GEORGIA | PEACH STATE PATHWAYS

Career, Technical, & Agricultural Education

BUSINESS & COMPUTER SCIENCE

PATHWAY: Computing

COURSE: Beginning Programming

UNIT: 2.3 Audio/Image Files

INTRODUCTION

Annotation: The topics in this unit will include the use of the various digital image and audio files. Discussion will be centered on the differences between the file types, the common uses for each file, and the pros and cons of each file. Methods will include discussion, lecture, and independent work time. Technology will be used to present and investigate the material as well as student performance task.

Grade(s):

	9th
X	10th
	11th
	12th

Time: 2 weeks

Author: Jason Naile

Additional Author(s):

Students with Disabilities:

For students with disabilities, the instructor should refer to the student's IEP to be sure that the accommodations specified are being provided. Instructors should also familiarize themselves with the provisions of Behavior Intervention Plans that may be part of a student's IEP. Frequent consultation with a student's special education instructor will be beneficial in providing appropriate differentiation.

FOCUS STANDARDS

GPS Focus Standards:

BCS-BP-4 Students will explore different representations of images and music in a computer.
a. Explain the difference between bitmapped and vector-based representations of images.
b. Explain the difference between MIDI and sampled sound representations of music.
c. Write a program to modify a bitmapped image and/or sampled sound.

GPS Academic Standards:

MM4A10 Students will understand and use vectors.

ELA11W2 The student demonstrates competence in a variety of genres.

ELA11LSV1 The student participates in student-to-teacher, student-to-student, and group verbal interactions.

National Standards:

UNDERSTANDINGS & GOALS

Enduring Understandings:

- As a result of this unit, students should be able to recognize, identify, and discuss the use of various image and audio files. Also, students should be able to explore and manipulate these file types by using computer programming.

Essential Questions:

- What are bitmap and vector based images?
- What is MIDI?
- What is sampled sound music?
- How can bitmapped and/or sampled sound music be modified?
- Why are there different image and audio file types?
- What are some things to consider when choosing an appropriate file type?

Knowledge from this Unit:

- Students will be able to explain the difference between bitmap and vector based images.
- Students will be able to explain the difference between MIDI and sampled sound representation of music.
- Students will be able to write program that will modify a bitmapped and/or sampled sound.
- Students will compare and contrast different image and audio file types.

- Students will be able to choose the appropriate file type based on a problem description.

Skills from this Unit:

- Students will be able to write persuasively.

ASSESSMENT(S)

Assessment Method Type: Select one or more of the following. Please consider the type(s) of differentiated instruction you will be using in the classroom.

_____ Pre-test
X Objective assessment - multiple-choice, true- false, etc.
_x_ Quizzes/Tests
__ Unit test
_____ Group project
_____ Individual project
_____ Self-assessment - May include practice quizzes, games, simulations, checklists, etc.
__ Self-check rubrics
__ Self-check during writing/planning process
__ Journal reflections on concepts, personal experiences and impact on one's life
__ Reflect on evaluations of work from teachers, business partners, and competition judges
__ Academic prompts
__ Practice quizzes/tests
X Subjective assessment/Informal observations
__ Essay tests
__ Observe students working with partners
_x_ Observe students role playing
_____ Peer-assessment
__ Peer editing & commentary of products/projects/presentations using rubrics
__ Peer editing and/or critiquing
_____ Dialogue and Discussion
__ Student/teacher conferences
__ Partner and small group discussions
__ Whole group discussions
__ Interaction with/feedback from community members/speakers and business partners
_____ Constructed Responses
__ Chart good reading/writing/listening/speaking habits
__ Application of skills to real-life situations/scenarios
_____ Post-test

Assessment(s) Title: **Informal Checks and Tests/Quizzes**

Assessment(s) Description/Directions: Throughout the unit, the teacher should be working with the students on a daily basis to facilitate learning. Options for assessment include observation, tests/quizzes, and completion of programming assignments.

Attachments for Assessment(s):

Web Resources:

http://www.wfu.edu/~matthews/misc/graphics/formats/formats.html

http://www.htmlgoodies.com/tutorials/web_graphics/article.php/3479931

http://www.answers.com/topic/audio-file-format?cat=technology

Web Resource Title: File Type Websites

Web Resource Description: Each website listed below will provide students will a great summary of the various audio/image file types.

LEARNING EXPERIENCES

Instructional planning: Include lessons, activities and other learning experiences in this section with a brief description of the activities to ensure student acquisition of the knowledge and skills addressed in the standards. Complete the sequence of instruction for each lesson/task in the unit.

Sequence of Instruction

1. **Identify the Standards. Standards should be posted in the classroom for each lesson.**
2. **Review Essential Questions.**
    - What are bitmap and vector based images?
    - What is MIDI?
    - What is sampled sound music?
    - How can bitmapped and/or sampled sound music be modified?
    - Why are there different image and audio file types?
    - What are some things to consider when choosing an appropriate file type?
3. **Identify and review the unit vocabulary.**
4. **Assessment Activity.**

(Based on a 50 minute class period)

Week 1: Introduction of Various Audio/Image Files, Manipulating and Exploring Images and Audio with programming

Week 2: Manipulating and Exploring Images and Audio with programming, Unit Performance Task

Technology Connection/Integration

Students will use technology as a research tool when learning about the various file types. Students will use the computer as an exploration tool when modifying audio/image files. Students will use the computer as a productivity tool when developing the Top Five lists.

Attachments for Learning Experiences: Please list.

Notes & Reflections:

CULMINATING PERFORMANCE TASK (Optional)

Culminating Unit Performance Task Title: **Top Five Video/Audio File Types**

Culminating Unit Performance Task Description/Directions/Differentiated Instruction:

This unit performance activity gives students an opportunity to synthesize the information covered in this chapter. By creating a top five list of the audio and image file types, students will be required to describe each file type. Additionally, students will be required to consider the advantages and disadvantages of each respective file type. Complete specifications and rubric can be found in the attached document.

Attachments for Culminating Performance Task:

Your Top Five

Directions: Create two separate top five lists. One list will be of your top five Audio file types and the other list will be of your top five Video file types. To demonstrate your understanding of the different types of files include a complete description of the Audio/Video file type. Also, include your rationale for ranking the file type at that ranking. For image files include whether the image file is a vector or bitmap. Additionally, note common uses for each type of file. A bit of advice, include links to what stating your rationale to support your ranking.

Grading Checklist

Task	Possible Points	Points Earned
Five audio files identified	25	
Five image files identified	25	
Student exhibit strong rationale for ranking	25	
Excellent Grammar/Spelling	25	
Total Points	100	

Comments:

UNIT RESOURCES

Web Resources:

Attachment(s):

Materials & Equipment:

Computer

Various Audio/Image Files

Internet

Network Storage Space

Projector

Screen

Microsoft Word

What 21st Century Technology was used in this unit:

X	Slide Show Software		Graphing Software	X	Audio File(s)
X	Interactive Whiteboard		Calculator		Graphic Organizer
	Student Response System	X	Desktop Publishing	X	Image File(s)
	Web Design Software		Blog	X	Video
	Animation Software		Wiki		Electronic Game or Puzzle Maker
	Email	X	Website		