

## CASE STUDY

# Fred J. Page High School

**Fred J. Page High School** in Franklin, Tennessee, provides a high-quality learning environment for students in rural Williamson County, just south of Nashville. The staff sets high expectations, meets students where they are academically and challenges them with rigorous coursework in preparing all students to succeed in college and careers. The school has traveled an upward path from 2003, when it was targeted by the state as a “C” school, to 2012, when it became an “A” school. Also in 2012, the Southern Regional Education Board (SREB) identified Page High School as one of 16 High Schools That Work (HSTW) schools in the nation to receive a Platinum High Achievement Award. The award is presented to model HSTW sites that deeply implement the HSTW design, teach students a rigorous curriculum and meet high achievement standards. In 2013, Page High School Principal Andrea Anthony was named the best principal in Tennessee by the National Association of Secondary School Principals.

### The School Setting

Page High School (PHS) is a comprehensive school serving 850 students in grades nine through 12. It serves six communities: Arrington, College Grove, Nolensville, Rudderville, Thompson’s Station, and Triune. The school opened in 1981.

The demographic makeup of PHS students includes 92 percent white, 5 percent black, 2 percent Hispanic, and 1 percent Asian. Nine percent of students are eligible for free or reduced-price meals. The school offers full inclusion to support the 12 percent of students who receive special education services.

### Fulfilling the School’s Mission

The mission of PHS is to provide a safe and nurturing educational climate to equip students to meet or exceed educational expectations established by local, state and national standards. Instruction is delivered by a diverse group of teachers who are evaluated on student performance and the ability to build educational relationships with students.

The staff works to forge strong partnerships with families and the community to enhance student excellence.

### Joining HSTW and Addressing the Need to Improve

In spring 1993, the school became one of 25 schools in Tennessee to participate in the HSTW initiative. Although PHS was experiencing no glaring problems, the administration and staff had a strong desire to provide a top-notch educational opportunity to all students. The first step was to begin implementing the HSTW Key Practices. For two years beginning in 2001, the school experienced leadership changes, academic issues and other conditions that slowed the progress.

With the arrival of a new principal in 2003-2004, the school began to take off in raising student achievement. Principal Anthony saw quickly that low mathematics scores that had placed the school on a state-targeted list were due to misalignment between the PHS math curriculum and the state exam. The school made changes in the mathematics curriculum that brought immediate improvement in scores. The percentage of students passing the Algebra I state exam rose from 60 percent in 2002-2003 to 97 percent in 2003-2004 to 100 percent in 2004-2005. It remained high at 97 percent in 2009-2010.

### Turning Things Around

The new principal also invited SREB to conduct a Technical Assistance Visit during which an external team of educators and community members reviewed school data; interviewed leaders, teachers and students; and observed classroom instruction before providing a report of findings and recommendations for improvement. “We adopted the HSTW Framework for Continuous Improvement and the 10 Key Practices as our blueprint for schoolwide reform,” Anthony said. (See Appendices A and B.)

Page High School has taken a number of key actions in its transformation:

- Upgraded academic course offerings and eliminated low-level courses
- Established extra help to assist students in meeting high expectations
- Implemented a comprehensive teacher development program
- Used assessment and program evaluation data to continuously improve the school culture

## Upgraded Programs of Study

Students are required to take four rather than two years of mathematics to graduate. Before the change, Algebra I was the highest level of mathematics completed by most students. By emphasizing the importance of mathematics and increasing the number of experienced mathematics teachers, PHS is able to offer advanced algebra and trigonometry, statistics, pre-calculus, and calculus.

When PHS required three rather than two science credits for graduation, students began to take more than minimum credits of physical science and biology. Students branched out by taking chemistry and physics in grades 11 and 12.

“This improvement has helped our career/technical programs to become stronger and has provided many opportunities for cross-curriculum planning in the areas of engineering, drafting and health science,” Anthony said.

The upgraded course offerings are reflected in graduation requirements at PHS. (See Table 1.)

A community service project in the senior year, consisting of at least 40 hours, has been a graduation requirement at PHS since 1999. Students form partnerships with local organizations and make presentations on how PHS students can use their service experiences for mutual benefit in becoming productive citizens.

PHS is aligned with the goals and standards of Williamson County Schools and the Tennessee State Department of Education. Course offerings are based on three levels: Advanced Placement (AP) courses, honors courses and standard-level courses.

- The **English/language arts** program uses vertical teaming strategies to ensure that grade- and course-level expectations are met. The offerings include English I-IV, AP courses, great books and creative writing designed to help students become successful communicators. All English courses include the content standards of language, communication, writing, research, logic, informational text, media, and literature.

Table 1: Page High School Graduation Requirements	
CLASS OF 1993	CLASS OF 2013
English (4 credits): English I-IV	English (4 credits): English I-IV
Mathematics (2 credits): algebra (2 units)	Mathematics (4 credits): Algebra I, geometry, Algebra II, advanced algebra and trigonometry
Science (2 credits): Physical science, biology	Science (3 credits): physical science, biology, chemistry
Social Studies (3.5 credits): World History, U.S. history, government/economics, .5 elective	Social Studies (3 credits): World History, U.S. history, government, economics
Lifetime wellness/PE/health (1.5 credits)	Lifetime wellness/PE (1.5 credits)
Foreign language (2 credits): Only for college-prep students	Foreign language (2 credits)
Fine arts (1 credit): Only for college-prep	Fine arts (1 credit)
	Personal finance (0.5 credits)
Electives (7 credits): If not college-prep, with 4 concentrated in one area	Elective focus area (3 credits)
	Senior Project
<b>20 TOTAL</b>	<b>22 TOTAL</b>

- The **mathematics** program focuses on critical thinking skills and real-world situations. The Carnegie Algebra I computer program, which includes remedial support and real-world applications, helps students who perform below grade level. Math offerings include Algebra I, honors geometry, honors Algebra II, advanced algebra and trigonometry, bridge math, honors pre-calculus, AP calculus AB (first level), AP calculus BC (second level) and AP statistics.
- The **science** program benefits from a cross-curriculum emphasis on engineering, mathematics and technology. Students at all levels participate in labs and other hands-on activities. The offerings include physical science, AP biology, AP chemistry, honors anatomy and physiology, and AP physics.
- The **social studies** program focuses on primary source document interpretation and historical recognition. Students interpret charts and tables and use their math skills. Subject areas include honors world history, AP world history, AP human geography, AP U.S. history, AP European history, AP economics, contemporary issues, ancient and modern history, personal finance, AP psychology, and AP U.S. government.
- The **career/technical** program offers courses and postsecondary licensing opportunities in agriculture, media technology, marketing education, drafting, family and consumer sciences, health care, and technology engineering education. Many teachers of these courses have gained practical experiences by working in career fields such as health care and marketing. Students enter competitions in their content areas at the local, state and national levels. They also engage in work-based learning, which is planned by teams of educators, employers and students. One example is the work-based learning experiences offered by the local medical center to enable students to integrate what is learned at school and on the job.

PHS teachers use technology daily to reinforce classroom instruction in all academic areas. All students have access to computers through the computer labs. Programs such as Carnegie Algebra I and A+ Learning reinforce concepts and skills in the classroom.

## Extra Help

### Remediation in Reading

The remediation program for PHS students who read below grade level includes the Wilson Reading Program, a research-based approach that allows for differentiated instruction. Students are assessed with a 20-minute reading exam.

Candidates for the program include students who are unable to decode accurately, are slow readers who lack fluency and “guess” at words, are poor spellers, can speak and understand English but cannot read or write it, and have a language-based learning disability.

Teachers collect information about students identified as reading below grade level based on state exam results. They also gather work samples, exams, observations and information from parents. Students meet in small, homogeneous groups to work on a book activity that focuses on literacy. Teachers promote vocabulary learning by focusing on terminology in the state curricula and by asking students to read aloud to improve listening abilities, concentration skills and comprehension.

The English I-IV curriculum emphasizes literature, grammar and writing. Teachers use strategies such as “brainstorming” to help students identify what they already know about a topic before reading. They also use vocabulary “front loading” to review difficult vocabulary words before reading, and encourage students to give definitions in their own words. Students use the Cornell note-taking system to write key words in one column and definitions in another column.

“Library circulation has increased more than 300 percent during the past three years,” said Nicole Guertin, English department chairperson. “The increase is due to the combined efforts of teachers, staff and media specialists.” Media specialists purchase copies of the latest “hot” books to publicize to students through bulletin boards, special events and contests. The top reader in each quarter receives free books and a party. Teachers across the curriculum have incorporated outside reading requirements into their courses and routinely request class sets and research materials from the media specialists.

**Student achievement on the state writing assessment has risen as a result of the increased emphasis on reading. On a six-point scale, PHS students scored 4.3 on the Tennessee Comprehensive Assessment Program (TCAP) writing exam in 2010, a 4.4 in 2011 and a 4.7 in 2013.**

### Remediation in Mathematics

Page High School’s mathematics department follows Tennessee State Mathematics Standards to help students gain problem-solving skills, higher-level thinking skills, and real-life mathematics applications. Peer tutoring has been effective by pairing students at a higher mathematics level with those less proficient in mathematics.

Carnegie Algebra I and Plato Learning have been beneficial in closing achievement gaps at PHS. The Carnegie software differentiates instruction to address each student’s unique

needs. It uses mastery learning and multi-step problem solving. It also provides continuous formative assessment and gives immediate feedback and reinforcement. After a tutorial lesson or activity, the program asks short real-life questions that are graded. Students receive tailored feedback on their skills and receive an immediate tutorial. Teachers are able to use detailed reports to analyze students' progress.

The Plato Learning program helps students with skill gaps that require intervention and remediation. "Sometimes the gaps prevent students from mastering the content and being able to apply the skills to the next level or to the real world," said Laurie Mauldin, a trained mathematics technology intervention teacher at PHS. "The program helps students gain confidence and ownership of their learning." The Plato Learning program is available during each class period and after school for students who need to reinforce mathematics skills.

All eighth-graders who score Below Basic or Basic on the state exam visit a computer lab twice a week where they use Carnegie Algebra I under the supervision of their Algebra I teachers. These students also receive daily instruction in the classroom. Teachers work with inclusion teachers to provide additional re-teaching and tutoring during the students' study periods.

Students who do not perform at grade level attend study halls conducted by mathematics certified teachers or their own mathematics teachers. The additional time with teachers helps students to begin their homework while a teacher is available to help. These students also are assigned to an elective course that provides technology-based intervention. They work on real-world applications, critical thinking and using complete sentences to answer questions.

## Addressing Students' Individual Needs

Instructional methods at PHS are based on students' individual needs. All special education students are placed in inclusion classrooms with special education teachers and regular education teachers. Each teacher team provides accommodations and modifications based on students' needs.

Teachers know that differentiated instruction means starting where students are academically, being responsive and avoiding a one-size-fits-all approach. They assign topics of personal interest to students — such as senior projects — to focus on future lives and careers. PHS teachers have found that productivity is higher when students are engaged in learning. By using Bloom's Taxonomy of Cognitive Educational Outcomes to promote higher forms of thinking, teachers are able to design projects with content, process, and a product that meets the needs of all students.

Teachers base their strategies on three types of research when differentiating to meet the needs of student subgroups: brain-based research, learning styles and multiple intelligences, and authentic assessment.

Students often need a modified approach to complete tests and assignments. Teachers may read the exams aloud, shorten the exams, or provide copies of class notes. Sometimes the exams are taken in small groups of students. Supplemental aids and services include enlarged print materials, adaptive keyboards and tape recordings.

PHS teachers use computer-based remediation programs to help at-risk students who are placed in study halls where they can receive reteaching and tutoring from peer students as well as teachers.

English-language learner (ELL) students are involved in pull-out programs for assistance in literacy and mathematics. These students, who are challenged to master a new language while learning subject-area content, are fully involved in the inclusion program. **By being placed in the regular education classrooms and receiving ELL support in reading for the first two years, 100 percent of ELL students at Page High School have been able to graduate on time with a state diploma.**

## Meeting the HSTW Readiness Goals

A group of 60 randomly selected Page High School seniors participated in the 2012 HSTW Assessment. The assessment showed that 95 percent of students met the reading readiness goal, compared with 77 percent in 2010; 90 percent met the mathematics readiness goal, compared with 70 percent in 2010; and 82 percent met the science readiness goal, compared with 77 percent in 2010. (See Figure 1.) High Schools That Work (HSTW) readiness goals are three achievable goals established as minimum targets for school improvement. Students who meet these goals are likely prepared for postsecondary study and careers.

## Teacher Development — Teachers Working Together

In addition to research-based professional development and access to "best practices" from the HSTW network, Page High School teachers have many opportunities to work together to strengthen their teaching skills.

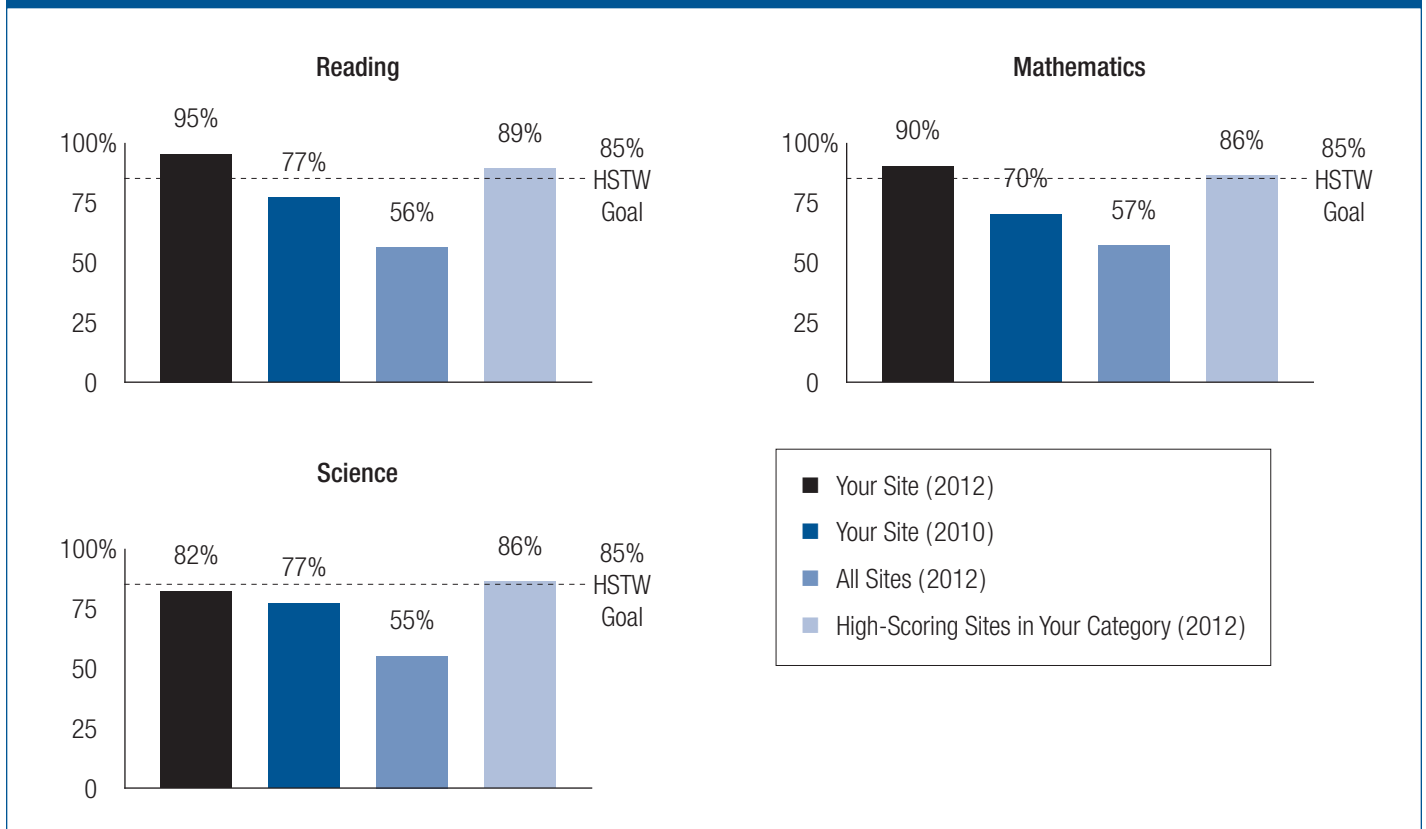
- Teachers meet by **department** for an hour before school each Monday to work on vertical teaming. For example, English/language arts teachers are able to discuss which books are appropriate for students at each grade level and to avoid repetition from one grade to another.

By including middle grades teachers in the process, the schools improve the transition of students from grade eight to grade nine.

- **Subject-area** department meetings are called W.I.N. (What's Important Now) periods. Teachers work on scope and sequencing, using data, teaching and integrating technology, and sharing student work.
- **Grade-level** teams meet to discuss topics such as cross-curriculum opportunities, ACT practice, guidance and counseling, and postsecondary opportunities for students. Some of the grade-level concerns include freshman study skills; sophomore preparation for the ACT, PLAN and PSAT assessments; and junior preparation for the ACT, post-high school placement, senior scholarships and admissions essays.
- **Cross-curriculum** meetings allow teachers to plan units together and interchange their classes.

- **District** meetings take place twice a year, allowing PHS teachers to meet with others who teach the same content. The teachers work on nine-week scope and sequencing, countywide comprehensive exams, and new teaching strategies. They also receive training in how to use computer software for remediation and enrichment of students. These meetings make it possible for teachers to share information on state and federal policies, as well as changes in individual education program policies, and to hear speakers on legal issues. Another topic for discussion is the status of student achievement in the district and strategies for improvement. Teachers take the information from these meetings back to the school to share with the rest of the faculty. The school takes action by creating intervention strategies and benchmarking students' progress through Schoolnet, an online testing resource.

Figure 1: Percentage of PHS Students Meeting HSTW Reading Goals



Source: 2012 HSTW Assessment

## Using Data for Continuous Improvement

Page High School uses local and state data to drive improvement and to make informed instructional decisions. When Principal Anthony arrived in 2003, she asked to see the school data. She found a rich supply of information but learned that the staff was not well-versed in interpreting data. The result was professional development for teachers to become familiar with the data and to ask three questions: 1) How are my students performing? 2) What evidence do I have to know that? 3) What do I plan to do about it?

Teachers began to use the cycle of inquiry to illustrate the basic steps in applying data to make instructional decisions. The cycle consists of assessing conduct, obtaining relevant data, analyzing data, determining conclusions, planning instruction and implementing instruction.

The school's focus on accountability and standards has driven a more structured and collaborative examination of students' work. The focus has shifted from summative evaluation of student performance to informed instruction.

PHS uses multiple data sources, including attendance, behavior and performance, as well as administrative and perceptual data from surveys. Teachers examine student work samples to find where students are struggling.

The school analyzes performance on state and national assessments to identify gaps and to set priorities for school improvement. Teachers assess the indicators they are responsible for teaching so that they will know how their students are doing in relationship to the indicators at any given time.

## Getting Results

The Tennessee Department of Education's Annual Report Card is a comprehensive collection of state, district and school-level data for each school year. The Report Card includes demographics, achievement results, accountability progress, value-added data, attendance figures, graduation rate and more. Page High School improved from being a targeted school with a grade of "C" in 2003 to a school with a grade of "A" in 2012. PHS is in the top five in the state in the three measured areas of algebra, English and biology.

State assessments in reading and mathematics revealed that 97 percent of PHS students ranked Advanced or Proficient in both subjects in 2010. Ninety-six percent of students with disabilities scored Advanced or Proficient in mathematics in that year, while 90 percent of economically disadvantaged students scored Advanced or Proficient.

When the 2009 Report Card showed a drop from 100 percent in 2008 to 77 percent in 2009 in the performance of special needs students at the Proficient and Advanced levels in mathematics, Page High School leaders and teachers took action by adding Carnegie Algebra I and daily tutorials to support improvement. The 2010 report card revealed that the percentage of special needs students scoring at the Proficient and Advanced levels in mathematics had grown to 96 percent.

In 2012, Page students scored a 22 composite score on the ACT, an achievement that is 2.8 points higher than the state composite score of 19.2. Over the past five years, the PHS composite score has improved by almost 2 points. Teachers constantly monitor the progress of students in college readiness. Each spring they test sophomores using a retired ACT assessment. The results are analyzed so that teachers and parents know what is needed to improve students' scores.

Page High School has also seen success in raising attendance and the graduation rate. Attendance improved from 92.8 percent to 94.9 percent between 2004 and 2012. The graduation rate rose from 89.4 percent to 97 percent in those years.

To communicate achievement on the state Report Card, the school sent a pamphlet to parents, and the Parent Teacher Organization (PTO) hosted meetings and sent newsletters. Parents can sign up for Parent Connect to view their students' accomplishments online. They can also meet with students' counselors and school administrators to get answers to questions about academic progress.

## Strong Leadership Is Key

Page High School's leadership philosophy is that leadership is shared by all. The principal and the two assistant principals are the school's instructional leaders. The administration instills in the staff the desire to learn what is necessary to help the school promote the educational well-being of each student. **Administrators believe that all students can learn and will demonstrate the high expectations of the school.**

*"Teachers and administrators stress that you need to push as hard as you can, and the classes are designed for that," one PHS senior said.*

Principal Anthony is a visionary leader who listens and communicates effectively. She is proactive and willing to take risks to benefit teachers and students. She has developed and fostered a school climate that supports teachers in doing the core work of the school. Teachers are given common planning time and job-embedded professional development time to do what is best for students.

In June 2013, Anthony was named Tennessee High School Principal of the Year by the National Association of Secondary School Principals (NASSP). The Metlife/NASSP program honors high school principals who provide high-quality learning opportunities for students and demonstrate exemplary contributions to the profession. Anthony will represent Tennessee and Williamson County at the National Principals Institute in Washington, D.C. where she will join other top administrators to work on national issues in education. The state award makes her eligible for the National Principal of the Year award.

## Continuing to Raise Expectations

The Williamson County School District has a strategic plan that outlines expectations for the next seven years. The plan calls for high schools to increase enrollment in Advanced Placement (AP) courses. Page High School has set a goal to enroll every student in at least one AP course. To facilitate an initial increase in AP studies, the school eliminated some honors courses for juniors and seniors: Spanish IV honors, world history honors, U.S. history honors, government honors and economics honors. These courses are now taken at the standard or the AP level. The result has been a large enrollment increase in AP courses, from 80 students in 2009-2010 to 636 students in 2012-2013. Seventy-two percent of PHS students pass AP tests at the 3, 4 or 5 level acceptable for college credit. The percentage is 1 percent higher than the district average.

## Lessons Learned

Page High School teachers have learned a great deal in moving from near failure to receiving state and national acclaim. The most important lessons are:

- Make sure the curriculum is aligned with state assessments.
- Hire a diverse and talented staff.
- Share the vision and goals clearly so that others will want to be involved.
- Tailor instruction so that all students are academically successful.

## Policies and Support for School Improvement

Page High School cites policies and support it has obtained from the state, the district, and the HSTW school improvement initiative.

- The **state** issues a report card that shows performance of all students, including subgroups. It offers scope and sequencing for each course and requires a concentrated pathway for graduation.
- The **district** makes time for professional development embedded into teachers' work days, enables small class sizes, provides support personnel for each school, and makes software available to help teachers with formative and summative assessments.
- **High Schools That Work** provides assessment data, research-based key practices, a framework to drive school improvement, and publications and "best practices" to show what is working at other schools.

## Remaining Challenges and Plans for the Future

The biggest challenges for Page High School are to continue to close the achievement gap for all students and to learn a new system for curriculum and assessment. Beginning in 2014-2015, the state and the high school will be tested under the national core curriculum assessment—Partnership for Assessment of Readiness for College and Careers (PARCC). The district will offer professional development on the Common Core State Standards (CCSS) and will provide training for CCSS.

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# APPENDIX A

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## HSTW Key Practices

**High expectations:** Motivate more students to meet higher standards by integrating high expectations into classroom practices and providing frequent feedback.

**Program of study:** Require each student to complete an upgraded academic core and a concentration.

**Academic studies:** Teach more students the essential concepts of the college-preparatory curriculum by encouraging them to apply academic content and skills to real-world problems and projects.

**Career/technical studies:** Provide more students access to intellectually challenging career/technical studies in high-demand fields that emphasize the higher-level academic and problem-solving skills needed in the workplace and in further education.

**Work-based learning:** Enable students and their parents to choose from programs that integrate challenging high school studies and work-based learning and are planned by educators, employers and students.

**Teachers working together:** Provide cross-disciplinary teams of teachers time and support to work together to help students succeed in challenging academic and career/technical studies.

**Students actively engaged:** Engage students in academic and career/technical classrooms in rigorous and challenging proficient-level assignments using research-based instructional strategies and technology.

**Guidance:** Involve students and their parents in a guidance and advisement system that develops positive relationships and ensures completion of an accelerated program of study with an academic or career/technical concentration.

**Extra help:** Provide a structured system of extra help to assist students in completing accelerated programs of study with high-level academic and technical content.

**Culture of continuous improvement:** Use data continually to improve school culture, organization, management, curriculum and instruction to advance student learning.



## APPENDIX B

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### **HSTW Goals for Continuous Improvement**

The mission of High Schools That Work (HSTW) is to create a culture of high expectations that motivates students to make the effort to succeed in school. To achieve this mission, HSTW has set several goals for continuous improvement:

- Increase the percentage of high school students who meet college- and career-readiness goals to at least 85 percent.
- Increase the percentage of students completing the HSTW-recommended curriculum to 85 percent.
- Increase the percentage of high school students who complete high school in four years to 90 percent.
- Advance state and local policies and leadership initiatives that sustain a continuous school improvement effort.
- Help all students leave high school with an employer certification, postsecondary credit, or the knowledge and skills needed to avoid remedial postsecondary studies.

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