



*Creating healthy learning & living environments for children to excel, families to thrive, and communities to flourish*

## **Sankofa STEM Academy Table of Contents**

### **A. VISION AND INSTRUCTIONAL PHILOSOPHY - 2**

1. Vision for Our Graduates
2. Vision and Mission for the Academy
3. Instructional Philosophy

### **B. SCHOOL DATA PROFILE/ANALYSIS – 6**

1. The Current State of Harte Prep Middle School
2. Urgent Challenges to be Addressed

### **C. SCHOOL TURNAROUND – 7**

1. Specific Strategies and Practices
2. Culture and Climate
3. Professional Learning for Faculty & Staff

### **D. IMPLEMENTATION – 14**

1. Monitoring Progress
2. Significant Barriers

### **E. ALTERNATIVE GOVERNANCE MODELS AND AUTONOMIES – 14**

1. Autonomies Needed

### **F. SCHOOL PLANNING TEAM – 15**

1. Planning Team Members
2. Parent Engagement

## **SANKOFA STEM ACADEMY at Bret Harte Prep Middle School**

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The health of a community can be measured by its success in developing all of its children. Just as our nation once transformed its school system to enable the shift from an agricultural to an industrial economy, we must reinvent our educational system again today, this time for a rapidly changing and increasingly technological global economy. Math and science learning belong at the center of that transformation. They are essential components of a liberal education, the backbone of logic and analytic thinking from early childhood through the most advanced levels of learning across the academic disciplines. Science, technology, engineering, and mathematics, paired with the arts, enable us to understand the natural world, the built environment, systems of society, and the interactions among them that will determine the future of our nation and planet. Math and science embody habits of mind and methods for discerning meaning that enable students to learn deeply and critically in all areas. Just as adults need math and science to understand the world and function within it, students need math and science to understand and master subjects such as history, geography, music, and art.

According to the U.S. Labor Bureau statistics, the country will have more than 1.2 million jobs opening in STEM-related occupations in 2018, yet with a significant shortage of qualified college graduates to fill the gap. Therefore, increases in STEM education is the game-changer for American schools. In line with President Obama's announcement of his "Educate to Innovate" initiative, our aims are to increase stem literacy so our students can learn deeply and think critically, improve achievement, and receive a solid foundation to be success in high school and beyond. Research shows that students want to be engaged in learning that is interesting and rigorous; therefore, the Sankofa STEM Academy will provide authentic learning that connects math and science with technology and engineering overlaid with the arts.

### **A. VISION AND INSTRUCTIONAL PHILOSOPHY**

#### **1. What is your school's vision for the child or youth who will matriculate from your school?**

In preparing our students to be global, productive citizens, and independent, reflective learners who are technologically advanced in science, math, and art, our highest priority is student achievement through the education of the whole child and the integration of academic, social, and civic development. This will be accomplished through:

1. A strong academic literacy program that embodies habits of mind and methods for discerning meaning that enable students to learn deeply and critically in all areas;
2. Meaningful professional learning opportunities for staff and administration that is culturally and linguistically responsive
3. Creating multiple programs and opportunities for parents to become directly involved in their children's learning
4. A safe and healthy learning environment where children excel academically and personally.

These priorities will shift the culture and climate within school and provide necessary training needed for positively impacting student success, changing teacher practice, and embracing parents as co-constructors of their children's education. Students will be taught using culturally responsive educational practices that enhance instruction and promote higher levels of learning for all. They will move into high schools as collaborative learners who use deductive and inductive reasoning; as effective communicators with the ability to appropriately articulate

thoughts using oral, written, and non-verbal languages; and as service and community-minded individuals who are skilled in social civility.

The gap in STEM skills starts early in elementary school, widens in middle school, and continues, through filters and barriers, on a trajectory of low achievement and missed opportunities. By the end of college, the number of Latinos and African Americans who graduate with degrees in science, technology, engineering, and math is a trickle: an estimated 1,688 from the University of California and California State University in 2008. The Center for Education and the Workforce at Georgetown University projects that California will need to fill 1.1 million STEM jobs in six years, with 93 percent of those requiring postsecondary degrees. Experts have fretted about the lack of students going into many STEM areas, including computer science, physics, and engineering. The scarcity of African American and Latino students in STEM heightens the problem. The two comprise 59 percent of California students, yet in 2010 comprised 15 percent of STEM enrollment in UC and 26 percent in CSU for a system-wide total of 21 percent.

**The Sankofa STEM Academy's dual focus** on STEM (science, technology, engineering and mathematics disciplines) and Artful Thinking methodologies positions students and staff on an innovative academic path. Arts integration has been shown by several rigorous studies to increase student engagement and achievement among youth from both low and high socioeconomic backgrounds (Catterall, Dumais, & Hampden-Thompson, 2012; Upitis & Smithrim, 2003, cited in Upitis 2011; Walker, McFadden, Tabone, & Finkelstein, 2011). Exposure in STEM subjects equips students for the world of tomorrow, giving them specific proficiencies in the methodologies in the various STEM fields.

Artful Thinking is a program developed by Harvard's Project Zero in collaboration with the Traverse City Area Public Schools in Michigan. It is an approach to teaching creative thinking that uses six routines to explore artistic works and subjects across the curriculum. These routines contain strategies to deepen art experiences.

- **Reasoning:** Asking, "What makes you say that?" to prompt students to cite evidence to support claims
- **Perspective-taking:** Asking, "What does the character (or author) perceive, know, or care about?" to understand diverse perspectives and ways of approaching problems
- **Questioning and investigating:** Brainstorming questions and using prompts to spark observations and inquiry (e.g., How? What? When? Why? What if? and "I see," "I think," "I wonder")
- **Observing and describing:** Describing and elaborating upon what you see and/or hear (e.g., imagining the artwork as the beginning, middle, or ending of a story, and/or describing formal qualities of a work of art)
- **Comparing and connecting new ideas to prior knowledge:** Asking questions to prompt core ideas and connecting, extending, and/or challenging core ideas
- **Finding complexity:** In order to uncover multiple dimensions and layers, asking questions such as, "How is it complicated?" "What are the different layers and pieces?" "What are its parts and purposes?" "What insights do you have about the topic?"

**The Sankofa STEM Academy's vision** is that students will graduate as knowledgeable, principle-centered young adults who are creative, critical, and productive thinkers with a passion for excellence, open to cultural differences, and with grade-level proficiency in the practices of the various STEM disciplines. Core concepts or crucial capacities that all students will develop are: knowing, using, and interpreting scientific explanations of the natural world; generating and

evaluating scientific evidence and explanations; understanding the nature and development of scientific knowledge; and participating productively in scientific practices and discourse. STEM Artful Thinkers will experience and relate to the world differently, and as a result, be energized as innovators and creative problem solvers. While following common core state standards for each grade level, using selected state adopted texts and research-based supplementary materials, and promoting experiential learning the Academy's combination of STEM and Artful Thinking offers methodology and disciplinary content to students and corresponding novel delivery of rigorous STEM and art coursework by well-trained, highly qualified staff. Arts integration goes beyond including art projects in class. It is a teaching strategy that seamlessly merges arts standards with core curricula to build connections and provide engaging context. For example, in a science classroom you might see students choreographing a dance using locomotor and nonlocomotor movements to demonstrate their understanding of rotation versus revolution of the planets. In a math class, you might see students learning fractions by examining composition in Warhol's Campbell's soup paintings.

**The Sankofa STEM Academy's mission** is to develop accomplished lifelong learners who are facile with -- and leaders and entrepreneurs in -- science, technology, engineering, and mathematics. We do this by offering a high quality instructional program which:

- Integrates Science, Technology, Engineering, and Mathematics (STEM) infused with art rather than teaching them only in silos
- Provides hands-on opportunities and project-based learning, including exhibits and competitions, to artful thinking with real-world issues
- Is taught by an outstanding faculty comprised of specialists in the STEM fields

As a result of having attended Sankofa STEM Academy, students will be empowered to think critically, access and analyze information, creatively problem solve, work collaboratively, and communicate with clarity and impact.

## **2. What is the vision of the school that will help achieve the vision of the successful future graduate described above?**

We envision an open campus community school. We hope to create a center for not only students but also their parents and other community members. Our goal is to fill in the gaps that have often hindered our student achievement rates by having closer professional relationships with our parents. We understand the importance of making our parents and community as equal partners in the development and achievement of our students. All stakeholders will gain from this enhanced participation and involvement. We plan to implement both formal (traditional) methods of engagement that have proven to be effective while also producing new strategies that will work for our unique Academy. Our plan is supported by Epstein's (1995) overlapping spheres of influence model, which argues for a family-school partnership. Essentially this partnership will create an environment that will completely support student success. When the three groups (parents, community, and school) engage in a mutually respectful collaboration we can be assured that our students are receiving all the support available. We will further recognize our parents and community members' assets and values. This acknowledgement will create a funding source of information and support that will drive and anchor our parent and community engagement

The Sankofa STEM Academy is committed to creating a safe, communal, and culturally responsive healthy learning environment where *all students and their parents feel a sense of belonging*. It will be a place where every child in every classroom excels academically and socially; every teacher succeeds professionally; and every parent and/or caregiver is welcomed

and valued. Orientation meetings will help students and their families understand the focus of the Academy, the school's procedures, programs, and academic and disciplinary plans; and allow them to meet administration, teachers, and counselors. The Academy will be a home base for parents and guardians to be informed and educated on school related materials and functions.

To change the experiences, outcomes, and life-options for our students, the Academy provides a personalized environment with an Individual Success Plan for each student. It will equip every classroom with 21<sup>st</sup> Century technology; provide ongoing and meaningful professional development to equip teachers with differentiated instructional strategies that are culturally and linguistically responsive; and provide STEM lab opportunities for students to learn through interdisciplinary, hands-on inquiry-based learning that bridges 8<sup>th</sup> and 9<sup>th</sup> grade concepts.

Sankofa STEM Academy prepares students for their roles as contributing participants in the global economy. The STEM school concept is a national quest to prepare competitive citizens for the high speed, wired, innovative, and global economy that 21<sup>st</sup> century students will inhabit as adults. It has its roots at MIT, the State of Ohio (STEM Learning Network), and Lockheed Martin. Thomas Friedman's *The World is Flat* (2006), *The National Academy of Sciences* (2006), and Science and Mathematics Education Policy Advisory Council *Science and Mathematics, a formula for 21<sup>st</sup> Century Success* (2007), serve as rationale for efforts to implement advanced and challenging science, technology, engineering and math classes.

Arts integration naturally involves several ways of processing information that have been shown to improve long-term memory (Rinne, Gregory, Yarmolinskaya, & Hardiman, 2011). For example, by creating a dance to represent the relation between climate change and atmospheric conditions, students physically act out meteorological concepts, which helps to strengthen memory for those concepts. Students also practice recalling concepts from memory during rehearsals and the final performance, which also helps to promote memory and is known as the generation effect. A variety of ways that arts integration may leverage well-established memory effects is outlined in the table below, which is drawn from a review by Rinne et al. (2011), and also discussed in Hardiman's book, *The Brain-Targeted Teaching Model for 21st-Century Schools* (Corwin, 2012).

This first year, the Sankofa STEM Academy is applying to open a new small school on the campus of Bret Harte. We hope to enroll 300 6<sup>th</sup> to 8<sup>th</sup> grades, and increase our enrollment by 100 for the next two years. Next year we will be considering conversion to a Pilot school. During that second year, the Academy has plans to provide an online learning community platform for the students to connect with STEM professionals as e-mentors, with wiki space for creating STEM projects and portfolios. STEM subject experts will be able to deliver virtual live sessions to all students with student interaction. Teachers will use the platform to bring professional experts into the classroom virtually to comment on portions of related curriculum. Engaging the students is critical. The platform provides the students an opportunity to virtually communicate and collaborate with peers and make live virtual presentations. Further development of year three and beyond will come from the staff involved in making the Academy a Pilot.

### **3. Describe the instructional philosophy that is connected to achieving the vision of the child/youth who will matriculate from your school and the overall vision of the school. Why do you believe this is the best approach?**

It our belief that education is a continuous cycle – a life-long process; that all children can learn when give the appropriate strategies and equitable time; and that each has a unique, individual talent that is to be recognized and developed by the acquisition of knowledge through daily demonstration and use of affective ways of knowing and doing. To this end the Sankofa

STEM Academy coupled with Artful Thinking (sometimes called STEAM) offers a core academic curriculum that is pragmatic, holistic, and futuristic; provides learning opportunities through the use of “non-traditional” teaching strategies and methods that meet the learning styles of all children; brings about an awareness and acceptance of responsibility for self, school, family, and community while developing cultural pride. This is the best, holistic approach for equipping our students with the intellectual curiosity to continue learning and tangible skills that make critical thinkers and more successful in life.

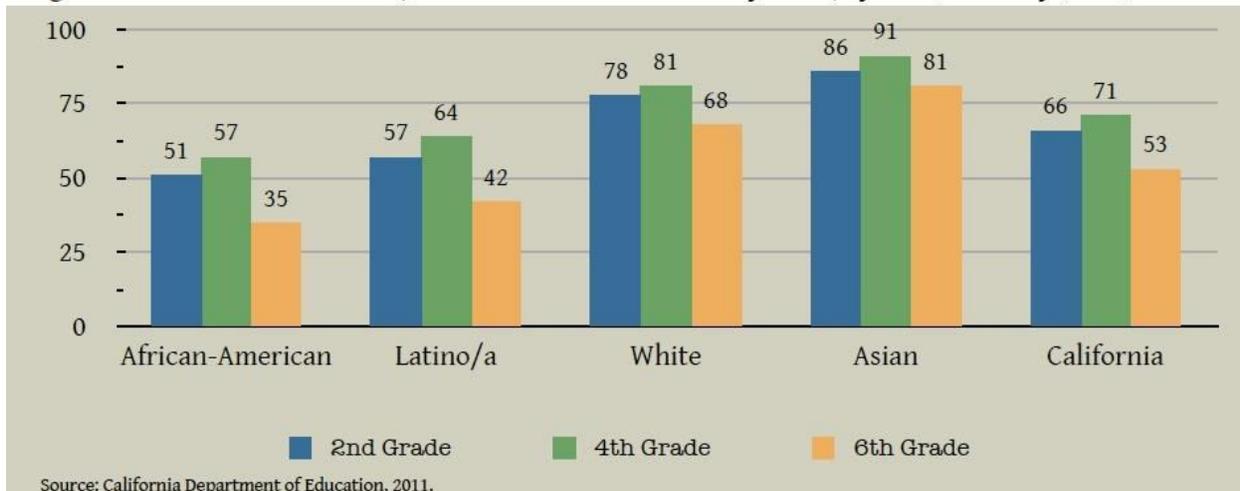
This instructional philosophy came out of a need for making science more relevant in our students lives and possibly their futures. What we have developed is an academy that revolves around the science curriculum. Sankofa STEM Academy uses an across the curriculum integrated approach, with a mapped curriculum that shows where we have cross pollination opportunities.

## B. SCHOOL DATA PROFILE/ANALYSIS

### 1. Where is the school now? What does the data/information collected and analyzed tell you about the school?

Bret Harte entered Program Improvement (PI) in 1997-98. 2012-2012 marks the 7<sup>th</sup> consecutive year of PI status which means Harte did not meet its Adequate Yearly Progress/AYP last year, nor did it meet the Academic Performance Index (API). Neither the AMAO 1 (annual CELDT) nor the AMAO 3 (Proficiency in ELA and Mathematics) were met. In fact they declined. The reclassification rate decreased. To their credit, their AMAO 2 was reached and went from 14.3% to 20.8%. They also had an increase in the CELDT proficiency, and basic or above on the CST ELA. However, the School Performance Framework/ Performance Meter shows that unfortunately Harte won the classification designated FOCUS - defined by low functional status and low levels of academic growth. This data is reflective of the State’s which further supports the need for the Academy.

Figure 1: CST Mathematics: 2nd, 4th and 6th Grade Proficiency Rates, by Race/Ethnicity (2011)



The narrowing of the pipeline begins early, the study notes.

- In second grade in 2011, 51 percent of African American students and 57 percent of Latino students were proficient in math, compared with 78 percent of white and 86 percent of Asian students; in fourth grade, the gap narrowed a bit as all groups upped proficiency. But by sixth grade, the slide began: 42 percent proficiency for Latinos and 35 percent for

African Americans, 33 percentage points below whites and 46 percentage points below Asians (see chart above).

- The pattern has been set for algebra in 8<sup>th</sup> grade, considered a gatekeeper for students in California who want to major in STEM in college; most African American and Latino students take Algebra in 9<sup>th</sup> grade, but of those who took it in 8<sup>th</sup> grade last year, 29 percent of African American and 37 percent of Latino students tested proficient, far below whites (58 percent) and Asians (76 percent). On the National Assessment of Education Progress, or NAEP, African American students in 19 states and Latino students in 34 states scored significantly higher than their peers in California.
- Rates for proficiency and above on state standardized tests get worse for those who take Geometry (13 percent African American, 18 percent Latino, 42 percent white, and 60 percent Asian) and Algebra II (16 percent African American, 21 percent Latino, 39 percent white, and 61 percent Asian).
- In fifth grade, where science is first tested, 43 percent of African American and 45 percent of Latino students reached proficiency and above, compared with 80 percent of white and Asian students.
- The data for high school science becomes bleaker. On state Biology, Chemistry, and Physics standardized tests, African American and Latino proficiency rates were between one-half and one-third of white and Asian students' rates (see chart).

Figure 4: CST 4th Grade Math Proficiency Rates by Income and Race/Ethnicity (2011)

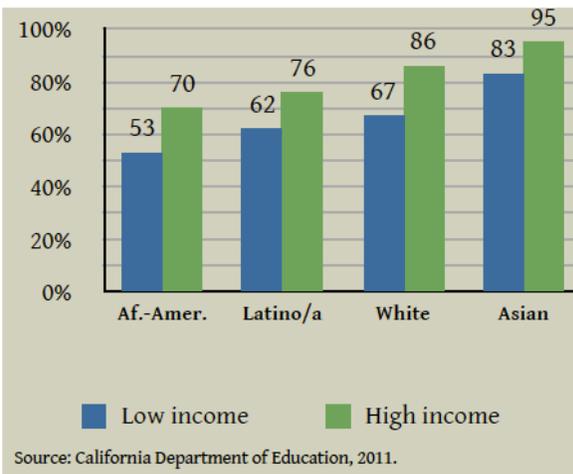
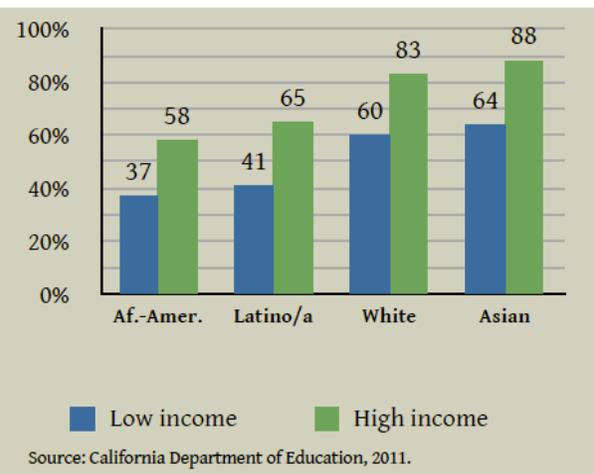


Figure 5: CST 5th Grade Science Proficiency Rates by Income and Race/Ethnicity (2011)



**2. Based on your analysis, please identify the most central and urgent issues/challenges that are hindering the school from improving student learning and achieving the vision of the successful future graduate and the school articulated above? What is the supporting evidence that leads you to identify the items listed above as high priorities?**

### C. SCHOOL TURNAROUND

**1. Building on the priority areas identified above as central to turning around your school, what specific strategies, practices, programs, policies, etc. must be employed to address each priority area?**

Significant empirical research has shown that student learning can be improved when instructors move from traditional, transmission-style instruction to more student-centered, interactive instruction (e.g., Handelsman et al., 2004). Science, technology, engineering, and mathematics (STEM), infused with art, enable students to understand the natural world, the built environment, systems of society, and the interactions among them that will determine the future of our nation and planet. Like literacy, math and science embody habits of mind and methods for discerning meaning that enable students to learn deeply and critically in all areas. Just as adults need math and science to understand the world and function within it, students need math and science to understand and master subjects such as history, geography, music, and art

**Priority 1: A strong academic literacy program that embodies habits of mind and methods for discerning meaning that enable students to learn deeply and critically in all areas.**

One of the challenges facing today's middle schools is the demand for rigorous demonstrations of competency across the curriculum. Academic literacy means that a learner has an inventory of effective strategies to meet the demands of different forms of text. The missing ingredient in middle school literacy efforts has been the lack of continuity across the disciplines. Rather than allowing strategies to remain covert and internal, the Academy teachers will externalize and guide students in a way that embeds in academic literacy into a school-wide curriculum.

**Priority 2: Meaning culturally and linguistically responsive professional learning/teacher development**

Research-based approaches and the six access strategies – making cultural connections, instructional conversation, academic language development, contrastive analysis, cooperative & communal learning environment, and advanced graphic organizers – accommodate and validate the learning styles, communication styles, and unique modes in which all students, especially culturally and linguistically diverse learners. They help students process information and interact in social contexts while supporting the development of listening, speaking, reading and writing, and accelerate learning in English learners, Standard English learners, SWDs, as well as supports GATE students. This approach will be a cultural shift for teacher engagement. It will begin with a year-long focus and on-going professional learning that addresses the socio-cultural needs of diverse students. Four Essentials to Successful PD are:

1. Aim for 40 to 50 hours per year, and not in bunches but comfortably spaced out across the calendar so teachers have enough time to digest what they've learned and experiment in their classrooms.
2. Coherence: Training must be explicitly connected to classroom practices as well as in sync with what the district, the principal, and the teacher believe is important to success.
3. Relevance: Training must be applicable in the classroom right away; principals should provide the support and tools required for teachers to put their training into action.
4. Coaching: Have an instructional specialist available periodically in the classroom to provide support and suggestions as the teacher tries new strategies.

**Priority 3: Creating space – multiple programs and opportunities - for parents to be directly/become more involved in their children's learning; honor what parents bring about their children.**

**Priority 4: A safe and healthy learning environment where children excel academically and personally.**

Partnerships with community organizations will allow for the recruitment of volunteers to provide safe passage for our students both to and from school without a four-block radius. The Academy will promote social and emotional skills during the advisory periods through programs like Character Counts, DREAMS, CHAMPS, etc.

**What do you expect will change as a result of implementing these strategies, practices, programs, policies, etc.?**

As a result of implementing these strategies, practices, programs, policies, etc., the Academy will experience an increase in student achievement and personal/social development, as well as a decrease in truancy, absenteeism, and suspension. For teachers, there will be a culture-shift. Job-embedded and sustained professional development is crucial to supporting successful STEM and arts integration. Teachers will participate in more than 40 hours of professional development per year, meeting once a week for up to three hours of training throughout the school year focused on how to teach skills relevant to our students' futures.

But there's more to it than training teachers how to become facilitators of knowledge. Teachers at The ACADEMY will learn to be learners again. Meaningful professional learning will help them move away from being the people who hold all the knowledge to being the people who actually sit alongside -- not in front of -- their students and become facilitators of learning while continuing to learn themselves. The teacher-trainers/coaches will provide very deliberate in creating a learning-dynamic like the one the teachers will develop in their classrooms. Research indicates that this type of professional development increases the likelihood of success with arts integration (Burnaford, 2009; Wilcox et al., 2010; and Oreck, 2004), particularly when led by teachers (Burnaford, 2009) and when teachers receive coaching from teaching artists (Wilcox et al., 2010).

**What is the underlying theory/research that supports why you believe the strategies, practices, programs, policies, etc. identified above will dramatically improve student learning at your school?**

When academic subjects are differentiated and presented in an interdisciplinary fashion that reflects modern knowledge and society there is an increase in student engagement and retention, For instance history, literature, and art can be interwoven and taught through text, images, and sound. Integrated studies, sometimes called interdisciplinary studies, brings together diverse disciplines in a comprehensive manner, enabling students to develop a meaningful understanding of the complex associations and influences within a topic. A happy by-product of this approach, which is often coupled with project learning, is that it makes school more interesting and productive for students and teachers. This type of hands-on experiential learning activities may be especially helpful for students who are English language learners and for students where reading is not a high priority at home - in short, those who comprise the so-called Achievement Gap.

**Typical Courses in each grade**

<u>6<sup>th</sup> Grade</u>	<u>7<sup>th</sup> Grade</u>	<u>8<sup>th</sup> Grade</u>
Math	Math	Math
Science	Science	Science
English Language Arts	English Language Arts	English Language Arts
Social Studies	Social Studies	Social Studies
Physical Education	Physical Education	Physical Education

STEM: Foundation in Design Thinking Elective: 6-subject Wheel, Music, or Reading Center	Elective 1 - STEM Elective *Elective 2 (or Reading Center)	Elective 1 - STEM Elective *Elective 2 (or Reading Center)
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\*Students in need of additional academic support will be placed in at least one center class.

## **Elective Class Descriptions**

### **Sixth Grade STEM Class (all students)**

Foundations in Artful Thinking: This is a required class for sixth grade students. Students respond to challenges by using the phases of artful thinking, including developing an understanding of the problem/challenge, observing and collecting data, developing an understanding of the point of view (a problem for whom and why), brainstorming solutions, creating a solution, and testing that solution/prototype with the user through an art medium. Projects in this class are integrated with core curriculum studies.

**STEM Electives**: These change each year based on student, teacher, and parent interests.

Elective Wheel (6<sup>th</sup> grade only): Computers/keyboarding, Architecture, Financial Literacy, Art, Robotics, and Spanish (6 weeks each)

Games People Play (7-8<sup>th</sup> grade): Students use statistics, probability and psychology to understand politics, sports, and every day interactions.

Playing for Change (7-8<sup>th</sup> grade): Students examine the technical and artistic elements involved in creating sound. The science and art of sound is examined as it relates to media. Students participate in creating new sound experiences.

Tech Combo (7-8<sup>th</sup> grade): Students learn the way design works from a mathematical perspective. They use several PC and MAC compatible programs to develop their projects. Students experience simple machines, digital imagery, and examine “green” technology.

Computers (7-8<sup>th</sup> grade): Students broaden their understanding of several programs to produce informational text, maps, 3-d models, design houses/cities, create brochures and advanced PowerPoint presentations.

Architecture (7-8<sup>th</sup> grade): Students study the design of building related to history, technology, mathematics, and culture.

How Things Work (7<sup>th</sup>-8<sup>th</sup> grade): Students explore the things of life beginning with some of the Ancient Wonders and continuing on to modern “wonders” such as Facebook and text messaging. Students learn about networking and data base management through studying some of the activities in which they participate daily.

Robotics (7-8<sup>th</sup> grade): Using the Lego Mindstorm curriculum, students learn to program robots for motion, to respond to outside stimulus and to accomplish assigned tasks.

**Other Electives**: Art and Music Electives Descriptions to be added

**After School Homework Center**: The Homework Center will be open after school every day until 5:00 pm. The computer lab will also be available for students. A small number of them can sign up for the Rosetta Stone Program. Also, any parents who need access to use the computer lab as a resource during the after school hours may sign up.

**2. Describe the culture and climate (academic and non-academic) that is central to turning around your school and aligns with the instructional philosophy above. Why do you believe the culture described is one that will turn around your school? What research supports the actions you plan to take and the changes you expect to see?**

Initiatives in our School Plan include Positive Behavioral Interventions and Supports, an operational framework for implementing practices and interventions to improve academic and behavioral outcomes, Culturally Responsive RtI<sup>2</sup>, and Advancement Via Individual Determination (AVID), a college readiness system with research-based methods for elementary through postsecondary students.

Arts integration uses teaching practices that have been shown in brain-based research to improve comprehension and long-term retention. For example, when students create stories, pictures, or other nonverbal expressions of the content they are learning -- a process researchers call elaboration -- they are also helping to better embed the information. For example in a math class, students prepared for a test on linear equations by creating photo stories of the steps involved. This will require teachers to spend nearly a full class period teaching about basic principles of design. By spending time on the art we know that they retain that information better.

### **ACADEMIC**

Comprehensive Assessment: Effective assessment should measure the full range of student ability -- social, emotional, and academic achievement. Through various measures, including portfolios, presentations, and tests, multiple learning styles are supported.

Technology Integration: Technology is ubiquitous, touching almost every part of our lives, our communities, our homes. Yet most schools lag far behind when it comes to integrating technology into classroom learning. Many are just beginning to explore the true potential tech offers for teaching and learning. Properly used, technology will help students acquire the skills they need to survive in a complex, highly technological knowledge-based economy. Through the intelligent use of technology, combined with new approaches to education, a more personalized style of learning can be realized.

Integrating technology into classroom instruction means more than teaching basic computer skills and software programs in a separate computer class. Effective tech integration must happen across the curriculum in ways that research shows deepen and enhance the learning process. In particular, it must support four key components of learning: active engagement, participation in groups, frequent interaction and feedback, and connection to real-world experts. Effective technology integration is achieved when the use of technology is routine and transparent and when technology supports curricular goals

Integrated Studies: In today's dynamic global economy, centered on the development and exchange of knowledge and information, individuals prosper who are fluent in several disciplines and comfortable moving among them. Creativity, adaptability, critical reasoning, and collaboration are highly valued skills. When it comes to fostering those skills in the classroom, integrated study is an extremely effective approach, helping students develop multifaceted expertise and grasp the important role interrelationships can play in the real world. *The Logic of Interdisciplinary Studies*, an exhaustive 1997 research report, found broad consensus among dozens of researchers as to what the report called the "positive educational outcomes" for students in an integrated-studies program:

- Increased understanding, retention, and application of general concepts.

- Better overall comprehension of global interdependencies, along with the development of multiple perspectives and points of view, as well as values.
- Increased ability to make decisions, think critically and creatively, and synthesize knowledge beyond the disciplines.
- Enhanced ability to identify, assess, and transfer significant information needed for solving novel problems.
- Promotion of cooperative learning and a better attitude toward oneself as a learner and as a meaningful member of a community.
- Increased motivation.

Project-based Learning: Long term and student centered, project learning is a rigorous hands-on approach to learning core subject matter and basic skills with meaningful activities that examine complex, real-world issues. Project learning helps students develop and retain useful, working knowledge of subjects that are often taught in isolation and abstraction. Project-based learning helps students apply what they learn to real-life experiences and provides an all-around enriching education. It is a dynamic approach to teaching in which students explore real-world problems and challenges, simultaneously developing cross-curriculum skills while working in small collaborative groups. Because project-based learning is filled with active and engaged learning, it inspires students to obtain a deeper knowledge of the subjects they're studying. Research also indicates that students are more likely to retain the knowledge gained through this approach far more readily than through traditional textbook-centered learning. In addition, students develop confidence and self-direction as they move through both team-based and independent work.

Financial-Literacy: Financial literacy allows individuals to make educated financial choices, discuss financial issues, and plan for high school, and college in addition to promoting long-term well-being. When implemented well, financial education can increase habits of mind such as savings behavior, reduce maxed-out credit cards, and increase timely debt payments (Danes, Huddleston-Casas, and Boyce 1999; Bernheim, Garrett, and Maki 1997; Gutter, Copur, and Garrison 2010). The key characteristics of effective financial education programs for children are that they are:

- taught early,
- developmentally appropriate, and
- taught with applied curriculum to develop decision-making skills.

The research on financial-literacy programs indicates that people learn financial concepts best when financial education is personalized and practical and when it can be applied to real-life situations. For example, in accordance with these best practices for financial education, Sankofa STEM Academy teaches financial decision making to students in grades 6-8 in the context of activities that are relevant to their everyday lives, such as weighing the costs and benefits of purchasing a meal from different vendors. Delivering financial education in earlier grades helps to ensure that students who are at risk for dropping out and who may need financial education the most can receive it.

### **NON-ACADEMIC:**

**Social & Emotional Learning:** It's not enough to simply fill students' brains with facts. A successful education demands that their character be developed as well. Educators must also help

children develop the skills to manage their emotions, communicate, resolve conflicts nonviolently, and make responsible decisions in order to help them develop a sense of self. Although family, community, and society are significant factors in fostering emotional intelligence and character development, educators must create a safe, supportive learning environment and integrate social and emotional learning into the curriculum. When students work together on project teams, they learn to collaborate, communicate, and resolve conflicts. Cooperative learning and character development support the social and emotional development of students and prepare them for success in the modern workplace.

Research shows that promoting social and emotional skills leads to reduced violence and aggression among children, higher academic achievement, and an improved ability to function in schools and in the workplace. Students who demonstrate respect for others and practice positive interactions, and whose respectful attitudes and productive communication skills are acknowledged and rewarded, are more likely to continue to demonstrate such behavior. Students who feel secure and respected can better apply themselves to learning. Students who are encouraged to practice the Golden Rule find it easier to thrive in educational environments and in the wider world.

**3. How will you engage your school community, faculty, staff, students and parents so that they are able to understand and effectively implement elements of the instructional philosophy and turnaround plan?**

The Sankofa STEM Academy believes that we all have a stake in the welfare of our children. Therefore, ongoing, regularly scheduled school-wide town halls will take place for the school community to stay abreast of what is happening at the Academy. Year-long professional learning for all faculty and staff will be focused on “bring to life” instructional philosophy and our turnaround plan. The Academy believes that parents are co-constructors of their children’s education and understands the importance of establishing a supportive and professional relationship between parents and teachers. This relationship will in turn help students meet their academic and social goals. We will create a “space” for conversations that support and maximize student learning such as regularly scheduled parent-teacher “teach-ins” that allow parents to share their ideas, concerns, and strategies for improving the way the Academy functions on behalf of their children; parent training in the areas of parent practices that positively influence attendance; and parent workshops that will help parents.

**a. Given your community context, what needs to be true for your colleagues, students and parents to join you in the transformation of our school?**

All must embrace the concept that “we all have a stake” and be willing to share in the responsibility for sustaining the change we say we want to see.

**b. Given your community context, how are you going to share, communicate and generate interest and excitement about your plan for turning around your school?**

Sankofa STEM Academy will host a neighborhood block “meet and greet”, hold town hall meetings, make announcements at local churches and other organizational functions in order to generate interest and communicate excitement about our plan.

## **D. IMPLEMENTATION**

### **1. How will you monitor the implementation of your proposed turnaround efforts?**

The success of Sankofa STEM Academy will be measured both qualitatively and quantitatively. Some of the tools to be used will be the periodic assessment, the CST, the CELDT, home surveys taken by both parents and students, teacher observation, and school climate surveys.

### **2. What are the most significant barriers you foresee to successfully implementing the strategies, practices, program, policies, etc. identified for turning around your school?**

STEM education provides many opportunities and challenges so we asked ourselves, "How can our practice evolve to meet the needs of 21st-century learners? As with any new initiative, there are a number of factors that must be in place for it to succeed. With arts integration, high-quality professional development is essential. Teachers don't need to be both STEM and scientists or mathematician, nor "artistic" to be able to use this integration approach; they just need to learn some of the fundamentals so they will be better able to think of ways to merge art concepts with other content.

## **E. ALTERNATIVE GOVERNANCE MODELS AND AUTONOMIES**

### **1. If applicable, what alternative governance model have you chosen? What is your rationale for selecting this governance model? Why**

Not applicable this year.

### **2. What autonomies do you anticipate you will need to effectively implement the elements of the plan? What is your rationale for requesting this autonomy?**

Next year as we apply for the Pilot, we will be seeking certain autonomies.

## **F. SCHOOL PLANNING TEAM**

### **1. Who are the members of your planning team?**

The Sankofa STEM Academy has four District employees; however, only two are listed on the Planning Team Personnel Information form. The two who are not listed respectfully asked to be anonymous because of their recent and/or present affiliation with staff at Bret Harte. Both are fully credentialed with middle school experience. One has a certification in math and science, while the other is certified in the arts. Mary Covington is a veteran Secondary Teacher with a Math and Science Credential and holds a Masters' in Computer Technology Secondary.

The leader and organizer of the planning team is Dr. Carole A. Cobb. She is an accomplished curriculum designer, program developer, and coalition builder with over thirty years of successful experiences as a certified public school educator – sixteen as an administrator; fourteen as a teacher and instructional coordinator; eight as an undergraduate and a graduate professor of teacher education programs; and eighteen as a trained facilitator in culturally and linguistically responsive educational practices. She has a Master's in Educational Leadership & Administration and a Ph.D. in Curriculum and Instruction, K-12. Dr. Cobb also holds her Administrative Services Credential, Tier II – K-12, Secondary Teaching Credential in Social Studies and English, Cross-Cultural Language and Development (CLAD) Certification, and RtI<sup>2</sup> Train-the-Trainer Certification. Though there was no formal selection process in place, Dr. Cobb sought out colleagues who she knew to be very competent, knowledgeable, and experienced teachers, and asked them one question: "What would it take to change education in middle school to meet the future needs of the American people? Their passionate responses reflected her vision for preparing students to be high-functioning, problem solving global citizens which resulted in the submission of this proposal for Sankofa STEM Academy.

**2. In what ways did you engage parents in the development of your plan?**

Not being affiliated with Harte made it difficult to hold parent and community meetings. Fortunately, a protocol was built into the application process that gave “outside” teams opportunities to have face-to-face interactions with concerned parents. We attended and participated in both of the PSC 4.0 Parent Work Sessions at Hart Prep Middle School. Because Sankofa Education Alliance is heavily involved in the community and with several parent organizations, we were able to hold focus groups with parents to glean ideas from them as to the concerns of parents of middle schoolers in Program Improvement Schools. Subsequently, many of the desires, priorities, and requests of the Harte parents in relation to their children’s academic and social well-being were already woven throughout the proposal. Those that were not have been addressed and incorporated. From the first Parent Work Session, we were able to recruit several parents to serve on the Planning Team and added their names to the Planning Team Personnel Information form. These parents will take the lead to ensure .