

School Focus

Curriculum, Instruction & Assessment



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Superintendent

*First graders work
with shapes in math.*



John Dewey, one of America's great philosophers and educators, stated, "What the best and wisest parent wants for his own child, that must the community want for all of its children." Tatanka Iotanka (Sitting Bull, Lakota) offered the same challenge to his people when he said, "Let us put our heads together and see what life we will make for our children."

Both John Dewey and Sitting Bull recognized the importance of preparing children for the challenges and opportunities they would face as adults. Bismarck Public Schools has worked diligently to identify the knowledge, competencies, and skills students must possess in order to be successful in the 21st Century.

This issue of the *School Focus* is intended to inform the community about the efforts to create a school culture that supports student learning, and to fulfill our vision of ensuring that all students will graduate and be prepared for post-secondary education and the workplace.

There have been many changes in education the past 50 years, beginning with mastery learning in the 60's, behavioral-objectives in the 70's, minimum-competencies in the 80's, the contentious outcome-based learning of the 90's, and

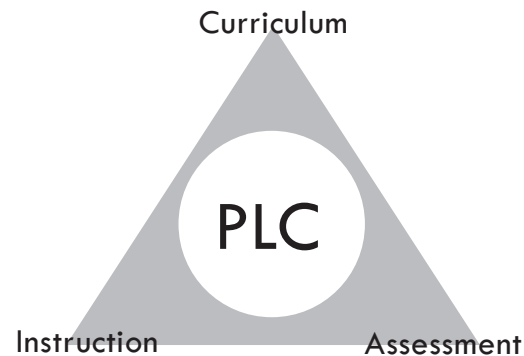
the somewhat contentious standards-based education at the turn of the century.

Standards-based education is the norm in American education today. No Child Left Behind legislation mandates that standards must be adopted, and schools are held accountable to teaching the standard benchmarks in the core subject areas of mathematics, reading, and science. In addition to the standards, the district has specified the number and kinds of courses students need to take to graduate from high school. Efforts to align high school course outcomes with state standards are also driven by the requirements of postsecondary schools and the world of work. The district ensures that all of our teachers are highly qualified and are provided quality professional development during the work day to help them improve the quality of the courses they teach.

Working on curriculum, instruction, and assessment is arduous work and requires time, effort, and a solid understanding of the learning process. I am especially proud of the collaborative work by teachers and administrators. The work is conducted by the efforts of the Professional Learning Communities (PLCs) at each school and at the district level.

A significant amount of time has been invested in clearly articulating the core curriculum from pre-K to grade 12. Staff members have focused on identifying gaps, overlaps, and omissions, and developing clear learning targets. This school year, the focus is on aligning the elective classes, which we now refer to as Encore.

This is an exciting time to be in education! I hope you will read about our efforts in each subject area presented in this publication, as well as the three points of the education triangle: curriculum, instruction and assessment. I'd like to thank the following staff who helped with this issue: Mike Heilman, Fran Rodenburg, Renae Walker, Mary Myer, Tammy Weiler, and Paul Keidel. If you have questions, please contact me at (701) 323-4054.



Curriculum

Writing & Reading

We are in our third year of Handwriting Without Tears (HWT). We are now introducing the 2nd and 3rd grade curriculum materials in our step-by-step adoption of this new curriculum. HWT draws from years of research to provide developmentally appropriate, multisensory tools and strategies.

Handwriting Without Tears moves progressively from writing readiness in pre-K, to printing in grades K-2, and cursive in grades 3-5+. The scope and sequence of lessons is based on research about how children learn best, which is by actively doing and using all of their senses. HWT takes a unique physical approach to instruction with posture, grip, and paper positioning.

Handwriting Without Tears is easily integrated into other subjects; integrating printing exercises with other coursework ensures that children learn handwriting skills more quickly. Printing becomes fast and automatic; writing in all subjects becomes more legible. It is important that children master printing so they can focus on WHAT they are writing rather than HOW they are writing.

Researchers are finding that writing by hand is more than just a way to communicate. The practice helps with learning letters and shapes, improves idea composition and expression, and aids in fine motor-skill development. Studies suggest there is real value in learning and maintaining this ancient skill, even as we increasingly communicate electronically using keyboards!

As far as reading, coaches have been hired to work directly with classroom teachers to improve student achievement on the elementary level. A reading coach's duties include working in classrooms, collaborating with and modeling new skills for teachers, and offering assistance as needed. Coaches are providing training for school

initiatives such as The Daily Five, Cafe, and Guided Reading to ensure students are reading at grade level. Coaching provides professional development and immediate feedback to teachers on a daily basis.

English



In November of 2007, the district contracted with Kaplan, Inc. to work with our teachers to develop a Standards Performance Guide (SPG) for English Language Arts (ELA) in grades 7-12. The guide was designed to help ensure that classroom instruction and student work in our district reflected North Dakota standards and benchmarks at multiple levels of student proficiency and provide consistent, high quality ELA instruction across the district.

In addition to the Standards Performance Guide, a Teach! Strategies and Resources Guide was developed for middle and senior high school teachers. With these pieces in place, we will now work to align the secondary school English Language Arts curriculum with grades K-6.

Social Studies



The Social Studies curriculum was the last core subject area to be developed by the district. The journey began in the summer of 2009 when we contracted with Legacy Pathways to work with us to create a Social Studies Standards Performance Guides (SPG) for grades 5-9 and grade 11.

The Social Studies curriculum was by far the most challenging curricula to write due to the vast timeline and the identification of critical topics to teach. The SPG reflects the latest research and best practices in Social Studies, and presents teachers with engaging instructional activities to support planning and instructional delivery.

Science



This year in Bismarck Public Schools, we are experiencing a push to integrate Engineering into the elementary schools. As the district takes a closer look at STEM (Science, Technology, Engineering and Math) education, we realize that Engineering is the part of STEM that is taught least in elementary schools across the United States. In order to do so, we will train our 3rd grade teachers in the use of Lego WeDo Robotics and computers. Lego Robotics and computers can be integrated into science, math and technology standards and benchmarks that already exist in the elementary program. Within a year, elementary students will have an opportunity to compete in Robotic Competitions at the state level if leaders and coaches come forward.

The already existing FOSS science program is looking at a new project called Reading Green, which is a set of activities designed to integrate both science and literacy. Students plant "Wisconsin Fast Plant" seeds and observe them growing and flowering over 14 days. During that time, students are able to take ownership of their Fast Plants as they learn from direct experience and observation about the life cycle of the flowering plant.

While their plants grow, students read five short stories that offer insight into what plants need to grow, the historical perspective of human dependence on plants, and the global importance of plants. A fictional Reading Green family is at the heart of each story, traveling to places such as Egypt, Siberia, Nepal, Hawaii, and Southern Texas. The activities in "Reading Green" also integrate other subjects like math and social studies.

In grades 7-12, Bismarck Public Schools has partnered with the N.D. University System to provide programs in Nanotechnology, Alternative Energy and Micro Controllers. The district has also

partnered with the Bismarck State College Agriculture department to have college professors come into high schools and inform students about topics in agriculture, such as Biotechnology, Food Service, Plant Science, Soil Science, Environmental Science, Animal Science, Genetics and Precision Technologies.

Bismarck Public Schools is also partnering with other agencies--Gateway to Science, Cenex Harvest States, Natural Resources Conservation Service, the Petroleum Industry, Upward Bound, Cisco Networking Academy, and the North Dakota Transportation Department--to provide programs and activities for students.

Formal relationships with local STEM companies, institutions, and universities that provide both students and faculty deliberate STEM projects and internships where students engage with real mathematics, technology, science and engineering are a major part of the reform in the world of education today.



Business

When enrollment in business classes declined, the district researched and selected a new curriculum: High School of Business™. Teachers were trained this summer and 4 sections of Principles of Business are being taught to 55 students this fall, with 2 sections of Business Economics to be taught this spring.

Plans are underway to expand the Leadership course into 9th grade, then implement the remaining four High School of Business™ courses over the next two years. A Steering Team of teachers, administrators, post-secondary instructors and local business professionals is also exploring dual credit opportunities and internships.

Mathematics



Empowering all students mathematically is a goal of Bismarck Public Schools. Our math curriculum supports learning targets in Number and Operation; Geometry and Spatial Sense; Measurement; Data Analysis, Statistics, and Probability; and Algebra, Functions, and Patterns.

To be sure we are achieving our goal, we monitor progress through various tests that provide data for the district and stakeholders about student progress. Standards-based assessments developed by teachers help inform classroom instruction and student progress toward learning goals. Using Northwest Evaluation Association (NWEA) MAP data, the district has targeted two math strands: Number/Operation and Measurement. Significant gains have been made in both areas. The State Assessment shows that our district has more students proficient or advanced than the state average.

One of the most visible changes in math instruction is the role that problem solving plays in K-12 education. Problem solving provides intellectual challenges that can enhance students' mathematical development. These problems can promote conceptual understanding, encourage reasoning, capture interest and curiosity, and give substance to the need to communicate mathematically. Problems can be approached by students in multiple ways using different solution strategies.

In elementary classrooms, students work hard to understand addition, subtraction, multiplication and division through direct instruction. They complete activities involving manipulatives such as color tiles and interlocking cubes. Students play math games that have specific goals for developing strategies, understanding, and number fluency. Paper and pencil assignments also provide independent math practice.

Elementary teachers must provide instruction on geometry; data and analysis; measurement (standard and metric), time and money; and algebra. Algebra in the elementary classroom is more conceptual than algebra found in high school. It includes, but is not limited to, describing and representing patterns and building equations through games and activities that demonstrate equivalence.

Numerical understanding (computation) is the most visible and recognized part of mathematics education in the eyes of the American public. Because elementary teachers can't spend the entire year instructing on basic facts and the operations, BPS has chosen computer programs like FASTT Math (Fluency and Automaticity through Systematic Teaching with Technology) to reinforce automaticity with math facts.

Since we adopted two researched-based curriculums in 2004, Investigations in Number, Data, and Space in grades K-5 and Mathscape in grades 6-8, the classroom environment has changed. Classrooms are rich with learning tools that give every kind of learner opportunities to achieve mathematical understanding that leads to proficiency of the state standards and benchmarks. These programs are resources to the teachers as they provide opportunities for students to apply the math processes to the real world.

Read Right

Read Right is an intervention that fosters rapid gains in student reading ability. Read Right maintains that to eliminate a reading problem, the brain must be in an environment that compels it to remodel neural circuitry to successfully guide the complex process of anticipating an author's meaning. This small-group model provides such an environment. BPS is one of over 500 sites implementing this research-based program nationwide, and our students in grades 7-12 are benefitting from it.

Encore curriculum

Bismarck Public Schools offers 20 Encore (elective) areas that compliment the Core curriculum. This fall, we started to align our Encore curriculum using a similar process as we used with the Core to clearly establish learning goals and targets. These Encore subjects offer students enrichment, applied knowledge, and skills to succeed in post-secondary education and work:

1. Agriculture
2. Art
3. Auto Collision Repair
4. Auto Technology
5. Aviation Technology
6. Business Education
7. Career Education
8. Carpentry Technology
9. Electronics Technology
10. Engineering & Tech Education
11. Family & Consumer Science (FACS)
12. Foreign Languages
13. Graphic Arts
14. Graphic and Digital Design
15. Health Education
16. Marketing Education
17. Medical Related Careers
18. Music: K-6, choir, band, orchestra
19. Physical Education
20. Welding Technology



Kindergarten student acts out the "sleep" verb.

Assessment & Instruction

Data has had a more important role in our district since No Child Left Behind was mandated. We must make important decisions about how to give students the best education to prepare them for post secondary life choices.

We want our students to be actively engaged in learning and perceive learning as important to them. If the learning has real-world meaning, it is more likely to be remembered. Another goal is to instill the belief that each student can be successful and provide opportunities for success. We also need to pay attention to the emotional intelligence of students. How students FEEL about learning is important. Another goal is to create rich and supportive environments for a high level of achievement.

Bismarck Schools provides professional development days that bring "job-alike" teachers together to study the State Standards and Benchmarks in all subject areas to discuss the learning targets and rank their importance, allowing us to define a set of prioritized learning targets that give our students a guaranteed curriculum no matter which BPS school they attend.

In choosing learning targets, teachers scrutinized them by discussing if they were important to other subjects, important in the world beyond school, and important to the next level of instruction. Learning targets that passed these criteria were then looked at for their level of rigor. Did they represent basic knowledge such as facts, vocabulary and definition? Did they represent reasoning: the use of knowledge and understanding to figure something out? What can students do, show, and tell to prove they are proficient? Is there a product that serves as concrete evidence of student learning?

Our teachers have been developing "I can" statements that put these targets into student-friendly terms, so students know

the learning expectation and what needs to be learned in order to be proficient at that benchmark/target. To check if a student has reached the learning target, teachers are developing common assessments that are or will be used by all teachers in that job-alike. The assessments look for proof of learning and are scored according to a rubric that relates back to the "I can" statements and the levels of proficiency that have been established by teachers. These assessments can be formative, which are given during the process of teaching and learning. They help to clarify where the students are mastering the targets and where they still are in need of more instruction and/or practice. Some assessments can be summative, where they are given at the end of all instruction to see exactly what students have learned. With this evidence, we recognize the impact of good teaching on student success.

A goal is to have examples for evidence-based learning. These examples show what it looks like when students have mastered the concept and are proficient. Examples can also show what advanced learning looks like. They help students understand what the learning targets are. They also help teachers as they score student work.

Research shows that student achievement grows when immediate teacher feedback is given to the student that helps the student clarify the misconception or names the learning that has been achieved. Feedback in the form of a grade can actually stop the learning.

Standards-based learning and measurement of learning helps build consistency in grading. With teachers in different schools, working with the same targets, the same examples of proficiency, and the same assessments, students will have the same guaranteed viable curriculum no matter which teacher they have or school they attend.