



Sheldon T-STEM Academy

T-STEM Planning Application

2018-2019

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Background

District Affiliation

SHELDON ISD

DC #: 101924

Region: 04

Mailing Address (Line 1): 11411 C E KING PKWY

Mailing Address (Line 2):

City, State, Zip: HOUSTON, TX 77044

School Affiliation

C E KING H S

CDC #: 101-924-001

Region:

Mailing Address (Line 1): 8540 C E KING PKWY

Mailing Address (Line 2):

City, State, Zip: HOUSTON, TX 77044

Academy Information

T-STEM Academy Name:

Sheldon T-STEM Academy

What grade level range will your academy serve in the 2019-2020 school year?

6-12

Grade Level	Number of Students
6	120
7	120
8	120
9	120
10	90

Contacts

Business Partner

Affiliation: LyondellBasell Chemical Company

Job Title: CVO Training Specialist

Full Name: Mrs. Ludith Gonzalez

Email: Ludith.Gonzalez@lyondellbasell.com

Phone Number: 281-862-4072

Superintendent

Job Title: Superintendent of Schools

Full Name: Mr. King Davis

Email: kingdavis@sheldonisd.com

Phone Number: 281-727-2006

Applicant

Job Title: Director of Advanced Academics and CTE

Full Name: Mrs. Karen Gallow

Email: karengallow@sheldonisd.com

Phone Number: 281-727-2052

IHE Liaison

Affiliation: San Jacinto College

Job Title: Associate Vice Chancellor for Student Success Partnerships

Full Name: Dr. Pamela Campbell

Email: pamela.campbell@sjcd.edu

Phone Number: 281-991-2672

IHE Liaison

Affiliation: San Jacinto College

Job Title: Chancellor

Full Name: Dr. Brenda Hellyer

Email: brenda.hellyer@sjcd.edu

Phone Number: 281-998-6100

Narratives

Opening Statement

Describe how the decision to apply for a planning year was made. Include the types of individuals that were involved in the decision process.

The Sheldon ISD STEM Academy Design Team, which includes members from Sheldon ISD and San Jacinto College, has been actively implementing a districtwide STEM initiative that includes planning for T-STEM designation for C.E. King High School, the district's sole comprehensive high school, and two feeder middle schools, C.E. King Middle School and Michael Null Middle School. The design team consists of the following Sheldon ISD members: superintendent; chief academic officer; executive directors of personnel services and secondary education; secondary school principals; directors of advanced academics, innovative programs and professional development; curriculum coordinators, instructional deans, CTE coordinator, lead counselors, STEM teachers. San Jacinto College team members include the chancellor, the associate vice chancellor of student success partnerships, the provost, the director of dual credit, and two deans.

The design process began with members of the team attending the 2016 Annual Texas STEM Conference and progressed with visits to four designated T-STEM campuses in four Texas metropolitan cities. The percentage of students selecting STEM endorsements, as well as Texas Workforce Commission employment projections, was a key factor in the decision-making process. The design team noted five STEM careers with median wages ranging from \$77,905 to \$113,497 among the top 25 Gulf Coast occupations by job postings: software application developers, computer programmers, information security analysts, civil and mechanical engineers. After studying the 2015 T-STEM blueprint, the design team presented a three-year plan to the Sheldon ISD Board of Trustees, the Districtwide Instructional Improvement Council, and the Sheldon ISD community. The strategy includes internal planning years (2016-2018), the implementation of middle school academies beginning with 120 seventh graders (60 from each middle school) in 2017-2018, and the addition of subsequent cohorts annually. The design team has met regularly and worked in subcommittees to accomplish tasks that align with T-STEM goals and the Sheldon ISD mission of providing "personalized learning opportunities to ensure all students graduate college and career ready." If designated, the T-STEM Academy, along with Sheldon Early College High School, would be one of several small learning communities within C.E. King High School.

Thus far, the design team has accomplished the following: STEM Academy vision and mission statements; leadership and advisory council roles and responsibilities; a student application, recruitment, and lottery timeline; bridge camp design; a project-based learning professional development plan; teacher recruitment, hiring, stipends, and retention; budget allocations; curriculum decisions; grant proposals and oversight of awarded funds; pathways and new courses in computer science and engineering; and development of business and community partnerships. The district website, social media, parent nights and STEM Expos inform the community about the progress of the STEM initiative.

Members of the STEM Design Team continue to research best practices, which include TEA support during a planning year aligned to the newly released T-STEM blueprint. Most recently, members of the team participated in a leadership summit hosted by the Smithsonian Science Education Center in Washington D.C. Funded by Shell Oil and Howard University, the summit tackled the issue of underrepresentation in STEM.

Model Implementation

Does the district have any designated T-STEM acadmies for the current school year?

No

Which T-STEM model does the district intend to implement at this time? Within these models, there are variations. For this purpose campus is defined as a CDC number not a physical location.

School-Within-School: Multiple Campuses - A subset of students in grades 6-12 are enrolled in the T-STEM academy. This model typically spans a middle school and high school. This may also be applicable if 9th grade is on a separate campus due to physical space issues.

Dual Credit

Identify the type of advanced courses (dual credit/AP/IB) currently implemented on the campus. If this is a brand new campus, identify the type of advanced courses currently implemented at any school in the district. If the district does not currently offer any of the advanaced courses below, select "Not Applicable".

- DC
- AP

Describe the advanced courses (dual credit/AP/IB) are currently implemented on the campus?

C.E. King High School provides advanced coursework through dual credit and Advanced Placement opportunities. Via Sheldon Early College High School (a school within a school) or the Modified Early College Academy (MECA), students can choose one of eight degree plans to earn an associate degree from San Jacinto College while in high school: Associate of Arts (Business Field of Study); Associate of Arts (Teaching Concentration); Associate of Arts (Criminal Justice Field of Study); Associate of Arts (Pre-Health Occupations); Associate of Science (Pre-engineering); Associate of Science (Physical Science); Associate of Arts (Communications); Associate of Arts (General Studies). Students can also enroll in an academic dual credit plan to complete 24 or more college credits in the Texas Higher Education Coordinating Board core curriculum. The KNIT (King Nurses in Training) dual credit program supports students who aspire to become registered nurses in completing 34 college credits in the nursing field of study and achieving acceptance into nursing school.

Students at C.E. King High School enroll in dual credit programs that result in Certificates of Technology in the following areas: Pharmacy Technician, Construction Management, Medical Assisting, Criminal Justice, Cosmetology, Emergency Medical Technology, Automotive Collision Repair, Diesel Technology, Electrical Technology, and Welding. Sheldon ISD also partners with University of Texas OnRamps to offer dual enrollment options for English 1301 and 1302 and is pursuing new dual enrollment options for Introduction to Engineering (ENGR 1201) and Engineering Graphics I (ENGR 1304) as a complement to its existing Project Lead the Way course sequence.

C.E. King High School values and adheres to the College Board equity and access principles regarding open enrollment for Advanced Placement. The campus offers the following Advanced Placement courses: English Language and Composition; English Literature and Composition; Studio Art; Music Theory; Chemistry; Biology; Physics I; Calculus AB; Statistics; World History; U.S. History; U.S. Government and Politics; Macroeconomics; Spanish Language and Culture; Spanish Literature and Culture; French Language and Culture. Beginning in 2018-2019, students will be prepared to take the Advanced Placement Computer Science A and Computer Science Principles exams. In addition, C.E. King High School was one of 150 campuses worldwide selected to participate in the 2018-2019 9th grade Pre-AP cohort. Participation will support the campus goals of improving the vertical alignment of Pre-AP curriculum and assessments to Advanced Placement coursework.

Describe the current campus or district partnership with the dual credit provider. If the district does not have a current partnership, please describe the proposed partner for the new campus and how the partnership is currently being developed.

Except for the dual enrollment agreement with UT OnRamps, Sheldon ISD partners with San Jacinto College to provide dual credit opportunities for C.E. King High School students. In the 2012-2013 academic year, the partnership expanded its academic dual credit program by serving students in Sheldon Early College High School, a small learning community within C.E. King High School. The partners meet during Advisory Council and planning sessions to discuss revisions to the Memorandum of Understanding (MOU), which is approved by each Board of Trustees biennially. The goal of the MOU is to specify expectations regarding all aspects of the partnership, including the following: purpose and members of the Advisory Council, instructional calendar, facilities, faculty, professional development, student recruitment and selection, enrollment, transportation, courses of study, instructional materials, fiscal matters, safety, codes of conduct, grades, financial aid, transcripts, attendance, student records, academic support, advising and counseling, community outreach, and steps for termination. The current MOU waives 75% of the college tuition and fees and includes unlimited free Texas Success Initiative Assessment testing for ECHS students and two free TSIA exams for students who apply for other dual credit programs. Dual credit students have access to college amenities, and they are leaders in college clubs and organizations. By December 2018, the Sheldon ISD STEM Design Team will collaborate to develop a Memorandum of Understanding that includes related topics that govern the STEM Academy partnership. Since 2015, the district has also collaborated with San Jacinto College to increase the number of C.E. King High School students who enroll in and complete dual credit certificate of technology programs.

The partnership between San Jacinto College and Sheldon ISD is one of mutual respect and collaboration. Sheldon ISD was chosen as one of San Jacinto College's partners in the Gulf Coast Partners Achieving Student Success (GC PASS) initiative and was invited to attend the Achieving the Dream conference in Baltimore, Maryland, with the San Jacinto College delegation. In addition, San Jacinto College participated in STEM Design Team site visits to Pharr San Juan Alamo, Corpus Christi, and Lancaster, Texas, and is a partner in the recently awarded Perkins Reserve grant, which supports the new C.E. King High School nursing program. In conjunction with the University of Texas at Austin Dana Center, San Jacinto College and Sheldon ISD are also working to develop and refine curriculum and assessments to support the college prep math courses at C.E. King High School.

Where are the dual credit courses currently offered?

- High school campus taught by high school teacher
- High school campus taught by college faculty
- Community college
- Other: Courses are also offered online.

Does the campus currently have teachers with qualifications to teach dual credit courses?

Yes

Industry/Business Partner

Describe what STEM pathways are being considered for this T-STEM academy? If applicable, please describe any current STEM pathways offered at this campus.

Currently C.E. King High School offers STEM electives in both computer science and engineering. These pathways, which utilize Project Lead the Way, are currently available to seventh graders in our newly created STEM Academy and are options for all students in grades 9-12. As the STEM Academy grows, we plan to add a biomedical pathway, as well as additional courses to complete the vertical alignment in grades 6-12. In addition to our existing advanced science and math pathways, which include Advanced Placement and dual credit options, the biomedical courses will complete the five choices for a STEM endorsement. Via real-world challenges, the computer science courses engage students as they collaborate to think critically, design solutions, and communicate their learning. Likewise, the engineering courses empower students to embrace inquiry, to find solutions to tough problems, and to bring their ideas to fruition. The five STEM pathways develop lifelong skills that will support students' academic plans and career choices.

Describe plans for creating strategic alliances with industry partners and IHEs. What is the anticipated role for each IHE, business, and/or community partnership?

The roles and responsibilities of institutions of higher education (IHE) and business/industry partners will be clearly communicated in Memoranda of Understanding (MOU) and written partnership agreements. District and campus personnel will utilize various networking channels to establish and expand strategic alliances that support STEM. Opportunities include, but are not limited to, the area Chamber of Commerce, the Career and Technical Education Advisory Council, IHE partnerships, parent and community organizations, local/regional businesses, professional organizations, and Sheldon ISD vendors.

Institutions of higher education will be essential to integrating dual credit/dual enrollment courses transferrable to an associate or bachelor's degree, as well as credentials and certifications that are in demand. Industry and business partners will serve as mentors who provide work experiences, job shadowing, career exploration, and support for STEM clubs and activities. In addition, they will provide students with first-hand knowledge regarding appropriate workplace behaviors and expectations. Business/industry partners will contribute valuable feedback to students on their products and processes as they complete challenging learning activities and capstone projects. The alliance with business/industry partners also creates a pipeline to student employment opportunities after high school graduation. The STEM Advisory Board will include IHE and business/industry stakeholders who provide insight regarding STEM curriculum, certifications, instructional resources and training that impact teaching and learning.

Describe how business partners can support work-based and contextual learning for this academy (i.e. through internships, externships, capstone projects, etc.).

Current business partners include Genesys Works, LyondellBasell, Generation Park, HDR Engineering, and Sheldon Lake Park. These partners work hand-in-hand with Sheldon ISD STEM schools and students to offer career talks, STEM activities, and in-class support with project-based learning by providing feedback, consulting and background knowledge from the perspective of STEM professionals. The real-life problems that are included in the project-based learning, combined with the support of our business partners, allow students to acquire 21st century skills. Via Genesys Works, C.E. King High School seniors are provided the opportunity to earn \$10,000 as they gain impactful professional work experiences in Fortune 500 corporations. Professional mentors provide students with skills training and guidance on college applications, scholarships, financial aid, and pathways to career success. Genesys Works engineering firms also will be instrumental in supporting work-based learning for students in the C.E. King High School STEM Academy.

The long-range plan is to work closely with C.E. King High School career prep teachers and current business partners to develop systems that increase the number of business partnerships that support mentorships, internships and externships as the STEM Academy students advance through their high school coursework. Our close business relationships permit the implementation of quality mentor programs as students complete a STEM capstone project prior to high school graduation. LyondellBasell has committed to award a scholarship to the winner of the capstone competition. A mentorship program is also in development where students will be partnered to work closely with LyondellBasell personnel as they complete their capstone projects.

Describe any planned STEM-focused extracurricular activities (field experiences, clubs, and competitions) that will be offered to students.

During the 2017-2018 academic year, Sheldon ISD implemented C-STEM in after school programs at two STEM elementary campuses. This new STEM initiative was started with more than 80 5th graders who stay after school for an hour two times weekly to complete the coursework and projects to compete in the yearly C-STEM Challenge at the Houston Health Museum. Four teams will compete in the areas of Innovation, Mural, Sculpture and Robotics. The elementary program creates a pipeline to the middle school STEM pathways.

The district plan for STEM-focused activities also includes a STEM Buddies program, where high school STEM students work with middle school STEM students as they complete STEM activities once per nine weeks. This will provide an opportunity for older students to become role models and serve as motivation for younger students to develop skills in science, technology, engineering and mathematics. Another benefit of this program is that it supports the development of relationships among STEM students and will lead to retaining middle school students in the program throughout their high school years. STEM clubs at both the middle and high school levels will provide additional extension and enrichment opportunities with coding, robotics and drones. Students who participate in STEM Club robotics will prepare for the local Lego robotics competitions yearly. STEM clubs are currently implemented in both Sheldon ISD middle schools with plans to expand to the high school in the 2018-19 school year.

Describe how the Academy will recruit, support, and retain highly qualified teachers.

Sheldon ISD implements a logic model that is designed to guide the recruitment, support and retention of highly qualified teachers. This plan was developed by STEM teachers, administrators and business partners in February 2018 at the Smithsonian Summit in Washington, D.C., that was hosted at Howard University and sponsored by Shell, CSTEM and the Smithsonian Science Center. The recruitment process includes a STEM hiring team that attends job fairs to recruit diverse, highly qualified teachers who meet the characteristics of a STEM teacher, as defined by the Sheldon ISD STEM Design Team. The recruitment process is followed by an interview, which requires applicants to demonstrate specific skills and to provide artifacts that support their candidacy.

The logic model offers several incentives to support and retain STEM teachers: a stipend for all STEM teachers; a common planning period, in addition to a conference period; weekly time for professional learning communities (PLCs) that build instructional capacity; support from a campus STEM team leader and STEM Academy leader; quality professional development at state and local STEM conferences and ongoing opportunities with University of Texas at Tyler, Buck Institute and district STEM facilitators; and the opportunity to earn a STEM certification with the National Institute of STEM Education for which Sheldon ISD will incur the expense. The logic model for recruiting and retaining teachers can be found at

<https://docs.google.com/document/d/1TWO3vWFtaQL6WMtmBHfMoegUiv1kJidYxEJMXl1ACwo/edit?usp=sharing>.

