HPS 6-8 Grade Level Essential Skills for Encore Courses
DRAFT
2009-2010

Grade Level: 6
Subject*:* Applied Technology

Howell Public Schools (HPS), like many of our fellow Michigan districts, has studied the work of Dr. Robert Marzano and other educational consultants. In his book *What Works in Schools: Translating Research into Action*, Marzano points to the necessity of school districts having a "guaranteed and viable curriculum." Marzano stresses the importance of everyone in the school community understanding what skills will be taught for mastery at each grade level, and then guaranteeing that happens. Using this research, our district is undertaking the task of creating an aligned curriculum that prepares students to successfully meet the academic rigors of the Michigan Department of Education and federal guidelines

During the 2008-09 and the 2009-2010 school years, groups of encore teachers worked under the guidance of curriculum consultants and/or HPS administrators to study the standards and benchmarks of their elective courses. Through professional development efforts, these groups learned to identify essential skills for each grade level subject. Using their new found knowledge, they reviewed the standards and chose those they believed to be non-negotiable skills to be mastered at each grade level. Some of the encore (elective) sorts of classes, such as band, lend themselves to yearly standards and benchmarks. Others are built on quarterly standards and benchmarks and have even been able to assign a recommended number of lessons, per quarter, needed to successfully teach each standard, thus securing the curriculum as viable. Vocabulary, another important component to uniform expectations among our students, is being identified in these documents. And examples of embedded assessments are also being created for each expectation, with the creation of uniform summative assessments to follow the final approval of these documents.

The essential skills found within this document will be piloted in the 2009-2010 school year with a format provided for feedback from the 6-8 staff. At the conclusion of each year teacher groups will re-assemble to review the edit suggestions, again under the guidance of educational consultants and/or HPS administration. These steps will culminate in revisions for a document that will remain fluid.

It should be noted that standards and benchmarks within these documents may be based on either those from the Michigan Department of Education or on National standards. The Michigan Department of Education has not yet established standards and benchmarks for each of our encore subjects. Also note that the overall number of expectations identified as essential skills is possibly smaller than the total articulated within the State's or the Nation's expectation documents. This is the intentional result of a process that asked teacher leaders to identify fundamental content expectations that require a higher degree of mastery than others included within the discipline.

HPS Scope Sequence
Draft November 23rd, 2009
Grade 6
Applied Tech

Standard or GLCE #	Standard or GLCE Language Students will	What this means:	Lessons in a 9 week Quarter	Examples of Formative Assessments	Vocabulary
					
Sub-category or Strand: ISTE Standards					
Creativity and Innovation					
Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students will:					
1a	Apply existing knowledge to generate new ideas, products, or processes.	Students use past knowledge toward learning new concepts and skills.	5	Summative/Product Students follow methodology to create original designs	1st Law (Newton), 2nd Law (Newton), 3rd Law (Newton), Acceleration, Addition, Air resistance, Apogee, Arch, Area, Area of Circle, Area of Parallelogram, Area of Square, Area of Right Triangle, Artificial Intelligence, Asimov, Aesthetic, Average Balance, Bandsaw, Beam, Belt Sander, Binary, Bridge Efficiency, CAD, Center of Gravity, Center of Mass, Center of Pressure, Chisel, Chuck, Chuck Key, Circle, Circuit, Circumference, Clamp, Clean-up, CO2, Compass, Compression, Computer, Construction, Coping Saw, Debugging, Detention, Diameter, Dimensioning, Disk Sander, Division, Dowel, Downloading, Drag, Drawing, Drill Bit, Drill Press, Drum Sander, Dust Collector, Electrical, Electricity, Electromagnet, Ellipse, Engineering, Ergonomics, Escape Velocity, Extinguisher, Factory, Feedback, Flammable, Floor Plan, Force, Form, Friction, Front View, Fulcrum, Fumes, Function, Gear, Generator, Graphite, Gravity, Hack Saw, Hammer, Height, Hot Glue, I-Hook, Inclined Plane, Input, Internal Combustion Engine, Isometric,
1b	Create original works as a means of personal or group expression.	Student projects will be original in their design. Students are encouraged to add personal	2	Summative/Product Grading of various student projects	
1c	Use models and simulations to explore complex systems and issues.	Students will create designs and prototypes in order to evaluate their progress.	2	Summative/Product Student use of Robolab/ Mindstorm/ Tabs/ Sketchup Software	
Communication and Collaboration					
Students use digital media and environments to communicate and work collaboratively, including at a distance,to support individual learning and contribute to the learning of others. Students will:					

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2b	Communicate information and ideas effectively to multiple audiences using a variety of media and formats.	Students will various technologies to communincate.	1	Summative/Product Students complete projects through verbal communication, actual projects and through the use of design software.	Keyboard, Laptop, Laser, Length, Lever, Light Sensor, Load Loop, Magnetic, Mass, Measuring Tape, Medical, Micro, Mindstorm, Model, Monitor, Motor, Mouse, Multiplication, Nail, Nano, Newton, Notebook, Object Line, Orthographic, Output, Paint, Paint Booth, Palm Sander, Parachute, Pen, Pencil, Perspective, Pneumatics, Pressure, Primer, Printer, Projector, Protractor, Pulley, Science, Radius, RCX, Recycle, Referral, Reinforce Concrete, Respect, Right View, Robolab, Rough Sketch, Rubric, Rule, Ruler, Rules, Safety, Safety Glasses, Sandpaper, Scale ,Screw, Scrollsaw, Sensor, Shear, Simple Machine, Sketch, Speaker, Speed, Sponge, Spray Paint, Steel Wool, Stool, String, Structure, Student, Substitute, Subtraction, Sum, Suspension, System, Table Saw, Tardy, Teacher, Technical, Technological, Technology, Telecommunication, Template, Tension, Thrust, Thumbnail Sketch, Top View, Tornado Drill, Torsion, Toxic, Transportation, Tread, Triangle, Truss, Utility Knife, Velocity, Vise, Voltage, Washer, Watt, Wedge, Wheel, Axle Wheels, Width, Wood Glue, Working Drawing, X-Acto Knife
2d	Contribute to project teams to produce original works or solve problems.	Student will work in groups for some projects and are expected to assist each other in class.	3	Summative/Product Students create projects colloratively though groups	
Research and Information Fluency					
Students apply digital tools to gather, evaluate, and use information. Students will:					
3d	Process data and report results.		5	Summative/ Performance	
Critical Thinking, Problem Solving, and Decision Making					
Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students will:					
4a	Identify and define authentic problems and significant questions for investigation.	Students will explore problem solving skills.	1	Summative/ Performance Students use background knowledge to create solutions to create solutions while completing projects	

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4b	Plan and manage activities to develop a solution or complete a project.	Studnets will develop skills needed to create authentic solutions to provided problems	1	Summative/ Performance Students use the design process to complete classroom projects	
4c	Collect and analyze data to identify solutions and/or make informed decisions.		2	Summative/ Product	
4d	Use multiple processes and diverse perspectives to explore alternative solutions.		0.5	Summative/ Product	
Digital Citizenship					
Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students will:					
5a	Advocate and practice safe, legal, and responsible use of information and technology.	Students will use all forms of technology appropriately.	2	Summative/ Performance Observation of student performance throughout quarter	
5b	Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.	Students will act appropriately while using technology	5	Summative/ Performance Observation of student performance throughout quarter	
Technology Operations and Concepts					
Students demonstrate a sound understanding of technology concepts, systems, and operations. Students will:					

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5a	Understand and use technology systems.	Students will develop an understanding for techological concepts	5	Summative/ Performance Completion of student projects throughout quarter	
5b	Select and use applications effectively and productively.	Students will be able to determine what tools are appropriate for each task	2	Summative/ Performance Completion of student projects throughout quarter	
5c	Troubleshoot systems and applications.		2	Summative/ Performance	
5d	Transfer current knowledge to learning of new technologies.	Students will develop the skills needed to use skills in future situations.	2	Summative/ Performance Students use background knowledge to create solutions to create solutions while completing projects	