

## **Carol Morgan School**

### **Application Standards & Benchmarks**

#### **Principles of Technology I**

**September 2008**

##### **Digital Imaging – Photoshop**

This rotation introduces learners to image processing software and hardware. Students will receive hands-on experiences creating, editing, and enhancing digital images.

Application Standard: Learners will demonstrate the fundamental concepts of capturing, manipulating and integrating digital images.

Application Benchmarks: Students will...

- Demonstrate proficiencies in proper handling and usage of multimedia equipment such as digital cameras and scanners.
- Demonstrate ability to capture, download and save digital images.
- Demonstrate ability to import and export various graphic formats.
- Demonstrate ability to work with layers.
- Create an enhanced/manipulated photo for display. This should incorporate at least four separate images from three of the sources below:
  - Scanned photograph
  - Photograph from digital camera
  - Photograph from Internet
  - Clip art (from Art Explosion or Microsoft Gallery)

##### **Multimedia presentation design – PowerPoint**

This rotation introduces learners to the process of creating multimedia presentations.

Application Standard: Learners will produce a multimedia presentation that incorporates knowledge of PowerPoint's tools and menus.

Application Benchmarks: The student will...

- Design and create a presentation about a topic of choice.
- Make a presentation with 7 slides or more (including a title page and a bibliography).
- Write 3 – 5 bulleted sentences on each card (except on the title page and the bibliography).
- Cite all sources on bibliography page.
- Demonstrate proficiencies in transition technique.
- Include at least one of each of the following:
  - Clip art from Internet
  - Photograph (scanned, from Internet, or from digital camera)
  - Sound (from Internet or CD)
  - Video (from Internet or from digital camera)
  - Word Art
  - Hyperlink to related site on the Internet

## **Formulas, Graphs, & Charts - MicroSoft Excel -**

This rotation introduces learners to the creating spreadsheets, formulas, and charts.

Application Standard: Learners will produce a spreadsheet with formulas and charts that incorporates knowledge of Excel's tools and menus.

Application Benchmarks:

- Generate a spreadsheet including labels, values, formulas, and functions
- Create a chart to visually represent data.
- Analyze the significance of the data.
- Print a spreadsheet showing formulas.

## **Desktop Publishing – Microsoft Publisher**

This rotation introduces learners to the process of creating publications. They will learn the principles and techniques of page layout and design.

Application Standard: Learners will demonstrate the use of proper techniques and application knowledge in page layout and publication design.

Application Benchmarks: The student will...

- Demonstrate ability to integrate word processing, computer graphics and image processing.
- Produce a double-sided brochure about a topic of choice.
- Cite sources on back of brochure. Do not plagiarize!
- Include at least one of each of the following on each page:
  - Clip art
  - Photograph (scanned, from Internet, or from digital camera)

## **Web Page Development – Macromedia Dreamweaver**

This learning experience will allow students to be active participants on the information superhighway through the development of their own home page.

Application Standard: Learners will demonstrate and understand the fundamentals of web page construction and Internet communications.

Application Benchmarks: Students will...

- Demonstrate proficiencies in saving, naming, and titling documents.
- Demonstrate proficiencies in text formatting and background coloring.
- Demonstrate proficiencies in inserting and modifying images
- Demonstrate ability to upload website onto the global Internet
- Design and create a website about a topic of choice:
  - Create a Title frame.
  - Use a table of contents frame to facilitate navigation.

- Include 5 pages or more.
- Include titles on all pages.
- Use tables to insert pictures and format text.
- Write at least one informative and interesting paragraph on each page.
- Include hyperlinks to related sites on the Internet. (These should open in a new window to indicate that they are not part of the student's website.)
- Include at least one of each of the following on each page:
  - Clip art
  - Photographs (scanned, from Internet, or from digital camera)

### **Animation – Macromedia Flash**

This rotation introduces learners to the process of creating animated movies with Macromedia's Flash 5.

Application Standard: Learners will produce an animated movie that incorporates knowledge of the Flash tools and menus.

Application Benchmarks: The student will...

- Design and create an animated movie about a topic of choice.
- Use the timeline.
- Create and use symbols and text.
- Work with at least 6 different layers.
- Work with imported graphics.
- Add animation
- Add music and voice recording.
- Use motion tweens and automate animation with tweening
- Export and publish a movie

### **Digital imaging – Morph**

Learners who are already familiar with the process of digitizing images will get further experience with enhancing digital images.

Application Standard: Learners will demonstrate and understand the fundamental concepts of capturing, manipulating and integrating digital images.

Application Benchmarks: Students will...

- Demonstrate proficiencies in proper handling and usage of digital cameras and scanners.
- Demonstrate proficiencies in capturing, downloading and saving digital images.
- Demonstrate knowledge of all the tools and menus in Morph.
- Produce a morphed sequence of at least 6 separate images
- Demonstrate the following skills:
  - Select source images
  - Use the storyboard
  - Set key points and key lines
  - Generate transitions

## **Music and Video Creation – Magix**

This rotation introduces learners to the process of creating multiple track songs with videos.

Application Standard: Learners will demonstrate and understand the fundamental concepts of digital music recording and creation and video editing.

Application Benchmarks: Students will...

- Demonstrate proficiencies in finding and adding Magix music beats on multiple tracks to their timeline.
- Demonstrate proficiencies in finding and adding video to one or more tracks in the timeline.
- Demonstrate proficiencies in saving Magix arrangements in various file formats.
- Demonstrate proficiencies in scanning a CD and using part or parts of tracks from music CD's.
- Produce a 2 minute or more song with video:
  - Include beats from the Magix CD's of beats and sounds
  - Use the Beatbox or one of the Synthesizers to create at least one original beat
  - Use video clips from the Magix CD's, or import your own original video clips
  - Use the Video FX to apply video effects
  - Scan a music CD track to include part of, or all of a song or songs in your original compilation
  - Use sound recorder to record original sound to include in compilation

## **Music CD Creation and Publishing – Easy CD Creator**

This rotation introduces learners to the process of creating a music CD from various music sources, and creating all published items for the CD packaging.

Application Standard: Learners will demonstrate and understand the fundamental concepts of digital music retrieval and creation and development of labels and CD packaging.

Application Benchmarks: Students will...

- Demonstrate proficiencies with copying music tracks with Windows Media Player, or similar program to create a digital file for each track used for disk.
- Demonstrate proficiencies with Easy CD Creator Classic Music CD creation program for adding tracks to a music CD.
- Demonstrate proficiencies with Easy CD Label creator program to create CD packaging.
- Demonstrate proficiencies in using a secondary publishing program to create the CD booklet pages.
- Create a music CD:
  - With as many songs as can fit on a music CD.
  - Create and print a CD label
  - Create and print a CD case cover and back with side tabs
  - Create and print a CD booklet with a minimum of 4 panels, must include:
    - a list of all song titles, artists, and lyrics if applicable.

- Multiple pages must be created using Word or Publisher, Roxio will only create the first 2 pages.
- Booklet, label and case packaging must include pictures and text

## **Application Standards & Benchmarks**

### **Principles of Technology II**

#### **Music and Video Creation – Magix**

This rotation introduces learners to the process of creating multiple track songs with videos.

Application Standard: Learners will demonstrate and understand the fundamental concepts of digital music recording and creation and video editing.

Application Benchmarks: Students will...

- Demonstrate proficiencies in finding and adding Magix music beats on multiple tracks to their timeline.
- Demonstrate proficiencies in finding and adding video to one or more tracks in the timeline.
- Demonstrate proficiencies in saving Magix arrangements in various file formats.
- Demonstrate proficiencies in scanning a CD and using part or parts of tracks from music CD's.
- Produce a 3 minute or more song with video:
  - Include beats from the Magix CD's of beats and sounds
  - Use the Beatbox or one of the Synthesizers to create at least two original beats
  - Use video clips from the Magix CD's, and import your own original video clips from a video camera or the internet
  - Use the Video FX to apply video effects
  - Scan a music CD track to include part of, or all of a song or songs in your original compilation
  - Use sound recorder to record original sound to include in compilation
  - Include at least 4 of the following in the musical arrangement (any combination can make the total 4):
    - fades,
    - music effects
    - mixer effects

#### **Animation – Corel R.A.V.E.**

This rotation introduces learners to the process of creating animated movies with Corel R.A.V.E.

Application Standard: Learners will produce an animated movie that incorporates knowledge of the R.A.V.E. tools and menus.

Application Benchmarks: The student will...

- Design and create an animated movie about a topic of choice.

- Use the timeline.
- Create and use symbols
- Add animation
- Add text and animate text on a path
- Work with at least 10 different layers.
- Work with imported graphics
- Add music and/or voice recording
- Use motion tweens and automate animation with tweening
- Export and publish a movie so it can be viewed with a stand-alone player

### **3D Graphic design and animation – Bryce 5**

This learning experience exposes student to the world of 3D animation as used in the entertainment industry. This rotation introduces learners to the process of creating animated 3D movies with Bryce 5.

Application Standard: Learners will produce an animated movie that incorporates knowledge of the Bryce tools and menus.

Application Benchmarks: The student will...

- Design and create an animated 3D movie about a topic of choice.
- Create landscapes and sky
- Import and manipulate graphics
- Move objects across the landscape or through the sky
- Operate the camera
- Add music and voice recording
- Render, export and publish a movie

### **3DS Max 5**

This rotation exposes student to the world of 3D animation as used in the entertainment industry. Learners will be able to produce real life images that animate as if it were the real thing.

Application Standard: Learners will demonstrate and understand the concepts and tool related to 3D design and animation.

Application Benchmarks: Students will...

- Demonstrate proficiencies in framing structures.
- Demonstrate proficiencies in exporting and importing various graphic formats.
- Demonstrate proficiencies in scene rendering.
- Create materials and textures
- Create a three-dimensional object
- Design and develop an animation

### **Video Production - Adobe Premiere**

This learning experience will allow students to explore and practice the art of video production. Learners will use various tools and applications to produce a video with unlimited imagination and creativity.

Application Standard: Learners will demonstrate and understand the fundamental concepts of capturing, editing, and enhancing video intake – digital.

Application Benchmarks: Students will...

- Demonstrate proficiencies in proper handling and usage of multimedia equipment.
- Demonstrate proficiencies in digital and analog intake.
- Demonstrate proficiencies in editing techniques
- Produce a video presentation, as negotiated with the facilitator
- Add transitions when appropriate
- Include text and add music
- Export the final video to DVD.

### **Video Production - Adobe After Effects**

This learning experience will allow students to enhance their video production skills. Learners will use various tools and applications to produce a video with unlimited imagination and creativity.

Application Standard: Learners will demonstrate and understand the fundamental concepts of adding special effects to movies.

Application Benchmarks: Students will...

- Demonstrate proficiencies in working with effects that simulate multiple cameras and lights.
- Demonstrate proficiencies in precisely controlling position and animation of layers.
- Demonstrate proficiencies for importing Adobe Premiere projects with edits, bins and markers preserved.
- Demonstrate proficiencies working with Plug-ins to create sophisticated visual effects.
- Produce a video presentation, as negotiated with the facilitator

### **Video Production - Claymation**

This learning experience will allow students to explore and practice the art of Claymation video production. Learners will use various tools and applications to produce a video with unlimited imagination and creativity.

Application Standard: Learners will demonstrate and understand the fundamental concepts of creating an animated movie with clay figures.

Application Benchmarks: Students will...

- Demonstrate proficiencies in proper handling and usage of multimedia equipment.
- Take a series of photographs that can be combined together to create a video.
- Use tweening to make movement smoother.
- Demonstrate proficiencies in editing techniques
- Produce a Claymation video presentation, as negotiated with the facilitator
- Include text, voice, and music
- Export the final video to format that can be viewed easily with Windows Media Player

### **Web Page Development – Macromedia Fireworks**

This learning experience will enable students to design more sophisticated web sites that incorporate dynamic navigation tools.

Application Standard: Learners will demonstrate and understand advanced concepts of web page construction using JavaScript.

Application Benchmarks: Students will...

- Create multilevel JavaScript rollovers and pop-up menus
- Design and create a navigation system for a website about a topic of choice

### **Web elements – Adobe ImageReady**

This learning experience will enable students to design elements that can be inserted into websites to make them more sophisticated.

Application Standard: Learners will demonstrate the ability to create their own animated GIFs and rollovers

Application Benchmarks: Students will...

- Create a rollover
- Create an animated GIF of at least 10 different slides

### **Graphic design – Painter 7**

This learning experience will allow students to gain in-depth knowledge of one of the world's leading paint programs for graphic designers. With Painter learners can simulate the tools and textures of felt pens, charcoal, colored pencils, watercolors and oils.

Application Standard: Learners will demonstrate and understand digital imaging manipulation integrated with painting concepts.

Application Benchmarks: Students will...

- Design and produce a movie that shows the stroke-by-stroke creation of a drawing.
- Demonstrate proficiencies with the various toolbars and palettes.
- Use a variety of brushes and textures to incorporate advanced artistic techniques.
- Create a drawing that properly and accurately incorporates all functions on the toolbars and palettes.

### **Graphic design – Adobe Illustrator**

This rotation will guide students through an advanced experience in designing vector graphics. It provides students with opportunities to learn how to use graphic tools to combine lines, shapes and patterns.

Application Standard: Learners will demonstrate and understand advanced applications of the graphic design process.

Application Benchmarks: Students will...

- Design and produce a drawing that properly and accurately incorporates all functions on the toolbars and palettes.
- Demonstrate proficiencies with the various toolbars and palettes.
- Organize layers and objects
- Apply shadows and glows to objects
- Produce transparency effects such as mist, soft shadows, and fades
- Use a variety of brushes and textures to incorporate advanced artistic techniques
- Save files as SWF, GIF, JPEG, or PNG
- Export files to Photoshop, Adobe LiveMotion and/or Adobe GoLive

### **Computer Aided Drafting and Design (CADD) – AutoSketch**

This learning experience introduces students to the concepts and tools necessary for Computer Aided Drafting and Design (CADD).

Application Standard: Learners will demonstrate fundamental skills and problem solving processes associated with computer aided design applications.

Application Benchmarks: Students will...

- Design a physical structure
- Demonstrate proficiencies drawing shapes and lines with precision and accuracy
- Produce complex drawings in either two or three dimensional formats

### **Programming**

Students who wish to gain experience in computer programming have several opportunities for exploration and discovery. Students will be exposed to the basic concepts of programming in VisualBasic, Qbasic, C++, J++, and/or FoxPro.

Application Standard: Learners will demonstrate and understand the basic concepts of computer programming.

Application Benchmarks: Students will...

- Demonstrate proficiencies in programming concepts / language.
- Document code references.
- Demonstrate code function.
- Design and develop a working program that will perform a complex task.

### **Robotics**

This learning experience will allow students to gain in-depth knowledge in robotic control and the every day uses of robotics in our society. This rotation introduces learners to computer interfacing and control technology.

Application Standard: Students will demonstrate fundamental principles and concepts in robotics.

Application Benchmarks: Students will...

- Demonstrate proficiencies in using control software – motor and switch control.
- Demonstrate proficiencies in mechanical movement, electrical wiring and the use of sensors
- Demonstrate proficiencies in understanding the robotic interface between hardware and software.
- Demonstrate proficiencies in designing systems, solving problems and predicting outcomes.
- Develop a control program, which receives input, processes information and provides output.
- Produce a working simulation of a real-life machine.