology (e.g. drones, 3D printing).

In addition, the program has or is progressing towards all elements of a high-quality program delineated by the National Center for Research on Evaluation, Standards and Student Testing. The program has clear and rigorous goals that are supported across the program in both structure and content. Funding is generally adequate to support these goals, although increased funding would be helpful at Pukalani, where demand far outstrips capacity. Leadership is increasing in experience and longevity, are well-educated, and employing a bottom-up management style that seeks and applies input from staff. Staff has increasing experience and longevity at their sites, relate well to students, model high expectations, motivate and engage students, and work well with leaders, colleagues and parents. The program aligns to in-school curriculum, provides time for students to study, learn and practice; includes motivational activities, and frequently uses technology, science and the arts to support youth development, student learning, and engagement. Program evaluation uses both internal (formative) and external (summative) methods. Evaluative information and data accurately measure goals, and results are applied to continuous program improvement.

Exhibit 13: Performance on KPI Objective 2 – Enrichment Activities

Objective 2.2: Centers will offer enrichment and support activities such as academic assistance, remediation and enrichment, nutrition and health, art, music, technology, and recreation. (Click Yes or No for each enrichment area.)						
Center	**Arts & Music**	**Physical Activity**	**Community Service**	**Leadership**	**Tutoring/ Homework Help**	**Other (Specify)**
Maui Waena Intermediate	Yes	No	No	Yes	Yes	STEM & Technology
Lahaina Intermediate	Yes	No	No	Yes	Yes	STEM & Technology
Lokelani Intermediate	Yes	No	No	Yes	Yes	STEM & Technology
Lanai High and Elementary	No	No	No	No	Yes	STEM & Technology
Pukalani Elementary	Yes	No	No	Yes	Yes	STEM & Technology

Exhibit 14: Performance on KPI Objective 2 - Services to Parents and Family Members

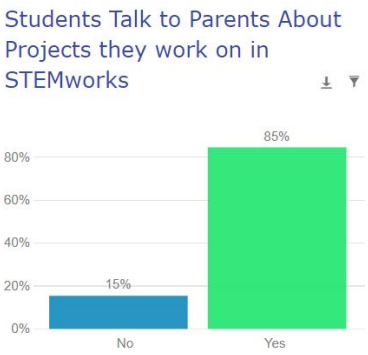
Objective 2.3: Centers will offer services to parents and other family members of students enrolled in the program.		
Center	**Number of parents/ family members participating**	**Description of services to parents and other family members.**
Maui Waena Intermediate	125 parents	Hands-on STEM family engagement evenings and some Saturday STEM days with presentations/booth led and taught by program students. Note: An additional 51 community parents with 59 children came to experience hands-on STEM explorations with stations led by STEMworks AFTERschool students.
Lahaina Intermediate	18 parents, 35 siblings	Hands-on STEM family engagement evenings in coordination with school events, STEM presentations/booths were led and taught by program students. Note: 90 parents came to Ke Ali'i family night, where students presented hands-on STEM, but not all student's parents from program were in attendance.
Lokelani Intermediate	29 parents	Hands-on STEM family engagement evenings some in coordination with school events, student booths led and taught by program students. Note: There was a digital sign in on May 19 with an estimated 30 more parents of students in the program, but sign in was lost. Additionally, Agriculture students have sold plants at 4th Friday with parent involvement estimated at 6 parents, but sign in was not documented.
Lanai High and Elementary	5 parents	Program facilitators led STEM hands on activities for families. Note: 18 additional parents, of students not in program, were reached during STEM family night on May 10.
Pukalani Elementary	215 parents	Hands-on STEM family engagement evenings and one Saturday STEM day with presentations/booths led and taught by program students. Note: Many families, beyond those in the program, came to engage in the hands-on STEM family engagements.

Parent/Family Services Discussion

Provide a brief description of successes in providing services to parents and other family members.

Successes with Parents on program and family events:

Over the past several years of the grant, the most successful parent events are those that are student centered. Accordingly, parent events included hands-on STEM stations and formal group presentations that were planned and delivered by students. Parent engagement began with overall sharing from program instructors to deliver information or updates, but the main focus was the students. Passports were also a popular mode to help encourage families to attend multiple STEM stations (not just the one where their child presented). Having students present also gave them an opportunity to employ communication and presentation skills. Over the past two years, program teachers have asked if students would be able to share with each other, so this past year each school was given opportunities to connection with other sites in the program. The STEM Celebration at Queen K mall was the culmination of this planning, which brought STEM industry presenters and gave students opportunities to present on the mall stage and with the community in hands-on STEM booths.



Having students share directly with their parents may have encouraged ongoing overall sharing about program activities. 85% of program students reported that they talk to parents about program activities, and 78% of just middle school students said they share their program activities with families.

Families additionally have direct impact on program focus and improvement, providing multiple ways to connect families with program.

Family STEM Engagements*		**Program Parent Survey**		**Students Talk to Parents about Projects**	
84% of parents attended hands-on STEM engagements with student presentations.		89% of parents completing program entry survey during Fall 2017 used to inform/improve program.		85% of students talk to their families about STEM projects/activities.	
Maui Waena	85%	Maui Waena	84%	Maui Waena	75%
Pukalani Elem	174%	Pukalani Elem	100%	Pukalani Elem	93%
Lahaina Inter	32%	Lahaina Inter	100%	Lahaina Inter	75%
LHES	83%	LHES	0%	LHES	67%
Lokelani Inter	45%	Lokelani Inter	82%	Lokelani Inter	81%

*these figures represent the total number of attending family members divided by the total number of participating students

Parents gave positive feedback about the 16-17 'By the Numbers' infographic, which had been improved from the previous program year (feedback included wanting to see site specific data in academic improvement). This was a good way for families to see the impact the program had on school academics and career and professional skills, and to help new families understand the impact the program could have on their student's success. This flyer will continue, with updated information from the 17-18 program year to pass out to the 18-19 STEMworks AFTERschool families.

Information was also always able to reach parents in a timely manner by using multiple modes of communication. This year, more digital modes of communication were also implemented, which improved communication (as described further below).

School Specific Communication:
Maui Waena: Although paper flyers were used, parents really liked having the digital and text communication line open. The site coordinator was contacted by families frequently throughout the year. The program also regularly updated its STEM focused website.

Lokelani: Google-classroom, emails, social media, school newsletter and flyers have been a huge part of success when communicating with community and stakeholders. Multiple modes of communication helped to reach a wide audience. Some preferred paper and others preferred tech.

Pukalani: Parents were informed that email would be the main form of communication. Parents were asked to check and respond to emails as a daily routine. Most parents were good about doing this. In addition to this, paper flyers were distributed and parent meetings were held at the beginning of each semester. Teachers followed up with phone calls, emails and even some individual meetings if needed.

Lanai High and Elem: The site coordinator advertised in the local grocery stores, emails to parents, and locally on Facebook, as well as during informal conversations within the community. To increase enrollment in the following year, during the May 2018 parent night, students pre-registered for movie making summer camp, then the site coordinator called families and texted multiple times and 80% of students who signed up attended. Students did attend are excited about STEM because they are getting so much attention with the small student numbers and parents are happy about having these experiences for their child. Parents of program participants have been encouraged to share with other parents.

Lahaina: the school's database of parents was used to send out mass emails to let parents know about program opportunities/parent engagements. Informally, parents have shared that email is helpful, and a more reliable way to get the information out, rather than relying on their students to share it. Information was also posted to the school's Facebook page and advertised on the school website.

Provide a brief description of challenges in providing services to parents and other family members.

Challenges with Communication:

Maui Waena: Student delivered communication was sometimes lost, which is why the site also used reminder texts and website communication.

Lokelani: There were some challenges in communicating class cancellations (due to staffing challenges) but all avenues were pursued in the effort to keep all students and families were updated.

Pukalani- Sometimes flyers, delivered by students, did not make it into the hands of parents, or parents did not check email. However, program had parent contact info and was able to call and reach families as needed.

Lanai High and Elem- Despite advertising, the program teachers believe that there is still a limited community understanding of the importance of STEM. In the first grant year, when program enrollment was larger, all family hands-on nights included full meals and the support of hands-on engagement with the traveling STEMworks team. The hope was to invest early into sharing the importance of STEM and program opportunities with families to provide a solid understanding of program early on, to engage families and students long term. However, the outlay of resources for these events was deemed sustainable. If programming is to continue on Lanai past current funding, this may need to be revisited. (No 21st CCLC funds were used to provide food.)

Lahaina Inter – Over the past few years, it has been difficult achieve high attendance at independent STEMworks AFTERschool engagements, this is possibly due to parent information not being up to date in the school system. However, the school events (like open

houses and Ke Ali'i Night) were always well attended. Thus, partnership with school events has been the main focus of in-person parent engagement.

Exhibit 15: Performance on KPI Objective 2 – Hours per Week

Objective 2.4: Centers will offer services for 12 hours or more per week, and provide services when school is not in session, such as during the summer and holidays.		
Center	**Number of hours per week services offered during the school year**	**Number of hours per week services offered during summer and holidays**
Maui Waena Intermediate	12 (overlapping classes)	N/A
Lahaina Intermediate	8 (overlapping classes)	N/A
Lokelani Intermediate	12 (overlapping classes)	N/A
Lanai High and Elementary	6	N/A
Pukalani Elementary	7.5 (overlapping classes)	20 (overlapping classes in Summer)

[**Key Performance Indicators (KPIs) – Objective 3**
Objective 3 - 21st Century Community Learning Centers will serve children and community members with the greatest need for expanded learning opportunities. (Not included here - Communities are already described in Section 3.A above.)

4.B.4 Key Performance Indicators (KPIs) – Objective 4

Objective 4: Regular participants in 21st Century Community Learning Centers will demonstrate academic improvement based on formative and summative assessments given throughout the school year.

Exhibit 16: Performance on KPI Objective 4 –
Academic Improvement in Reading/Language Arts

Objective 4.1: Participants in 21st Century Community Learning Centers will demonstrate academic improvement in reading/language arts.				
Center	**Percentage of regular program participants with IMPROVEMENT in reading/language arts from fall to spring**	**Primary Source of Data on Improvement:**		
		Grades/ Course marks?	**Assessment/ Test Scores?**	**Teacher Surveys**
Maui Waena Intermediate	80%	✓	☐	☐
Lahaina Intermediate	69%	✓	☐	☐
Lokelani Intermediate	78%	✓	☐	☐

Objective 4.1: Participants in 21st Century Community Learning Centers will demonstrate academic improvement in reading/language arts.				
Center	Percentage of regular program participants with IMPROVEMENT in reading/language arts from fall to spring	Primary Source of Data on Improvement:		
		Grades/ Course marks?	Assessment/ Test Scores?	Teacher Surveys
Lanai High and Elementary	100%	✓	☐	☐
Pukalani Elementary	95%	✓	☐	✓

Exhibit 17: Performance on KPI Objective 4 – Academic Improvement in Math

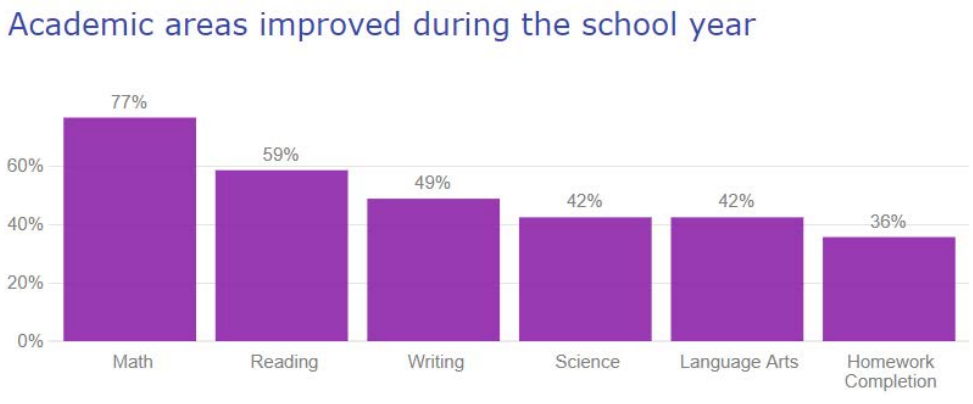
Objective 4.2: Participants in 21st Century Community Learning Centers will demonstrate academic improvement in math.				
Center	Percentage of regular program participants with IMPROVEMENT in math from fall to spring	Source of Data on Improvement:		
		Grades/ Coursemarks?	Assessment/ Test Scores?	Teacher Surveys
Maui Waena Intermediate	75%	✓	☐	☐
Lahaina Intermediate	88%	✓	☐	☐
Lokelani Intermediate	69%	✓	☐	☐
Lanai High and Elementary	100%	✓	☐	☐
Pukalani Elementary	100%	✓	☐	✓

KPI Objective 4 Discussion

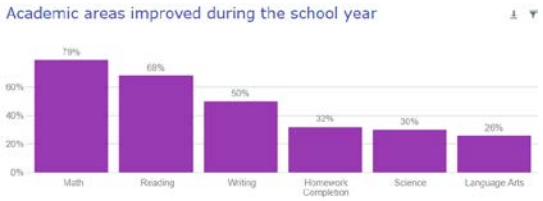
Please describe particular successes or challenges related to KPI Objective 4.

For each middle school site, teachers were asked to document specific fall and spring grades in ELA, Math and Science. For elementary school, since grade reports are more complex/qualitative than middle school percentage or letter grades, teachers compared students fall and spring grades/academics for K-5 students and the results were surveyed for each child.

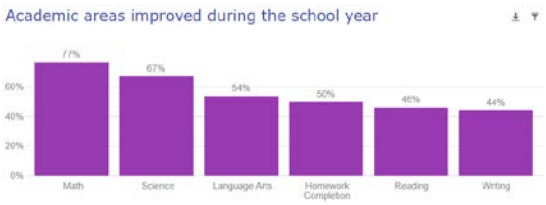
Additionally, in the final quarter, students were surveyed and asked to identify areas that they felt they improved. Overall, 36% of students felt that they have improved in homework completion. 77% of students identified that they improved in math and 42% believed they improved in science. 42% believed they improved in Language Arts (reading and writing). 59% of students assessed themselves as improved in reading and 49% as improved in writing.



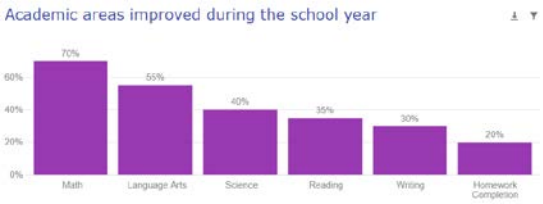
Pukalani ES:



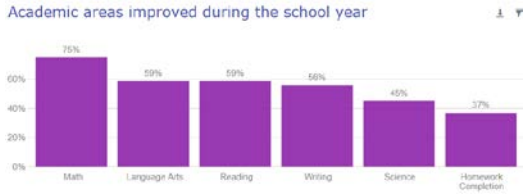
Maui Waena



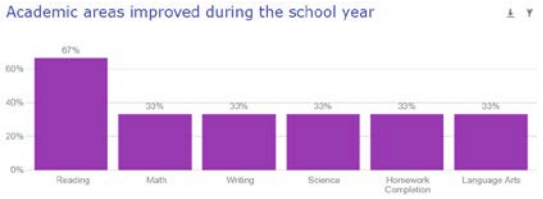
Lahaina Inter



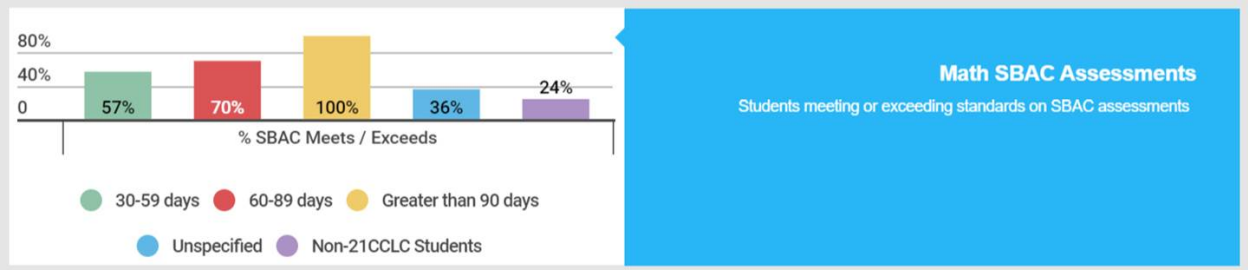
Lokelani Inter

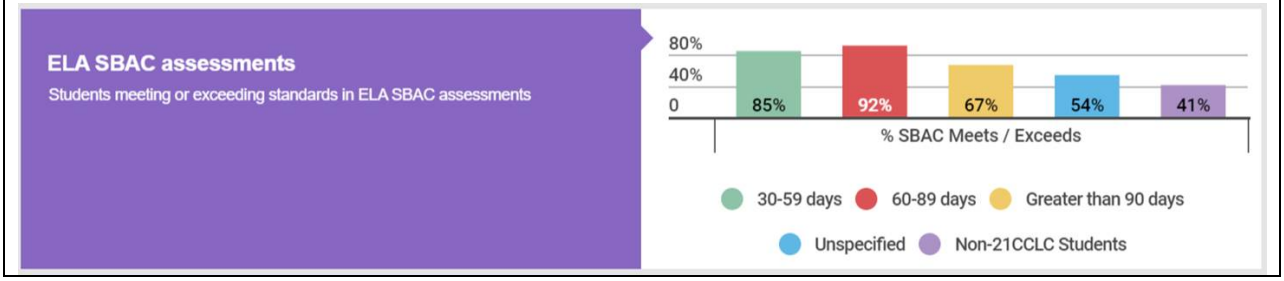


Lanai High and Elementary



Data on standardized testing from the HI DOE shows program participants in MEDB's programs out-performing non-participants.





4.B.5 Achievement of Program-Specific Objectives

Please describe achievement of the program-specific objectives described earlier in Section 3.B.2.

1. **Objective** - State the specific measurable objective
2. **Measure** – state the type of data collected to measure this objective

3. **Results** - Summarize evaluation findings related to this objective
4. **Met/Not met** – for each objective specify one of the following:
   - Met
   - Not met
   - Progress
   - No progress
   - Unable to measure

Exhibit 18: Progress on Program-Specific Objectives

Objective	Measure	Results	Met/Not Met
70% of students with room to improve will improve ELA, Math, and Science grades.	Teacher Grades	Students attendance vs. improvement in ELA, Math, Science improvement: 30-59 days- 81%, 81%, 82%; 60-89 days- 86%, 83%, 90%; 90+ days- 83%, 100%, 100%	Met
70% of students will self-report improvement in ELA, Math, and Science	Student surveys	77% of students identified that they improved in math and 42% believed they improved in science. 42% believed they improved in Language Arts (reading and writing). 59% of students assessed themselves as improved in reading and 49% as improved in writing.	Progress
80% of students express interest in STEM careers	Student surveys	91% of students identified a STEM career or interest.	Met
80% of students self-report use and mastery of elements of engineering design process (EDP).	Student surveys	Out of 10 EDP elements, 8 had students reporting 81-86% use.	Met
90% of students express confidence in their abilities to complete tasks and achieve goals	Student surveys, Teacher Survey	70-86% of students report success in these areas	Progress
90% of students recognize and act on their responsibility for building collaborative teams.	Student surveys	80% of students report success in this area	Progress
70% of program families participate in at least one program activity.	Program attendance logs	84% of parents attended hands-on STEM engagements with student presentations.84% of parents attended hands-on STEM engagements with student presentations.	Met
70% of families engage with student progress.	Parent Surveys, Student surveys	85% of students talk to their families about STEM projects/activities.85% of students talk to their families about STEM projects/activities.	Met

Achievement of Program-Specific Objectives Discussion

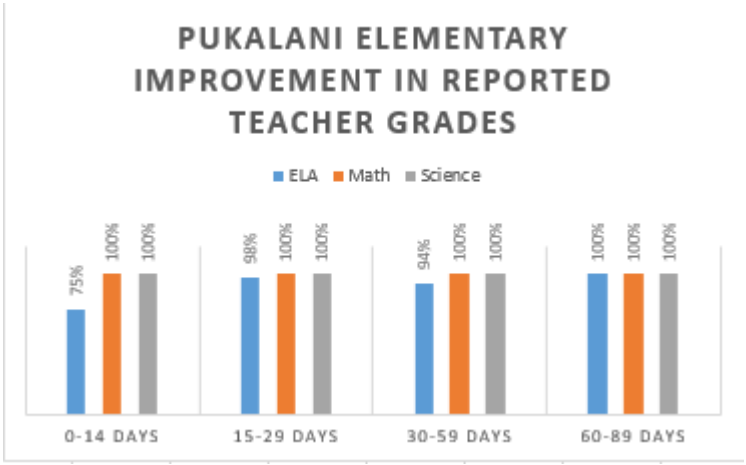
Describe whether objectives have changed since last year and particular success and challenges in meeting program-specific objectives.

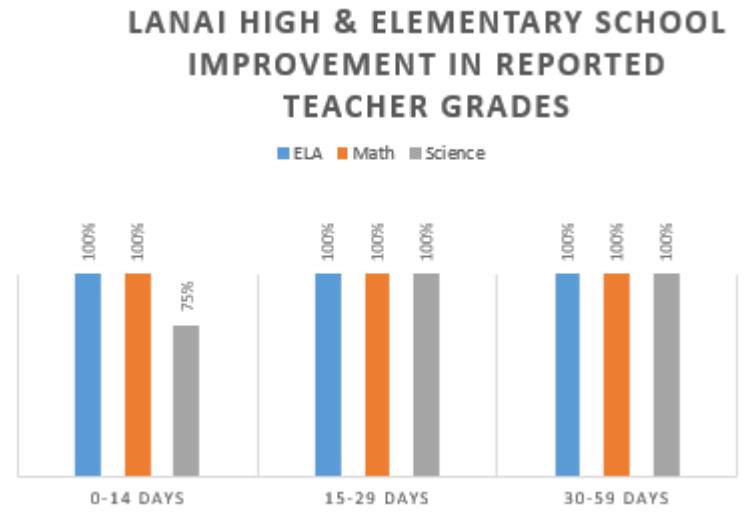
Mid-year, the program began to utilize a new tool that allows for interactivity and sharing of data with the community via Qualtrics, an industry recognized data management software. Community can click on each graph or school to view interactive data from the culminating student survey for STEMworks AFTERschool here:

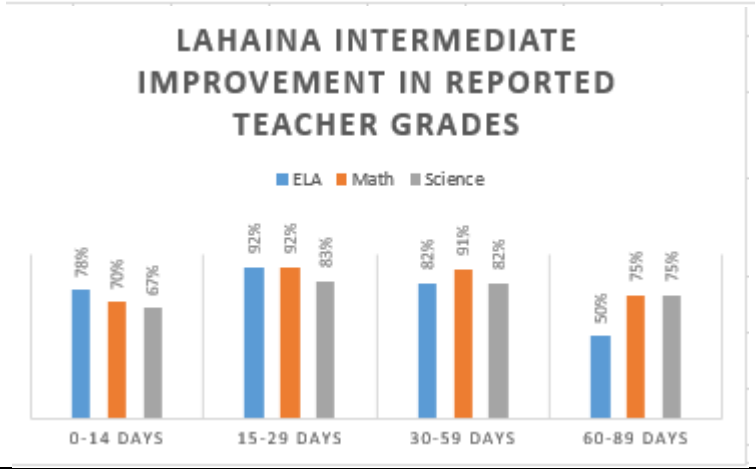
1. Website: https://www.qualtrics.com/login/

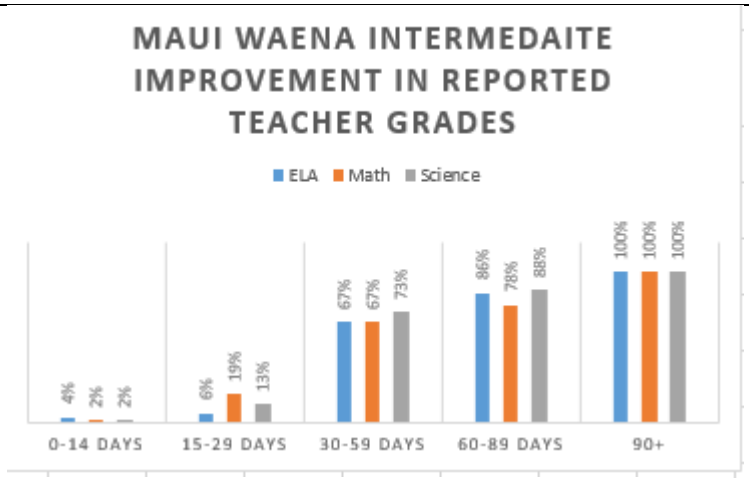
2. Login:stemworksdashboard@gmail.com
3. Community Share Password: stemworks

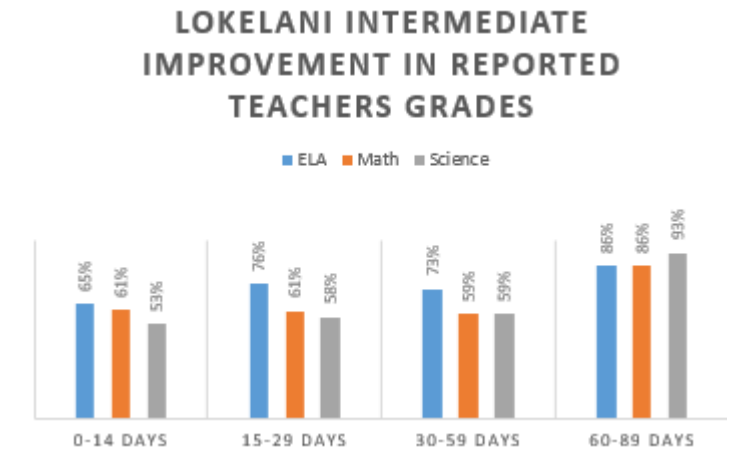
70% of students with room to improve will improve ELA, Math, and Science grades.







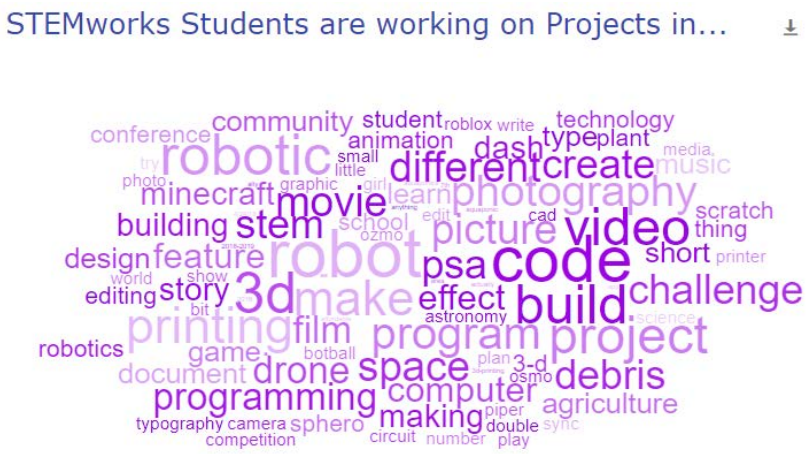


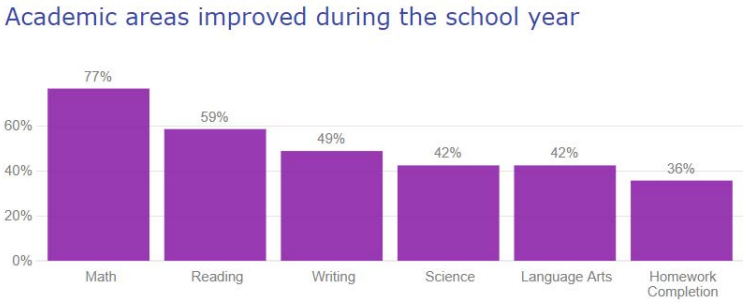


Students' "soft" skills also support their academics. Students were surveyed to identify areas of "improvement in self." Students assessed themselves as improved in making friendships, confidence, positive attitude, learning more quickly, leadership and self-motivation. More than a third of students identified assessed themselves as having increased empathy for others and had improved perseverance. Overall 100% of students self-identified a variety of personal 'self-improvements'.

Goal: 70% of students will self-report improvement in ELA, Math, and Science

Students engaged in multidisciplinary projects and activities cross subject areas during STEMworks AFTERschool. They practice math concepts in CAD and video editing and graphic design. They practice reading through applied research to solve problems. They write scripts and edit work. They practice science through utilizing engineering design practices. This variety of STEM exposure is meant to build application of academic skills. The word bubble infographic provides a snapshot of the varied projects and activities that students engaged in during quarter four of 2018.





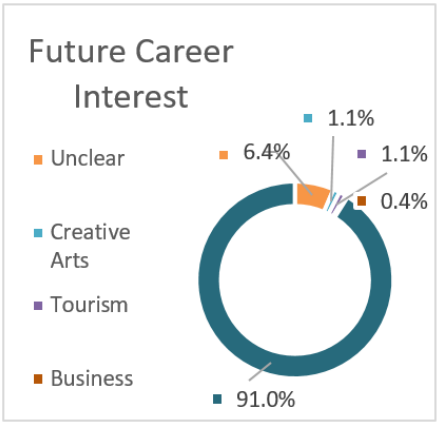
Overall, 77% of students self-identified improvement in math. 42% self-identified improvement in science. 59% of student identified improvements in reading followed by 49% identifying improvement in writing. However, ELA was scored at 42% (which may mean that there are groups of students that view the skills of reading or writing as disconnected from the subject of language arts). For all attending students (≥1 attending day) the chart below outlines comparisons between student 'confidence' in their academic improvement as compared to teacher reported grade improvements by site.

	Math		**Science**		**ELA**		**Writing**	**Reading**
School	Student	Teacher	Student	Teacher	Student	Teacher	Student	Student
Pukalani Elem.	79%	100%	30%	100%	26%	96%	50%	68%
Maui Waena*	77%	46%	67%	50%	54%	48%	44%	46%
Lokelani Inter.	75%	63%	45%	60%	59%	71%	56%	59%
Lahaina Inter.	70%	80%	40%	75%	55%	78%	30%	35%
Lanai High and Elem.	33%	100%	33%	83%	33%	100%	33%	67%

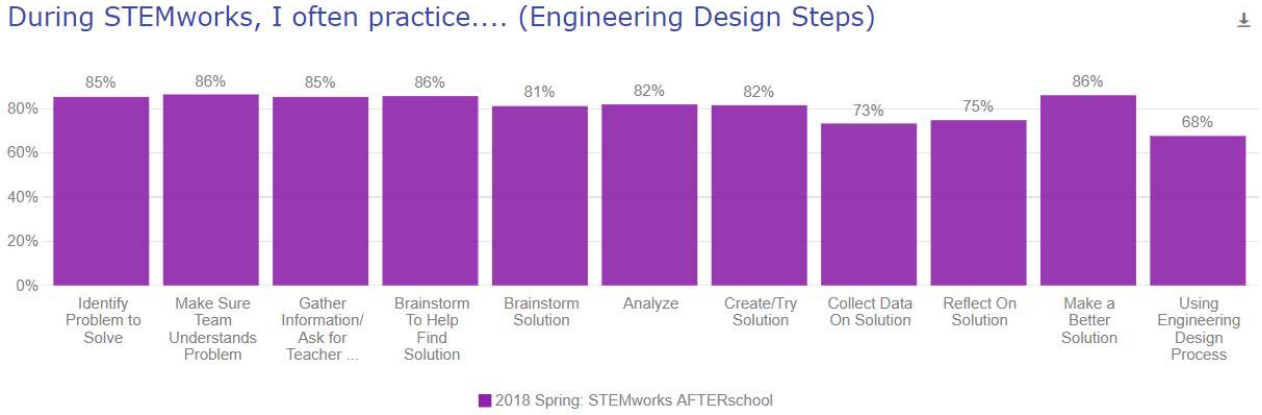
*Note Grades for 31 students were not able to be obtained for Maui Waena due to not accessing grades of students attending fewer than 30 days. Students were automatically classified as needing improvement in grades and not improved. This means actual improvement for Maui Waena's grades may have been higher.

Goal: 80% of students express interest in STEM careers

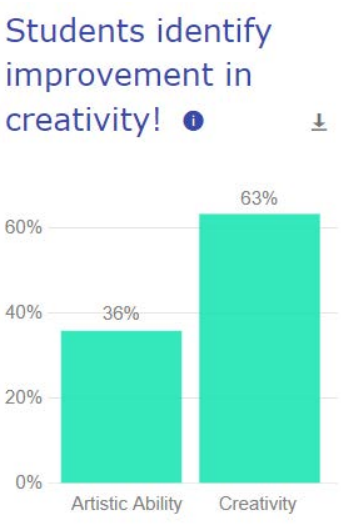
91% of participating students identified a STEM career of interest. As in prior years, there appears to be a correlation between the variety of offerings at a site and the variety of student career pathway choices, suggesting there is value in providing students with a wide variety of STEM opportunities that will help grow their future interest in a wide variety of STEM fields.



Goal: 80% of students self-report use and mastery of elements of engineering design process Overall 81% to 86% of program students report using elements of the engineering design process, especially in making a solution better and brainstorming to find solutions. Fewer students (73%-75%) report collecting data and reflecting on solutions. Interestingly, students show a disconnect between "Using the Engineering process" and using its elements/parts.



Additionally, to be able to solve problems and apply the engineering design process, students need to be able to use their creativity. Often, final touches on a project include creative 'artistic' elements. Adding to this, students need to be able to use/apply technology and learn new technology for their solutions. Therefore, engineering design elements also include aspects of the arts/creativity as well as technology use and learning.



90% of students express confidence in their abilities to complete tasks and achieve goals; work well and collaborate with others on a team Data is collected within a series of survey questions about being successful and responsible team members. 76% of students say that they improved

on being “self-directed and focused” and 78% say they are able to “complete tasks and goals on projects.

Students rate their self-responsibility to contribute to a team.	
I do my fair share of work	80%
I am able to complete tasks and goals on projects	78%
I like to be a leader	72%
I can explain my own ideas and opinions	74%
I listen carefully to the ideas and opinions of others	80%
I am self-directed and focused	76%
I feel confident in myself	74%
I work cooperatively with others on my team	80%
I am responsible for trying my best	86%
AVERAGE	**77%**

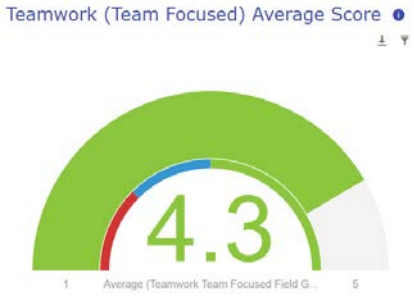
The ‘Me’ and ‘We’ of collaborative Teams:
Program examines the interplay of students working through self-responsibility to contribute to their teammates, as well as their teammates responsibility back to them. For example, in the quote below, a student is beginning to see the value of not working alone by identifying that they need to hear other’s opinions. *“It is easier to make a decision when you work alone because no one will disagree to your idea but it will be better when you work with a team because we can hear their opinions,”* Lokelani, Grade 8, and a Maui Waena 7th grade student explained, “One thing I learned during working in a team is that I learn how to look at both perspectives and mostly understand their points.” Another Lokelani student was learning that good teams are made up of a variety of people with different skills: “I learned that working with other people is better than working with just your friends because you get to learn everyone skills. Furthermore, a 7th grade Lahaina Intermediate student shared how teams can change their mindset, “I learned everyone has different thoughts and opinions that can change the way I feel and what I think.”

A series of questions were asked to determine student’s ability to ‘recognize and act’ on their responsibility to a team. All students recognized abilities to act on their responsibility to their team, but with varying levels of dependability. Overall, students rated they did so 77% of the time, with being responsible for trying my best at 86% of the time, followed by working cooperatively, listening to ideas and opinions of others, and doing fair share of work at 80% of the time.

Students rate their self-responsibility to contribute to a team.	
I do my fair share of work	80%
I am able to complete tasks and goals on projects	78%
I like to be a leader	72%
I can explain my own ideas and opinions	74%
I listen carefully to the ideas and opinions of others	80%
I am self-directed and focused	76%
I feel confident in myself	74%
I work cooperatively with others on my team	80%
I am responsible for trying my best	86%
AVERAGE	**77%**

A series of question were asked to determine student’s readiness of responsibility to support others on their team. Overall students rated that they engaged in bahaviors that supported

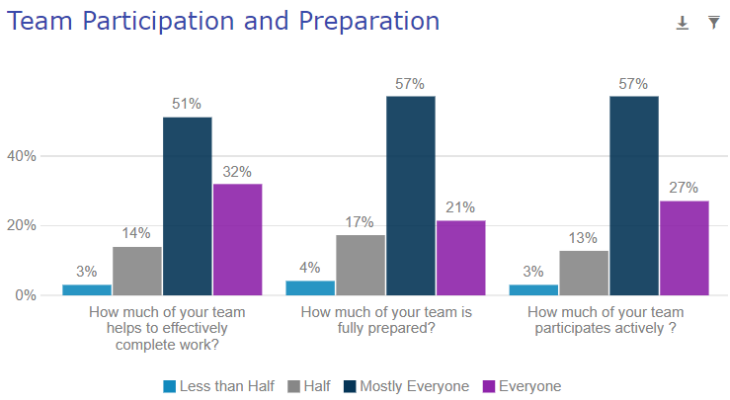
others 87% of the time, with team encouragement and coorperative working occuring 89% of the time.



Students Rate their Resonsibility to Support Others	
I work cooperatively with others on my team.	89%
I am responsible for being helpful to others.	88%
I encourage and support my teammates to do their best.	89%
When my team has a problem, I can talk it out and compromise.	80%
AVERAGE	**87%**

Effective Work completion, Team Participation & Preparation

Part of working as a team is effective work completion, preparedness and participation. Students rate their team participation and preparation in the following graph, overall students report that about 80% of the time (most and all) of their teammates show readiness in these three areas. A Maui Waena 8th grade student explained, "Something that I have learned from my team that I know I would not have learned from working alone is that with more effective and working people in your group, the more good ideas will be generated and the project will turn out even better."



Goal: 70% of program families participate in at least one program activity.

The program has a multi-pronged approach to include families, especially since many family's work and not all families may be able to attend engagements. Initially, upon program entry in the fall semester, parents are invited (and reminded) to complete either a paper or digital survey in order to provide input into the program and their child which will be used to improve program. Then parents are invited to STEM family engagements throughout the year, where students present, share and teach parents (and siblings) how to do/make/build something or share their STEM project work. Additionally, students are encouraged to share with their families about their projects and work in the program, to engage in conversation about STEM at home. See **Parent/Family Services Discussion** above.

4.C. ADDITIONAL DATA

4.C.1 Success Stories

Maui Waena

- Student was selected as one of 20 students in the nation to participate in the Student Reporting Labs Summer Academy. She was recognized at this academy as one of the most skilled and hardworking students, and her work appeared on the PBS Newshour site. https://studentreportinglabs.org/article/pbs-newshour-announces-2018-student-reporting-labs-academy-fellows/
- Students in robotics placed 2nd overall at the state Botball tournament, losing only to the reigning international champions. Over the grant program, the students' skills as well as their ability to mentor incoming new students in robotics has grown significantly. The larger space in the new classroom (used in 2017-2018) allows for the robotics field to remain set up, which significantly supports the ability for daily practice within the program. Year long mentorship was also supported by an electrical engineer https://www.youtube.com/watch?v=C3ABHlGzuv8 (video created by MWIS students).

Lokelani

- Student and her project partner were inspired by an astronaut they met at the AMOS student space day who challenged them to create a prototype robot to clear space debris. These two girls worked all school year on designing a prototype using TinkerCAD, 3D printer, and Vex IQ equipment. These students presented their work at the Hawaii STEM conference in front of many professionals and were complimented on their hard work and design.
- Student has become a superior peer supporter (mentor) for many students in the STEMworks program in public speaking and presentation skills.

Lahaina

- A student who had been home-schooled for two years, in part to escape bullying, came into the program and found it a safe place. He regularly attended and was friendly with many of the other students. He became very interested in 3-D printing and took a leadership role in this area. He was chosen to go to the Hawaii STEM Conference and was one of three presenters during the Student Spotlight segment.
- A student who has participate for over two years has built up his skills and perseverance over time, and using his curiosity to help other students and his teacher in troubleshooting technology. He has become very good at looking at different ways to solve problems and has helped find solutions for the 3D printer, 3Dpens, and other tech supplies. He is great at using google to find solutions and has good ideas for temporary fixes on some supplies.

Pukalani Elementary

- One of the STEMworks students was painfully shy. She would never speak up on her own, and when asked to, she would do so in a very quiet voice. After a year in Movie Making, she blossomed into a confident child who took leading roles in the productions and initiated conversations.
- Another student encountered trauma in life at a very young age. For over several years he has been in and out of the classroom, unable to function with his peers, teachers, and other adults on campus. With the help of an EA, teachers, and a class full of welcoming students, he was able to make his way back into the classroom environment during this year. He got up the courage to attend robotics. Rules and

expectations were set at the beginning of the class and teamwork and perseverance was expected and fostered. He flourished in this environment and made great contributions to the discussions of finding solutions to a current problem in his community. Along with his team, he worked together to design and build a robot that could complete tasks that were given to the participants. This student enjoyed the two week try-outs and went on to participate in the summer 2018, three week robotics camp and did well there, also. To this day, he continues to want to be part of his mainstream classroom and is able to function along-side his peers for most of his academic classes.

Lanai High and Elementary

- With the guidance and help of a student who has been in the program since 2014, and thus built knowledge and skill over time, all students have been reviewing all class and drone regulations so they can fly the drones with him. Over the past 3 years he has become one of the best Pilots at the age of 9. He continues to better his flying skills and demonstrates what the drone can do for the class. He is patient and takes turns sitting with each new student to answer questions or explain something in further detail to help get them up to speed. He has developed leadership and mentoring skills at a very young age.

- Students have become excellent teachers to each other. An 8 year old student, new to the STEMworks afterschool program, stands out in peer mentoring daily. He helps everyone with homework as well as STEM activities. He is always very positive and encourages all other students to do their best. During THINKit classes he visits with all the other students throughout the class to helps them to completes each level or step of the project. He also assists with keeping everyone on track and even on time when they get distracted.

4.C.2 Best Practices

Based on several years of implementation and data, best practices include:

A layered approach to implementing STEM projects and engineering design in programs. As the program matures, so do the skills of both students and teachers. It takes time to develop and grow a successful program.

(1) The introductory year is an exploration where both teachers and students develop the skills and expectations of a student-centered engineering design program. In addition to learning via a process of research, design, testing, and redesign, all of the software is also new. It takes time to build both group skills and process-based problem solving for both students and teachers. The program is also new to parents, and developing a community understanding of STEM lays a foundation for valuing the kind of learning that takes place in the program. Students showcase their skills, since this builds ownership of learning and demonstrates growth in personal confidence. Administrators can help bridge connections to careers and academics for families.

(2) The second year is a blend of experience levels. Year 1 of a program builds competency, confidence and a community that values STEM learning- creating a group of emerging mentors (both students and teachers), and also attracts new students and teachers to the program. In the classroom, what took a semester to get into a 'groove' in the first year may take only a month. This is because there is a group of students who already know the routine of the engineering design process. Pairing 2-3 returning students with 1-2 new students in engineering groups is very helpful. If possible, allowing more overlap with site coordinators or even year 2 teacher with new teachers will also help. Year 2 allows for more depth. New students in year 2 will learn faster than the year 1 students did, this is because of classroom groupings, students will learn from each other. In year 2 the teacher moves to spend more time supporting and monitoring and directing small groups in a facilitator role and spends less and less time with whole classroom direct instruction. Students spend more time on doing their own research, since the complexity of projects increases (there are students that have used the software in year 1 and are familiar with the design process). It can be compared to a classroom that moves from deciphering letters and words and can now focusing on comprehension. Year 2 is very focused on internal mentorship, but is a solid place to build lasting community partners, and with more connections with parents, volunteer numbers grow.

(3) In year 3, program develops into three experience levels: introductory, emerging and advanced. As the scope and focus of instructors in specific STEM programs becomes more defined, it is easier for the program to connect with meaningful partnerships, which may even include industry instructors, since both students and teachers functioning at a higher level regarding the expectations of the program, the engineering process of completing projects, and management of student led STEM activity.

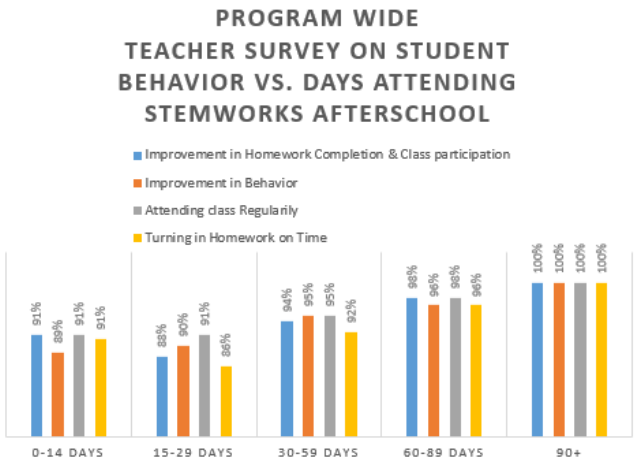
4.C.3 Student, Teacher, Parent, Staff or Community Input – ***[if you used survey(s) please include instrument as an attachment and include results in the narrative.]***

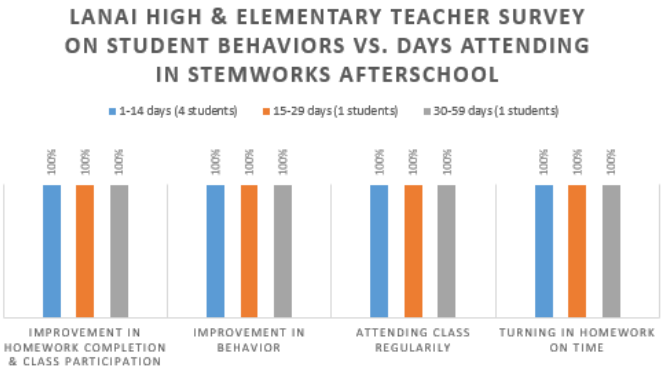
At the beginning of each program year both parents and students are surveyed to inform program focus, which includes support needed for academics, homework, and a variety of career and professional skills within a variety of STEM offerings. Teachers meet to organize STEM class schedules, informed by the relative popularity of program offerings the previous year. In addition to continuing popular content, sites sometimes offer new classes based on availability of industry partners or volunteers that may be able to teach STEM specialties. Some data graphs from the Fall 2017 parent/student entry survey data are shared in this report. *See Appendix B for Parent and Student Program Entry Surveys.*

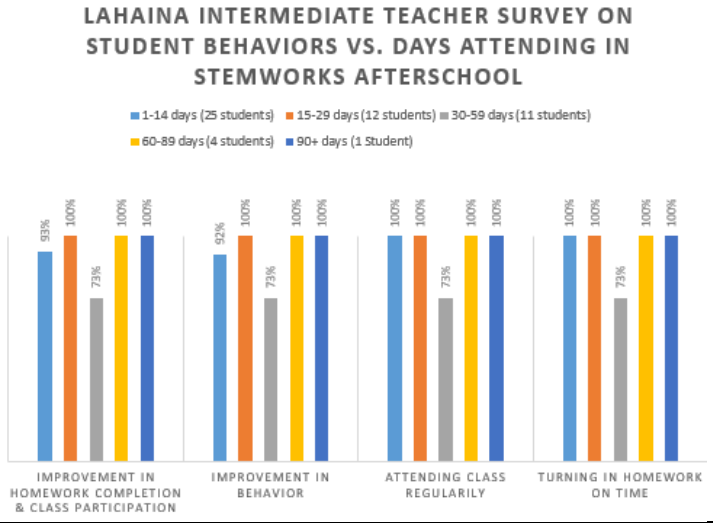
Midyear, teachers document Fall grades in math, ELA and science for program students. At the end of the year, teachers document grades again in these three subject areas. Any grade improvement from semester 1 to semester 2 is counted as a 'positive mark'. If students maintained an A, they also counted as a positive mark. If student's grades were less than an A and remained the same or decreased at all, then this counted as a 'negative mark'.

In quarter 4, an end of year survey is given to program students, data from this 2018 student survey is shared within this report. Additionally, a general education Math or ELA teacher is

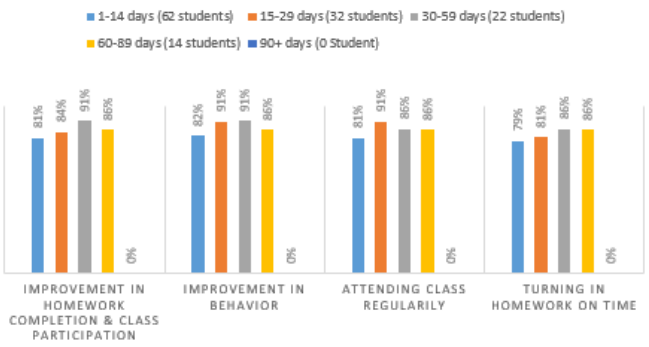
surveyed for each program participant using the “End of Year Teacher Survey” (See Appendix C). Results from these surveys are shared with sites to improve program for the following grant implementation year.



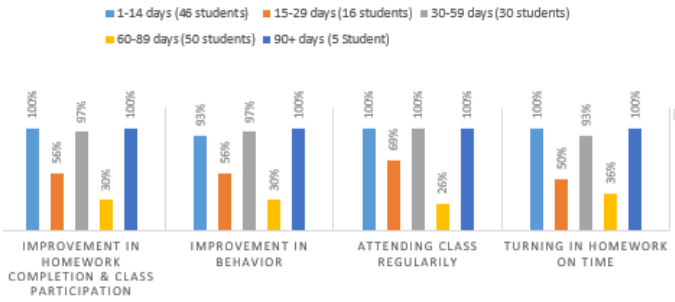




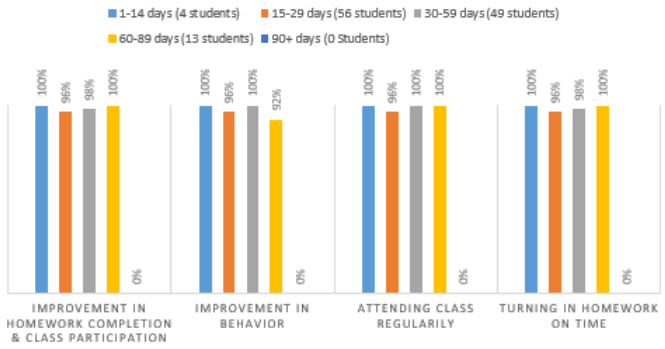
LOKELANI INTERMEDIATE TEACHER SURVEY ON STUDENT BEHAVIORS VS. DAYS ATTENDING IN STEMWORKS AFTERSCHOOL



MAUI WAENA INTERMEDIATE TEACHER SURVEY ON STUDENT BEHAVIORS VS. DAYS ATTENDING IN STEMWORKS AFTERSCHOOL



PUKALANI ELEMENTARY TEACHER SURVEY ON STUDENT BEHAVIORS VS. DAYS ATTENDING IN STEMWORKS AFTERSCHOOL

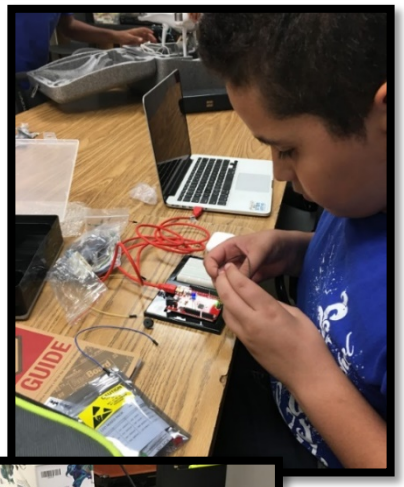


4.C.4 Pictures

Feel free to share any pictures you might have that show your 21st Century Community Learning Centers in progress.

Pukalani Elem (PES) Student Quotes:

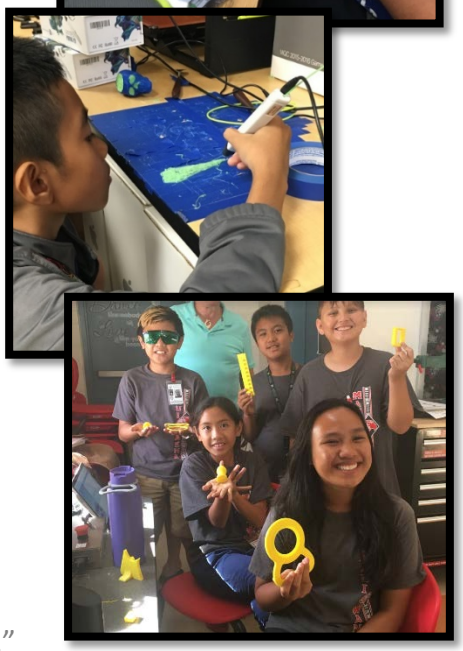
"I learned that sometimes other's ideas turn out to be the best ideas" – Grade 4
"I learned that team work involves everyone." Grade 3
"Even the silliest sounding ideas can work." – Grade K
"I think if we stayed focused, we could test many things to find the best options." –Grade 4
"One thing that I helped others in a positive way is to encourage them in a way that they can do it" –Grade 3
"If someone could not figure out why something didn't work, I would try my best to help them understand" -Grade 4



Because of my participation in STEMworks, I know value or care more about… "The design process and what it takes to be a successful team member (Grade 5)", "School and my work (Grade 4)," "My younger classmates and making sure they are ok (Grade 5)", "Friendship and how people can be partners and work together (Grade K)", "My reading and writing (Grade 1)", "Researching and using information for presentations (grade 4)".

Lahaina Inter (LIS) Student Quotes:

"I learned everyone has different thoughts and opinions that can change the way I feel and what I think." – Grade 7
"(From me) they learned how to cooperate and work as team to make better quality of good work or project. – Grade 7
"I have helped others in a positive way by complimenting on things they have created and keep encouraging to try their best." Grade 7



Because of my participation in STEMworks, I know value or care more about… "0ther people's feelings (Grade 6)", "Other's opinions (grade 6)", "Teamwork (Grade 8)", "Thinking about what I will do for the future (Grade 8)", "People's confidence (Grade 7)", "School and my education (Grade 7)".

Maui Waena Inter (MWIS) Student Quotes:

"I have helped and mentor younger ones through making videos." – Grade 8
"I taught a few people how to use Photoshop, aftereffects, and scratch." –Grade 7

“My team members learned more of how to be confident in their opinions and ideas.” – Grade 7
“I believe if we worked on our time management, we could do so much more rather that what we were able to accomplish.” – Grade 7
“I try to show kindness and positivity, along with confidence in the work” –Grade 8
“I now value determination and perseverance because of my participation in STEMworks.”- Grade 7
“I help others by always being kind and friends with them and by teaching and improving their technology skills effectively” – Grade 8

Because of my participation in STEMworks, I know value or care more about… “Others and their goals. How one person is key to a successful group of people (Grade 8)”, “I care about quality (Grade 7)”, “I care more about people's stories being told. truth in news. (Grade 8)”, “I care more about group work and the importance of working hard. (Grade 7)”, “Doing my school work and home work (Grade 7)”, “time management (Grade 6)”, “I now value or care more about my communication during team projects and how I respond. I also care more about organization than before. (Grade 7)”.

Lokelani Inter Student Quotes:
“I taught my team how to speak in from of people without being nervous” – Grade 6
“I learned from my team how to adjust to different circumstances”- Grade 6
“I have helped others by using my stronger skills that they didn't have to help them” –Grade 8
“I have helped people in a positive way by telling someone the steps of what they need help with slowly so they can process the information slowly so they can understand it.” –Grade 6
“I care more about how science and math can help people in everyday situations.” Grade 7

Because of my participation in STEMworks, I know value or care more about… “My academics- Grade 7”, “I now value teamwork more than ever (Grade 8)”, “Listening the opinion of my teammates (Grade 8)”, “Since I am in stem works right now it makes care more about my future job and what I want to be when I get older.(Grade 6)”, “My community (Grade 7)”, “I now care more about my team, and how we all contribute to our projects (Grade 6)”.

Lanai High and Elem (LHES) Student Quotes:

"I helped my 3D Design class learn how to use TinkerCAD."- Grade 6

"I learned how to replace the motor on the drone." – Grade 2

"I care more about finishing my school homework" – Grade 6

5. Sustainability Plan

5.A ORIGINAL SUSTAINABILITY PLAN

Describe the original sustainability plan as indicated in the grant application.

The original plan to sustain the program beyond the initial award period was for MEDB and partners continue to build a strategic plan that would leverage the funding from its STEM core budget, which includes MEDB personnel costs. This core funding was intended to be buttressed by MEDB's *Ke Alahele* Education Fund. MEDB planned to foster ongoing collaborations with its extensive network of industry partners to continue pro bono training, mentoring, career shadowing opportunities, engage program participants on the advantages of staying in the higher education STEM pipeline, and ongoing technical assistance in developing aspects of the program's career-focused curriculum. MEDB relied on remaining a dedicated line item in the Maui County budget, and planned to direct some of this annual funding to support the AFTERschool program continuation, and to retain staff.

MEDB relied on national partners Trimble Sketchup and ESRI Geospatial software to maintain their agreements and continue to provide free resources to program participants. DOE school partners agreed to maintain the campus dedicated space to continue the afterschool delivery. MEDB pledge to continue to cultivate prior participants and train them as mentors for future participants.

5.B UPDATED SUSTAINABILITY PLAN

Describe how programming levels will be sustained after the grant ends, including:

- What changes were made from the original sustainability plan?
- What community partners have been added?
- What community partners have dropped off?
- Describe any additional funding sources.

Our updated plan to sustain the program beyond the initial award period is to continue leveraging our funding from our STEM core budget (federal, state, county, and private funding), which includes MEDB personnel costs. MEDB will continue fostering ongoing collaborations with its extensive network of industry partners to continue pro bono

training, mentoring, career shadowing opportunities, engage program participants on the advantages of staying in the higher education STEM pipeline, and ongoing technical assistance in developing aspects of the program's career-focused curriculum. MEDB continues to be a dedicated line item in the Maui County budget, and plans to direct some of this annual funding to support the AFTERschool program continuation, and to retain staff.

MEDB relies on national partners Trimble Sketchup, Code.org, Microsoft, Apple, National Geographic, ESRI Geospatial software to maintain their agreements and continue to provide free resources to program participants. DOE school partners agree to maintain the campus dedicated space to continue the afterschool delivery. MEDB pledges to continue to cultivate prior participants and train them as mentors for future participants.

In addition to our national partners, MEDB has nurtured a number of new Hawaii based partners, which have a direct impact on our AFTERschool program. These partners include the CIO Council, Pacific Center for Advanced Technical Training (PCATT), CSTA, Hawaii based technology/energy/agriculture companies, NOAA, HSTA, and more. Creating a pathway from career exposure, career exploration, internships, and eventually college/and or career readiness is the goal.

The staffing of individual community staffing volunteers varies each semester based on the shifting availability of those individuals. See the Partnerships section of 3.E.2 section on Resources, and 3.G. Partnerships above.

6. Conclusions and Recommendations

6.A CONCLUSIONS

- The program effectively engaged the intended participants.
- The program provided high-quality services supporting core subjects, including math and science education and reading.
- The program provided high-quality, hands-on, technology-based enrichment activities to participating students. Site observations; surveys of students, parents and teachers; planning meetings with teachers and administrators, and consultation and collaboration with community partners, all indicate that the program activities are useful, relevant, interesting, valuable and engaging.
- The program met expectations regarding the delivery of family engagement activities.
- The program excelled at involving community partners (private business; federal, state, and county government, institutions of higher learning) and generating in-kind donations of personnel hours or software.
- Now that the program is in its third year, there is an appreciable benefit to the program deriving from experienced teachers, and also from experienced students who can function as mentors and elevate the overall sophistication of program offerings.
- Based on the self-reporting of students, program participants at all sites benefitted in a wide range of academic and job-readiness and life skills.
- The program is meeting or exceeding expectations for improving student performance in the areas of classroom participation, homework completion, turning in homework on time, classroom behavior, and attendance. 100% of students participating 90 days or more showed improvement in all of these areas.
- In every participant school, teachers report marked improvement in participants' school day performance in the core subjects of math, language arts, and science. The available data shows program-wide impacts of improvement as follows: 69-100% math, 78-100% ELA. Data on standardized testing from the HI DOE shows program participants in MEDB's programs out-performing non-participants.
- Within the population of students participating in MEDB programs, the achievement gap typically present between SED and non-SED students was overcome.
- In addition to meeting or exceeding 21st CLCC standards for program success, the program met its self-created, program-specific objectives regarding teacher-assessed academic improvement, student interest in STEM careers, student perceptions of mastery of the engineering design process, and family participation and engagement. The program is still working towards meeting its program-specific objectives regarding student self-assessed academic improvement, confidence in their abilities to complete tasks and achieve goals; work well and collaborate with others on a team.

6.B RECOMMENDATIONS FOR PROGRAM IMPROVEMENT

It is recommended that the program:

- Continue to increase the challenge/sophistication level of STEM offerings so that experienced students can move beyond the initial skill-building orientation of prior years.
- Continue to experiment with the balance of program reach (number of students) and curriculum depth at programs where demand outstrips capacity.
- Experiment with providing students more feedback on their improvement and see if that brings their self-assessments more into alignment teacher assessments.
- Adjust the data collection on family engagement to allow for reporting on the percentage of students who have family members attend (vs. simply the total number of family member engaged).
- Evaluate the sustainability of continuing MEDB programming on Lanai in planning beyond the 2018-19 program year and the possibility of the need for culturally specific outreach.

To support continuous improvement and ensure program quality, it is recommended that:

- The program continues to implement its evaluation plan as structured.
- And that summarized data from survey instruments from each site continue to be shared with all staff from the respective site during informal site visits so that this information can shape the program and its delivery, including by further revising data collection instruments to best serve the goals of the grant and the individual sites

6.C EVALUATION DISSEMINATION

This full report will be distributed to the school principals and site coordinators of each participating school. The executive summary and a summary of resources devoted will be further disseminated via the Women in Technology website, as well as emails to the parents in each school community, and via flyers sent home with students and distributed at future family engagement nights, and meetings with community partners.

"By the Numbers" is a community flyer to be distributed at 21st CCLC STEMworks AFTERschool Family Engagements & emailed to families, Women in Technology's community events, to Maui Economic Development's Board of Directors, posted on STEMworks website, included in Women in Technology's e- newsletter to community- which includes teachers, administrators, parents and legislators.

The STEMworks website also posts updates, information and forms about program and rotates a showcase of some student work. The e-Newsletter contains monthly program updates and images of STEM activities that engage students.

All STEMworks AFTERschool Family Engagements include distribution of program information via formal presentations, program schedule flyers and personal conversations about program activities. As the year progresses, students take on a role in sharing their learning and teaching STEM program activities.

APPENDIX A: SITE OBSERVATION TOOL (Page 1 of 2)

CLCC Observation Tool

Site Name:	***Date:***	***Time:***
Observation Completed by:		

PROGRAM INFORMATION

Days open	
Hours open	
Instructors Observed	

Activity Type (Mark all that apply.)

- ☐ *Homework*
- ☐ *Tutoring (one-on-one; small group)*
- ☐ *Language arts enrichment activities (other than homework)*
- ☐ *Math enrichment activities (other than homework)*
- ☐ *Science enrichment activities (other than homework)*
- ☐ *Computer-based skill building*
- ☐ *Technology instruction (tools, Internet, research, robotics)*
- ☐ *Teacher-assigned learning games (dominos, chess, etc)*
- ☐ *Art activities (crafts, visual arts, dance, music, drama)*
- ☐ *Sports/Recreation*
- ☐ *Open, unstructured time (e.g. table games, Internet, free play)*

Type of Space (Mark one.)

- ❑ *Cafeteria*
- ❑ *Computer Lab*
- ❑ *Classroom*
- ❑ *Library*
- ❑ *Gym/Auditorium*
- ❑ *Studio*
- ❑ *Outside _____*

Participation Type (Mark one.)

- ❑ *By age/grade*
- ❑ *By interest (child's choice)*
- ❑ *By selected group (staff determined)*
- ❑ *All attendees (in program)*

Grade Levels (Mark all that apply.)

☐ K ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th
☐ *6th* ☐ *7th* ☐ *8th* ☐ *9th* ☐ 10th ☐ 11th
☐ 12th

Total Staff # ***Total # of Areas/Courses being led:***		***Areas of Staff Expertise & Number*** *Certificated Teacher____* *Degreed specialist or other professional___* *Adult family member_____* *HS Student(s) _____* *College Student(s) _____*
Total Student #	***# Boys***	***# Girls***

Describe Classroom Climate:

Students are working in groups/collaborating (check all that apply):

- ☐ **Individual work**
- ☐ **Groups of 2-3**
- ☐ **Groups of 4-5**
- ☐ **Whole class instruction**
- ☐ **Digital collaboration using _____ technologies**

APPENDIX A: SITE OBSERVATION TOOL (Page 2 of 2)

STEM Activity Snapshot: Observed During Program

<table>
<tr><td colspan="2">Areas of STEM & Tech Tools being used</td><td colspan="2">Students are practicing these skills (Circle all)</td></tr>
<tr><td colspan="2">Digital Media-
GIS-
Coding-
Drones-
Prototyping –
Circuitry-
CAD-
3-D Printing-
Other Software(s):</td><td>Communication
Homework Completion
Learning New Technologies
Perseverance
Creativity
Researching
Confidence
Self-motivated
Listening
Positive Attitude
Help/Mentor Others</td><td>Participation
Using Technology
Leadership
Building Friendships
Artistic Abilities
Logical Reasoning
Presenting
Organization
Teamwork
Empathy for Others
Staying Focused</td></tr>
<tr><td colspan="2">Describe Language Arts Alignment: (ex: reading, research, writing, revising, presenting, interviewing, sequencing)</td><td colspan="2" rowspan="2">Description of Student Projects: (topic/tools/use of EDP)</td></tr>
<tr><td colspan="2">Describe Math Alignment: (ex: algorithms, spatial reasoning, measurement, graphing, data analysis/summaries, sequencing)</td></tr>
<tr><td colspan="2">What subject areas are students being supported in/need support in for homework?</td><td colspan="2">Since last visit, has site connected with industry/ professional partners? (Name & Company)</td></tr>
</table>

Area of Excellence:

1. **.**
2. **.**

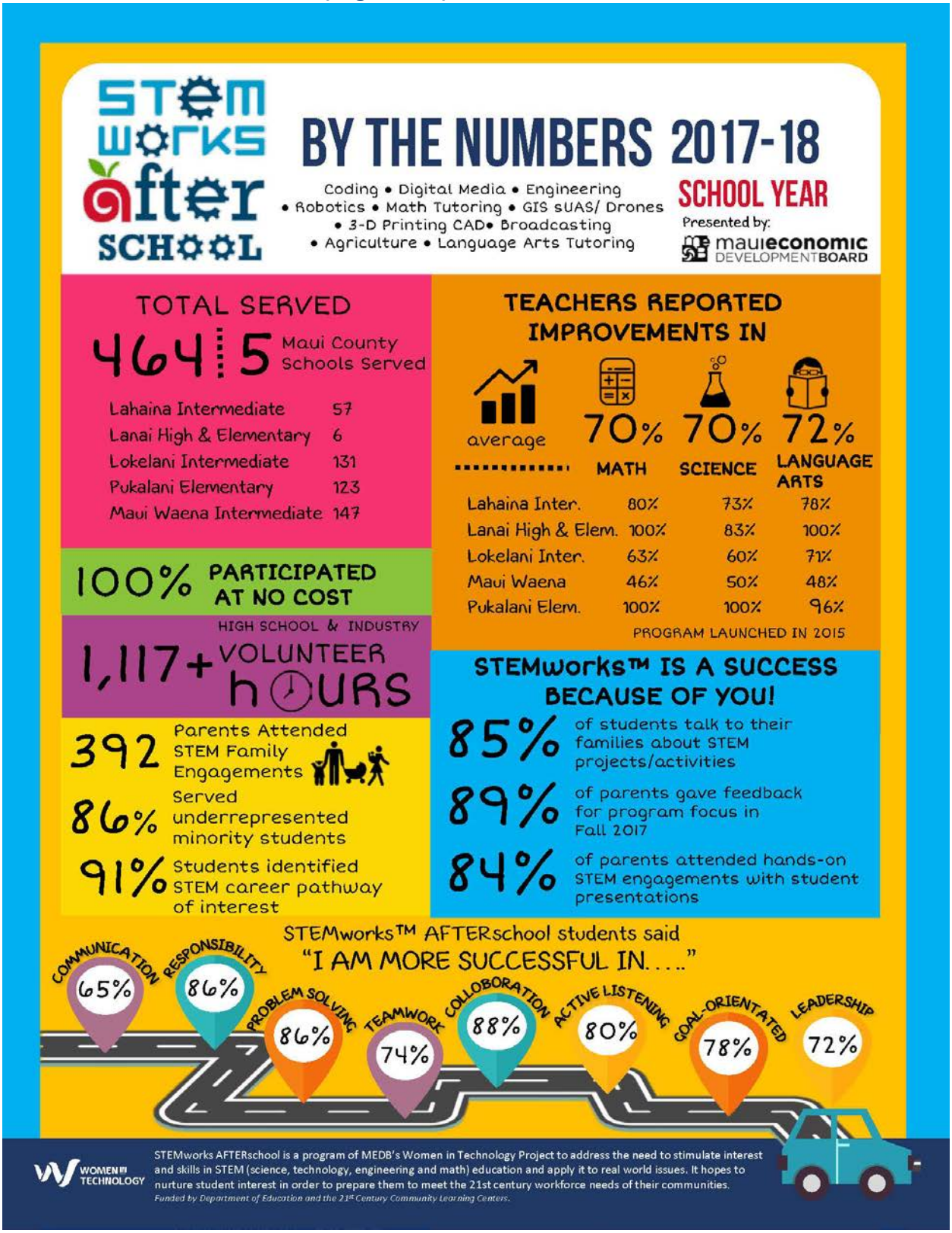
Areas of Need/Support:

1. **.**
2. **.**

Areas to Follow-up on (includes site questions):

2-3 Documentation Photos with captions:

APPENDIX B: BY THE NUMBERS (Page 1 of 1)



APPENDIX C: END OF YEAR TEACHER SURVEY (Page 1 of 1)

2017-2018 End of Year TEACHER SURVEY 21st Century Community Learning Center School: _____

Student Name (Last Name, First Name): _____ Grade (Circle): 6 7 8

Teacher Name: _____

Directions: Every student attending one day or more in 2017- 2018 school year 21st CCLC program needs a survey completed.

1. Completed by a LA or Math teacher. If participant is elementary, then classroom teacher qualifies as both.
2. Check the single box that best applies for each student. Feel free to leave feedback about student or program!
3. **Due by: May 30, 2018 & Return** to: _____ **(site coordinator)**

Teacher Reported Changes in Behavior on:	Significant Improvement	Moderate Improvement	Slight Improvement	Slight Decline	Moderate Decline	Significant Decline
Improvement in homework completion and class participation						
Improvement in behavior						
Attending class regularly						
Turning in homework on time						

Feedback for STEMworks AFTERschool program, or feedback about student in STEMworks AFTERschool program (optional):

To be completed by the STEMworks AFTERschool Office:

Student Attendance in STEMworks AFTERschool program from August 2017 to May 2018 is:

☐ *1-14 days* ☐ *15- 30 days* ☐ *30-59 days* ☐ *60-89 days* ☐ *90+ Days*

APPENDIX D: Parent Survey (Page 1 of 4)

1. Parent's First and Last Name

2. The best email to contact parent is...

3. Student's First Name

4. Student's Last Name

5. Parents Phone number:

6. Student's Grade

- ◯ Grade K
- ◯ Grade 1
- ◯ Grade 2
- ◯ Grade 3
- ◯ Grade 4
- ◯ Grade 5
- ◯ Grade 6
- ◯ Grade 7
- ◯ Grade 8
- ◯ Grade 9
- ◯ Grade 10
- ◯ Grade 11
- ◯ Grade 12

7. School Name

- ◯ Pukalani Elementary
- ◯ Maui Waena Intermediate
- ◯ Lahaina Intermediate
- ◯ Lokelani Intermediate
- ◯ Lanai High and Elementary
- ◯ St. Anthony

8. 10- Digit Student ID

APPENDIX D: Parent Survey (Page 2 of 4)

9. What are your child's strengths at school? Click all that apply.

- [ ] Math
- [ ] Science
- [ ] Language Arts
- [ ] Social Studies
- [ ] Writing
- [ ] Reading
- [ ] Communication
- [ ] Participation
- [ ] Homework Completion
- [ ] Using Technology
- [ ] Learning New Technologies
- [ ] Quick Learner
- [ ] Leadership
- [ ] Perseverance
- [ ] Making Friendships
- [ ] Creativity
- [ ] Artistic
- [ ] Researching
- [ ] Logical Reasoning
- [ ] Confidence
- [ ] Presenting
- [ ] Self-motivated
- [ ] Organization
- [ ] Listening
- [ ] Teamwork
- [ ] Positive Attitude
- [ ] Empathy for Others
- [ ] Help/Mentor Others
- [ ] Staying Focused

Other (please specify)

10. My child needs support in the following areas. Please click all that apply.

- [ ] Math
- [ ] Science
- [ ] Language Arts
- [ ] Social Studies
- [ ] Writing
- [ ] Reading
- [ ] Communication
- [ ] Participation
- [ ] Homework Completion
- [ ] Using Technology
- [ ] Learning New Technologies
- [ ] Quick Learner
- [ ] Leadership
- [ ] Perseverance
- [ ] Making Friendships
- [ ] Creativity
- [ ] Artistic
- [ ] Researching
- [ ] Logical Reasoning
- [ ] Confidence
- [ ] Presenting
- [ ] Self-motivated
- [ ] Organization
- [ ] Listening
- [ ] Teamwork
- [ ] Positive Attitude
- [ ] Empathy for Others
- [ ] Help/Mentor Others
- [ ] Staying Focused

Other (please specify)

11. How would you like the STEMworks AFTERschool program to support your child?

APPENDIX D: Parent Survey (Page 3 of 4)

12. Is your child in need of transportation in order to participate in the STEMworks AFTERschool program?

◯ Yes ◯ No

13. Parents, you are a valuable resource to students and we welcome your participation in the program through volunteering.

- ☐ I would like to volunteer regularly this coming semester.
- ☐ I would like to volunteer by being a guest speaker for students on STEM careers/opportunities.
- ☐ I am unable to volunteer, but thank you!

Please enter your email if you would like information on how to become a volunteer!

14. Select the reason(s) you signed up for the STEMworks AFTERSchool program. Click all that apply.

- ☐ Student is interested in the enrichment activities offered
- ☐ Student is interested because their friends are attending
- ☐ Student wants to meet new people
- ☐ Student needs help with homework completion
- ☐ Student needs to be challenged
- ☐ Student needs after-school supervision
- ☐ Teacher recommended program
- ☐ Parent is interested in the enrichment programs for student

Other (please specify)

15. What would your child be doing if they were not attending the STEMworks AFTERschool program? Click all that apply.

- ☐ Attending a private daycare center
- ☐ Being cared for by neighbors/relatives
- ☐ Staying home with adult supervision
- ☐ Staying home alone
- ☐ Attending a variety of other activities during the week

Other (please specify)

APPENDIX D: Parent Survey (Page 4 of 4)

16. My child has a positive attitude towards...

	Never	Sometimes	Often	Very often	Always	N/A
Attending School	◯	◯	◯	◯	◯	◯
Math	◯	◯	◯	◯	◯	◯
Science	◯	◯	◯	◯	◯	◯
Reading	◯	◯	◯	◯	◯	◯
Writing	◯	◯	◯	◯	◯	◯
Technology	◯	◯	◯	◯	◯	◯
Teamwork	◯	◯	◯	◯	◯	◯
Engineering	◯	◯	◯	◯	◯	◯
Collaborative Projects	◯	◯	◯	◯	◯	◯
Solving Complex Problems	◯	◯	◯	◯	◯	◯

17. At home, with relatives or friends, my child talks about....

	Never	Sometimes	Often	Very often
Completing Homework/Schoolwork	◯	◯	◯	◯
Earning good grades	◯	◯	◯	◯
Graduating high school	◯	◯	◯	◯
Having an internship	◯	◯	◯	◯
Graduating college	◯	◯	◯	◯
Earning a higher education degree	◯	◯	◯	◯
Working in a STEM related career	◯	◯	◯	◯

18. How did you hear about STEMworks AFTERschool? Click all that apply.

- ☐ Teacher recommended
- ☐ Email
- ☐ Word of mouth
- ☐ STEMworks website
- ☐ Flyer
- ☐ Maui News article
- ☐ Child's classmates

Other (please specify)

_____

APPENDIX E: Student Survey #1 (Page 1 of 4)

1. Student's First Name

2. Student's Last Name

3. Student's Grade

- ◯ Grade K
- ◯ Grade 1
- ◯ Grade 2
- ◯ Grade 3
- ◯ Grade 4
- ◯ Grade 5
- ◯ Grade 6
- ◯ Grade 7
- ◯ Grade 8
- ◯ Grade 9
- ◯ Grade 10
- ◯ Grade 11
- ◯ Grade 12

4. 10- Digit Student ID

5. School Name

- ◯ Pukalani Elementary
- ◯ Maui Waena Intermediate
- ◯ Lahaina Intermediate
- ◯ Lokelani Intermediate
- ◯ Lanai High and Elementary
- ◯ St. Anthony

6. Gender

- ◯ Boy
- ◯ Girl

7. Do you have Native Hawaiian ancestry?

- ◯ Yes
- ◯ No

8. What are your best strengths at school? Click all that apply.

- ☐ Math
- ☐ Science
- ☐ Language Arts
- ☐ Social Studies
- ☐ Writing
- ☐ Reading
- ☐ Communication
- ☐ Participation
- ☐ Homework Completion
- ☐ Using Technology
- ☐ Learning New Technologies
- ☐ Quick Learner
- ☐ Leadership
- ☐ Perseverance
- ☐ Making Friendships
- ☐ Creativity
- ☐ Artistic
- ☐ Researching
- ☐ Logical Reasoning
- ☐ Confidence
- ☐ Presenting
- ☐ Self-motivated
- ☐ Organization
- ☐ Listening
- ☐ Teamwork
- ☐ Positive Attitude
- ☐ Empathy for Others
- ☐ Help/Mentor Others
- ☐ Staying Focused

Other (please specify)

APPENDIX E: Student Survey #1 (Page 2 of 4)

9. What areas do you need the most help with in school? Please click all that apply.

- ☐ Math
- ☐ Science
- ☐ Language Arts
- ☐ Social Studies
- ☐ Writing
- ☐ Reading
- ☐ Communication
- ☐ Participation
- ☐ Homework Completion
- ☐ Using Technology
- ☐ Learning New Technologies
- ☐ Quick Learner
- ☐ Leadership
- ☐ Perseverance
- ☐ Making Friendships
- ☐ Creativity
- ☐ Artistic
- ☐ Researching
- ☐ Logical Reasoning
- ☐ Confidence
- ☐ Presenting
- ☐ Self-motivated
- ☐ Organization
- ☐ Listening
- ☐ Teamwork
- ☐ Positive Attitude
- ☐ Empathy for Others
- ☐ Help/Mentor Others
- ☐ Staying Focused

Other (please specify)

10. Choose the response that fits best.

	Never	Sometimes	Often	Very often	Always
I like going to school.	○	○	○	○	○
I enjoy math.	○	○	○	○	○
I enjoy science.	○	○	○	○	○
I enjoy reading.	○	○	○	○	○
I enjoy writing.	○	○	○	○	○
I study hard for tests.	○	○	○	○	○
I enjoy using technology.	○	○	○	○	○
I work well during group work.	○	○	○	○	○
I enjoy engineering.	○	○	○	○	○
I like working with a team on projects.	○	○	○	○	○
I like solving complex problems.	○	○	○	○	○

APPENDIX E: Student Survey #1 (Page 3 of 4)

11. Choose the response that fits best.

	Never	Sometimes	Often	Very often
Do you feel safe after school?	◯	◯	◯	◯
Do you get into trouble at school?	◯	◯	◯	◯
Do you feel there is an adult at school to help when you need it?	◯	◯	◯	◯
Can adults at home help you with your homework?	◯	◯	◯	◯
Do you think it would be helpful to have tutors or mentors help with homework?	◯	◯	◯	◯
Do you complete your school/homework on time?	◯	◯	◯	◯
Do you feel comfortable talking to teachers and school staff?	◯	◯	◯	◯

12. Choose the answer that fits best.

	Bad	Fair	Good	Excellent
How do you feel about yourself?	◯	◯	◯	◯
How do you feel about your ability to make new friends?	◯	◯	◯	◯
How do you feel about your ability to learn something new?	◯	◯	◯	◯
Do you feel confident in your abilities at school?	◯	◯	◯	◯
What word describes how well you get along with other classmates?	◯	◯	◯	◯
What word describes how well you get along with your teachers?	◯	◯	◯	◯

APPENDIX E: Student Survey #1 (Page 4 of 4)

13. What STEM career interests you?
What do you like about this career?
(You may write about more than one).

14. Did your Parent or Guardian attend college?

- ◯ Yes
- ◯ No

15. At home, with relatives or friends, I talk about....

	Never	Sometimes	Often	Very often
Completing Homework/Schoolwork	◯	◯	◯	◯
Earning good grades	◯	◯	◯	◯
Graduating high school	◯	◯	◯	◯
Having an internship	◯	◯	◯	◯
Graduating college	◯	◯	◯	◯
Earning a higher education degree	◯	◯	◯	◯
Working in a STEM related career	◯	◯	◯	◯

APPENDIX F: Student Survey #2 (Page 1 of 5)

First and Last Name _____

Grade Level:

- o K
- o 1
- o 2
- o 3
- o 4
- o 5
- o 6
- o 7
- o 8
- o 9
- o 10
- o 11
- o 12

What is your race?

- o White
- o Black or African American
- o American Indian or Alaska Native
- o Asian
- o Native Hawaiian
- o Pacific Islander
- o Prefer not to respond

I identify as a:

- o Female
- o Male
- o Prefer not to say

10-Digit Student ID: _____

Ethnicity (choose all that apply)

- o American Indian / Alaska Native
- o Asian
- o Black or African American
- o Hispanic or Latino
- o Native Hawaiian / Pacific Islander
- o White (Caucasian)

APPENDIX F: Student Survey #2 (Page 2 of 5)

What STEM career interests you?

Describe a STEM project you are working on during the program:

I talk to my parents about the projects I work on during STEMworks.

- o Yes
- o No

My plan after high school is to earn:

- o Associate's Degree (2 year)
- o Bachelor's Degree (4 year)
- o Master's Degree
- o PhD
- o Trades/Apprenticeship
- o Medical Degree
- o Other Professional Degree
- o Not Sure
- o Other _____

One or more of my parents highest level of education is

- o High School
- o Some College
- o Associates Degree/
- o Trade School
- o Bachelors Degree
- o Masters Degree
- o PhD or Doctor
- o Don't know

APPENDIX F: Student Survey #2 (Page 3 of 5)

When I work on a project with my team, I (Choose the response that best fits)

	Often	Rarely
Identify a problem to solve (define a need)	O	O
Make sure my team clearly understands the problem	O	O
Gather information through research and/or ask for teacher support	O	O
Brainstorm all things that may be important to help solve the problem	O	O
Brainstorm (generate) many solutions to solve the problem	O	O
Consider our many solutions (analyze) and select one	O	O
Implement (create) and test (try) our solution	O	O
Collect data (feedback) on how well our solution worked.	O	O
Reflect on how well our solution worked	O	O
Revise our solution to make it better	O	O
I am using the Engineering Design Process	O	O

In what academic areas have you improved the most this school year? Click all that apply.

- o Math
- o Science
- o Language Arts
- o Writing
- o Reading
- o Social Studies
- o Engineering Design Process
- o Homework Completion

APPENDIX F: Student Survey #2 (Page 4 of 5)

In which Career and Professional Skills have you improved the most during the program? Click all that apply.

- ☐ Communication
- ☐ Participation
- ☐ Using Technology
- ☐ Learning New Technology
- ☐ Quick Learner
- ☐ Leadership
- ☐ Perseverance
- ☐ Making Friendships
- ☐ Creativity
- ☐ Artistic Ability
- ☐ Researching
- ☐ Logical Reasoning
- ☐ Confidence
- ☐ Presenting
- ☐ Self-motivation
- ☐ Organization
- ☐ Listening
- ☐ Resilience
- ☐ Teamwork
- ☐ Positive Attitude
- ☐ Empathy for Others
- ☐ Help/Mentor Others
- ☐ Staying Focused

When I work in a team... (Choose response that best fits)

	Never	Sometimes	Often	Very Often	Always
I do my fair share of work	O	O	O	O	O
I am able to complete tasks and goals on projects	O	O	O	O	O
I like to be a leader	O	O	O	O	O
I can explain my own ideas and opinions	O	O	O	O	O
I listen carefully to the ideas and opinions of others	O	O	O	O	O
I am self-directed and focused	O	O	O	O	O
I feel confident in myself	O	O	O	O	O
I work cooperatively with others on my team	O	O	O	O	O
I am responsible for trying my best	O	O	O	O	O

APPENDIX F: Student Survey #2 (Page 5 of 5)

When I work in a team... (Choose the response that best fits).

	Never	Sometimes	Often	Very often	Always
I am responsible for being helpful to others	O	O	O	O	O
I encourage and support my teammates to do their best	O	O	O	O	O
When my team has a problem, I can talk it out and compromise	O	O	O	O	O
I work cooperatively with others on my team	O	O	O	O	O

Team participation and preparation:

	Less than Half	Half	Mostly Everybody	Everyone
How much of your team participates actively?	O	O	O	O
How much of your team is fully prepared?	O	O	O	O
How much of your team helps to effectively complete work?	O	O	O	O

Give one specific example of something YOU learned from your TEAM, that you would not have learned if you were working alone.

Give one specific example of something other team members learned FROM YOU.

Suggest at least one change your team could make to improve your success or performance on a project.

Through your projects during STEMworks, how have you helped others in a positive way?

Because of my participation in STEMworks, I now value or care more about...

I have been a part of STEMworks for this many school years (enter a number): ___