

BOISE-ELIOT/HUMBOLDT SCHOOL

STEM Investment Plan

Written by:
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Vision Statement:

To understand and foster the development of human communities and the environment, through the lens of Place, Race and Justice.

STEM education is active and has student-centered learning at its core. Through a focus on inquiry based instruction we seek to build a STEM program that focuses on integrated units of study that are place-based and relevant to our students and community. We will use experiential learning opportunities to ignite curiosity and provide an opportunity for reflection, challenging students' initial beliefs and guiding them in the formation of deeper questions from multiple perspectives. And through this work, we hope to build a program that connects the classroom to stewardship empowering Boise-Eliot/Humboldt students to take action and educate others as they move along the path toward college and 21st century careers.

Student Outcomes 1, 2, & 5:

Students will demonstrate proficiency in adaptive strategizing skills and persistence in the face of academic challenges, obstacles, and setbacks (Affective: Constructive Coping)

Students demonstrate high quality participation in academic work, including effort and enthusiasm. (Affective: Academic Engagement)

Students will feel a sense of belonging, competency, autonomy and purpose as they view themselves and their potential to enjoy and succeed in STEM classes and careers. (Affective: Academic Identity)

	Description	Purpose/Articulation of Connection to Outcome	Timeline	Resources	Partners
Strategy #1: Teachers will intentionally build challenging inquiry activities in their units.	Teachers will create, and students will engage in hands-on inquiry lessons throughout the year plus one grade-level consistent integrated unit per year	High quality academic engagement will be achieved through student centered instruction (IP#1), activities of relevance to students lives (IP#5), and supportive teacher-student relationships.	Summer 2013 Curriculum Camp Begin implementing units in 2013-14	Existing: Funding from Target Grant Curriculum Resources and materials STEM Center courses	Existing: Dept. of Fish and Wildlife Kaiser Permanente City of Portland Clean Rivers Schnitzer Steel Industries
Strategy #2: STEM Saturday	Groups of K-2nd and 3-5th grade students and their families will rotate through a series of highly engaging learning experiences, each one collaboratively designed, but led by a different STEM education organization, that all focus on one age-appropriate science content strand.	Following this series of experiences, the student will demonstrate his/her application of conceptual knowledge to a new problem. It is also expected that the experience will positively impact students' academic engagement.	June 1, 2013	Existing: STEM Collaboratory Needed: Support from Collaboratory to continue in the future, one STEM Saturday event per year	STEM Collaboratory

Student Outcomes 3 & 4:

Students will know a variety of problem solving strategies and tools and be able to choose and strategically use these tools. (Cognitive Skill: Metacognitive Skill)

Students will be able to identify, frame, and solve complex problems and apply knowledge and skills to novel problems and/or situations across STEM subjects. (Cognitive Skill: Problem Solving)

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Strategy #1: Integrated Inquiry Units	Teachers will create, and students will engage in hands-on inquiry lessons throughout the year plus one grade-level consistent integrated unit per year	High quality academic engagement will be achieved through student centered instruction (IP#1), activities of relevance to students lives (IP#5), and supportive teacher-student relations.	Summer 2013 Curriculum Camp Begin implementing units in 2013-14	Existing: Funding from Target Grant Curriculum Resources and materials Grade-level collaboration	Existing: Dept. of Fish and Wildlife Kaiser Permanente City of Portland Clean Rivers Schnitzer Steel Industries
Strategy #2: Science Notebooking and Expository Writing	Expository writing will be a focus as students develop their content knowledge through writing instruction. Notebooks will continue to be used PreK-8 th grade as a place to document STEM content, inquiry projects, and integrated units.			Existing: Already collect on-demand writing samples each quarter District provided writing curriculum Needed: Continued professional development in notebooking strategies	

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Teacher Outcomes:

Teachers will facilitate active engagement of students in their learning. (Instructional Practice #1)

Teachers will emphasize deep content knowledge and higher-order cognitive skills by addressing learning goals in both areas. (Instructional Practice #2)

Teachers will use frequent formative and summative assessments to facilitate diagnostic teaching and learning. (Instructional Practice #4)

Teachers implement learning activities that students find to be relevant, important, worthwhile, and connected to their cultural lives. (Instructional Practice #5)

	Description	Purpose/Articulation of Connection to Outcome	Timeline	Resources	Partner
Strategy #1: Curriculum Camp	Teachers will create this integrated unit during a summer curriculum camp led by the TOSA. Understanding and designing inquiry instruction around the CCSS will be the focus.	These units will be designed to be student-centered and focused on both content and cognitive skill learning goals. The activities will be designed to be relevant and connected to student lives. Teachers will implement frequent formative assessments that monitor student progress toward learning goals.	Summer 2013 curriculum camp. Begin implementing units in 2013-14	Existing: Funding from Target Grant Curriculum Resources and materials Needed: Funding to continue Curriculum Camp the following years	
Strategy #2: Science Notebooking/ Expository Writing Professional Development	School led PD on notebooking ideas, scoring rubrics and reflections. Lessons modeled by STEM TOSA, integration of notebooks during unit creation. TOSA provides on-demand prompts	Science notebooks will be used by teachers as a tool to implement frequent formative assessments that monitor student progress toward learning goals.	Ongoing	TOSA	

<p>Strategy: #3</p> <p>STEM Teacher Professional Development</p>	<p>Teachers will attend the summer course work offered by the STEM Metro Teachers Academy. They will have the opportunity to continue their work on integrated units while increasing their STEM content knowledge and gaining access to ideas, resources, and partnerships.</p>	<p>The teachers' academy professional development courses are designed to address the PMSP common outcomes, including the instructional practices that are prioritized in this plan.</p>	<p>Ongoing</p>	<p>Existing: PPS Tuition Reimbursement for 6 credits TOSA</p> <p>Needed:</p>	
<p>Strategy 4:</p> <p>STEM School-Based Professional Development</p>	<p>One staff meeting a month will be dedicated to STEM professional development. Teachers will receive instruction for half the meeting by the TOSA on a selection of inquiry/STEM topics and teams will have the other half of the meeting to meet and plan/reflect on units.</p>	<p>The focus of this professional development will rotate through the teacher outcomes that have been prioritized by our school.</p>	<p>2013-14: 1 Monday each month for 1.5 hours</p>	<p>Needed: Funding to pay extended hours for Inquiry Team Commitment to continue meeting time in subsequent years</p>	
<p>Strategy 5:</p> <p>STEM Saturdays</p>	<p>Teachers act as observers of student learning and monitors of student misconceptions while groups of K-2nd and 3-5th grade students rotate through a series of highly engaging learning experiences.</p>	<p>Teacher observations will be structured in a way that focuses on student prior knowledge, misconceptions, and current understanding. After observations, teacher will be provided with a structured opportunity to reflect on their observations with peers. This experience is expected to advance teachers knowledge of assessment for learning.</p>	<p>June 2013</p>		<p>STEM Collaboratory</p>