Application for T-STEM Designation - New/Provisional

2016-2017

Contents

Texas Education Agency
Application for T-STEM Designation
Statutory Authority: Texas Education Code §39.235

Overview of Designation

In order to operate as a Texas Education Agency (TEA)-approved Texas - Science, Technology, Engineering, and Math (T-STEM) Academy, a district must seek and receive T-STEM designation from TEA. In order to receive the T-STEM designation, a school must exhibit key traits from the T-STEM Academy Design Blueprint included in this application. The intent of this designation is to ensure that districts operating T-STEM Academies: integrate all the key characteristics of well-researched and well-designed STEM education while serving students who may not have otherwise considered the fields of science, technology, engineering, and math.

Benefits of Designation

Recognition as an Approved T-STEM Academy:
Schools designated by TEA as state-approved T-STEM Academies will receive various forms of media recognition including, but not limited to: identification on TEA's website as a state-approved T-STEM Academy and recognition in press releases.

Participation in T-STEM Convenings:
Special events hosted by TEA for T-STEM Academy administrators and principals to provide input on policies and procedures that impact T-STEM Academies.

Membership in the T-STEM Network:
Frequently opportunities are provided for principals, teachers, and students in designated T-STEM Academies through the T-STEM network to share best practices through conferences and technical assistance sessions. Membership in the T-STEM Network allows T-STEM Academies to access online exemplars, professional development, and webinars.

Access to Professional Development and Technical Assistance:
Designated T-STEM academies will have access to high-quality technical assistance which includes advice and information from a Leadership Coach who has successfully facilitated the design and implementation of the majority of T-STEM Academies operating in Texas.

Strength of T-STEM Model:

- Through the designation process, TEA will recognize those T-STEM Academies that effectively incorporate T-STEM Design Blueprint elements. The designation process will enable districts and their partners to engage in the research and planning necessary to ensure that their T-STEM Academies are set up in the most effective way possible.
- The T-STEM Blueprint provides a framework for T-STEM Academies to access college and career opportunities that support post secondary success.

Questions about Completing the Application

Who can fill out a T-STEM Academy designation application?

Any district or charter school campus may apply to be designated as a T-STEM Academy. Potential applicants are encouraged to carefully review the T-STEM Design Blueprint to determine readiness for implementation of the model.

Will have to fill out the same application each year?

No. New designation applicants and those T-STEM Academies that are provisionally designated will complete the comprehensive form. T-STEM Academies that are fully designated must complete the abbreviated T-STEM designation application yearly. The abbreviated renewal application will require a designated T-STEM Academy to provide updates regarding changes in the design and operation of the Academy. However, the primary focus of the annual renewal will be to gather evidence on the Academy's progress along the T-STEM Academy Design Blueprint continuum.

Will this application be required for T-STEM Academy grantees in the future?

Yes. In future funding cycles, completion of this application will be a program requirement for T-STEM Academy grant recipients.

Who can I contact for help filling out this application?

- **New applicants** may contact the T-STEM Program Manager at tstem@tea.state.tx.us.
- **2016-2017 designated T-STEM Academies** may contact their current T-STEM coach.

Application Information

General Information:

- A district or charter must submit a separate application with the required attachments on behalf of each proposed T-STEM Academy.
- The application must be submitted via the online system by **5:00pm, March 4th, 2016**
- A campus must be designated prior to the beginning of the school year in order to operate as a T-STEM Academy for that year. T-STEM Academy approval is valid for a maximum of one year. T-STEM Academy designated must be applied for each year via the TEA T-STEM designation process.

Timeline & Process:

- March 4th, 2016: Applications are due to TEA in order to open a campus as a designated T-STEM Academy during the 2016-2017 school year.
- June 2016: Districts submitting applications by March 4th, 2016 will be notified of the selection or non-selection of the campus as a designated T-STEM Academy on or about June 2016. Applications submitted prior to the March 4th, 2016 deadline may be approved prior to June 2016.
- The district will receive a notification letter of selection or non-selection for each campus it proposes to operate as a T-STEM Academy.

Required Attachments:

- **Official signature:** Official signature of a district or charter official authorized by the local board to bind the applicant organization in a legally binding contractual agreement.

Required Supporting Documents:

- The Academy must have current versions of the following documents on file.
- Each applicant is required to provide an assurance that each of the supporting documents is current for the 2016-2017 school year, signed by all parties, and provides detailed information regarding the specific assurance.
  - **Dual Credit MOU**
  - **Professional Development Plan**
  - **Business/Industry Agreement**
  - **2016-2017 Master Schedule**

Questions:

T-STEM Program Manager
tstem@tea.state.tx.us

Required T-STEM Academy Design Program Elements

The following design elements are the minimum requried components that must be demonstrated through this application in order to be designated as a T-STEM Academy:

- The T-STEM Academy must serve grades 9 through 12 and may serve grades 6, 7, and 8.
- A campus must be designated prior to the beginning of the school year in order to operate as a T-STEM Academy for that year. T-STEM Academy approval is valid for a maximum of one year. T-STEM Academy designated must be applied for each year via the TEA T-STEM designation process.

I. Mission Driven Leadership:

- The Academy's mission statement and planned advisory board must reflect the mission and vision of the T STEM Initiative.
- The Academy must use program review and formative evaluation to achieve its mission and goals.
- The Academy must promote leadership development and collaboration within the Academy and T-STEM Network.
- For Academies that include 6th, 7th, and 8th grades, leadership teams from the middle school and high school must collaborate on a regular basis.

II. Academy Culture and Design:

- The T-STEM culture must foster positive student identities through meaningful adult and peer relationships.
- All students graduating from the Academy must be prepared for postsecondary coursework and careers in the STEM fields through the integration of the Governor's economic workforce clusters and AchieveTexas STEM cluster into the curriculum.
- The Academy must support all students to graduate high school with four years of math, four years of science, four years of STEM electives, an Endorsement (with a primary focus on STEM endorsements), and a Performance Acknowledgement for a Distinguished Level of Achievement.

III. Student Access, Success,and Persistence:

- The Academy must have a clear plan for student support and success to achieve persistence rates above 70%.
- The Academy must instill the expectation that students expand their participation and leadership in STEM activities outside the classroom and provide the opportunity to do so.

IV. Teacher Selection,Development, and Retention:

- The Academy faculty must possess extensive subject knowledge and integrate project based learning (PBL) and STEM pedagogy into the classroom.
- The Academy must adopt and implement a plan for sustained professional development.

Required T-STEM Academy Design Program Elements cont.

V. Curriculum.Instruction.and Assessment:

- The Academy must align curriculum, instruction, and assessment to provide students with rigorous STEM focused instruction.
- The Academy must deliver Innovative STEM programs that are well-defined, embed critical thinking and problem solving, foster innovation and invention, and are aligned to state and/or national standards, and industry expectations.
- The Academy must integrate science, technology, engineering, and mathematics throughout the curriculum.
- The Academy must continually monitor student progress through assessments and data collection.
- The Academy must promote STEM literacy and prepare students with 21st Century skills.
- The Academy must support three years of STEM electives at middle school and four years of STEM electives at high school.

VI .Strategic Alliances:

- The Academy must promote family involvement in student success.
- The Academy must integrate business partnerships into the curriculum and student learning experience.
- The Academy must partner with IHEs and college/career-preparation entities to ensure that students graduate with college credits and prepared for postsecondary success.

VII. Sustainability and Advancement:

- The Academy must have a plan for continuous improvement and growth.
- The Academy must adopt and implement a plan for sustained professional development.

Scoring of the Application

- Each applicant will be reviewed by T-STEM subject-matter experts from across the state.
- New applicants will be reviewed based on the proposed plan and a follow up with the applicant, if necessary.
- Each applicant will receive a notification letter from TEA indicating which designation category it has been assigned: Designated, Provisionally Designated, or Denied.
- The T-STEM Academy Design Blueprint has been consolidated in the application to highlight priorities for the planning period of designation. Applicants should focus on the benchmarks presented in answering the questions.

PART 1: CONTACTS

1.1 T-STEM Academy

T-STEM Academy Name	Birdville Career and Technology Education
County District Campus Number	220902011
Mailing Address - Line 1	7020 Mid Cities Blvd.
Mailing Address - Line 2	
Mailing City	North Richland Hills
Mailing Zip Code	76180

1.2 School District

School District name	Birdville
Mailing Address - Line 1	6125 East Belknap St.
Mailing Address - Line 2	
Mailing City	Haltom City
Mailing Zip Code	76117

1.3 Education Service Center Region

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1.4 Person Completing this Application

First Name	Dana
Initial	
Last Name	Harris
Title	Mrs.
Phone	(817) 547-7308
Email	dana.harris@birdvilleschools.net

1.5 Academy Principal/Director

First Name	Linda
Initial	
Last Name	Anderson
Title	Dr.
Phone	(817) 547-5814
Email	linda.anderson@birdvilleschools.net

1.6 Superintendent

First Name	Darrell
Initial	
Last Name	Brown
Phone	(817) 547-5700
Email	darrell.brown@birdvilleschools.net

1.7 T-STEM Academy Partner Information

IHE Partner	Texas Woman's University, Tarrant County College
STEM Business Community Industry Partner	Advanced Chemical Logistics, LTD.

1.8 Authorized School District or Charter Official

First Name	Linda
Initial	
Last Name	Anderson
Title	Dr.
Phone	(817) 547-5814
Email	linda.anderson@birdvilleschools.net
Signature	(Attached)

PART 2: BACKGROUND

2.0 Is your campus currently designated as an Early College High School (ECHS) through the TEA ECHS designation process? No

2.1 First year of Academy Operation 2016

2.2 Years in Operation 0

2.3 Academy Model:
What is the design of the T-STEM Academy requesting designation? School Within a 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

2.4 Target Population

Grades of students to be served	6th	7th	8th	9th	10th	11th	12th	Total Enrollment
2016-2017 projected enrollment	0	0	0	1010	1398	1175	1395	4978
2015-2016 enrollment (if designated in the 2015-2016 school year)	0	0	0	0	0	0	0	0

PART 3: BENCHMARKS

T-STEM Blueprint Instructions

The T-STEM Academy Design Blueprint consists of seven benchmarks that drive the success of an Academy. Each benchmark highlights program requirements and offers a rubric score of developing, implementing, mature, or role model. T-STEM Academies use this tool to measure growth and progress along the continuum.

All seven benchmarks are included in the application. However, applicants may notice the program requirements are not numbered sequentially. This is because not all program requirements are included in the Designation Application. Applicants are not expected to meet or even consider all program requirements at this stage in the process. Instead, those program requirements that form the building blocks of a successful designated Academy are included in the Designation Application. Focused consideration of those particular program requirements will mean a successful applicant will have a strong foundation as a designated T-STEM Academy. The technical assistance that comes as a result of designation will allow the designated Academy to implement the Blueprint Benchmarks' full program requirements over time.

Benchmarks 1-4, 6 & 7
Applicants should first review the program requirements for each benchmark presented in the body of the application. The questions that follow pertain to those specific requirements (i.e. Benchmark 1 questions pertain to Benchmark 1 program requirements). Applicant responses should reflect a close consideration of the highlighted rubric areas in the context of what the campus has in place currently and could feasibly implement during the first designated year. Applications will be scored on the response's evident understanding of the continuum of growth along the rubric, evidence of existing programs, and feasible plan to move forward for each requirement.

Benchmark 5: Curriculum, Instruction, and Assessment
Applicants should review the program requirements presented in each section and rate the campus's existing system in the rubric's check boxes. Applicants are then asked to justify the ratings with evidence, reflection, and a plan to move forward, bearing in mind that with designation comes the tools and assistance necessary to progress along the continuum. Successful applicants will reflect an understanding of Benchmark 5 and are not necessarily expected to have all elements in place before designation.

Benchmark 1: Mission-Driven Leadership

Program Requirements

1.2.C.	Develops and demonstrates support from an advisory board (AB) consisting of representatives from the Academy, school board, district, community, higher education, and STEM businesses to support and guide facility requirements, resource acquisition, curriculum development, internship, externships, and student/community outreach to ensure a successful 6-20 STEM academic and career pipeline.
1.3.A.	Integrates and assesses the level of mission-driven and data-driven decision making evident in the daily work of the Academy.
1.4.A.	For 6-12 campuses, middle school and high school leadership teams regularly collaborate to advance 6-12 alignment and student retention in STEM.

Key Elements for Success

- Job descriptions and roles for design team, leadership team, and advisory board
- Mission is posted and can be articulated by teachers, staff, students, key stakeholders, etc.
- MOUs with T-STEM Centers

	Developing	Implementing	Mature	Role Model
1.2.C.	Advisory Board (AB) established.	AB positions and subcommittees are identified.	AB develops innovative and creative approaches to support Academy mission and vision.	AB addresses major shifts in STEM, educational standards, industry expectations, and analyzes SWOT of Academy, resulting in measurable action items.
1.3.A.	Little or no evidence of data-driven and mission-driven decision making.	Data is used to design student interventions, Annual Action Plan (AAP), and to inform teaching and learning aligned to the mission.	Teachers work interdependently as teams to review data across content areas, develop targeted interventions, and develop common formative assessments.	The Academy's continual analysis of results for improvement is critical to the school's system of interventions and culture of celebration.
1.4.A.	Academy leadership occasionally collaborates with each other (6th - 12th), with T-STEM centers, and T-STEM Coaches.	Academy leaders and staff collaborate with each other (6th - 12th), and with T-STEM Centers and Coaches to integrate STEM teacher preparation, teaching, and learning. *And meets criteria from Developing*	Academy plans with regional T-STEM Center, vertical alignment teams 6th - 12th (at least quarterly), and meets with their T-STEM Coach, virtually or Face-to-Face (at least monthly). *And meets criteria from Developing and Implementing*	Academy dialogues on a regular, ongoing basis in vertical alignment teams (6th - 12th), with T-STEM Centers and Coaches, and utilizes available T-STEM resources to improve student achievement and teacher preparation. *And meets criteria from Developing, Implementing, and Mature*

Benchmark 1: Mission-Driven Leadership

- Program Requirement 1.3.A. addresses the use of data to drive design, decision making, and program review in a T-STEM Academy.
- Designated campuses will be expected to meet or exceed “Implementing” on the rubric above (Data is used to design student interventions, Annual Action Plan, and to inform teaching and learning aligned to the mission) by the end of the first designated year.

Describe below how the campus will meet or exceed this expectation.

The Birdville Career and Technology Education high schools use a variety of data to drive student learning. First, the course offerings are selected based on industry trends and student interest. Prior to entering high school, students are enrolled in a course that educates them on different career fields and the path to those occupations. Students use this information to choose their high school courses and endorsement area. Birdville CTE relies on the student choices to offer the most in-demand courses. Birdville CTE also examines data from partner InterLink to provide insight on current and future job market trends to help ensure the school is preparing students for the challenges of a competitive workplace. Course offerings are reviewed each year.

Birdville CTE has established a Problem of Practice for the district's Career and Technology Education program. The Problem of Practice is based on students' scores on STAAR/EOC exams. Testing data indicates a need for improved advanced writing EOC scores. Through Professional Learning Communities, collaborative efforts will be made to develop an increased cognitive level of writing in CTE students. Currently our programs incorporate future ready skills in career-oriented and literacy practices; however, improvements can be made on advanced writing through CTE coursework. Teacher's instructional delivery and student work may not always be tightly aligned with the cognitive rigor, content, and context of the standards.
Theories of Action:
• If each Professional Learning Community collaborates to increase rigor in their lesson design; and
• If our focus is to move students from passing EOC to being well prepared for post-secondary success (college and careers); and
• If teachers utilize focused feedback and make appropriate learning adjustments
then BISD CTE graduates will be better prepared as college and career ready graduates.

- Program Requirement 1.2.C. details the requirements for an Academy's advisory board (AB).

List the planned AB members and their job title (example: John Smith, School Board Member; Jan Smith, STEM Business Leader, etc.). Detail how this board will support the Academy work.

The Advisory Board meets with STEM teachers twice a year. At this time, teachers and administrators have the opportunity to discuss projects and goals with board members. Board members offer advice and insight which help align instruction both with current industry standards and future trends in STEM.

Marilyn Ackmann, manager, Atmos Energy
Andy Anderson, STEM business owner
Sharon Battles, community business owner
Jack Bradshaw, president, Northeast Tarrant Chamber
Mandy Briones-Watkins, community business owner
Tim Brown, STEM business leader
Terry Browning, STEM business leader
Sally Bustamante, human resources director of STEM business
Richard Davis, STEM business leader
Vickie Edgar, community business owner
Blanca Gomez, STEM business leader
Mr. and Mrs. Gregg Gochneaur, STEM business owner
Cary Hancock, STEM business leader
Erayne Hill, vice president, STEM business
Wes Jones, STEM business leader
Mike and Kyle LaPointe, STEM business leader
Judy McDonald, executive director, community business
Russell Mitchell, community business leader
Robert Morgan, community business leader
Robert Neal, STEM business leader
Tony Pack, community business leader
Renee Parker, community business leader
Sharon Sherley-Mylius, president of STEM business
Candy Slocum, executive director of STEM business
Glenn Smith, attorney
Rick and Martha Strain, community business owners
Gary Williams, president and CEO of STEM business
Bobby Zelt, community business leader

Program Requirement 1.1.A: Provide the Academy mission statement below.

Birdville Center of Technology and Advanced Learning Mission:

Career and Technology Education embraces quality instructional partnerships with business and industry to successfully prepare students for the challenges of post-secondary education and a globally competitive workplace.

Birdville Independent School District:

The mission of Birdville ISD is to ensure that all students position themselves to excel with integrity in an ever-changing global society through innovative and responsive learning environments.

- Program Requirement 1.4.A details the requirements for 6th-12th campuses to collaborate on a regular basis to advance 6th-12th alignment and student retention in STEM.

Describe below how the campus will meet or exceed this expectation. If Academy is 9th-12th write, "Not Applicable".

Not Applicable

Texas Science, Technology Engineering and Mathematics

Benchmark 2: T-STEM Academy Culture and Design
Program Requirement: 2.1 Personalization

2.1.A Addresses in AAP and strategic plan the details for remaining small, allowing for personalization and maintaining collaborative learning communities of students.
2.1.B Plans and implements a non-graded student advisory program that is regularly scheduled, noted in the master calendar/schedule, and focuses on personalizing the student experience, (builds relationships with students and parents, develops character, and fosters global literacy).
2.1.C Develops a process for hearing and responding to student voice.

Key Elements for Success	Example Artifacts
• Student IGPs w/ CCRS, Endorsements, and Performance Acknowledgement plans • Master schedule for advisory • Student enrollment	• Opportunities for orientation sharing and team building activities both on- and off-site • Advisory class curriculum • Student goal setting and reflection logs • Teacher mentors assigned to students • Pre- and post-assessments of advisory class goal • Students sit on advisory board and/or have voice in student work products, clubs, competitions, governance, and course offerings • School wide activities to build/share culture • Student ambassadors serving as classroom greeters and/or guide tour groups • Teacher/student ratios, actual class sizes • Surveys documenting students' elective requests

Developing	Implementing	Mature	Role Model
1. District and Academy resources are allocated to ensure teaching staff and facilities remain small.	1. Annual Action Plan and Academy handbook address plan for maintaining personalized, small, learning communities.	1. Students are regularly afforded multiple opportunities to build relationships with staff and peers such as working in academic and/or competitive teams horizontally and vertically.	1. Protocols are developed to ensure students have a clear and documented voice in the Academy (student council, advisory committee to the director, suggestion box, etc.
2. Student advisory is regularly scheduled and focuses on relationships, building school capital, developing and fostering global literacy.	2. Advisory class has written curriculum with goals, expectations, scope, sequence, and pacing guides.	2. Teachers work in teams to develop systemic advisory programs with horizontally and vertically aligned student outcomes.	2. Annual resources are allocated to develop, revise, and sustain advisory program with input from students, teachers, parents, and external partners.
	And meets criteria from Developing	*And meets criteria from Developing and Implementing*	*And meets criteria from Developing, Implementing, and Mature*

Texas Science, Technology Engineering and Mathematics

Benchmark 2: T-STEM Academy Culture and Design

Program Requirement: 2.1 Personalization

2.1.D Arranges for a flexible school day with blocks of time that support student learning (tutorials, collaboration, meetings).

2.1.E Celebrates high quality student work through student exhibits on-site, web-based, and/or in state and national forums.

2.1.F Provides every 6th – 12th student with an individualized STEM-focused high school graduation plan that addresses: four years of math and science; an Endorsement in STEM, Business and Industry, Public Service, or Arts and Humanities; identifies target areas for Performance Acknowledgements; and is at least annually reviewed and revised with the counselor, student, and family.

Example Artifacts

- Honor roll, grade level/school-wide celebrations
- Classroom and building displays
- Number of students participating in student exhibits
- Agendas/signatures for IGP meetings with students and family
- IGP, record folder/portfolio, 6th -16th course plan
- Master schedule, tutoring schedule
- Minutes/action items from site based committees, etc.
- Website showcasing student work
- Documentation of at least annual 6th – 12th IGP meetings with parents and students

Developing	Implementing	Mature	Role Model
1. Academy develops a flexible schedule that supports student success.	1. Schedule is developed with input from teachers, counselors, content coaches, extracurricular and internship/capstone requirements.	1. Teachers work in teams to adjust daily schedule to facilitate interdisciplinary PBL.	1. Schedule is adjusted to meet student needs according to data, student, teacher, and parent voice; intervention and extension plans.
2. Academy regularly schedules for students to share their knowledge and work products.	2. Students participate in panel presentations, debates, academic fairs, webinars, online challenges, competitions, design challenges, etc.	2. Resources are allocated to provide students with opportunities to participate in state and national forums, conferences, and competitions (financial, facilities, staffing, transportation, etc.).	2. Academy establishes protocols with input from key stakeholders to gauge the effectiveness of student participation in competitions, challenges, etc. towards promoting college and career readiness as well as Academy goals.
3. Academy develops IGP for each 6th – 12th student that addresses STEM pathways, THECB College and Career Readiness Standards.	3. Student, counselor, and family regularly review and revise the IGP to address student goals for courses, grades, Endorsements, Performance Acknowledgements, college entrance exams, PSAT/ACT/SAT, career aspirations, etc. *And meets criteria from Developing*	3. Annually reviews and revises IGP according to previously established protocols and timelines. *And meets criteria from Developing and Implementing*	3. Mentors are assigned to students to develop intervention contracts to address deficiencies or acceleration opportunities in IGP. *And meets criteria from Developing, Implementing, and Mature*

Texas Science, Technology Engineering and Mathematics

Benchmark 2: T-STEM Academy Culture and Design
Program Requirement: 2.2 Culture

2.2.A Collaborates with stakeholders to develop a new handbook or modify the existing handbook with clear procedures, policies, and consequences that support the development of a strong T-STEM culture.

2.2.B Involves all stakeholders in developing a culture of respect, responsibility, trust, and meaningful adult and peer relationships throughout the Academy in order to foster positive student identities.

2.2.C Creates a professional learning community environment of collaboration, teaming, and high expectations among administrators, teachers, and stakeholders, with a focus on and a commitment to the learning of each student.

Example Artifacts

- Handbook, attendance/discipline goals/data
- Customs and celebrations, modeling lessons for respect, responsibility, trust
- Student, teacher, parent surveys address culture
- Sharing of ideas and strategies and joint problem-solving are widespread.
- School developed common vocabulary for evidence of "good teaching"
- PLC protocols and expectations (meeting times, book studies, goals, results based on interventions, reflections on results – new actions, etc.)
- Collaborative planning of learning and teaching activities
- Widespread teamwork involving teachers and support staff
- Peer walkthroughs, lesson evaluations, and critical friends reflections

Developing	Implementing	Mature	Role Model
1. Handbook is developed to address student, parent expectations and a culture of respect, responsibility and trust.	1. Handbook addresses key tenets of cultural beliefs of Academy (student ability and achievement, efficacy and effort, power, distributed leadership, cultural sensitivity, proactive and reflective practice, etc.).	1. Handbook is developed with input from key stakeholders with clear policies, procedures, and consequences (attendance, discipline, student contracts, teacher extended days, etc.).	1. There is a high degree of commitment to school-wide professional values and a strong sense of cohesion and consistency of approach, with protocols to analyze, build, and assess effectiveness of culture.
2. Professional Learning Community (PLC) is developed which supports staff devoting effort, energy, time, and resources into incorporating valuable new strategies into their practice.	2. An inquiry-based continuous improvement orientation to practice is pervasive, with data informing practice and learning widely shared.	2. Staff regularly and consistently plans together, collaborates and shares ideas through meetings, website resources, teaming, team teaching etc., and garners input from external experts.	2. A desire to do the best for *all* students pervades the school as evidenced by protocols for regular and deep school-wide dialogue about good teaching, assessment, learning, projects, and successes of individual students.
	And meets criteria from Developing	*And meets criteria from Developing and Implementing*	*And meets criteria from Developing, Implementing, and Mature*

Benchmark 2: T-STEM Academy Culture and Design

- Applicants should consider the program requirements listed above as they pertain to a student’s individualized learning experience.

Describe the campus's efforts to support students to reach this goal. This description should include plans for: an advisory period, a positive school culture, enhanced relationships with parents, and responding to student voice.

Students have many opportunities to personalize their education in Birdville CTE. Coursework in Birdville CTE are classes that students choose to fulfill their selected endorsement or to enhance their education. Advanced students may participate in the dual credit courses on campus for college credit. Birdville CTE releases a course guide each year to allow students to customize their graduation plan. Students are surveyed every year to review their current and future course selections. These specialized classes have a low student to teacher ratio, permitting teachers to build mentoring relationships with students. Students participate in an advisory period at their home campus, where college and career choices are addressed, as well as topics such as improving academic habits, examining the school culture and celebrating individual culture. Students in Birdville CTE are encouraged to join professional clubs and compete in individual and team events. Club participation helps students to network with others from different cultures and similar interests and career goals. Birdville CTE also encourages parent involvement. First Friday, College and Career Night, and Dual Credit Information Night are special events designed to inform and engage parents in the school’s activities.

Applicants should consider the program requirements listed in the "Benchmark 2 Program Requirements" link above as they pertain to postsecondary college and career success.

- 6th-12th STEM-focused high school graduation plan: IGP with Endorsement, Performance Acknowledgement, and Distinguished Achievement.
- 6th-12th STEM career and college exploration, and college readiness preparation with students and parents to include college transition plan.
- Collaboration with IHE.
- All students should graduate with 12-30 hours college credit and be prepared for postsecondary coursework in STEM fields.

Birdville CTE encourages individual student success in STEM. All students take a college and career exploration course in the eighth grade. During this class, students develop their individual graduation plan and determine their field of endorsement and what acknowledgements and achievements are available to them. The results from the PSAT 8/9 also help gauge student interest in STEM fields and help tailor each student's graduation plan to fit their needs. Birdville CTE has developed a course guidebook which is available online and in print form for parents and students to understand the choices available to them. Distinguished achievements, performance acknowledgements, and endorsement areas are explained within that book. One example of recognizing the STEM achievements of students in the classroom is the PLTW + AP acknowledgement. Students who take a combination of Project Lead the Way and advanced placement courses graduate with a PLTW + AP acknowledgement, signifying readiness for both college coursework and entrance into STEM careers.

Birdville CTE affords students multiple opportunities to gain college credit in high school. Many courses are available for advanced college credit. Birdville CTE also has a partnership with Texas Woman's University and Tarrant County College that allows students the experience of earning dual credit. Through its partnership with Project Lead the Way, students have the chance to earn credit for STEM courses at the University of Texas at Tyler and other affiliated institutions. Advanced placement courses are available for students to extend their learning and earn college credit as well.

- Program requirement 2.2.C. highlights the importance of a strong Professional Learning Community for the success of all students.
- Review at the rubric continuum and tools in Example Artifacts from a successful Academy.

Describe how the campus will use these tools to progress into a "Mature" campus over time. "Staff regularly and consistently plans together, collaborates and shares ideas through meetings, website resources, teaming, team teaching, etc., and garners input from external experts." This description may include inquiry-based approaches, data informed decision making, Professional Learning Communities, collaboration, and integration of technology.

Professional Learning Communities have a strong presence in Birdville. Campus PLCs meet daily to plan for and assess student learning needs. PLCs also collaborate weekly with teachers at the different campuses in Birdville to ensure that each department is in alignment with district goals. On professional development days, high school and middle school staff plan together to coordinate vertically. Teachers use their Google drive and Google apps to share files and develop lessons together. Professional development often includes training on apps or software that assists collaboration with teachers or students in the classroom. Teachers are also encouraged to attend conferences based on their discipline: Career and Technology conference, Project Lead the Way, International Technology Education Association, etc. PLCs also examine the data of student performance related to the problem of practice, and determine methods of improving that performance.

Texas Science, Technology Engineering and Mathematics

Benchmark 3: Student Outreach, Recruitment, and Retention
Program Requirement: 3.1 Recruitment and 3.2 Open Access

3.1.A Develops structures and processes for marketing and recruitment to encourage participation from underserved students and families (transportation or plans for transportation to the school, child care for family events, and translation of all recruitment and marketing materials).
3.1.B Actively partners with feeder middle and/or elementary schools to develop student interest in STEM education and to increase advancement rates from middle school STEM to high school STEM.
3.1.C Develops a systemic recruitment plan that includes students, parents, counselors, teachers, district, and community.
3.2.A Develops an admission policy to include an open access, lottery-based selection process that encourages applications from all students. The application will not be based on state assessment scores, discipline history, teacher recommendation, minimum GPA, or other requirements that would be used to limit selection.
3.2.B Consists of a population that is 50% or greater economically disadvantaged and underrepresented students.

Key Elements for Success	Example Artifacts
• Written admission policy and application with lottery explained	• Recruitment schedule and locations (schools, churches, community centers, etc.) • Brochures and marketing items in English, Spanish, and/or relevant second language • Survey data (community input, enrollment trends, etc.) • STEM feeder school crosswalk recruiting curriculum • Plan to recruit with feeder schools • Documented support efforts (transportation, child care, etc.) • Needs assessment • Number and percentage of students matriculating from middle school STEM to high school STEM

Developing	Implementing	Mature	Role Model
1. Academy details a plan and process for marketing to and recruiting from appropriate communities and feeder schools to reach high need and underrepresented students.	1. Marketing and recruitment plan developed with input from key stakeholders, and targets feeder pattern, community needs, and cultural relevance.	1. Marketing plan highlights Academy's STEM pathways and Endorsements; and industry and higher education partners. Recruitment efforts include Academy staff, students, and parents. At least 80% of 8th grade MS STEM students matriculate to HS STEM Academy.	1. Students and staff from Academy collaborate with feeder schools to develop, deliver, and monitor recruitment results from STEM crosswalk engagement lessons conducted at the feeder middle schools. At least 90% of 8th grade MS STEM students matriculate to HS STEM Academy.
2. Academy has at least 50% economically disadvantaged and underrepresented students, via an open, lottery based admission policy, where the application *does not* include requirements that might deter students such as STAAR, grades, teacher recommendation, discipline, or attendance.	2. Clearly communicated admission policy that indicates target enrollment goals and implements support processes structures such as transportation, child care, etc. to meet goals. *And meets criteria from Developing*	2. Academy tracks enrollment data and indicates some increases in recruitment/enrollment rates. *And meets criteria from Developing and Implementing*	2. Academy employs a needs assessment to analyze demographic trends to ensure equitable access and recruitment of greater than 50% economically disadvantaged and underrepresented students and sustains a full complement of students at each grade level. *And meets criteria from Developing, Implementing, and Mature*

Texas Science, Technology Engineering and Mathematics

Benchmark 3: Student Outreach, Recruitment, and Retention

Program Requirement: 3.3 Student Support and Retention

3.3.A Develops and implements systemic, tiered strategies for student support and retention (outreach, early intervention strategies, mentoring, tutoring, counseling, and other supports for academic and socio-emotional growth).

3.3.B Hosts 5th – 6th and 8th – 9th orientation session(s) and summer bridge program(s) to facilitate successful student transitions and retention into a STEM-focused, college preparatory, project-based learning environment.

3.3.C Provides all students with opportunities and the expectation to assume roles of responsibility within the classroom, Academy, and community.

3.3.D Supports and monitors 6th – 12th student participation in STEM activities both within and outside the classroom to ensure that all students engage in STEM clubs, STEM competitions, and STEM field experiences.

3.3.E Hosts parent seminars to develop deep understanding and commitment to the rigor of college readiness and the high expectations of a STEM Academy.

Example Artifacts

- Student, parent, staff contracts
- Student retention and persistence plan
- Orientation and bridge agendas
- Exit interviews
- IGPs Minutes from persistence meetings, retention/attrition data
- Program adjustments due to student and community voice
- Copies of trainings and participation of parents/community
- Satisfaction/interest surveys from students, parents, community, staff, etc.
- Lists of clubs, service learning projects, STEM activities, STEM field experiences, and planned competitions

Developing	Implementing	Mature	Role Model
1. Academy develops a strategic plan for student retention and persistence, and maintains persistence rates above 70%.	1. Student persistence rates range between between 70-80% and the strategic plan addresses research-based supports such as annual IGP review, parental involvement, tiered interventions, and cultural relevance.	1. Student persistence rates range between 81-90%, and the strategic plan includes yearly metrics, analysis of why students leave, and a plan to identify and prevent at-risk students from leaving.	1. Campus engages in ongoing dialogue to address persistence data (lack of course credit, leaving the Academy) and uses data to ensure persistence rates above 90%.
2. Academy develops student orientation/summer bridge program(s), student clubs, and plans for external STEM activities and competitions.	2. The orientation/summer bridge program sets priorities and includes a timeline with skills, tools, and resources for students to successfully transition to a STEM environment.	2. The orientation/summer bridge program is implemented as planned and continually refined annually, with a complete scope and sequence and supporting materials.	2. The orientation/summer bridge program monitors initial student success, identifies struggling students early on, and ensures those students have additional support.
3. Students can select from a small number of leadership opportunities available.	3. The staff encourages students to select leadership opportunities.	3. The staff monitors student involvement in leadership and STEM activities, clubs, and competitions; and develops interventions for students who have minimally participated.	3. Student leadership is evidenced in nearly every non-classroom related initiative or event and at least 90% of students participate in leadership and/or STEM activities, clubs and competitions.
4. Academy creates STEM Academy orientation for parents and stakeholders.	4. Opportunities exist for parents and stakeholders to participate in service learning, and/or attend student presentations.	4. At least bi-annual opportunities exist for parents and stakeholders to participate in STEM activities.	4. Annual parent and stakeholder participation goals are developed and monitored for continued improvement.
	And meets criteria from Developing	*And meets criteria from Developing and Implementing*	*And meets criteria from Developing, Implementing, and Mature*

Benchmark 3: Student Outreach, Recruitment, and Retention

- Review Program Requirement 3.1.A/B/C and 3.2.A/B.

Describe the Academy's open-access admission policy, the marketing, and recruitment plan to parents, students, and the community; and partnering with feeder schools to increase advancement rates in STEM from elementary to middle to high school.

Any student in the district may attend classes in Birdville CTE. Classes fulfill endorsement requirements and introduce students to a college atmosphere while still in high school. Community members are invited to tour the facilities and join the advisory board. Parents are invited to information nights to learn about Birdville CTE courses, college opportunities, and credit opportunities through the Institutes of Higher Education. Parents are kept informed through the website, Facebook, Twitter, and Flickr. Eighth grade students are given a tour of the high schools, and current students lead the tours, describing the classes and opportunities. Project Lead the Way classes are offered at the middle school to introduce students to STEM coursework and disciplines. Students can then continue their STEM pathway with Project Lead the Way courses at the high school. Every year Birdville CTE teachers hold a recruiting day at each of the other campuses in the district to show and explain the opportunities available at the campus and thereby increase enrollment rates in the STEM classes and fields. Birdville CTE also produces a course guidebook called Q3. The main message of the book is that "Career and Technology Education = Quality Education, Quality Career, and Quality Future", or Q3. The book details the endorsement areas, STEM course descriptions, and possible schedules available to students. The book is given to all eighth grade students and parents, all middle and high school counselors, and is available online for students and parents to view or download.

- STEM Academies host orientation, summer bridge, and college preparatory seminars for parent and students; encourage student leadership, monitor student participation in STEM activities, clubs, competitions and field experiences; and develop intervention plans for students who minimally participate.
- STEM Academies maintain persistence rates above 70%, with a goal of at least 90%

Describe the campus plan to progress to "Mature" on the continuum for Program Requirement 3.3 Student Support and Retention (review the "Benchmark 3 Program Requirements" link at the top of this page).

Birdville CTE encourages student leadership and participation. Students are encouraged to join Career and Technical Student Organizations and take on leadership roles. Birdville CTE gives students the opportunity to be included in the National Technical Honor Society. Participation in clubs, competitions, and field experiences are necessary in order to be considered for the National Technical Honor Society or for the Career and Technology scholarship. Recruiting events at the feeder schools and events for parents that explain House Bill 5 and the endorsement system, as well as future scholarship and career opportunities in STEM fields help increase student and parent support for STEM courses in Birdville CTE. Birdville CTE also has plans to add new STEM courses in response to student interest and industry trends. Students can customize their degree plans by partaking in the many STEM courses offered in Birdville CTE.

Benchmark 4: Teacher Selection, Development, and Retention

4.1.E.	Provides 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.
4.2.A.	Develops a Professional Development (PD) plan for a sustained professional development model of continuous learning based on student results, teacher development, and the short- and long-term goals of the Academy.
4.2.B.	Adopts a systemic 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).
4.2.C.	Sustains a PLC by instituting job-embedded ongoing opportunities for continuous learning, peer coaching/mentoring, STEM externships, and participation in STEM teacher and leader cadres for teachers and administrators (research-based practices, content competence, new instructional strategies, technology integration, reflective inquiry, and student artifact analysis).
4.3.C.	Adopts and implements a plan for new teachers to include orientation, induction, acculturation, mentoring, professional development, and administrative support.
4.3.D.	Designs or employs innovative programs to support the recruitment and selection of highly qualified STEM teachers.

Key Elements for Success

- Master schedule with common planning time
- Teacher turnover rate
- Teacher mentoring program
- Written recruitment plan

	Developing	Implementing	Mature	Role Model
4.1.E	Academy has authority to hire "best" qualified for goals of the Academy and STEM blueprint requirements.	Develops a written plan for creative recruiting to ensure high qualified, effective teachers.	Develops annual needs assessment and actively implements a teacher recruitment and placement program.	Resources are allocated for recruitment of best qualified candidates, with the Academy partnering with teacher preparation programs such as UTeach, to recruit highly qualified teachers for Academy needs.
4.2.A. 4.2.B.	Develops PD plan with clear pedagogy expectations, aligned with mission goals, teacher needs, and student needs	Academy regularly uses diverse assessment tools/processes, enhanced media, adult learning theories, professional reflection time, problem-solving protocols, and self-paced learning with computer and human interaction for support, coaching, mentoring, and collegial interaction.	Needs assessment and PD plan address teacher and student retention to include teacher, student, and parent voice in decision-making process.	Meaningful partnerships with external organizations ensure progressive expectations for educators' application of content knowledge, curriculum design, and delivery.
4.2.C.	Develops a PLC plan that identifies ways in which teachers will work in collaborative teams to build shared knowledge and formative/summative data.	Teachers collaboratively develop 6th - 12th common essential student outcomes which reflect their efforts to build shared knowledge regarding best practice, (STEM integration, college and career readiness, 21st century skills,).	Teachers collaboratively clarify the criteria they use to judge quality of student work and criteria is consistently applied horizontally and vertically.	Teachers participate in externships and mentorships with higher education and industry. PLC plan is annually monitored, evaluated, and revised for effective practice.
4.3.C	Develops an Orientation plan aligned to Academy mission and vision, and teacher enculturation.	Induction plan addresses Academy expectations for instructional skills; interactions with students, parents, and community; classroom management; assessment of learning; technology; professional development; and mentoring.	Induction process is clearly enunciated, consistently practiced, and evaluated and revised for effectiveness.	Each new teacher participates in the induction process, is assigned a mentor teacher, understands the strategic goals of the Academy, and completes a Needs Assessment that identifies areas for individual professional development.
4.3.D.	Common planning time within the school day focuses on PLC collaboration.	Teams develop team-time norms, set goals, and evaluate effective use of team-time for curriculum development, student artifact reflection, parental involvement, etc. *And meets criteria from Developing*	Teams develop common metrics to measure and inform, in order to identify strengths and weakness in their individual practice, and to collaboratively improve their individual and collective efforts to help all students learn. *And meets criteria from Developing and Implementing*	Collaborative school-level planning is judged effective as evidenced by student learning outcomes. *And meets criteria from Developing, Implementing and Mature*

Benchmark 4: Teacher Selection, Development, and Retention

- Review program requirements for benchmark 4 in the link above.

Describe how the Academy will recruit, support, and retain highly qualified teachers. This should include plans for:

- Teacher recruitment and retention plan
- Sustained professional development (PD) plan which incorporates project-based learning and an integrated STEM curriculum into instructional practices based on qualitative and quantitative student data. (A timeline of planned PD will be uploaded in Benchmark 7.)
- A job-embedded Professional Learning Community with common planning times for collaboration.
- New teacher support (new to Academy and/or teaching profession).

The teachers in Birdville CTE are highly qualified not only to teach their content area but also to engage and motivate students to fulfill their potential. The Birdville district recruits at university and community job fairs. New teachers are assigned a mentor teacher and participate in professional development sessions tailored just for them. Once a teacher is hired to work in Birdville CTE that teacher is supported in many ways. The environment in Birdville CTE is highly collaborative. Teachers meet in PLCs to discuss issues within the classroom, mine student data to discover trends, and plan to guide future instruction. PLCs also meet across campuses weekly to ensure horizontal alignment and across grade levels to ensure vertical alignment. Teachers are encouraged to give students the opportunities to experience hands-on and project-based learning, putting STEM concepts into action. Birdville CTE supports the teachers by purchasing the supplies and industry-standard equipment and allowing students to internalize concepts and familiarize themselves with resources they could find in their careers. Teachers are also urged to attend STEM and CTE conferences to stay abreast of topics and teaching methods in their field.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.1

- Course syllabi, lesson plans, unit lessons, PBL, scope, sequence, pacing guides
- Lessons include STEM standards, state standards, national standards, college and career readiness standards, 21st century skills
- Benchmark schedule, course passing rates, retention rates
- Student portfolios, IGPs, counseling, advising, college crosswalk, and feedback loop
- Plans for PSAT, Accuplacer, TSI, CTE, interventions, etc.
- Horizontal and vertical alignment of curriculum
- Students graduate with Endorsements & Performance Acknowledgements

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.1.A.	Aligns curriculum, instruction, and assessment (such as, but not limited to, Texas CCRS, national and state standards, content, context, culture, cognitive level, competencies, skills, processes, 21st century skills, and STEM synthesis).			*Mature*	
5.1.B.	Develops a scope, sequence, and pacing guide for a vertically and horizontally aligned curriculum centered on state standards, career and college readiness standards, STEM integration, and industry expectations.			*Role Model*	
5.1.C.	Develops an assessment and intervention plan to address gaps in student achievement and areas for extension.			*Role Model*	
5.1.D.	Supports and encourages all students to successfully complete four years of mathematics, four years of science, four years of STEM electives, and at least one Endorsement in STEM, Business and Industry, Public Services, or Arts and Humanities, with a primary focus on a STEM Endorsement; and earn a Distinguished Level of Achievement as well as a Performance Acknowledgement in order to graduate college ready.			*Role Model*	
5.1.E.	Offers dual credit, articulated concurrent enrollment, AP or IB courses that all students will graduate with 12-30 college credit hours.			*Role Model*	
5.1.F.	Establishes curriculum expectations, monitoring, and accountability mechanisms that are reflectively revised to ensure a constancy of mission purpose (aligned resource allocation, integrated STEM curriculum development, teacher professional growth, and student results).			*Role Model*	

5.1 Rigor

- Review the program requirements for Benchmark 5.1 Rigor on the previous page.

Describe how the Academy will progress along the continuum. This should include plans for:

- Alignment of curriculum and instruction as supported by assessment
- Assessment/intervention or acceleration plans for students
- Plan for four tears of math, science, and 12-30 college credit hours (dual credit/AP/IB)
- HS Endorsements available to Academy students

Teachers plan together to align instruction and assessments. Data is and will continue to be gathered and analyzed in PLCs to ensure students are meeting the standards. Intervention plans will be developed for students who are continually not meeting the standard. Students who show advanced understanding will be assigned individual projects to demonstrate their learning at a higher level. Students are able to earn advanced academic credit in many courses in Birdville CTE, as well as dual credit and AP credits, and so gain several hours of college credit before graduation. High school endorsements are mapped out in the course guide, explained in the eighth grade, and revisited each year to make sure student needs are being met.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.2

- Defined engineering coursework (Infinity Project, Project Lead the Way)
- Student journals, student presentations, peer performance assessment rubrics, and peer mentors
- Self-paced learning, student contracts, progress reports, exit interviews, parent/teacher/student conferences
- Lessons include work force clusters, expert practitioners, field-based learning, research of current issues, PBLs, guest speakers, differentiation, intervention and acceleration plans, student choice
- Number of offerings and number of students participating in co-curricular activities, clubs, academic teams, and competitions (UIL, Brain Bowl, Science Olympiad, Model UN, FIRST, BEST, Vex etc.)
- Design conceptual internships, identify STEM opportunities, business partners, scientific organizations, and universities
- IGP w/capstone project (research, annual review, and analysis)

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.2.A.	Delivers innovative STEM programs that are well-defined, embed critical thinking and problem solving, innovation and invention, and are aligned to state and/or national standards and industry expectations.	*Role Model*			
5.2.B.	Supports and encourages students to complete three years of STEM electives at middle school and four years of STEM electives at high school.	*Role Model*			
5.2.C.	Develops performance-based and project-based assessments aligned to these innovative programs and state/national/industry standards.	*Role Model*			
5.2.D.	Develops and implements a plan for supporting accelerated student achievement for students with demonstrated deficiencies or proficiencies in mathematics and science, to promote all students graduating ready for enrollment in credit-bearing postsecondary courses (e.g. Algebra I enrollment by 8th grade).	*Role Model*			
5.2.E.	Incorporates into the curriculum work-based contextual learning with a global perspective.	*Mature*			
5.2.F.	Participates in extra-curricular academic activities centered on science, technology, engineering, and mathematics; i.e. STEM field experiences, clubs, and competitions.	*Role Model*			
5.2.G.	Develops 6th-12th students' portfolios of interest in: STEM capstone projects, STEM internship opportunities, and global STEM college, degree, and career explorations. Requires all high school students to complete an internship, and/or a STEM-related capstone project, presentation, and defense; primarily focused in the state's STEM-related economic development clusters (information and computer technology, energy, petroleum refining and chemical products, advanced technologies and manufacturing, aerospace and defense, biotechnology and life sciences.).	*Mature*			

5.2 STEM-Focused Curriculum

- Review program requirements for Benchmark 5.2 STEM-Focused Curriculum on the previous page.

Describe how the Academy will progress along the continuum. This should include plans for:

- Well-defined STEM programs that are aligned with state, college and career readiness, and industry standards and embed critical thinking and problem solving, and foster innovation and invention
- Three years of STEM electives at middle school and four years of STEM electives at high school. For high schools, list the CATE elective pathways and courses that support each Endorsement offered by the Academy
- Performance and project-based assessments aligned to state, college and career readiness, and industry standards
- Work-based and contextual learning in the curriculum
- STEM-focused extracurricular activities (field experiences, clubs, and competitions)
- STEM-related internships and/or senior capstone projects, presentation, and defense
- Plan for 6th-12th student STEM portfolios

The students in Birdville ISD are exposed and have the opportunity to begin their STEM pathway during their 8th grade year through Gateway to Technology, which is a PLTW course. We have allowed this to slowly move down to the 7th grade students because of the high interest in the course. Every middle school campus in BISD (7) provide an opportunity through the PLTW course. Once they have taken the Gateway to Technology course in middle school they can then continue their STEM program through a number of PLTW course at the high school level. We offer PLTW way at all high school campuses and at Birdville Center of Technology and Advanced Learning. The CTE courses we offer at the high schools are: Principles of Engineering, Aerospace Engineering, Civil Engineering and Architecture, Computer Integrated Manufacturing, Computer Science and Software Engineering, Digital Electronics, Engineering Design and Development, Rocket Engineering. The curriculum that is used by instructors on our high schools is through PLTW, which are project based aligned to state and college readiness and also is up to industry standards. The students have opportunities to work with industry standard companies to show the work that is being done outside the classroom. The students participate in a verity of extracurricular activities including BEST competition, SKILLS USA, etc.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.3

- Peer observations, mentors, cross-curricular teams
- Walkthroughs, observations, model lessons
- Data informs scaffolding, re-teaching, and extension
- Team planning that defines student products, assessments, rubrics, and standards for cross-curricular and other PBLs, teacher research on STEM field expectations, current issues, and technology.
- Student presentations include digital materials, peer and internal/external expert evaluation
- Academy teachers have mentors at university and industry level that provide input to curriculum development
- Year-at-a-glance checklist documenting course coverage of state standards, 21st century skills, college readiness standards throughout grading period

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.3.A.	Incorporates data-driven instruction.	*Role Model*			
5.3.B.	Creates an environment for shared teacher responsibility and accountability for student learning across programs, content areas, and classrooms.	*Role Model*			
5.3.C.	Organizes instructional expectations around problem-based and project-based learning with clearly defined learning outcomes for students and teachers that address state and national performance standards, college and career readiness standards, and industry expectations.	*Role Model*			
5.3.D.	Ensures teachers' use of the aligned scope and sequence and integration across the disciplines.	*Role Model*			
5.3.E.	Ensures teachers' use of high-quality curricular materials aligned with state and national standards, college and career readiness standards, and industry standards.	*Role Model*			
5.3.F.	Provides opportunities for students to exercise choice and voice within a relevant and rigorous context.	*Role Model*			

5.3 Instructional Practices

- Review the program requirements for Benchmark 5.3 Instructional Practices on the previous page.

Describe how the academy will progress along the continuum. This should include plans for:

- Data driven instruction
- Shared teacher responsibility and accountability (PLC)
- Project Based Learning (PBL)
- Alignment of scope and sequence with state, CCRS, and industry standards
- Students exercise choice/voice within relevant and rigorous curriculum

Again the teachers are PLTW certified teachers in their field. They are able to collaborate with each other through their PLC and are able to share their experiences with the students involved in the STEM programs. The teachers have specific roles that they assign each other in order to get things accomplished for their students. The curriculum that is being shared and taught to the students is through PLTW, which had project based learning and align with the scope and sequence of Texas. The industry standards are within the curriculum that is shared by PLTW. On the high school campus the students are encouraged to share their opinions and have a lot of freedom to work on things that interest them in the STEM field.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.4

- Project Based Learning (PBL)
- Systemic expectations for number of presentations per class, documentation of students presenting to internal and external panels
- Design teams, group projects, multiage projects, simulations, robotics teams, green teams
- Project scenarios based on real-world issues (Future City, FIRST, Odyssey of the Mind, etc.)

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.4.A.	Promotes instructional strategies that challenge students to think critically, innovate and invent to solve real-world, contextual problems.	*Role Model*			
5.4.B.	Exposes students to critical readings in STEM-related fields and requires students to demonstrate their understanding of STEM disciplines in a work-based, contextual environment.	*Role Model*			
5.4.C.	Offers standards-based STEM programs that incorporate integrative STEM literacy and innovative instructional tools.	*Role Model*			
5.4.D.	Promotes applied and collaborative learning, and provides students with opportunities to present/defend their work to peers, community, industry, and university leaders.	*Role Model*			
5.4.E.	Promotes a rich culture that incorporates a natural use of current technologies to enhance instruction, curriculum, teaching, and learning, and STEM literacy.	*Role Model*			

5.4. STEM Education Integration

- Review the program requirements for Benchmark 5.4. STEM Integration on the previous page.

Describe how the Academy will progress along the continuum. This should include plans for:

- Students apply critical thinking, innovation and invention, to problem-solve real-world scenarios.
- Student exposure to STEM related fields and understanding of STEM disciplines in a work-based, contextual environment
- Students present/defend their learning (PBLs and capstone projects) to external experts
- Use of current technologies to enhance instruction, curriculum, teaching and learning, and STEM literacy

The students in Birdville ISD are required to apply critical thinking, innovation and invention in their STEM classes, this is done through the teachers that have implemented this problem-solving-real-world curriculum that allows the students the freedom to use their imagination and their skills to solve the problems presented to them from their instructor. Again, the students have a high exposure to STEM related fields because the curriculum that is being presented to them is through PLTW, which does a great job in making sure students are exposed to work-based problems.. The technology that Birdville ISD has is up to the industry standards and are up to date on all the requirements of PLTW and the products they required to implement their program on our campuses.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.5

- Academy-developed process in place to identify STEM and content relevant vocabulary and just-in-time literature
- Plan for vertical and horizontal expectations, per grade level, of STEM vocabulary and relevant literature
- Literature- and language-rich environment which includes technical language journals, articles, periodicals, current events newspapers, online resources, webinars, and texts
- STEM-focused strategies and activities such as word walls, student journals, literature circles, mock trials, student forums, debates
- Stakeholder input into selection of STEM instructional materials student goals and reflections (literacy in STEM, 21st century skills, technology, etc.)
- Integrative instruction and instructional materials

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.5.A.	Promotes technologically proficient and scientifically literate students with highly developed academic vocabulary and STEM technical vocabulary.	*Mature*			
5.5.B.	Graduates 21st century literate students proficient in: English, reading, speaking, writing, numeracy, arts, health, sciences, and world languages; government, civics, history, and geography; environmental science; global awareness; information, communications, and media technology; and financial, economic, business, and entrepreneurship.	*Mature*			
5.5.C.	Selects appropriate STEM curriculum and culturally relevant instructional materials that foster widespread use of literacy strategies within the STEM curriculum.	*Role Model*			
5.5.D.	Provides opportunities for students to demonstrate the relevancy of the content through reading, writing, speaking, and presenting.	*Role Model*			

5.5. Literacy

- Review the program requirements for Benchmark 5.5 Literacy on the previous page.

Describe how the Academy will progress along the continuum. This should include plans for:

- Technologically and scientifically literate students
- 21st Century skills-literate students
- STEM curriculum and culturally relevant instructional materials
- Academy literacy plan

Through our STEM programs at Birdville ISD it is the goal of our district to make sure we have technologically and scientifically literate students and this can be seen through the large investment the district has made with PLTW. The skills and the exposure our students have from using this program has allowed them to be 21st Century skilled students. When they come out of our STEM programs they will be light years ahead of those students who have not had the opportunity to go through PLTW curriculum and pathways on our campuses. The students have a academic plan and have the skills to be successful in the every changing market of STEM. Students will be more competitive when they attend college because of the exposure they have had with Birdville ISD STEM programs.

Benchmark 5: Curriculum, Instruction, and Assessment

Example Artifacts: 5.6

- Data informs instruction, plan for gaps and extension
- Curriculum aligned with standards, STEM, industry, and higher education
- Formative, diagnostic, and summative assessments, lesson redesign
- Student artifact reflection is used to inform diagnostic tools and processes
- Pre/post tests, cumulative folders, parent conferences, parent portal, student learning logs
- Pre-assessments/ post-assessments, course offerings for interventions, grades, end of course exams, student presentations, narrative assessments, oral assessments, product based assessment
- IGPs, progress reports, student information sheets, home visits, parent conferences, PEIMS info, call logs, counseling schedule/visits
- Student designed projects, project rubrics, peer reviews, panel reviews, adult/expert reviews
- Project lists knowledge and skills, 21st century skills and levels of skill mastery; course syllabus provides list of performance-based assessments; PD for teachers on developing PBLs

In Benchmark 5, all program requirements are scored individually. There are no separate metrics. Assess the level of implementation for the program requirements below according to the standards to the right.		**Developing** Investigate, Research, and Create	**Implementing** Formalize, Revise, and Publish	**Mature** Data-driven evaluation of effectiveness of program requirements	**Role Model** Continually assesses to document successes and challenges with action plans implemented to correct deficiencies in performance
5.6.A.	Uses diagnostic, ongoing, and vertically and horizontally aligned formative and summative assessments for all students to drive instructional decisions.	*Role Model*			
5.6.B.	Uses state and national standards, college and career readiness standards, industry standards, and STEM program requirements to develop common benchmark assessments.	*Role Model*			
5.6.C.	Employs student readiness assessments or diagnostics to identify and address gaps in learning.	*Role Model*			
5.6.D.	Tracks and reports student progress using student information systems.	*Role Model*			
5.6.E.	Uses performance-based assessments that allow students to demonstrate their understandings of STEM concepts.	*Role Model*			

5.6 Assessments

- Review the program requirements for Benchmark 5.6 Assessments on the previous page.

Describe how the Academy will progress along the continuum. This should include plans for:

- diagnostic, ongoing and vertically and horizontally aligned formative and summative assessments;
- state, college and career readiness, and industry standards alongside STEM program requirements;
- student readiness assessment to address gaps;
- student information systems to track progress; and
- performance based assessments that demonstrate student understanding of STEM concepts

The Project Lead the Way curriculum provides many performance-based assessments that are aligned with national standards. Project Lead the Way has agreements in placed with colleges of engineering across the country that endorse the curriculum as college and career readiness training. Students are given the chance to earn industry certification in many of the classes in Birdville CTE. Currently Birdville CTE is focused on the Problem of Practice: increasing student writing scores through content writing. Teachers in Birdville CTE will continue to monitor writing scores, other EOC scores, performance-based assessments, and the Skyward grading system to determine student progress. Teachers will also have students develop portfolios to help students demonstrate their work and understanding of STEM concepts. The portfolios will also serve as a benchmark for college and career readiness.

Benchmark 6: Strategic Alliances

Program Requirements

6.2.A.	Identifies and secures key business, industry, and community partners to support STEM Academy efforts (mentorships, service learning projects, etc.).
6.2.C.	Identifies and secures key business and industry partners to provide STEM-related job shadowing, internships, and externships for students and teachers.
6.3.A	Develops a Memorandum of Understanding (MOU) for dual credit.
6.3.C	Develops partnerships to support a college going culture and to provide STEM graduates access to college support services (college trips, college entrance aid, GEAR UP and P-20 initiatives).
6.1.B	Provides opportunities to educate students/parents on STEM Academy expectations such as parental engagement, college connections, scholarship opportunities, mentorships, etc.

	Developing	Implementing	Mature	Role Model
6.2.A 6.2.C	Initiates a few partnerships with business, community, and industry.	Initial contact made and some support is provided by community business partners. Business and industry relationships are limited to onsite mentoring activities and some minor financial support.	Partnership with business and industry is formalized via established agreements. Outcomes and expectations are concrete and regularly reviewed. Partnership is evident by two-way communication of goals and vision as to what the STEM program provides.	Each major academic area is sponsored by corporate or community partners. Industry representation is a key component of the STEM strategic planning process. Integration of Academy students in business and community activities is visible.
6.3.A 6.3.C	Initial contact made and some support is provided by higher education organizations. Some courses are available to enhance STEM curriculum integration.	Develops Higher Ed connections to facilitate MOUs, crosswalk plans, teacher mentors, and externships.	Partnerships and MOUs with higher education communities are an integral component of Academy delivery model.	College credit is given to STEM students upon completion of academic work sanctioned by accredited colleges. Admission rates for STEM students to IHE exceed the normalized rates for all students within the sponsor school system.
6.1.B	Minimal strategic communications with parents and families.	Regularly scheduled distribution of communications is planned and presented to key stakeholder groups. *And meets criteria from Developing.*	Strategic communications are timely and are developed ad hoc as conditions warrant. Key messages are presented by leadership emphasizing the importance of the communication to the intended audiences, via community town halls, PTO meetings, advisory board meetings, and school board presentations. *And meets criteria from Developing and Implementing.*	Real time communications are evident via communications technologies such as websites, newsletter articles, and media presentations using the community's public service forums, (public television and radio). Leadership is easily accessible and continuously engages partnerships with stakeholders in community and student families. *And meets criteria from Developing, Implementing, and Mature.*

Benchmark 6: Strategic Alliances

- Review the program requirements for Benchmark 6 above.

Describe how these strategic alliances 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.

Birdville CTE is supported by organizations that share the goal of advancing student learning in STEM fields. The teachers work closely with STEM teachers at the other high school campuses and middle school campuses to ensure students' continuing opportunities in STEM education. Project Lead the Way curriculum aligns with the International Society for Technology in Education standards as well as provides academic and performance-based assessments to determine student progress in understanding STEM concepts. The end of course exams in some of the Project Lead the Way courses allow the students to show college readiness and even gain college credit. Tarrant County College and Texas Woman's University also give opportunities to students to gain college credit while in high school. Businesses in the community deliver counsel on the advisory board and provide work-based learning opportunities or sponsorships. Parents are urged to help students to make well-informed decisions on courses and colleges. They are also encouraged to chaperone on trips and assist with club competitions. Parents, students, and the community are kept informed through e-mail, the website, and social media such as Facebook, Twitter, and Flickr.

Benchmark 7: Assurances

The following document must be attached in order for the T-STEM Designation application to be submitted.

Official signature: Official signature of a district or charter official authorized by the local board to bind the applicant organization in a legally binding contractual agreement.

View Document

Dual Credit MOU: The district or CMO provides assurance that a Memorandum of Understanding (MOU) with an Institution of Higher Education that defines the dual credit agreement is current (for the 2016-2017 school year). The MOU must be signed by all parties and ensure that sufficient detail are included and is on file at the T-STEM Academy. The executed IHE MOU for dual credit must be available for review by TEA upon request.

☑ Assurance Provided

If the T-STEM Academy is only providing AP coursework, list the AP courses that will be taught in the 2016-2017 school year.

Professional Development Plan: The T-STEM Academy applying for designation, provides assurance that a Professional Development Plan detailing the types, frequency, the provider of STEM professional development to be provided during the 2016-2017 school year, and is on file at the T-STEM Academy. The professional development plan must be available for review by TEA upon request.

☑ Assurance Provided

Business Agreement: The T-STEM Academy applying for designation, provides assurance that a minimum of one business agreement is current (for the 2016-2017 school year), signed by all parties, provides sufficient detail regarding the role of each party, (which allows students to participate in internship programs, capstone projects, or conduct field work) and is on file at the T-STEM Academy. The business agreement must be available for review by TEA upon request.

☑ Assurance Provided

2016-2017 Master Schedule: The T-STEM Academy applying for designation, provides assurance that the proposed master schedule, demonstrating a commitment to STEM education, rigorous coursework including Dual Credit, AP, or IB courses, and a vertically and horizontally aligned curriculum is on file at the T-STEM Academy. The 2016-2017 master schedule must be available for review by TEA upon request.

☑ Assurance Provided