

Benchmarks for Technology Education

December 2005

The benchmarks are educational goals that are established for the students in the district. As educators, we will do our best to provide all students with the instruction required to meet these goals.

Each set of benchmarks is divided by grade level. You'll notice the goal for students followed by a letter and number code. That code designates which Wisconsin Model Academic Performance Standard is linked with the benchmark. For more information about the WI Model Academic Standards, please visit the Department of Public Instruction's web site at <http://www.dpi.state.wi.us/dpi/oea/standrds.html>.

Mission Statement

All students in the program will acquire the necessary skills to become contributing members of an ever-changing technological society. The students will leave with the knowledge required to compete in a global economy through the understanding of related careers and their value. Problem solving skills and hands-on activities, using a variety of technologies, are the main components of the curriculum. A close working relationship, between community and school, through business partners and service projects is an emphasized element in the education provided.

7th Grade Technology Education

1. All students will express understanding of the economics of running a small business. IT-C.8.4.1, C.8.4.4, IT-D.8.1.3, D.8.1.4, D.8.1.5
2. All students will demonstrate the appropriate skills needed to design, print, and publish an advertisement for a small business. IT-A.8.1.4, A.8.2.7, A.8.3.3, A.8.3.4
3. All students will demonstrate proper safety when working with hand tools and machines. TE-C.12.5
4. All students will express basic understanding of a production flow chart and how it is used to keep product manufacturing on course. TE-B.8.2, B.8.6, IT-D.8.1.3, D.8.1.4, D.8.1.5
5. All students will demonstrate the appropriate skills needed to script, record in video and edit a short movie. TE-B.8.1, B.8.4, IT-A.8.1.2, A.8.1.9, A.8.5.2, A.8.6.1, C.8.2.1, C.8.4.5, D.8.1.1
6. All students will express a basic level of understanding that the application of technology used in class is found in many careers. TE-A.8.1, A.8.3, D.8.2, IT-D.8.2.1, D.8.2.5,

8th grade Technology Education

1. All students will express and demonstrate the understanding of engineering techniques needed to design and construct a cantilevered structure. TE-C.8.1, C.8.3, C.8.4, C.8.6, IT-D.8.4.3, D.8.4.4
2. All students will express and demonstrate an understanding of the physics of leverage as they design and construct a vehicle powered by a mousetrap spring. TE-C.8.1, C.8.3, C.8.4, C.8.6, IT-D.8.4.3, D.8.4.4
3. All students will express understanding of aerodynamics as it relates to the design and the construction of a bottle rocket. TE-C.8.1, C.8.3, C.8.4, C.8.6, IT-D.8.4.3, D.8.4.4
4. All students will express understanding of aerodynamics as it relates to the design and construction of a CO₂ powered vehicle. TE-C.8.1, C.8.3, C.8.4, C.8.6, IT-D.8.4.3, D.8.4.4
5. All students will demonstrate proper safety when working with hand tools and machines. TE-C.12.5
6. All students will express understanding that the application of technology is found in many careers. TE-A.8.1, A.8.3, D.8.2, IT-D.8.2.1, D.8.2.5,

CAD Design

1. All students will demonstrate the proper use of two-dimensional and three-dimensional computer-drawing programs. TE.C.12.6, TE.C.12.2, TE.C.12.9, IT.A.12.1, IT.A.12.2
2. All students will demonstrate appropriate sketching skills to formulate ideas prior to computer drawing and drafting. TE.C.12.6, TE.C.12.2, TE.C.3
3. All students will explore and express understanding of careers associated with CAD such as architectural design and clothing design. TE.D.12.1
4. All students will demonstrate proper drawing skills associated with both mechanical and architectural drawing. TE.B.12.2, TE.C.12.9, TE.C.12.10, IT.A.12.5.2

Communications I

1. All students will demonstrate the use of communication tools such as PowerPoint to effectively give a presentation. TE.A.12.1, TE.A.12.3, TE.B.12.1, IT.A.12.2.4
2. All students will express understanding of the major parts of computers and their purpose. TE.B.12.6, TE.A.12.1, TE.A.12.5, IT.A.12.1.1
3. All students will demonstrate the skills needed to create a drawing using a computer-drawing program. TE.B.12.2, TE.B.12.7, TE.B.12.8, IT.A.12.3.1
4. All students will demonstrate the skills associate with the use of publishing programs, such as Microsoft Publisher, and produce end products such as a business card, trifold brochure, and a poster. TE.B.12.3, TE.B.12.5, TE.D.12.3, IT.D.12.1.1

Communications II

1. All students will demonstrate associated computer and communication skills by designing a desktop publishing document that will be used by the school or other community group. TE.B.12.3, TE.B.12.5, TE.D.12.3, IT.D.12.1.1
2. All students will demonstrate associated communication skills by designing a simple web page. TE.A.12.1, TE.A.12.3, TE.B.12.1, IT.A.12.4.3
3. All students will express how communication technologies affect today's technological society. TE.D.12.3, TE.D.12.4, TE.D.12.5
4. All students will explore and express an understanding of the available careers in the communication industry such as print press operator, graphic designer, and broadcaster. TE.B.12.1, TE.B.12.2, TE.B.12.3
5. All students will demonstrate how to use digital editing systems, such as Pinnacle Studio, for video editing. TE.A.12.1, TE.A.12.3, TE.B.12.1, IT.A.12.2.4
6. Students will express an understanding of the potential negative affect digital editing can have on society and the associated use of judgment and values to avoid problems. TE.D.12.1, TE.D.12.3, TE.D.12.6

Construction I

1. All students will express how to select a building site and demonstrate how to layout a construction site. TE.C.12.6, TE.C.12.8, TE.C.12.9, IT.C.12.4.1
2. All students will express understanding of and explain the affect that zoning and building codes have on construction projects. TE.A.12.5, TE.D.12.6, TE.D.12.11, IT.B.12.2.1
3. All students will demonstrate how to use a level transit. TE.C.12.2, TE.B.12.8, TE.B.12.1, IT.B.12.5.5
4. All students will express understanding or demonstrate how to build a foundation, floor, wall and ceiling systems. TE.B.12.3, TE.B.12.5, TE.E.12.7, IT.D.12.1.7
5. All students will express and demonstrate construction safety. TE.C.12.5, TE.C.12.8
6. All students will demonstrate the ability to design a home according to local and national building regulations. TE.D.12.11, TE.D.12.6, TE.D.12.3, IT.D.12.1.1

Construction II

1. All students will express understanding of the different types of construction such as light building, road and bridge, and commercial. TE-B.12.2, B.12.4, B.12.5, B.12, C.12.11, IT-C.12.3.4, C.12.4.5
2. All students will express and demonstrate math skills related to the construction industry. TE-C.12.2, C.12.9, IT-B.12.5.5, B.12.6.2, C.12.1.1, D.12.1.1
3. All students will demonstrate the ability to design a 3000 to 4000 square foot home on a CAD program that successfully applies both local and national building codes. TE-B.12.2, B.12.8, B.12.9, IT-A.12.3.1, A.12.3.2, B.12.1.2, B.12.2.1, C.12.4.4
4. All students will express and demonstrate construction safety for themselves and others. TE.C.12.5, TE.C.12.8
5. All students will demonstrate the skills required to test and identify soil types and conduct perk tests for site evaluations. TE-C.12.2, C.12.9, IT-B.12.5.5, B.12.6.2, C.12.1.1, D.12.1.1
6. All students will demonstrate the skills required to layout a building site using all setbacks and applying codes. TE-C.12.2, C.12.9, IT-B.12.5.5, B.12.6.2, C.12.1.1, D.12.1.1
7. All students will demonstrate the skills required to evaluate a building project and produce a construction plan for it. TE-B.12.2, B.12.8, C.12.2, C.12.5, IT-C.12.4.3, D.12.1.1, D.12.1.5
8. All students will express understanding that as an onsite building plan is followed it will result in the completion of the project and use of the deck, storage shed, garage, or home. TE-C.12.4, C.12.6, C.12.7, IT-B.12.2.5, B.12.4.1, B.12.6.3, D.12.1.2, D.12.1.3, D.12.1.4, D.12.1.6
9. All students will express understanding that the application of technology used in this course is found in many careers. TE-B.12.1, B.12.3, B.12.5, D.12.5, IT-C.12.1.1, C.12.1.3

Digital Video Edit

1. All students will demonstrate how to use a digital video camera. TE.A.12.1, TE.A.12.5, TE.B.12.5, IT.A.12.4.5
2. All students will express understanding of the development and the history of video editing. TE.B.12.6, TE.B.12.3, TE.D.12.3
3. All students will demonstrate proper preproduction techniques, such as story boarding and script writing. TE.C.12.5, TE.B.12.5, TE.C.12.8, IT.A.12.5.1
4. All students will demonstrate proper video production techniques, such as filming, lighting and sound. TE.B.12.8, TE.C.12.6, TE.C.12.8, IT.A.12.5.2
5. All students will demonstrate proper postproduction techniques, such as film editing and audience surveying. TE.D.12.6, TE.D.12.1, TE.C.12.1, IT.A.12.5.2
6. All students will explore and express understanding of careers in the video-editing field, such as production manager, camera operator, and digital analyst. TE.B.12.1, TE.B.12.2, TE.B.12.3

Materials and Processing I

1. All students will express understanding of how technology affects industrial systems and how those systems differ. TE-B.12.2, B.12.4, B.12.5, B.12, C.12.11, IT-C.12.3.4, C.12.4.5
2. All students will demonstrate proper safety when working with hand tools and machines. TE.C.12.5, TE.C.12.8
3. All students will express and demonstrate intermediate level understanding of a production flow chart and how it keeps manufacturing of a product on course. TE-B.12.2, B.12.6, B.12.8, IT-B.12.1.1, B.12.1.2, C.12.3.4
4. All students will express and demonstrate the basic technical skills and understanding required to successfully run a small business. TE-B.12.2, B.12.4, B.12.5, B.12, C.12.11, IT-A.12.3.5, A.12.3.1, A.12.3.5, C.12.3.4, C.12.4.5

5. All students will demonstrate the proper application of a CAD-CAM system to design and create both a mold and cast end product and also a nameplate. TE.C.12.6, TE.C.12.2, TE.C.12.9, IT.A.12.1, IT.A.12.2
6. All students will demonstrate the skills associated with proper lathe work and the use of associated tools such as tooling and measuring devices. TE-C.12.3, C.12.4, D.12.1, D.12.4, IT-D.12.1.1, D.12.1.2, D.12.1.6, D.12.1.7
7. All students will demonstrate proper welding skills associated with low-carbon steel. TE-C.12.3, C.12.4, D.12.1, D.12.4, IT-D.12.1.1, D.12.1.2, D.12.1.6, D.12.1.7
8. All students will express understanding of several different manufacturing processes and the many types of materials that are used. TE-B.12.1, B.12.3, B.12.5, D.12.5, IT-C.12.1.1, C.12.1.3

Materials and Processing II

1. All students will express a greater understanding of how technology affects industrial systems and how those systems differ. TE-B.12.2, B.12.4, B.12.5, B.12, C.12.11, IT-C.12.3.4, C.12.4.5
2. All students will demonstrate proper safety when working with hand tools and machines. TE.C.12.5, TE.C.12.8
3. All students will express and demonstrate advanced understanding of a production flow chart and how it keeps the manufacturing of a product on course. TE-B.12.2, B.12.6, B.12.8, IT-B.12.1.1, B.12.1.2, C.12.3.4
4. All students will express and demonstrate the intermediate level technical skills and understanding required to successfully run a small business. TE-B.12.2, B.12.4, B.12.5, B.12, C.12.11, IT-A.12.3.5, A.12.3.1, A.12.3.5, C.12.3.4, C.12.4.5
5. All students will demonstrate the proper application of a CAD-CAM system to design and create a two-part mold to cast a complex form. TE.C.12.6, TE.C.12.2, TE.C.12.9, IT.A.12.1, IT.A.12.2
6. All students will demonstrate the skills associated with proper lathe work when doing advanced tapering and boring operations. TE-C.12.3, C.12.4, D.12.1, D.12.4, IT-D.12.1.1, D.12.1.2, D.12.1.6, D.12.1.7
7. All students will demonstrate proper welding skills associated with low carbon steel when joining different thickness and using several kinds of joined attachments. TE-C.12.3, C.12.4, D.12.1, D.12.4, IT-D.12.1.1, D.12.1.2, D.12.1.6, D.12.1.7
8. All students will demonstrate the skills associated with presentation for manufacturing processes using technology such as PowerPoint and the Internet. TE-A.12.4, A.12.7, B.12.2, B.12.6, D.12.5, IT-A.12.3.1, A.12.3.2, A.12.5.1, A.12.5.2
9. All students will express understanding that the application of technology used in this course is found in many careers. TE-B.12.1, B.12.3, B.12.5, D.12.5, IT-C.12.1.1, C.12.1.3

Photography/ Media

1. All students will demonstrate the skill required to use both a SLR and digital camera. TE-A.12.1, A.12.2, A.12.5, B.12.1, B.12.5, IT-A.12.1.1
2. All students will express understanding of the technology associated with both film imaging and digital imaging technology. A.12.1, A.12.2, A.12.5, B.12.1, B.12.5, IT-A.12.1.1, A.12.2.5, A.12.3.2, A.12.6.1
3. All students will demonstrate proper darkroom techniques to produce quality photographs. A.12.1, A.12.2, A.12.5, B.12.1, B.12.5, IT-A.12.1.1
4. All students will demonstrate the proper use of an editing program to enhance and improve downloaded photographs. A.12.1, A.12.2, A.12.5, B.12.1, B.12.5, IT-A.12.1.1, A.12.2.5, A.12.3.2, A.12.6.1
5. All students will express understanding of how photographs are used in business applications and what careers call for photographic expertise. TE-B.12.1, B.12.3, B.12.5, D.12.5, IT-C.12.1.1, C.12.1.3

Power and Energy

1. All students will identify and express understanding of the major forms of energy such as mechanical and nuclear. TE.A.12.1, TE.A.12.2, TE.A.12.6
2. All students will express understanding of the affect that fossil fuel consumption has on our society. TE.A.12.7, TE.D.12.1, TE.D.12.6
3. All students will be able to identify and express understanding of sources and types of renewable energy. TE.A.12.3, TE.A.12.2, TE.A.12.7, IT.D.12.1.7
4. All students will express understanding of the processes involved concerning the use of nuclear energy. TE.B.12.7, TE.D.12.1, TE.D.12.4, IT.B.12.7.1
5. All students will examine and express understanding of the decisions that can be made concerning the conservation of energy. TE.B.12.1, TE.A.12.4, TE.A.12.6

Principles of Engineering

1. All students will express understanding of each area of engineering such as biomedical, mechanical, and civil. TE.B.12.6, TE.B.12.5, TE.B.12.7, IT.B.12.5.5
2. All students will express understanding of definitions concerning the areas of engineering. TE.B.12.1, TE.B.12.4, TE.C.12.9, IT.C.12.1.1
3. All students will describe the tools of engineering and their use and demonstrate the purpose of these tools when possible. TE.C.12.7, TE.C.12.1, TE.C.12.1, IT.D.12.1.7
4. All students will demonstrate the problem solving stages of engineering by creating a design packet. The design packet will include such things as problem statement, design brief, and drawings to demonstrate a solution. TE.C.12.4, TE.C.12.3, TE.D.12.2, IT.D.12.1.7
5. All students will demonstrate the strengths and weaknesses in each of the following through completion of required projects: mechanical engineering, civil engineering, biomedical engineering, and architectural engineering. TE.D.12.1, TE.D.12.2, TE.D.12.5, TE.D.12.6, IT.D.12.2.6

Transportation I

1. All students will describe the systems approach to technology. TE.A.12.3, TE.B.12.8, TE.C.12.5, IT.D.12.15
2. All students will express understanding of the potential careers in transportation. . TE.B.12.1, TE.B.12.2, TE.B.12.3
3. All students will express an understanding of and demonstrate the four modes of transportation. TE.D.12.6, TE.D.12.1, TE.D.12.3, IT.C.12.3.4
4. All students will express understanding of the roles of transportation in our society. TE.C.12.5, TE.D.12.5, TE.D.12.4, IT.A.12.3.2
5. All students will express understanding of present-day transportation and speculate or transportation modes of the future. TE.D.12.2, TE.A.12.1, TE.A.12.3, IT.A.12.5.2
6. All students will demonstrate lab safety in technology education and in general. TE.C.12.5, TE.C.12.8

Transportation Design

1. All students will demonstrate problem-solving techniques to create a fuel-efficient vehicle. TE.D.12.4, TE.C.12.2, TE.D.12.4, IT.B.12.4.1
2. All students will demonstrate the use of technical design processes to create a fuel-efficient vehicle. Examples are aerodynamics and suspension. TE.C.12.2, TE.D.12.4, TE.D.12.1, IT.B.12.1.2
3. All students will demonstrate proper auto lab safety.

4. All students will demonstrate proper documentation and communication skills by creating a logbook to record the process of building a high mileage vehicle. TE.D.12.5, TE.D.12.6, TE.B.12.8, IT.A.12.2.2
5. All students will demonstrate problem-solving skills such as how to trouble shoot small engines failures. TE.C.12.2, TE.C.12.3, TE.C.12.6, IT.B.12.5.3
6. All students will identify the major parts of a small engine and express their purpose. TE.A.12.3, TE.B.12.5, TE.B.12.7, IT.B.12.2.5
7. All students will identify and express how the major systems of an automobile affect fuel mileage. TE.A. 12.5, TE.C.12.7, TE.A.12.2, IT.B.12.3.7
8. All students will demonstrate design and construction skills required to create a fuel-efficient vehicle. TE.B.12.6, TE.C.12.4, TE.C.12.11, IT.B.12.2.5