



**Introduction to Computer Animation
Grades 9-12**

Unit #1

Course/Subject:

Introduction to Computer Animation/
Fine Arts

Grade:

9-12

Class Orientation

Suggested Timeline:

2 weeks

Grade Level Summary

Introduction level course for students in grades 9th through 12th. This course will offer students an overview into the world of three-dimensional rendering and computer animation. Using computers and the Blender software program, students will create three-dimensional scenes, computer graphics, DVD quality animations and gaming programs. This course will focus on creating contemporary art pieces and introducing students to the basics of one of the fastest growing career fields.

Grade Level Units

Unit 1: Class Orientation
Unit 2: Careers in Animation
Unit 3: Portfolio Process and Project Planning
Unit 4: 2D Animation
Unit 5: 3D Animation

Unit Title

Class Orientation

Unit Summary

In this unit, students will examine how animation has changed throughout the history of technical advances in moving imagery. Throughout this unit, student will be introduced to the basic principles of traditional and modern uses of animation in society today, while completing hands on practices, which reflect basic animation concepts. This unit will also discuss programs used in class and in industry.

Unit Essential Questions:

1. What is computer animation?
2. What will we be doing in the computer animation class this year and how will we be completing projects?
3. How has animation changed over the years?
4. What tools will we be working with this year?

Key Understandings:

1. Computer Animation is displayed in many aspects of our lives.
2. This course will serve as a brief introduction to animation principles and uses modern two-dimensional and three-dimensional animation programs.
3. Throughout time and culture, artists have depicted imagery in motion.
4. Sophisticate software animation programs are used in industry animation production.

Focus Standards Addressed in the Unit:

Standard Number

Standard Description

9.1.12.C.

Integrate and apply advanced vocabulary to the arts forms.

9.1.12.E.

Delineate a unifying theme through the production of a work of art that reflects skills in media processes and techniques.

9.1.12.J.

Analyze and evaluate the use of traditional and contemporary technologies for producing, performing and exhibiting works in the arts or the works of others.

9.2.12.B.	Relate works in the arts chronologically to historical events (e.g., 10,000 B.C. to present).
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Important Standards Addressed in the Unit:

9.3.12. A.	Explain and apply the critical examination processes of works in the arts and humanities. • Compare and contrast • Analyze • Interpret • Form and test hypotheses • Evaluate/form judgments
9.4.12. B.	Describe and analyze the effects that works in the arts have on groups, individuals and the culture

Misconceptions:	Proper Conceptions:
<ol style="list-style-type: none"> 1. Computers do majority of the animation process. 2. Animation is a fairly quick process. 	<ol style="list-style-type: none"> 1. Humans oversee every part of the animation process. 2. The typical animating process should take about two weeks to efficiently make 10 to 30 seconds of animation for a movie. This time length also includes animation dailies, where an animator would present their work to a supervisor or instructor for critiquing.

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
<ul style="list-style-type: none"> • Identify monumental events in the evolution of animation. • Identify computer programs used to create animation in the studio and in industry. • Identify and distinguish the differences between the types of animation • Identify the basic principles and processes of computer-based animation and motion graphics; • Identify resources and references for further study and authoring of animation-based narrative media. • Demonstrate proper use of terminology in describing processes, tools, and materials in the production of animation. 	<ul style="list-style-type: none"> • Collaborate with classmates to create a short stop-motion animation. 	<ul style="list-style-type: none"> • Take responsibility for maintaining materials, tools and equipment, and following correct classroom procedures. • Generate a series of entries in a visual journal, which demonstrate attention to skills, notes, inspirational images, contemporary animator studies, sketches and ideas in process. • Foster and build on ideas based on previously gained knowledge. • Make connections to other discipline. • Categorize and discuss examples of professional and student sculpture and animation from an historic point of view. • Evaluate and reflect upon the growth and progress of work through self-analysis, individual and group critiques.

Academic Vocabulary:

<ul style="list-style-type: none"> • 2D Animation • 3D Animation • Computer-Generated-Imagery (CGI) • Spline • Linear interpolation 	<ul style="list-style-type: none"> • Real-Time Animation • Stop-Motion Animation • Key-Frame Animation • Motion-Capture Animation • Key Poses 	<ul style="list-style-type: none"> • Flash Animation • Blender • Bezier Curves • Key frames
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Assessments:

May include, but are not limited to:

- Formative: Student/teacher conferences, peer consultations, class participation, intra and interpersonal reflections, etc.
 - Summative: Sketch/plan/thumbnailed, teacher evaluation, practice of skill method, performance measure project, quizzes, tests, etc.
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Differentiation:

- Preferential seating; Additional clarification of content; Occasional need for one to one instruction; Minor adjustments or pacing according to the student's rate of mastery; If written work is difficult, use verbal/oral approaches; Modifications of assignments/testing; Reasonable extensions of time for task/project completion; Assignment sheet/notebook; Modified/adjusted mastery rates; Modified/adjusted grading criteria; Retesting opportunities; Specific adjustments made on an individual basis and in accordance with GIEP, IEP, or 504 plans.
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Interdisciplinary Connections:

- Science (i.e., verification, technology, color theory, etc.)
 - World Culture (i.e., styles, historical context, functional design, etc.)
 - Math (i.e., proportion, estimation, measuring, volume, etc.)
 - Family and Consumer Science, Technical Education (traditional functional design)
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Additional Resources:

Blender Basics 5th Edition by James Chronister

Created By:

Tonya Flickinger



**Introduction to Computer Animation
Grades 9-12**

Unit #2

Course/Subject:
Introduction to Computer Animation/
Fine Arts

Grade:
9-12

Careers in Animation

Suggested Timeline:
1 week

Grade Level Summary

Introduction level course for students in grades 9th through 12th. This course will offer students an overview into the world of three-dimensional rendering and computer animation. Using computers and the Blender software program, students will create three-dimensional scenes, computer graphics, DVD quality animations and gaming programs. This course will focus on creating contemporary art pieces and introducing students to the basics of one of the fastest growing career fields.

Grade Level Units

Unit 1: Class Orientation
Unit 2: Careers in Animation
Unit 3: Portfolio Process and Project Planning
Unit 4: 2D Animation
Unit 5: 3D Animation

Unit Title

Careers in Animation

Unit Summary

In today's culture, computer animation has become a growing industry. Many multimedia artists and animators often work in specific mediums. Some decide to focus on creating animated movies or video games. Others artists, create visual effects for movies and television shows. Creating computer-generated images (CGI) may include taking images of an actor's movements, which are then animated into three-dimensional characters. Other animators design scenery or backgrounds for locations.

In this unit, students will research a careers related to animation. Students will become familiar with multiple contemporary multimedia artists, as they study the variety and range of jobs in the computer animation industry. Students will also review basic applications and resumes formats.

Unit Essential Questions:

1. Where is computer animation used?
2. What does an animator do?
3. Where does an animator work?
4. Where can I find jobs using computer animation?
5. How would I display my various skills in computer animation?

Key Understandings:

1. Computer animation is used in a wide variety of careers and content areas.
2. Animators create animation and visual effects for films, video games, television, mobile devices, and other forms of media using illustrations and software programs, i.e. Adobe After Effects, Adobe Premiere, Autodesk3ds Max, and Autodesk Maya, etc.
3. Animators also create graphics and develop storyboards, drawings and illustrations; they create, plan, and script animated narrative sequences, and assist with background design and production coordination.
4. Job opportunities for animators and multimedia artists can be found all over the U.S; California has the highest, followed by New York, Washington, Texas, and Illinois.

Focus Standards Addressed in the Unit:

<i>Standard Number</i>	<i>Standard Description</i>
9.1.12.B.	Recognize, know, use and demonstrate a variety of appropriate arts elements and principles to produce, review and revise original works in the arts.
9.1.12.J.	Analyze and evaluate the use of traditional and contemporary technologies for producing, performing and exhibiting works in the arts or the works of others.
9.3.12. A.	Explain and apply the critical examination processes of works in the arts and humanities. • Compare and contrast • Analyze • Interpret • Form and test hypotheses • Evaluate/form judgments
9.4.12. B.	Describe and analyze the effects that works in the arts have on groups, individuals and the culture

Important Standards Addressed in the Unit:

9.1.12.C.	Integrate and apply advanced vocabulary to the arts forms.
9.1.12.E.	Delineate a unifying theme through the production of a work of art that reflects skills in media processes and techniques.
9.4.12.A.	Evaluate an individual's philosophical statement on a work in the arts and its relationship to one's own life based on knowledge and experience.

Misconceptions:

1. Computers do majority of the animation process.
2. Animation is a fairly quick process.
3. You have to be a skilled drawer to create animations.

Proper Conceptions:

1. Humans oversee every part of the animation process.
2. The typical animating process should take about two weeks to efficiently make 10 to 30 seconds of animation for a movie. This time length also includes animation dailies, where an animator would present their work to a supervisor or instructor for critiquing.
3. There are many diverse jobs within the animation process.

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
<ul style="list-style-type: none"> • Research and identify careers in the animation industry. • Research and identify contemporary animators. • Identify basic applications and resumes formats. • Demonstrate proper use of terminology in describing processes, tools, and materials in the production of animation. 	<ul style="list-style-type: none"> • Complete animation careers exercise. 	<ul style="list-style-type: none"> • Take responsibility for maintaining materials, tools and equipment, and following correct classroom procedures. • Generate a series of entries in a visual journal, which demonstrate attention to skills, notes, inspirational images, contemporary animator studies, sketches and ideas in process. • Foster and build on ideas based on previously gained knowledge. • Make connections to other discipline. • Categorize and discuss examples of professional and student sculpture and animation from an historic point of view. • Evaluate and reflect upon the growth and progress of work through self-analysis, individual and group critiques.

Academic Vocabulary:

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|---|---|---|
| <ul style="list-style-type: none">• Animation Studios• Freelance• Architectural Animation• Advertising/Marketing Animation• Multimedia Portfolios• Resumes• Pixar | <ul style="list-style-type: none">• Software Publishers• Advertising• Public Relations• Game Development• Graphic Design• Illustration | <ul style="list-style-type: none">• Traditional Animation (Cell Animation)• 2D Animation (Vector Animation)• 3D Animation• Motion Graphics• Motion Picture and Video Industries |
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Assessments:

May include, but are not limited to:

- Formative: Student/teacher conferences, peer consultations, class participation, intra and interpersonal reflections, etc.
 - Summative: Sketch/plan/thumbnailed, teacher evaluation, practice of skill method, performance measure project, quizzes, tests, etc.
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Differentiation:

- Preferential seating; Additional clarification of content; Occasional need for one to one instruction; Minor adjustments or pacing according to the student's rate of mastery; If written work is difficult, use verbal/oral approaches; Modifications of assignments/testing; Reasonable extensions of time for task/project completion; Assignment sheet/notebook; Modified/adjusted mastery rates; Modified/adjusted grading criteria; Retesting opportunities; Specific adjustments made on an individual basis and in accordance with GIEP, IEP, or 504 plans.
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Interdisciplinary Connections:

- Science (i.e., verification, technology, color theory, etc.)
 - World Culture (i.e., styles, historical context, functional design, etc.)
 - Math (i.e., proportion, estimation, measuring, volume, etc.)
 - Family and Consumer Science, Technical Education (traditional functional design)
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Additional Resources:

Blender Basics 5th Edition by James Chronister

Created By:

Tonya Flickinger



Introduction to Computer Animation
Grades 9-12

Unit #3

Course/Subject:
Introduction to Computer Animation/
Fine Arts

Grade:
9-12

Portfolio Process and Project Planning

Suggested Timeline:
2 weeks

Grade Level Summary

Introduction level course for students in grades 9th through 12th. This course will offer students an overview into the world of three-dimensional rendering and computer animation. Using computers and the Blender software program, students will create three-dimensional scenes, computer graphics, DVD quality animations and gaming programs. This course will focus on creating contemporary art pieces and introducing students to the basics of one of the fastest growing career fields.

Grade Level Units

Unit 1: Class Orientation
Unit 2: Careers in Animation
Unit 3: Portfolio Process and Project Planning
Unit 4: 2D Animation
Unit 5: 3D Animation

Unit Title

Portfolio Process and Project Planning

Unit Summary

From a freelance animator to a perspective animation student, artistic portfolios are a necessary part of the job requirement. A successful portfolio will show the artists' range in skills, quality of work, and creativity. Before one can compile a portfolio, one needs to understand the essentials of project planning. Project planning may include character development, character illustrations, storyboards, and a lot of revisions. In this unit, students will gain an understanding of the portfolio development process, as well as participate in character development and story board exercises.

Unit Essential Questions:

1. What is a portfolio?
2. How do I develop and display a good animation project?
3. How do I develop a detailed multimedia portfolio?
4. What are the elements of a well-planned project?
5. How does the story enhance the animation?
6. How have stories served in the evolution of society?
7. What qualities make for a successful story?
8. What qualities make for a successful character?

Key Understandings:

1. A portfolio is a collection of your strongest artistic work, which is presented as professionally as possible.
2. A multimedia portfolio is composed of digital or time-based media, which should demonstrate a basic mastery of the concepts of composition, as well as effective use of software or other relevant digital tools, with additional 2-dimensional and 3-dimensional art.
3. A written portfolio should demonstrate the applicant's ability to communicate concepts and exhibit of competency across a variety of genres.
4. Animators use storyboards to record the form of illustrations or images displayed in sequence for the purpose of pre-visualizing a motion picture, animation, motion graphic or interactive media sequence
5. Humans have been telling stories, since the beginning of language.
6. The power of story is the ability to connect with people on an emotional level.

	<ol style="list-style-type: none"> 7. Stories should reflect the writer's own life and how they feel. 8. An author's goal is for the audience to feel the same emotion as the characters in the story.
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Focus Standards Addressed in the Unit:

<i>Standard Number</i>	<i>Standard Description</i>
9.1.12.B.	Recognize, know, use and demonstrate a variety of appropriate arts elements and principles to produce, review and revise original works in the arts. <ul style="list-style-type: none"> • Visual Arts: • paint • draw • craft • sculpt • print • design for environment, communication, multi-media
9.1.12.E.	Delineate a unifying theme through the production of a work of art that reflects skills in media processes and techniques.
9.1.12.J.	Analyze and evaluate the use of traditional and contemporary technologies for producing, performing and exhibiting works in the arts or the works of others.
9.3.12.K.	Identify, explain and analyze traditions as they relate to works in the arts (e.g., story telling – plays, oral histories- poetry, work songs- blue grass).

Important Standards Addressed in the Unit:

9.1.12.C.	Integrate and apply advanced vocabulary to the arts forms.
9.4.12.A.	Evaluate an individual's philosophical statement on a work in the arts and its relationship to one's own life based on knowledge and experience.

Misconceptions:	Proper Conceptions:
<ol style="list-style-type: none"> 1. Computers do majority of the animation process. 2. Animation is a fairly quick process. 	<ol style="list-style-type: none"> 1. Humans oversee every part of the animation process. 2. The typical animating process should take about two weeks to efficiently make 10 to 30 seconds of animation for a movie. This time length also includes animation dailies, where an animator would present their work to a supervisor or instructor for critiquing.

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
<ul style="list-style-type: none"> • Research animation portfolio examples. • Explore creative writing practices with contemporary animators and storytellers. • Demonstrate proper use of terminology in describing processes, tools, and materials in the production of animation. 	<ul style="list-style-type: none"> • Create a written and video portfolio containing of class projects. • Complete exercises related to story planning, creative practices and storyboard writing. 	<ul style="list-style-type: none"> • Take responsibility for maintaining materials, tools and equipment, and following correct classroom procedures. • Generate a series of entries in a visual journal, which demonstrate attention to skills, notes, inspirational images, contemporary animator studies, sketches and ideas in process. • Foster and build on ideas based on previously gained knowledge. • Make connections to other discipline. • Categorize and discuss examples of professional and student sculpture and

		<p>animation from an historic point of view.</p> <ul style="list-style-type: none"> ● Evaluate and reflect upon the growth and progress of work through self-analysis, individual and group critiques.
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Academic Vocabulary:

<ul style="list-style-type: none"> ● Portfolio ● Multimedia Portfolio ● Output ● Formats ● Written Expression ● Storyboards ● Design 	<ul style="list-style-type: none"> ● Documentation ● Copyrights ● Character ● Internal features ● External features ● Concept art 	<ul style="list-style-type: none"> ● Stakes ● Obstacles ● Visual Language ● Philosophical ● Want ● Need
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Assessments:

May include, but are not limited to:

- Formative: Student/teacher conferences, peer consultations, class participation, intra and interpersonal reflections, etc.
- Summative: Sketch/plan/thumbnaill, teacher evaluation, portfolio project, storyboards, quizzes, tests, etc.

Differentiation:

- Preferential seating; Additional clarification of content; Occasional need for one to one instruction; Minor adjustments or pacing according to the student's rate of mastery; If written work is difficult, use verbal/oral approaches; Modifications of assignments/testing; Reasonable extensions of time for task/project completion; Assignment sheet/notebook; Modified/adjusted mastery rates; Modified/adjusted grading criteria; Retesting opportunities; Specific adjustments made on an individual basis and in accordance with GIEP, IEP, or 504 plans.

Interdisciplinary Connections:

- Science (i.e., verification, technology, color theory, etc.)
- World Culture (i.e., styles, historical context, functional design, etc.)
- Math (i.e., proportion, estimation, measuring, volume, etc.)
- Family and Consumer Science, Technical Education (traditional functional design)

Additional Resources:

Blender Basics 5th Edition by James Chronister

Created By:

Tonya Flickinger



**Introduction to Computer Animation
Grades 9-12**

Unit #4

Course/Subject:
Introduction to Computer Animation/
Fine Arts

Grade:
9-12

2D Animation

Suggested Timeline:
6 weeks

Grade Level Summary

Introduction level course for students in grades 9th through 12th. This course will offer students an overview into the world of three-dimensional rendering and computer animation. Using computers and the Blender software program, students will create three-dimensional scenes, computer graphics, DVD quality animations and gaming programs. This course will focus on creating contemporary art pieces and introducing students to the basics of one of the fastest growing career fields.

Grade Level Units

Unit 1: Class Orientation
Unit 2: Careers in Animation
Unit 3: Portfolio Process and Project Planning
Unit 4: 2D Animation
Unit 5: 3D Animation

Unit Title

2D Animation

Unit Summary

As technologies have advanced in animation, two-dimensional animation has evolved and secured a place in 21st century animation. Modern two-dimensional animation uses vector animation programs, which create rigs and use Adobe After Effects to animate drawings instead of drawing each frame. In this unit, students will explore the vector animation program, Adobe Flash. Students will be introduced to Flash's tools and their functions through practices and projects.

Unit Essential Questions:

1. How do animators create two-dimensional animated videos?
2. How have computers changed the two-dimensional animation industry?
3. How do I utilize Adobe Flash to complete industry standard animations used in web and advertising applications?

Key Understandings:

1. Many contemporary animations are created using vector animation programs.
2. Traditional methods of animation (cell animation) were created by an animator drawing each frame of the animation. Modern methods of animation are created using computers to assist in the animation process, making it less expensive and quicker than tradition methods.
3. Animation software requires a wealth of information to create a complete industry standard of animation, but is achievable with education and practice.

Focus Standards Addressed in the Unit:

<i>Standard Number</i>	<i>Standard Description</i>
9.1.12.B.	Recognize, know, use and demonstrate a variety of appropriate arts elements and principles to produce, review and revise original works in the arts. <ul style="list-style-type: none"> Visual Arts: • paint • draw • craft • sculpt • print • design for environment, communication, multi-media
9.1.12.C.	Integrate and apply advanced vocabulary to the arts forms.
9.1.12.J.	Analyze and evaluate the use of traditional and contemporary technologies for producing, performing and exhibiting works in the arts or the works of others.
9.3.12. A.	Explain and apply the critical examination processes of works in the arts and humanities. • Compare and contrast • Analyze • Interpret • Form and test hypotheses • Evaluate/form judgments

Important Standards Addressed in the Unit:

9.1.12.G.	Analyze the effect of rehearsal and practice sessions.
9.1.12.H.	Incorporate the effective and safe use of materials, equipment and tools into the production of works in the arts
9.4.12.D.	Analyze and interpret a philosophical position identified in works in the arts and humanities.

Misconceptions:	Proper Conceptions:
<ul style="list-style-type: none"> Computers do majority of the animation process. Animation is a fairly quick process. 	<ul style="list-style-type: none"> Humans oversee every part of the animation process. The typical animating process should take about two weeks to efficiently make 10 to 30 seconds of animation for a movie. This time length also includes animation dailies, where an animator would present their work to a supervisor or instructor for critiquing.

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
<ul style="list-style-type: none"> Demonstrate general understanding of working in a two-dimensional basic animation program. Identify basic Adobe Flash transformers, tools, and their functions. Demonstrate basic understanding of an object's physical properties in reference to the objects movements. Identify and demonstrate basic understanding of the 12 properties of an animation, i.e. squash and stretch, anticipation, staging, straight ahead, pose to pose, overlapping actions, arches, secondary action, timing, exaggeration, etc. Compare and contrast the different types of animation. 	<ul style="list-style-type: none"> Complete animation practices and reflections on Introduction to Animation, Straight Ahead Animation, Linear Interpolation, Bezier Curves, Squash and Stretch, and Pixar Animator study. Design storyboards and projects demonstrating two-dimensional animation skills. Illustrate and animate images to create the illusion of movement. Demonstrate proper use of the two-dimensional animation program, i.e. Adobe Flash, to complete animation assignments. Complete several models and simple animations demonstrating various techniques 	<ul style="list-style-type: none"> Take responsibility for maintaining materials, tools and equipment, and following correct classroom procedures. Generate a series of entries in a visual journal, which demonstrate attention to skills, notes, inspirational images, contemporary animator studies, sketches and ideas in process. Foster and build on ideas based on previously gained knowledge. Make connections to other discipline. Categorize and discuss examples of professional and student sculpture and animation from an historic point of view.

<ul style="list-style-type: none"> • Demonstrate proper use of terminology in describing processes, tools, and materials in the production of animation. 		<ul style="list-style-type: none"> • Evaluate and reflect upon the growth and progress of work through self-analysis, individual and group critiques.
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Academic Vocabulary:

<ul style="list-style-type: none"> • Stop Motion • Pixelation • Vector • Motion Graphic • Rigging • Puppets • Cut-outs • Silhouettes • Key-Assist Animation • Lead Animation • Interpolations (IPOs) • Object Based Animation • Lines • Segments • Joints • Figures • Animated GIF files 	<ul style="list-style-type: none"> • Kinematics • Transformers • Timelines • Tween • Key Frames • Symbols- Graphics, Movie Clips • Mask • Squash and Stretch • Anticipation • Staging • Straight ahead • Pose to pose • Extreme poses • Breakdown poses • Follow-through • Overlapping actions • Drag 	<ul style="list-style-type: none"> • Slow in (Ease in) • Slow out (Ease out) • Arches • Secondary Action • Timing • Exaggeration • Solid Drawing • Volume • Weigh • Frame by Frame • Balance • Appeal
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Assessments:

May include, but are not limited to:

- Formative: Student/teacher conferences, peer consultations, class participation, intra and interpersonal reflections, etc.
- Summative: Sketch/plan/thumbnailed, teacher evaluation, storyboards, 2D animation practices, animation program skill practices, final 2D animation project, quizzes, tests, etc.

Differentiation:

- Preferential seating; Additional clarification of content; Occasional need for one to one instruction; Minor adjustments or pacing according to the student's rate of mastery; If written work is difficult, use verbal/oral approaches; Modifications of assignments/testing; Reasonable extensions of time for task/project completion; Assignment sheet/notebook; Modified/adjusted mastery rates; Modified/adjusted grading criteria; Retesting opportunities; Specific adjustments made on an individual basis and in accordance with GIEP, IEP, or 504 plans.

Interdisciplinary Connections:

- Science (i.e., verification, technology, color theory, etc.)
- World Culture (i.e., styles, historical context, functional design, etc.)
- Math (i.e., proportion, estimation, measuring, volume, etc.)
- Family and Consumer Science, Technical Education (traditional functional design)

Additional Resources:

Blender Basics 5th Edition by James Chronister

Created By:

Tonya Flickinger



**Introduction to Computer Animation
Grades 9-12**

Unit #5

Course/Subject: Introduction to Computer Animation/ Fine Arts	Grade: 9-12	3D Animation	Suggested Timeline: 7 weeks
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Grade Level Summary	Introduction level course for students in grades 9 th through 12 th . This course will offer students an overview into the world of three-dimensional rendering and computer animation. Using computers and the Blender software program, students will create three-dimensional scenes, computer graphics, DVD quality animations and gaming programs. This course will focus on creating contemporary art pieces and introducing students to the basics of one of the fastest growing career fields.
Grade Level Units	Unit 1: Class Orientation Unit 2: Careers in Animation Unit 3: Portfolio Process and Project Planning Unit 4: 2D Animation Unit 5: 3D Animation

Unit Title	3D Animation
Unit Summary	<p>In 21st century animation, animation companies like Pixar and Dreamworks have revolutionized the way that animation is made. Three-dimensional animation has become the standard form of animation in today's society. Three-dimensional computer animation, otherwise known as CGI or computer generated imagery, requires a technical skill set, which is very different for each task. Of all the animation methods of the past, three-dimensional animation is more similar to sculpting and posing of digital puppets, while using key frames to capture motion. Unlike other forms of animation, in three-dimensional animation, characters body parts always exist even in not in view. This requires more time and planning for the animation team.</p> <p>In this unit, students will explore the three-dimensional animation program, Blender. Students will be introduced to Blender's tools and their functions through practices and projects. This is a brief introduction to the program, which focuses mainly on modeling, textures, and simple animation methods in Blender.</p>

Unit Essential Questions: <ol style="list-style-type: none"> How do I develop three-dimensional models and animations? How do I develop three-dimensional models using a variety of editing tools and texturing techniques? What are the various methods of animating three-dimensional models? 	Key Understandings: <ol style="list-style-type: none"> Three-dimensional Animation is used in a variety of ways in movies, the internet, and advertising. Three-dimensional modeling and texturing are a basic part of the animation process. There a multiple methods of animating three-dimensional models using the animation program, Blender.
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Focus Standards Addressed in the Unit:

<i>Standard Number</i>	<i>Standard Description</i>
9.1.12.B.	Recognize, know, use and demonstrate a variety of appropriate arts elements and principles to produce, review and revise original works in the arts. <ul style="list-style-type: none"> Visual Arts: • paint • draw • craft • sculpt • print • design for environment, communication, multi-media
9.1.12.C.	Integrate and apply advanced vocabulary to the arts forms.
9.1.12.J.	Analyze and evaluate the use of traditional and contemporary technologies for producing, performing and exhibiting works in the arts or the works of others.
9.4.12.D.	Analyze and interpret a philosophical position identified in works in the arts and humanities.

Important Standards Addressed in the Unit:

9.1.12.G.	Analyze the effect of rehearsal and practice sessions.
9.1.12.H.	Incorporate the effective and safe use of materials, equipment and tools into the production of works in the arts
9.3.12. A.	Explain and apply the critical examination processes of works in the arts and humanities. • Compare and contrast • Analyze • Interpret • Form and test hypotheses • Evaluate/form judgments
9.4.12.A.	Evaluate an individual's philosophical statement on a work in the arts and its relationship to one's own life based on knowledge and experience.

Misconceptions:	Proper Conceptions:
<ul style="list-style-type: none"> Computers do majority of the animation process. Animation is a fairly quick process. 	<ul style="list-style-type: none"> Humans oversee every part of the animation process. The typical animating process should take about two weeks to efficiently make 10 to 30 seconds of animation for a movie. This time length also includes animation dailies, where an animator would present their work to a supervisor or instructor for critiquing.

Knowledge & Concepts	Skills & Competencies	Dispositions & Practices
<ul style="list-style-type: none"> Demonstrate general understanding of working in a three-dimensional basic animation program. Identify basic transformers, tools, and their short cuts Demonstrate basic understanding of an object's physical properties in reference to the objects movements. Demonstrate proper use of terminology in describing processes, tools, and materials in the production of animation. 	<ul style="list-style-type: none"> Demonstrate proper use of the animation program, Blender, to develop three-dimensional models and animations. Complete several models and simple animations demonstrating various techniques. Apply appropriate textures and materials to models. Demonstrate ability to animation three-dimensional models. 	<ul style="list-style-type: none"> Take responsibility for maintaining materials, tools and equipment, and following correct classroom procedures. Generate a series of entries in a visual journal, which demonstrate attention to skills, notes, inspirational images, contemporary animator studies, sketches and ideas in process. Foster and build on ideas based on previously gained knowledge. Make connections to other discipline. Categorize and discuss examples of professional and student sculpture and animation from an historic point of view. Evaluate and reflect upon the growth and progress of work through

		self-analysis, individual and group critiques.
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Academic Vocabulary:

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|---|---|--|
| <ul style="list-style-type: none">• Meshes• Modifiers• Transformers• Mapping• Constraints• Key-framing• Paths• Curves• Child-Parent | <ul style="list-style-type: none">• Armatures• Interpolations (IPOs)• Timelines• Inverse Kinematics• Meta Shapes• Three-dimensional modeling• Rigging• UV unwrapping• Texturing | <ul style="list-style-type: none">• Animating• Particle simulation• Smoke simulation• Camera tracking• Composition• Video editing• Rendering |
|---|---|--|
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Assessments:

May include, but are not limited to:

- Formative: Student/teacher conferences, peer consultations, class participation, intra and interpersonal reflections, etc.
 - Summative: Sketch/plan/thumbnailed, teacher evaluation, storyboard, 3D animation practices, 3D modeling and animation project, quizzes, tests, etc.
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Differentiation:

- Preferential seating; Additional clarification of content; Occasional need for one to one instruction; Minor adjustments or pacing according to the student's rate of mastery; If written work is difficult, use verbal/oral approaches; Modifications of assignments/testing; Reasonable extensions of time for task/project completion; Assignment sheet/notebook; Modified/adjusted mastery rates; Modified/adjusted grading criteria; Retesting opportunities; Specific adjustments made on an individual basis and in accordance with GIEP, IEP, or 504 plans.
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Interdisciplinary Connections:

- Science (i.e., verification, technology, color theory, etc.)
 - World Culture (i.e., styles, historical context, functional design, etc.)
 - Math (i.e., proportion, estimation, measuring, volume, etc.)
 - Family and Consumer Science, Technical Education (traditional functional design)
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Additional Resources:

Blender Basics 5th Edition by James Chronister

Created By:

Tonya Flickinger
