Unit 2B: The Digital Audio Workstation

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Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Art Behind the Music, GRADES 11 & 12

Unit 2B: The Digital Audio Workstation

Belleville Board of Education

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Unit Overview

Unit two will introduce the software, hardware, concepts, and practical use of the digital audio workstation (DAW).

The Digital Audio Workstation:

- This unit will introduce the students to the software, hardware, concepts, and practical use of the digital audio workstation.
- Various hardware to be used may include, but will not be limited to, audio interfaces, microphones, different types of cable, and direct boxes.
- Various software to be used may include, but will not be limited to, digital audio workstation and sequencing applications, plugins, and virtual instruments.
- Concepts will include connecting hardware appropriate for a particular recording session, adding and arming tracks, recording audio, adding effects, mixing tracks, and more.
- The students will understand how the hardware and software interacts and ultimately have the ability to produce an audio project.

Enduring Understanding

- How to use various hardware used in recording audio.
- How to use various software used in recording audio.
- Concepts of audio production using such hardware and software.
- It is important to have knowledge of the hardware, software, concepts, and practical use of the digital audio workstation to create a product viable for consumption by the intended audience.

Essential Questions

- What hardware is used for digital recording?
- What software is used for digital recording?
- How does the hardware and software work together?
- What concepts are used in the creation of a recording using this hardware and software?
- How can this knowledge help me in my life outside of the classroom?
- How does the knowledge of the digital audio workstation aid me in understanding the creation of music and other audio that I and others consume?

Exit Skills

By the end of Unit Two:

- All students will demonstrate an understanding of the digital audio workstation by:
    - Taking quizzes on the hardware, software, concepts, and practical use of the digital audio workstation
    - Connecting all hardware appropriate for a recording session.
    - Creating tracks in software, arming them for recording, and creating a recording on a track-by-track basis.
    - Adding effect plugins and virtual instruments.
    - Mixing tracks together in a cohesive manner.
    - The students will have some sort of understanding of how to create an audio product that is consumable by others.

New Jersey Student Learning Standards (NJSLS-S)

VPA.1.1.12.B.1	Examine how aspects of meter, rhythm, tonality, intervals, chords, and harmonic progressions are organized and manipulated to establish unity and variety in genres of musical compositions.
VPA.1.3.12.B.2	Analyze how the elements of music are manipulated in original or prepared musical

	scores.
VPA.1.3.12.B.3	Improvise works through the conscious manipulation of the elements of music, using a variety of traditional and nontraditional sound sources, including electronic sound-generating equipment and music generation programs.
VPA.1.3.12.B.4	Arrange simple pieces for voice or instrument using a variety of traditional and nontraditional sound sources or electronic media, and/or analyze prepared scores using music composition software.
VPA.1.4.12.A.1	Use contextual clues to differentiate between unique and common properties and to discern the cultural implications of works of dance, music, theatre, and visual art.
VPA.1.4.12.A.3	Develop informed personal responses to an assortment of artworks across the four arts disciplines (dance, music, theatre, and visual art), using historical significance, craftsmanship, cultural context, and originality as criteria for assigning value to the works.
VPA.1.4.12.A.4	Evaluate how exposure to various cultures influences individual, emotional, intellectual, and kinesthetic responses to artwork.
VPA.1.4.12.B.1	Formulate criteria for arts evaluation using the principles of positive critique and observation of the elements of art and principles of design, and use the criteria to evaluate works of dance, music, theatre, visual, and multimedia artwork from diverse cultural contexts and historical eras.
VPA.1.4.12.B.2	Evaluate how an artist's technical proficiency may affect the creation or presentation of a work of art, as well as how the context in which a work is performed or shown may impact perceptions of its significance/meaning.
VPA.1.4.12.B.3	Determine the role of art and art-making in a global society by analyzing the influence of technology on the visual, performing, and multimedia arts for consumers, creators, and performers around the world.

Interdisciplinary Connections

9.3.12.AR	Arts, A/V Technology & Communications
9.3.12.AR.1	Analyze the interdependence of the technical and artistic elements of various careers within the Arts, A/V Technology & Communications Career Cluster.
9.3.12.AR.5	Describe the career opportunities and means to achieve those opportunities in each of the Arts, A/V Technology & Communications Career Pathways.
9.3.12.AR.6	Evaluate technological advancements and tools that are essential to occupations within the Arts, A/V Technology & Communications Career Cluster.

Learning Objectives

After completing Unit Two the students will be able to:

Identify the hardware and software components of a DAW.

Construct an audio project within the DAW software.

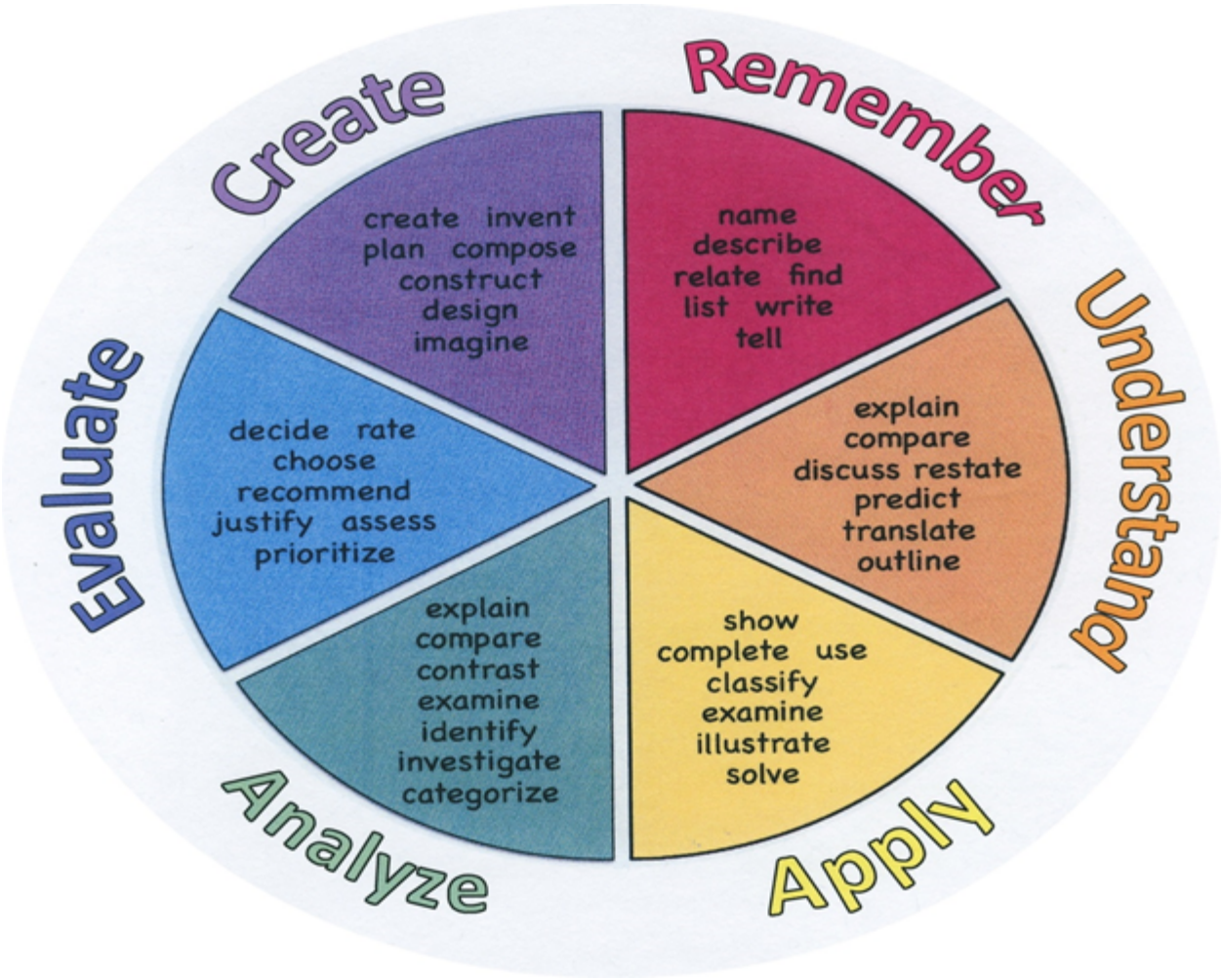
Assess the levels and equalization necessary for a proper mix.

Manipulate the effects applied to individual tracks.

Critique a project before finalizing the mix.

Action Verbs: Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy.

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Choose	Categorize	Appraise	Combine
Describe	Defend	Dramatize	Classify	Judge	Compose
Define	Demonstrate	Explain	Compare	Criticize	Construct
Label	Distinguish	Generalize	Differentiate	Defend	Design
List	Explain	Judge	Distinguish	Compare	Develop
Locate	Express	Organize	Identify	Assess	Formulate
Match	Extend	Paint	Infer	Conclude	Hypothesize
Memorize	Give Examples	Prepare	Point out	Contrast	Invent
Name	Illustrate	Produce	Select	Critique	Make
Omit	Indicate	Select	Subdivide	Determine	Originate
Recite	Interrelate	Show	Survey	Grade	Organize
Select	Interpret	Sketch	Arrange	Justify	Plan
State	Infer	Solve	Breakdown	Measure	Produce
Count	Match	Use	Combine	Rank	Role Play
Draw	Paraphrase	Add	Detect	Rate	Drive
Outline	Represent	Calculate	Diagram	Support	Devise
Point	Restate	Change	Discriminate	Test	Generate
Quote	Rewrite	Classify	Illustrate		Integrate
Recall	Select	Complete	Outline		Prescribe
Recognize	Show	Compute	Point out		Propose
Repeat	Summarize	Discover	Separate		Reconstruct
Reproduce	Tell	Divide			Revise
	Translate	Examine			Rewrite
	Associate	Graph			Transform
	Compute	Interpolate			
	Convert	Manipulate			
	Discuss	Modify			
	Estimate	Operate			
	Extrapolate	Subtract			
	Generalize				
	Predict				



Suggested Activities & Best Practices

- Demonstrate ability to connect hardware appropriate for a recording session.
- Create a recording session in the DAW software and record individual tracks.
- Perform a mix of a recording as a group, offering individual critiques and coming to a compromise for the best quality mix.
- Observe and offer critique of recording and mix quality to students.

Assessment Evidence - Checking for Understanding (CFU)

The following Evidence of Student learning with Checking for Understanding techniques will be employed:

- Unit Quiz (summative assessment)
- Unit Review (formative assessment)
- Web-Based Assessment (alternative assessment)
- Exit Tickets (formative assessment)
- Self-Assessments (alternative assessment)
- Compare and Contrast (formative assessment)
- Study Guide (formative assessment)
- Observations (formative assessment)
- Homework (formative assessment)

- Admit Tickets
- Anticipation Guide
- Common Benchmarks
- Compare & Contrast
- DBQ's
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Learning Center Activities
- Multimedia Reports
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Surveys
- Teacher Observation Checklist

- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit review/Test prep
- Unit tests
- Web-Based Assessments

Primary Resources & Materials

Materials to be used for for this course may include, but not be be limited to:

- YouTube videos
- Websites
- Information accessible via websites
- Chromebooks
- Smart TV
- PCs with audio production hardware

Ancillary Resources

Ancillary resources may include, but not be limited to:

- Musical instruments
- Instrument amplifiers
- Non-student performances

Technology Infusion

- Music Maker Jam
- Podcasts
- Khan Academy
- Twitter
- Windows Movie Maker
- Wikipedia
- TED Talks

What **Technology Infusion** and/or strategies are integrated into this unit to enhance learning? Please list all hardware, software and strategies. Please find a technology pedagogy wheel for assistance while completing

this section.

Alignment to 21st Century Skills & Technology

CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP4.1	Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
CRP.K-12.CRP6.1	Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.
CRP.K-12.CRP8.1	Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.
CRP.K-12.CRP10.1	Career-ready individuals take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.
CRP.K-12.CRP11.1	Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.
CRP.K-12.CRP12.1	Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

CAEP.9.2.12.C.1	Review career goals and determine steps necessary for attainment.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
CAEP.9.2.12.C.6	Investigate entrepreneurship opportunities as options for career planning and identify the knowledge, skills, abilities, and resources required for owning and managing a business.
TECH.8.1.12.E.1	Produce a position statement about a real world problem by developing a systematic plan of investigation with peers and experts synthesizing information from multiple sources.
TECH.8.2.12.D.1	Design and create a prototype to solve a real world problem using a design process, identify constraints addressed during the creation of the prototype, identify trade-offs made, and present the solution for peer review.
TECH.8.2.12.D.3	Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.
TECH.8.2.12.E.2	Analyze the relationships between internal and external computer components.

21st Century Skills/Interdisciplinary Themes

- Global awareness
- Environmental literacy
- Civic literacy
- Communication and Collaboration
- Creativity and Innovation
- Life and Career Skills
- Critical Thinking and Problem Solving

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- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

21st Century Skills

- Communication and Collaboration
- Information Literacy
- ICT (Information, Communications and Technology) Literacy
- Life and Career Skills
- Creativity and Innovation
- Critical Thinking and Problem Solving

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy

- Global Awareness
- Health Literacy

Differentiation

- Students will have the same subject matter but will have different outcomes.
- Progress will be the same but the product will be different.
- Guided instruction, direct instruction, group instruction.
- Assist students with IEP & 504 guidelines.
- Study guides, group and peer instruction, extended time/ test time, oral testing
- Small group instruction
- Small group assignments
- Extra time to complete assignments
- Pairing oral instruction with visuals
- Repeat directions
- Scheduled breaks
- Rephrase written directions

- Alternative formative and summative assessment
- Leveled rubrics
- Project-based learning

- Exploration by interest
- Open-ended activities

Special Education Learning (IEP's & 504's)

- additional time for skill mastery
- preview of content, concepts, and vocabulary
- behavior management plan
- have student repeat directions to check for understanding
- teacher initiated weekly assignment sheet
- assistive technology
- check work frequently for understanding
- secure attention before giving instruction/directions
- multi-sensory presentation
- preferential seating
- Reduced/shortened written assignments
- printed copy of board work/notes provided

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- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multiple test sessions
- multi-sensory presentation
- preferential seating
- preview of content, concepts, and vocabulary
- Provide modifications as dictated in the student's IEP/504 plan
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes

English Language Learning (ELL)

- using videos, illustrations, pictures, and drawings to explain or clarify
- teaching key aspects of a topic. Eliminate nonessential information
- having peers take notes or providing a copy of the teacher's notes
- providing study guides
- allowing students to correct errors (looking for understanding)
- reducing or omitting lengthy outside reading assignments
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;

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- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

At Risk

- decreasing the amount of work presented or required
- using videos, illustrations, pictures, and drawings to explain or clarify
- tutoring by peers
- having peers take notes or providing a copy of the teacher's notes
- providing study guides
- allowing students to correct errors (looking for understanding)
- marking students' correct and acceptable work, not the mistakes
- educing or omitting lengthy outside reading assignments
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- modifying tests to reflect selected objectives
- allowing the use of note cards or open-book during testing
- collaborating to modify vocabulary, omit or modify items how the grade will be determined prior to giving the test to reflect objectives for the student, eliminate sections of the test, and determine

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides

- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify

Talented and Gifted Learning (T&G)

- Create a blog or social media page about their unit
- Debate issues with research to support arguments
- Complete activities aligned with above grade level text using Benchmark results
- Advanced problem-solving
- Above grade level placement option for qualified students
- Higher order, critical & creative thinking skills, and discovery
- Flexible skill grouping within a class or across grade level for rigor
- Teacher-selected instructional strategies that are focused to provide challenge, engagement, and growth opportunities
- Multi-disciplinary unit and/or project
- Allow students to work at a faster pace

- Above grade level placement option for qualified students
- Advanced problem-solving
- Allow students to work at a faster pace
- Cluster grouping
- Complete activities aligned with above grade level text using Benchmark results
- Create a blog or social media page about their unit
- Create a plan to solve an issue presented in the class or in a text
- Debate issues with research to support arguments
- Flexible skill grouping within a class or across grade level for rigor
- Higher order, critical & creative thinking skills, and discovery
- Multi-disciplinary unit and/or project
- Teacher-selected instructional strategies that are focused to provide challenge, engagement, and growth opportunities
- Utilize exploratory connections to higher-grade concepts
- Utilize project-based learning for greater depth of knowledge

Sample Lesson

Unit Name: Unit One: History of Audio Production

NJSLS: VPA.1.2.12.A.1, VPA.1.2.12.A.2, VPA.1.3.12.B.1, VPA.1.3.12.B.2, VPA.1.4.12.A.1,

VPA.1.4.12.A.2, VPA.1.4.12.A.3, VPA.1.4.12.A.4, VPA.1.4.12.B.2, VPA.1.4.12.B.3

Interdisciplinary Connection: Technology, social studies/history

Statement of Objective: SWDAT understand the history of early recording technologies, how they were used, their advantages, their limitations, and how they influenced subsequent recording technologies.

Anticipatory Set/Do Now: Students will be able to identify past recording technologies, how they are different from today's technology, and what the lineage between them is.

Learning Activity: Students will observe videos demonstrating the use and workings of early recording technologies (e.g., wax cylinder, gramophone, magnetic tape, etc.). Discussion will follow.

Student Assessment/CFU's: Class discussion, quiz

Materials: Videos, examples of such technologies

21st Century Themes and Skills: Communication and Collaboration, Information Literacy, Media Literacy

Differentiation/Modifications: Preferential seating for observing video, allowance for necessary repetition during discussion, extra time for quiz

Integration of Technology: Google Classroom, access to internet for YouTube videos and other exemplary materials