Bath High School
Technology Curriculum Overview
Computer Animation

Curriculum Used: Tufts University Open Courseware
Standards: Michigan Educational Technology Standards

Topics Covered

Computer Animation	Advanced Computer Animation
History of Animation	Blender Animation Review
Blender Interface	Modifiers
Manipulating Objects in 3-D space	Blender Scenes
Mesh Modeling	Modeling
Editing 3-D Models	Particles
Materials and Textures	Constraints
Lighting	Sculpting
Blender Animations	Surfaces
Blender Animations	Meta Objects
Scenes and Modeling	Rigid Body Dynamics
Animations with Parameters	

Computer Animation is a one-term computer course that will teach students how to create movement on the computer in a 3-D environment. Three dimensional drawings and animations will be covered. History of animation will also be included. This class is a project-based class, in other words, the grades are based on projects that students do in class. This class will require that students do homework on the Internet.

Students may have access to the Internet from home, school, the Bath Library Center or their smart phones. It is imperative that students be able to access the Internet for the homework in this class. Students will be required to watch videos that explain the lessons in animations. This is sometimes referred to as a "flipped" class. The software used in this class is open source and free for students to download at home if they wish. The software can be downloaded from blender.org.

Advanced Computer Animation is a one-term computer course that will teach students advanced methods on how to create movement on the computer in a 3-D environment. Computer Animation is a prerequisite to Advanced Computer Animation.

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Focus Skills and Concepts
- o Understand the history of animation.
- o Create 3 dimensional objects.
- o Edit 3-D objects.
- o Attach textures to objects.
- o Create backgrounds for animations.
- o Create short 3 dimensional animations.

Essential questions:
- o Where is animation used in today's world?
- o Is animation restricted to the cartoon world?
- o How will learning three dimensional drawing or animation help me in my career?
- o Will I consider animation as a career? Or just a part of another career?

Prerequisite skills critical for success in this class:
- o Able to use online resources
- o Able to read and follow directions accurately
- o Understanding of basic computer skills
- o Basic organizational skills

Assessments & Examinations
The final exam in this class will be a project that will showcase the learned skills of the student. Student will spend the last three weeks of class working on this project. Students must complete the final exam project to pass the class.

Bath High School
Computer Applications
Microsoft IT Academy

Curriculum Used: Microsoft Official Academic Course
Standards: Michigan Educational Technology Standards (METS)

Topics Covered

Course One	Course Two
Microsoft Word PowerPoint	Microsoft Excel Microsoft Access

Computer Applications has become a Microsoft IT Academy. Students will study to pass the Microsoft Office Specialist (MOS) test. This certification will aid them greatly in showing the skills they know to a potential employer. The students will study the Microsoft Official Academic Course, which is online and available only to students in the course.

Students in the Computer Applications A course will study to become a Microsoft Office Specialist (MOS) in Microsoft Word and Microsoft PowerPoint. Students will study basic Word documents and then move on to advanced formatting, mail merges, macros and tables. PowerPoint will be covered in depth, including managing presentations and animations.

In Computer Applications B will study Microsoft Excel and Access. They can continue to study for more certifications if they finish these two. There are four more certifications and Microsoft continues to add to our license.

Students will be able to take the certification tests in class because Bath High School is a Certiport Testing Center. Students will redeem vouchers for the tests given to Bath High School by the state of Michigan.

This class involves using the Internet. The books and information for the students will be online for the students to use. Students may have access to the Internet from home, school, the Bath Library Center or their smart phones. It is imperative that students be able to access the Internet to be successful in this class.

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Focus Skills and Concepts

Microsoft Word
- o Editing/Formatting
- o Text flow/Tables
- o Themes/ Graphics
- o Proofing
- o Formatting Research Papers
- o Mail Merges
- o Macros/Advanced Options

PowerPoint
- o Presentation Basics/ Text
- o Designing Presentations
- o Tables/ Charts in Presentations
- o Graphics
- o Animation
- o Multimedia
- o Securing/ Sharing/ Presentation Delivery

Microsoft Excel
- o Basic Formulas/ Functions
- o Formatting
- o Managing Worksheets
- o Data and Macros
- o Securing and Sharing Workbooks
- o Advanced Formulas
- o Creating Charts/ Graphics

Microsoft Access
- o Database Essentials/Database Tables
- o Database Records /Modify Tables and Fields
- o Create Forms /Reports/ Queries
- o Controls In Reports and Forms
- o Advanced Tables/Forms/ Reports/ Queries
- o Display and Share Data
- o Import and Export Data

Essential questions students can answer at the end of the course this class:

- o Why is it important to be able to be a Microsoft Office Specialist?
- o What are the skills most employers are looking for in a job candidate?
- o Have I earned MOS certification and listed that certification on my resume?

Prerequisite skills critical for success in this class:

- o Typing speed 25 words per minute using the correct finger positions
- o Able to use online resources
- o Able to take online tests
- o Understanding of basic computer skills
- o Basic organizational skills

Assessments & Examinations

There is a final exam in each course.

Bath High School
Career and Technical Education (CTE)
Web **I**nternet **N**etworking
in **I**nformation **T**echnology (WIN-IT)

Curriculum Used: Computer Systems Networking and Telecommunications
Standards: State of Michigan CTE CIP 11.0901

Topics Covered

WIN-IT A **Python Programming**	WIN-IT B **Visual Basic Programming**
Scratch Programming/ Binary numbers Introducing Python/ Flowcharts Data Types and Variables Program planning/Decision Statements Repetition Structures Repetition Structures Built in functions/Logical Operators Validate input data Modules / Write own functions Data Files Error handling Classes and Methods Inheritance	Computer Basics/Binary numbers Beginning Programming Flowcharts/Documentation Variables/Constants Decision statements /Loops Procedures Functions/Numeric Formatting Error handling /Formatting Reports Arrays Classes/Inheritance File access/Sorting/data files Menus/Toolbars Accessing Databases Web Applications
WIN-IT C **Web Design**	WIN-IT D **Advanced Web Design and Networking**
History / Web Literacy /Copyrights Search Engines/ Usability Basic HTML Tags and Structure Using the Server Validate Web Pages /Adv. HTML Structures CSS with HTML Basic Pages CSS Basic Networking Concepts Network Protocols Networking Components TCP/IP Fundamentals TCP/IP Utilities Digital Resume	Evaluating Web Pages/Usability HTML Tags and Structure CSS with XHTML Using the Server Web page validation Web Pages Team Project Configuring a network Wireless networks Network - implementing Network - Security Network Troubleshooting Digital Portfolios

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Program Description

Career Technical Education (CTE) is a program of study that involves the integration of academic knowledge with technical and occupational knowledge. CTE provides students with a pathway to the postsecondary education and careers required in our global economy. All approved CTE programs in Michigan must align their local curriculum to postsecondary and industry standards. Students meeting the program standards have the opportunity to earn college credit and/or certifications if they are juniors or seniors in high school.

Students must take one of the two programming languages (WIN-IT A *or* B) and both Web Design and Networking classes to complete the program (WIN-IT C *and* D). Credit for LCC can be earned in most of the classes if a student is a junior or senior and earns an 80% in the class. When students are finished with the program, they are eligible to take the A+ Certification exam. Passing the A+ exam will help a student become a Computer Technician and will aid them in working in a computer career.

Essential questions students can answer at the end of the course this class:
- o How does a network share information?
- o Why is it necessary to know how to maintain a computer?
- o Why is it necessary to protect your identity?
- o How do computers, technology and networks play a role in the career I have chosen to pursue?
- o How can programming help in my chosen career?
- o How can programming help me understand technology's impact on my career?

Prerequisite skills critical for success in this class:
- o Typing speed 25 words per minute using the correct finger positions
- o Able to use online resources
- o Able to take online tests
- o Understanding of basic computer skills
- o Basic organizational skills

Assessments & Examinations

There is a final exam in each course that will include a project for each course. At the end of the series of courses, a student may take the A+ certification test or will be required to take a test supplied to Bath High School by the Michigan Department of Education - Office of Career and Technical Education.