Manawa Makerspace

Project Plan

Description

Makerspaces encourages hands-on learning, provides enrichment opportunities not otherwise possible, and allows students to stretch their imaginations. The Manawa Elementary Makerspace will empower students to be more than consumers of information. Students will be creators and innovators. As Martinez and Stager (2013) assert, "Making lets you take control of your life, be more active, and be responsible for your own learning" (p. 29).

Stakeholders

- Makerspace Advocates: Small team of elementary teachers selected to receive initial training. They will help other teachers be successful in using our new Makerspace.
- Manawa Makerspace Committee: Team of teachers and parent volunteers assembled to help launch the new makerspace.
- Community Members: Local businesses and groups which we invite to makerspace events.

Objectives

- [ ] Create hands-on opportunities for students to grow as creators and innovators.
- [ ] Convert the elementary green house science lab into a sustainable makerspace environment.
- [ ] Procure tools and supplies needed to launch our new Manawa Makerspace.
- [ ] Educate elementary teacher staff about the benefits of hands-on makerspace projects.

- [x] Provide elementary staff support needed to allow staff to integrate makerspace projects into classroom lessons.
- [x] Invite our families and other community members take part in makerspace events.

Scope

The Manawa Elementary makerspace project will create a space stocked with tools and supplies to support creative hands-on projects. We decided to focus on materials and tools which are safe for students pre-kindergarten through fifth grade. The tool and supply list heavily targets cardboard based projects. Our team has determined such projects are the ideal entry point into the makerspace movement for our staff and students. Polyfoam sheets are affordable and work well with the cardboard tools. We also felt sewing equipment offers an opportunity to reach more students and offer more diverse project offerings. Also represented in the supply list are littleBits and Snap Circuit kits to encourage introductory electronic projects.

The elementary school will convert the green house science lab into this new makerspace. Existing furniture will provide collaborative space for students to work. Cabinets in the room will provide storage space for materials and tools. The sink will also be useful for clean up.

Budget

The Wisconsin Technological Initiative has awarded the School District of Manawa $18,820. The specific items requested are detailed in Appendix B. Additionally, the grant has funded two training sessions for our staff with the Einstein Project of Green Bay.

Included in the materials list are enough consumable materials to last through the 2019-20 school year. This will allow us to evaluate any long-term budget impact before the 2020-21 school year.

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Timeframe

Jan 10, 2019	• WTI grant round 13 awarded to the School District of Manawa. The grant amount awarded is $18,820 plus training.
Feb 28, 2019	• Title I Family Night: Introduce the public to the makerspace movement by inviting them to take part in a project as a family.
March 2019	• Board reviews and approves proceeding with this project plan. • Ms. Pukita and Mr. Cobarrubias form a committee of teacher and parent volunteers. • Green house science lab is prepared to be converted into a new makerspace environment. • Equipment identified in Appendix B are procured, unpacked, and organized. • Professional development offered to educate staff on the use of new equipment. • Manawa Makerspace website launched to document the new space.
April 2019	• A small team of elementary teachers is selected as ***makerspace advocates***. They shall participate in the initial training session with the Einstein Project. • Professional Development offered by makerspace advocates to other elementary staff.
May 2, 2019	• Title I Family Night: Introduce the families to the makerspace movement by inviting them to take part in a project as a family.
Fall, 2019	• Community Launch Party: Raise awareness and invite community stakeholders to take part in celebrating and sustaining the makerpace.

SY 2019-20	• Include additional training provided by the makerspace grant to elementary staff not included in the April 2019 training.

Professional Development

Training Session 1: A one-day session for 2-5 teachers at the Einstein Project's location in Green Bay. This includes the cost of substitute teachers for the day. We intend to complete this training in April 2019.

Training Session 2: A day-long session onsite in Manawa. The offer for this session would allow 10-20 staff to be trained by a member of the Einstein Project. We will have a challenge scheduling a session of this size within the constraints of our 2019-20 school year professional development schedule.

Ongoing Training: The advocate committee will work with administrators to suggest and implement a plan to support teachers in the long-term success of the makerspace.

Project-Based Training: Elementary teachers will continue to learn how to effectively integrate cross-disciplines lessons into unified project-based lessons. Our makerspace will be a valuable tool to encourage educators to explore project-based options.

Risk Management

1	Schedule Training Session 2	Are we able to schedule time for the second training session within the 2019-20 school year? What other options are available to ensure staff is fully supported.
2	Maintain Active Advocate Pool	Other school districts have suggested makerspace success is closely tied to the availability of passionate educators driving the program forward. To address this issue we plan to build an advocate team to support other educators as they use the makerspace.
3	Safety Planning	We are avoiding workshop equipment such as hammers and saws. Instead, we are focusing on cardboard and foam based projects. Sewing machines can be dangerous if not used properly. New equipment introduces new dangers. The advocate and committee teams will need to address safety concerns during planning, setup, and professional development.
4	Budget Impact	The tools and materials included with the grant should provide the resources needed through the SY 2019-20. We can expect to need more resources starting in the SY 2020-21. We do not expect any impact on the SY 2018-19 budget as part of this project.
5	Classroom Integration	We need to define expectations teachers have to use the new makerspace. Will teachers see this as "one more thing" to integrate? We need to address how to support continued use. Will these new expectations conflict with existing demands and frustrate teachers? Classroom integration issues should be addressed by administrators and the advocate team to create more opportunities in a sustainable way.

Monitoring & Evaluation

- **Monthly Reporting**: The technology board report will include a progress report regarding the makerspace project.
- **Social Media**: We will share news on our district social media streams.
- **Makerspace Website**: Similar to our social media streams, the makerspace website will feature news and other items of interest. This should be a useful tool for educating the public about the value of our new makerspace.
- **Curriculum Committee Reporting**: Any significant changes to the project plan will be reviewed by the Board of Education Curriculum Committee.
- **Curriculum & Instruction Integration**: Elementary teachers have been working to integrate the makerspace into their reading & writing lessons. As we continue down this path, lessons should become more project-based and allow for more cross-discipline learning. Our makerspace is another tool to help our teachers address required engineering standards as found in the Next Generation Science Standards adopted both by the state of Wisconsin and the SDM. Curriculum integration will occur in the next couple of years as teachers work with the materials and develop/refine units of study.

Appendix A - References

Martinez, S. L., & Stager, G. (2013). Invent to Learn: Making, tinkering, and engineering in the classroom. Torrance, CA: Constructing modern knowledge press

Appendix B - Tools and Supply List

The items listed below are influenced heavily by the Makerspace Playbook and advice from Dennis Rockwell. In the interest of space links to vendor items are not included. However, are available from this Google sheet: https://tinyurl.com/ybqpdutl

Category	Item	Quantity	Unit	Extended
Joining	Staple Gun - Stanley TR150HL SharpShooter	10	$23	$230
	Hot Glue Gun - Ad-Tech Mini	30	$3	$90
	Box Rivets - Mr. McGroovys Box Rivets	10	$20	$200
	Big Sewing Needles - ZHONGJIUYUAN Stainless Steel	5	$9	$45
	Paint Brushes - Great Value Multi-use	3	$24	$72
	Straight Pins - Shappy	1	$10	$10
	Paper Fasteners - Clipco	10	$7	$70
	Newspaper Builders - Roylco	5	$40	$200
Cutting	Scissors - BEST Stainless Steel	3	$15	$45
	Makedo - Toolset	3	$125	$375
	Cardboard Cutter - CANARY	8	$25	$200
	Cardboard Scissors - CANARY Cardboard Scissors	30	$17	$510
	Cardboard Hole Punch - Crop-A-Dile Power Punch	10	$13	$130
	Glowforge Pro	1	$5,995	$5,995
	Hot Wire Foam Cutter - Torch	1	$120	$120
Fixturing	Vise - JSP	2	$27	$54
	C-Clamps - CAMVATE	30	$12	$360
	Pliers - Katzco	3	$16	$48
	Spring Clips Clamps - ProTool	5	$5	$25
Textile / Soft Circuit	Seam Ripper - Kingmas	3	$6	$18
	Cloth Tape Measure - Singer	20	$3	$60

	Iron - Sunbeam	3	$13	$39
	Embroidery Needles - BCP	3	$6	$18
	Needle Threader - Yueton	3	$6	$18
	Snap Setter - Kingso	4	$12	$48
	Rotary Cutter - Finkars	3	$13	$39
	June Tailor Quilter's Cut'n Press	3	$35	$105
	Sewing Scissors - Singer	3	$16	$48
	Sewing Needles - Bronda Grand	5	$7	$35
	Sewing Pins - Subang	3	$11	$33
	Sewing Machine - Brother SE400	3	$280	$840
	Button Machine 2 1/4" - NEIL	1	$280	$280
	Button Machine 2 1/4" Parts (1000) - NEIL	1	$175	$175
Circuitry	littleBits STEAM Education Class Pack, 30 students	1	$2,900	$2,900
	Snap Circuits Extreme SC-750R Electronics Exploration Kit	7	$125	$875
Storage	Containers			$200
	Shelving			$300
Materials	Craft Fabric Bundle - Misscrafts 50pcs 8" x 8" (20cm x 20cm)	10	$13	$130
	Plain Solid Cotton Fabric For Sewing	10	$19	$190
	Duct Tape	10	$40	$400
	Color Thread	5	$10	$50
	Brown Corrugated Sheets (24" x 18") - Papermart	40	$26	$1,020
	Brown Corrugated Sheets (36" x 72") - Papermart	30	$34	$1,008
	Brown Corrugated Sheets (8.5" x 11") - Papermart	60	$10	$612
	Poly Foam (1"x82"x24") - Foam By Mail	20	$9	$180
	Poly Foam (5"x82"x24") - Foam By Mail	10	$42	$420
			Total	**$18,820**