Westhaven STEM Live Lab

Budget Proposal

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Part 1: Overview and Strategic Alignment

Westhaven Elementary serves 501, Kindergarten to 6th Graders. VDOE data shows that Westhaven students perform 50% lower than the nation's average students, with Blacks performing significantly lower than all other racial groups. When compared to the district and the state on the SOL, VDOE 2018-2019 school year, Westhaven performed significantly lower in every category.

The existing mission of all librarians in the district does express the purpose of the librarians and the Library Media Center, which is to provide quality resources and information (Portsmouth Library Media Center Handbook, 2019-2020). One of the key standards of AASL National School Library Standards is that librarians curate resources carefully based on the need of the patrons (Elementary Librarians, 2021). The mission details how librarians will move towards the desired outcome and have high-quality resources while promoting information literacy to help students reach their full potential.

Westhaven STEM Live Lab's goal would be to promote information literacy through STEM, by engaging the students in more critical thinking activities and allowing them to explore and make connections with academic and real-life applications while using the literature provided in the library, as well as the newly added books, guides, and technology. Further, in fulfilling the AASL expectations for educators, a collaborative effort between the school librarian and all staff members, would be developed.

To fulfill the mission of the STEM lab, a budget of $16,000 would be requested from the school district's *Office of Instructional Technology & Media Services(IT)*, Parent Teacher Association(PTA) donation and library fundraisers, and a government grant from the *Southeast Virginia Community Foundation Grant*. The amount of $6,106 would be requested from the district's *Office of Instructional Technology & Media Services* which would support the purchase of a portion of the technology supplies. PTA and the library fundraiser's contribution would consist of $2,000 and $2,500, respectively, which would be used to support the academic need of the lab. *The Southeast Virginia Community Foundation* Grant of $4,205 would be used to purchase the library collections, part of the technology items, and supplies.

Part 2: Budget Figures and Explanation

The requested funds of $16,000 will be used to purchase 30 Chromebooks with a chargeable cart, 25 STEM hardcover books, 9 technological devices & material to include, a coding robot, interactive maker kit, green screen, digital camera, and 5 Microscope STEM kits, 3 STEM-related eBooks, 3 Science Lab tables, 3 Professional Development books and guides, and Online professional development training for STEM curriculum and resources. An explanation and purpose of the purchases will follow each of the budget categories' presented in table form.

Collections

Item	Unit Cost	Quantity	Total
STEM Materials-Follett Science & Literacy Connection	$716	1	$716
Calling All Minds(hardcover)	$15	25	$375
STEM Materials-Next Generation Science Standards Collection(5th)	$263/set	1	$263
STEM Programming for all ages: a practical guide for librarians	$59	2	$118
Teaching coding through game creation(eBook)	$50	2	$100
From STEM to STEAM(eBook)	$31	2	$62
STEM lab craft-a-day(eBook)	$60	Unlimited uses	$60
Be a director of photography	$18	2	$36
Makerspace STEM lab: 25 super cool projects	$16	1	$16
		TOTAL:	**$1,746**

The Collections required for the STEM lab would be purchased from Titlewave.com and used to support students' needs by supporting the school-wide literacy school improvement by increasing and updating the selection of STEM recreational reading materials that will spark the student's interests in various science topics. STEM professional guides will be provided to the staff to improve their knowledge of teaching the diversified STEM activities. The digital materials and eBooks will supplement in-person small group activities as well as permitting students to access to STEM activities away from the school.

Additions to the collection's materials are two new sources, a photography book, and Makerspace STEM projects book. The photography book would be a new means to teach our students how to record their projects and activities, which can be published in the new STEM Live newsletter. Currently, our Makerspace lack activities that motivate the students to critical thinking, thus the printed books will be used by both staff and students to start collaborative, challenging, and student-centered hands-on learning activities.

Parent-Teacher Association is a strong supporter of the students' activities and academic performance. This organization made up of parents and teachers would be happy to support a program that would help to improve the overall school performance and image. The $2000, donated by the PTA, would be applied towards the payment of the LocknCharge Docking Cart, leaving a balance of $201.

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Technology

Item	Unit Cost	Quantity	Total
Dell Touchscreen Chromebooks 3100	$239	30	$7, 170
LocknCharge EPI 36 USB-C Docking Cart	$1,799	1	$1,799
Root Coding Robot	$179	5	$895
Zubi Flyer-Maker Kit	$134	2	$268
Beginner Microscope Kit	$45	5	$225
Chroma-Key Green Screen(10x12)	$84	2	$168
Hue HD Pro Camera	$72	2	$144
		TOTAL:	**$10,669**

To support the library and district's mission to prepare our students to be critical thinkers and be technologically proficient, the STEM Lab funds will purchase Chromebooks which will be readily available for research and Online activities. The Chromebooks will be continually charged using the Docking Cart which will be locked and stored in the lab for safekeeping when they are not in use. All of the Chromebooks

and carts will be bought from Dell Technologies. The Root coding robot helps students learn to code and supports the district's participation with *Code.org* which believes that coding "increases diversity in computer science by reaching students of all backgrounds where they are — at their skill-level, in their schools, and in ways that inspire them to keep learning" (Code.org, 2021). The microscopes, purchased from Amazon, will be used for exploration and inquiry, giving the students the opportunity to see the shapes of plant and animal cells, nucleus, and other parts, as they learn of the importance of the microscope to medical research and testing. The last two additions, Chroma-Key Green Screen and the Hue HD Pro Camera will be used to increase collaboration with the librarian, teacher, and students. These items will be used to record teacher and student lessons, which will be publicized on the school and district website, showing our student-centered learning environment.

The cost of purchasing the technology items would be made possible by the funds received from the *Office of Instructional Technology & Media Services* in the amount of $6,106 and the $2,500 donations received from the *Parent-Teacher Association.* Both of these sources total $8,606 and leave a balance of $1,436.

Supplies

Item	Unit Cost	Quantity	Total
National Public Seating Science Lab Table	$253	3	$759
		TOTAL:	**$759**

For small group activities specific to the science lab, tables are needed to facilitate presentations and student work. The tables “are made with a high-pressure laminate surface that has been tested according to National Electrical Manufacturers Association standard testing to resist scratches, boiling water, high temperatures, and many forms of stains including a number of acids” (Amazon, 2021).

The remaining balance of $1,436 from the IT department & Parent-Teacher Association, would be applied to the purchase of the science lab tables and would leave a balance of $677.

Services

Item	Unit Cost	Quantity	Total
Jason Learning Professional Development	$40	16	$640
		TOTAL:	**$640**

The importance of the STEM lab is impactful for the students as well as the staff members. Therefore, a portion of the balance of $677, would be applied towards the $640 needed for the professional development hours, leaving a balance of $37 in the library fundraiser account. According to the National Science Teaching Association, (2021), “Among the groups that are underutilized, yet essential to our future competitiveness, are workers who use technical skills in their jobs but who do not have a four-year degree…and people at all education levels who have been historically underrepresented in STEM (para. 5).” Training is needed to better prepare our teachers for the “changes in pedagogy, including instructional methods that promote learning for adults that mirror the methods to be used with students. (NSTA, para 13).” This initial training will come from Jason Learning, which is already in use in the school district and will be used by staff

members who need additional training after the first year. Jason learning “ provides curriculum and learning experiences in science, technology, engineering, and math (STEM) for K-12 students, and high-quality professional development for teachers, and has been used successfully in a wide variety of formal and informal education environments,” (Jason Learning, 2021).

Staffing

Item	Staff Needed	Hours	Total
1-Instructional Assistant	Yes	4 days x .45 min.	2 hours 20 minute

Goal #1 of the district’s strategic plan is to “provide educational opportunities to assure all students achieve high academic growth.” To meet this goal it is important to have the needed staff to support the students and the curriculum activities.

The best practice of AASL (2018) is to “ ensure that groups of learners include people with a range of learning styles, experiences, and abilities…” In order to meet the needs of all students, additional adult help would be required with the activities in the lab. The librarian would also need help in supervising the students with the electronics and materials being used. An instructional assistant is normally assigned to each grade level and would only need to be present on the days when their grade level is working in the library. For example, our current schedule rotates the schedule of the primary

grades and the upper graders on a 4 day a week schedule. Some weeks the 3rd thru 6th graders may not work in the library.

Replacement Costs

Items	Unit Cost	Quantity	Total
Dell Touchscreen Chromebooks	$239	5	$1,195
STEM-Root Coding Robot	$179	1	$179
Zubi Flyer-Maker Kit	$134	1	$134
Hue HD Pro-Camera	$72	1	$72
		Total	**$1580**

Technology and people sometimes don't get along, and for this reason, additional funds would be needed for the replacements of Chromebooks should they break or malfunction and can't be repaired. Of course, a warranty will be requested on the purchase, but warranties usually don't cover human mistakes. The same thoughts apply to the robot, maker kit, and camera, approximately students may use the items. The possibility of something going wrong exists. There is a balance of $1,686 remaining from the requested budget and this amount would cover any or all of the replacement

items which totals $1,580. With a balance of $106 remaining, the entire budget is not depleted.

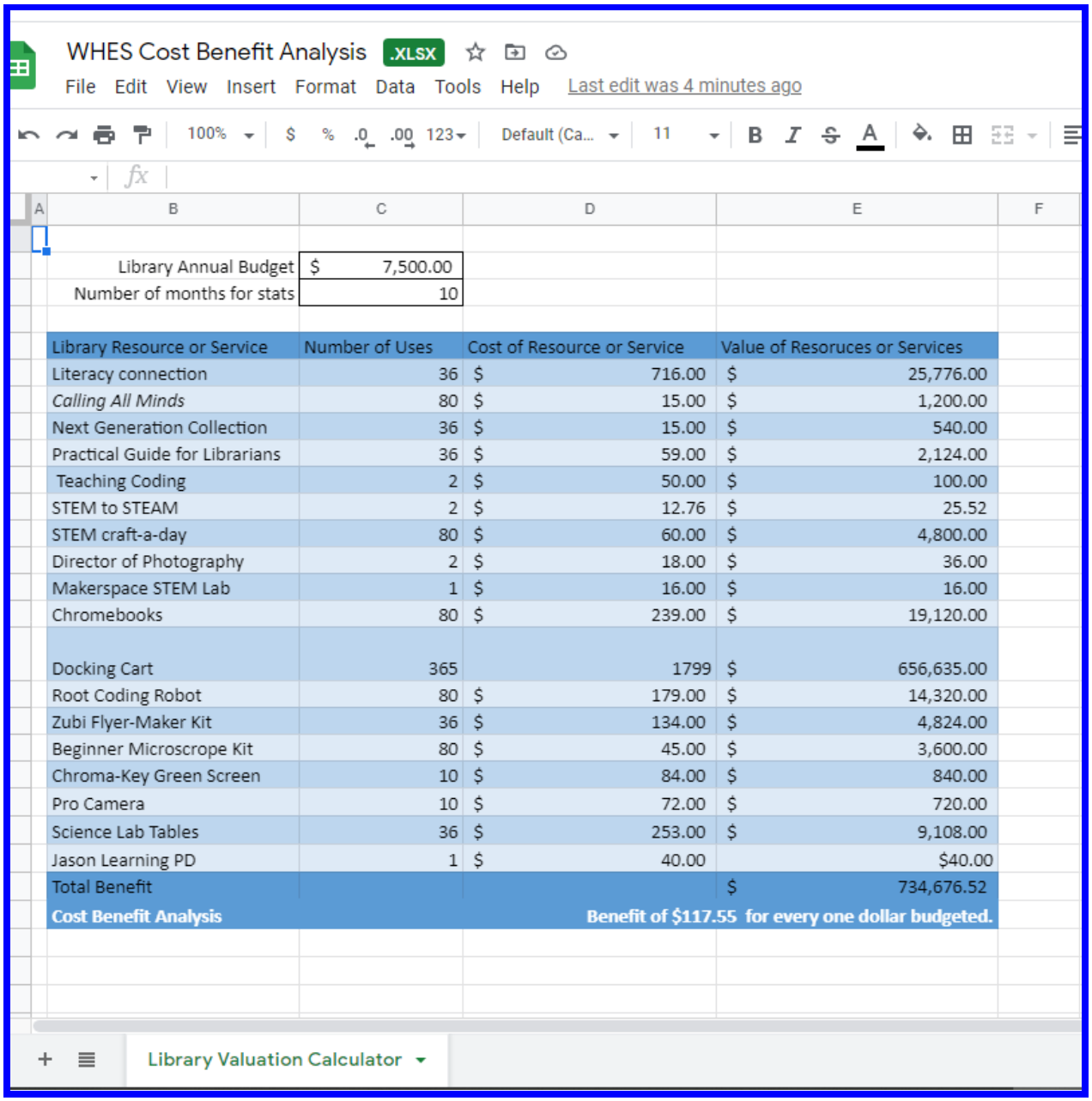
Total Expenses

Westhaven STEM Live Lab

Budget Categories	Subtotals	Amount
Collections	$1,746	$1,746
Technology	$10,669	$10,669
Supplies	$759	$759
Services	$640	$640
Replacement Costs	$1,580	$1,580
	Total Expenses	**$15,394**

The amount indicated in the above table shows the approximate amount needed to implement the Westhaven STEM Live lab.

Cost-Benefit Analysis



WHES Cost Benefit Analysis .XLSX

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Library Annual Budget	$	7,500.00
Number of months for stats		10

Library Resource or Service	Number of Uses	Cost of Resource or Service	Value of Resoruces or Services
Literacy connection	36	$ 716.00	$ 25,776.00
Calling All Minds	80	$ 15.00	$ 1,200.00
Next Generation Collection	36	$ 15.00	$ 540.00
Practical Guide for Librarians	36	$ 59.00	$ 2,124.00
Teaching Coding	2	$ 50.00	$ 100.00
STEM to STEAM	2	$ 12.76	$ 25.52
STEM craft-a-day	80	$ 60.00	$ 4,800.00
Director of Photography	2	$ 18.00	$ 36.00
Makerspace STEM Lab	1	$ 16.00	$ 16.00
Chromebooks	80	$ 239.00	$ 19,120.00
Docking Cart	365	1799	$ 656,635.00
Root Coding Robot	80	$ 179.00	$ 14,320.00
Zubi Flyer-Maker Kit	36	$ 134.00	$ 4,824.00
Beginner Microscrope Kit	80	$ 45.00	$ 3,600.00
Chroma-Key Green Screen	10	$ 84.00	$ 840.00
Pro Camera	10	$ 72.00	$ 720.00
Science Lab Tables	36	$ 253.00	$ 9,108.00
Jason Learning PD	1	$ 40.00	$40.00
Total Benefit			$ 734,676.52
Cost Benefit Analysis		**Benefit of $117.55 for every one dollar budgeted.**	

Library Valuation Calculator

The requested funds of $16,000 will be used to purchase 30 Chromebooks with a chargeable cart, 25 hardcover books, 9 technological STEM devices and materials, 8 STEM Kits & PD books and guides, 3 Science Lab tables, 3 eBooks & 1 Digital material,

and professional development training for STEM curriculum resources and teachers' professional growth.

When compared to the continual low academic performance of the students of Westhaven, the cost would be minimal with a benefit of $118 for each dollar that we spend. VDOE data shows that Westhaven students perform 50% lower than the nation's average students. Further, data shows the overall Portsmouth community has "almost 45% of its residents who have not graduated high school or cannot read at a 6th-grade reading level"(Burton, 2021).

One of those students who continually perform below average on all district and state assignments is Jae. He and his siblings have been attending the school since kindergarten. However, they fail to meet the yearly academic standards. However, despite his failing grades, Jae performs better on his science assessment than the other subjects. The Westhaven STEM Live Lab could be the program that he needs to not become a part of the 45% illiterate adults in Portsmouth.

As a result, the Portsmouth population is dependent on educators to prepare the youth to be better prepared for their future. A part of that preparation means being able to problem solve and be critical thinkers. The goal of this STEM lab is to reach the eighty 5th graders who normally take the state Science & Math SOL exams. The goal will be to encourage these learners to "use resources and technology to foster inquiry" (AASL, 2018, p. 62).

Finally, the STEM lab resources will be able to help the 5th graders draw conclusions, apply knowledge to new situations, instead of failing to try and to be able to

draw conclusions. The students will learn how to collaborate with each other and share knowledge, participate, as they practice “effective communication techniques” (AASL, 2018, p. 87).

Westhaven STEM Live lab would provide the resources needed to engage the students in more critical thinking activities and allow them to explore and make connections with the academics and real-life applications while using literature provided in the library. In fulfilling the AASL expectations for educators, a collaborative effort between the school librarian and all staff members would be developed.

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