Humble High School TSTEM Academy

T-STEM Renewal Application

2019-2020

Contents

Background

District Affiliation

HUMBLE ISD

CD #: 101913
Region: 04
Mailing Address (Line 1): 20200 EASTWAY VILLAGE DR
Mailing Address (Line 2):
City, State, Zip: HUMBLE, TX 77338

School Affiliation

HUMBLE H S

CDC #: 101-913-001
Region:
Mailing Address (Line 1): 1700 WILSON RD
Mailing Address (Line 2):
City, State, Zip: HUMBLE, TX 77338

Academy Information

T-STEM Academy Name:
Humble High School TSTEM Academy

Are you currently in the 2018-2019 planning year or are a 2018-2019 planning grantee?

No

What grade level range will your academy serve in the 2019-2020 school year?
9-12

Grade Level	Number of Students	School / CDC # Where Students are Enrolled
9	80	HUMBLE H S (101913001)
10	55	HUMBLE H S (101913001)
11	25	HUMBLE H S (101913001)
12	19	HUMBLE H S (101913001)

Contacts

Business Partner

Affiliation: Purcell Construction
Job Title: Project Manager
Full Name: Mr. Jed Purcell
Email: jed@purcell.com
Phone Number: 281-414-3358

Superintendent

Job Title: Superintendent - Humble ISD
Full Name: Dr. Elizabeth Fagen
Email: efagen@humbleisd.net
Phone Number: 281-641-1000

Applicant

Job Title: Principal - High School
Full Name: Mrs. Donna Ullrich
Email: donna.ullrich@humbleisd.net
Phone Number: 281-641-6300

IHE Liaison

Affiliation: Lone Star College Kingwood
Job Title: Dean of Academic Partnerships
Full Name: Mrs. Kimberly Klepcyk
Email: Kimberly.M.Klepcyk@lonestar.edu
Phone Number: 281-312-1652

Narratives

Model Implementation

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 (SWS) - A subset of students on the campus are enrolled in grades 9-12 are enrolled in the T-STEM academy.

Endorsements

Identify the current endorsements that are offered:

- Science, Technology, Engineering, and Mathematics (STEM)
- Business and Industry
- Arts and Humanities
- Multi-disciplinary Studies

Certificates

Does this academy offer Associate Degrees to students?

No

TSIA

Does this academy administer the TSIA exam?

Yes

What ID number do students use when taking the TSIA exam?

College ID

Key Elements for Success

Provide a link to the job description, roles of design team, leadership team, and advisory board.

https://sites.google.com/humbleisd.net/hhs-tstem-academy/home

Provide a link to the final, signed, and executed MOU.

https://sites.google.com/humbleisd.net/hhs-tstem-academy/home

Provide a link to the academy's master schedules.

https://sites.google.com/humbleisd.net/hhs-tstem-academy/home

Provide a link to the academy's written admission policy and enrollment application.

https://sites.google.com/humbleisd.net/hhs-tstem-academy/home

Provide a link to the academy's written recruitment plan including a timeline of recruitment and enrollment events, and recruitment materials for distribution at feeder schools and other appropriate locations in the community

https://sites.google.com/humbleisd.net/hhs-tstem-academy/home

Provide a link to the academy's internship and externship opportunities.

https://sites.google.com/humbleisd.net/hhs-tstem-academy/home

Free-Response

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

The HHS STEM Academy recruits and selects highly qualified faculty. The Academy seeks to recruit faculty that possess extensive STEM knowledge and are enthusiastic about PBL. In order to recruit high quality effective teachers, the Academy will attend job fairs around the state, collaborate with IHE, provide professional development, and offer stipends. Academy teachers receive specialized professional development over both STEM and increasing student engagement and relevance. Success for every student in the Academy is not just a goal, but an expectation.
The interview process for the faculty at the Academy is different than that of the rest of HHS and the district. Academy students are included on the interview panel. Applicants begin by producing a portfolio demonstrating usage of PBL or are able to demonstrate characteristics that support alternative methods of engaging teaching. Candidates undergo an intense interview only after they have created and presented a STEM lesson to the committee and create a STEM based lesson. Finally, the candidate moves to a traditional interview with members of the Academy Leadership Team.
The PD plan focuses on further developing a college preparatory curriculum with a STEM career focus while also developing a variety of modalities of teaching to engage students in learning for the 21st century. The Academy is developing a professional development model of continuous learning that addresses prioritized needs as informed and evaluated by multiple sets of quantitative and qualitative data (student assessment data, instructional/classroom evaluations, technological developments, workforce demands, demographic changes, and community/societal expectations and needs). The Academy is developing an authentic PLC by instituting job-embedded ongoing opportunities for professional growth. We support our teachers by providing intensive summer professional learning series including PBL, AVID, and team planning time. We also provide a common planning period for TSTEM Academy teachers each day.
The Academy is developing a plan that collaboratively builds 6th – 12th teacher and administrator expertise in developing, teaching, learning, and assessing STEM cross-content curriculum. The Academy provides for flexibility in instructional practices to promote creativity and innovation while maintaining accountability. The Academy provides a common planning time, within the structure of the school day. The staff will collaboratively evaluate the efficacy of the instruction, curriculum, and student results. A plan for new teachers induction includes orientation, acculturation, mentoring, professional development, and administrative support.
Teachers are matched with a mentor. This relationship is an important aspect of the new teacher support from the Academy. New teachers know researched-based instructional skills; positive and safe interactions with students, parents, and community; excellent classroom management; and ongoing professional development is the minimum expectation.
The Academy uses survey information, formal meetings, and informal anecdotal evidence to make sure that staff has a voice in choosing opportunities for ongoing professional development to improve teachers' content knowledge, technology embedded instruction, integrative STEM pedagogy, college and career readiness standards, instructional strategies for ensuring a successful P-20 pipeline, and leadership capacity. The AAP includes a creative teacher incentive plan that provides an additional planning period and extra duty pay.

Describe the current STEM pathways available at the academy.

In Year One, all academy students take Introduction to Engineering. In their second year, students must choose one of three pathways available in which to remain for the next three years:
1. Engineering:
-Principles of Engineering
-Engineering Design
-Practicum in STEM
2. Computer Science
-Computer Programming 1
-Computer Programming 2
-Practicum of Information Technology
3. Biotechnology
-Principles of Bioscience
-Biotechnology 1
-Practicum in STEM
All final year courses are a double-block practicum which will consist of a senior capstone project and/or an
internship.

Describe how strategic alliances with industry partners and IHEs will support the Academy. The description should include details regarding the role of each IHE, business, and/or community partnership; along with parent/family partnerships and communication conventions with the Academy.

The HHS STEM Academy uses the Student Community Meetings to share information and communicate with students, parents, community, and business members. During the Student Community Meetings, the LT and staff of the Academy take time to meet with parents and students to share and discuss the expectations and opportunities at the Academy. Several companies have been chosen to help serve and support the efforts of the students and staff of the Academy. Specifically, construction, medical, and technological companies are being asked to be partners. Currently, the business and community partners are pairing up with Academy to provide mentoring opportunities, internships, and other methods to learn about real world applications. At this time, there is only minimal financial support from business and community partners.
The Academy is partnering with Lone Star College and has acquired the appropriate MOU. The MOU agreement ensures collaborative meeting and data sharing to help monitor student success and make real-time adjustments as needed.
Parent/family partnerships will increase as our academy grows. We have parental involvement on field experiences and at our parent informational meetings. We also have parents who will start a Booster club and increase involvement and possible fund-raising activities.
We communicate with all stakeholders via our webpage, a dedicated group in Slack, emails, F2F scheduled meetings, and by phone.
District Leadership - Humble ISD - provides leadership, funding, curriculum, student services
Elizabeth Fagen - Superintendent
Trey Kraemer - Asst. Supt. of Sec. Schools
Humble ISD School Board
Ann Johnson - Exec. Director of C&I
Charles Ned - Director of Adv Academics
Marley Morris - Director of CTE
Advisory Board - support for students and teachers by mentoring students, providing guest speakers, making connections to community workplace and experiences for our teachers and students
Dr. Carl Panzarella - retired dentist from Humble area
Clo Lewis - FFGS Engineering Consulting
Colette Lewis - FFGS Engineering Consulting
Elmer Whitehead - retired from engineering industry
Greg Geter - engineer
John Kollehner - retired engineer
Julie Geter - engineer
Ken Jackson - retired engineer
Dr. Latrice Babin - Deputy Director, Harris County Pollution Control
Lynetta Campbell - retired math professor
Mike Hardage - Clinical Director, EndoStim, Inc.
Sandra Edwards - Founder, Owner Edwards Energy Environmental Waste Management
Heather Wright - Meador Staffing & TSTEM Parent
Oscar Ramos - Dean of LSCK-Atascocita Center
Jed Purcell - Purcell Construction
Campus Leadership Team - daily operations, support, point of contact, expanding and maintaining opportunities for students, student support
Donna Ullrich - HHS Principal
Lisa McCorquodale - HISD STEM Director
Kimberly Mouser - HHS Dean of Academics

Larkin LeSueur - CTE Coordinator
Campus Team -ALTs, TSTEM teachers and administrator, provided day to day support for TSTEM teachers and students
Kimberly Mouser - Dean of Academics
Dustin Cabassa -Counselor
Dana Derbes - Science ALT
Tonya Green - Math ALT
Kelley Dockray -Humanities ALT
Jennifer Thompson - TSTEM Humanities
Jared Bentley - TSTEM Engineering
Chrispus Mwapea - TSTEM Math
Amanda Christian - TSTEM Computer Programming
Emily Culver - TSTEM Science
Misty Panietz - TSTEM BioScience

Describe the Academy's work-based and contextual learning in the curriculum.

In our academy, we strive to make learning project-based and/or work-based in order to give it real world, relevant context. For example, launching projects begins with an industry expert coming to introduce the context of each project. We have had a nurse, an architect, a construction manager, engineers, and a financial adviser come in to give students real-world context for various project they have been assigned. At the end of projects, students have presented their learning and projects to a panel of school and business personnel.
As our academy matures and grows, adding upper grade levels, students will be able to visit work sites and interact more with industry experts to gain experience in the workplace. We currently have grades 9-11.
Listed below are our WBL experiences for 18-19 school year.
Texas A&M University Chemistry Fair - all grades
Guest Speaker from Rice University - for Engineering path
Science/STEM in Sports - Houston Rockets STEM Event & Game - for all grades
Society of Women Engineers at Texas A&M University High School Engineering Conference - for Juniors
BioScience trip to Lone Star College Montgomery for BioTech Fair and DNA study
Humble ISD Warehouse Tour and PBL launch for Engineering 1 and 2
Engineering 3 to visit job site with Langan Engineering
Guest Speaker Series with Industry Experts - all grades
Computer Science visit to industry site (working on visit to Houston Intercontinental Airport - IAH or HP)
Offshore Technology Conference (OTC) 2019 for Juniors

Describe the STEM-focused extracurricular activities (field experiences, clubs, and competitions) offered to students.

Extracurricular and field experiences are an important part of our TSTEM Academy.
As the 18-19 school year began, we had a series of field experiences:
October:
University of Houston College Tour
Texas A&M University Chemistry Fair
November:
Young Women Energized at Houston Baptist University
December:
Science in Sports - Houston Rockets Game & Event
January:
Society of Women Engineers High School Conference at TAMU
Power Women in Industry Conference (for girls only)
February:
WaterWorks - Water Cycle Tour
BioScience Conference at Lone Star College Montgomery
Service Volunteer at TechnipsFMC STEM Fest
Lamar University College Tour
March:
Houston Museum of Natural Science Energy Tour of Weiss Energy Hall & “Dream Big” 3D IMAX film about Engineers
Houston Ship Channel Tour (upper grades only)
Job Site visit with Langan Engineering
May:
Offshore Technology Conference (OTC) 2019
Kemah Boardwalk (Physics and roller coasters)
Our students are also participating in Robotics Club, UIL Academic team, and have begun a Graphic Art/Anime Club.
Next year, we will begin a TAME club (Texas Alliance for Minorities in Engineering) and focus on more women in STEM activities.