COMPUTER ANIMATION

LENGTH OF TIME: one semester, everyday for 90 minutes

GRADE LEVEL: 10-12

COURSE STANDARDS:
Students will:

1. Learn the techniques and tools for making a 3-dimensional animation. National Visual Art Content Standard 1 PA Academic Standard 9.1.12 A-K.
2. Understand how to write and create a story with the application of storyboards. National Visual Art Content Standard 1 PA Academic Standard 9.3.12 A-G, and PA Academic Standard 9.4.12 A-D.
3. Understand how to construct wire frames as a basic structure for creating objects in 3-dimensional space. National Visual Art Content Standard 2. PA Academic Standard 9.1.12 A-K.
4. Understand how to construct textures and texture map objects in 3-dimensional space. National Visual Art Content Standard 2 and 5. PA Academic Standard 9.1.12 A-K. 9.3.12 E and F.
5. Understand how to make objects move by animating them in real time and in 3-dimensional space. National Visual Art Content Standard 1 PA Academic Standard 9.3.12 A-G, and PA Academic Standard 9.4.12 A-D.
6. Learn how to critique and evaluate an animation using the elements and principles of design as well as cinematic knowledge. National Visual Art Content Standard 3 and 5. PA Academic Standard 9.1.12 A, and C–K
7. Explore the history of animation and make connections between time periods, cultures, society, economics, and politics. National Visual Art Content Standard 4. PA Academic Standard 9.3.12 A-G and 9.4.12 A-D.
8. Critique their work and work of other animators. National Visual Art Content Standard 5. PA Academic Standard 9.3.12 A-G.
9. Understand how animation is connected to the disciplines of both math and language arts. National Visual Art Content Standard 6 PA Academic Standard 9.3.12 A-G, and PA Academic Standard 9.4.12 A-D.

RELATED PA ACADEMIC STANDARDS FOR ARTS AND HUMANITIES

9.1 Production, Performance and Exhibition of Dance, Music, Theatre and Visual Arts
- A. Elements and principles in each Art Form
- B. Demonstration of Dance, Music, Theatre and Visual Arts
- C. Vocabulary Within each Art Form
- D. Styles in Production, Performance and Exhibition
- E. Themes in Art Forms
- F. Historical and Cultural Production, Performance and Exhibition
- G. Function and Analysis of Rehearsals and Practice Sessions

H. Safety Issues in the Arts
I. Community Performances and Exhibitions
J. Technologies in the Arts
K. Technologies in the Humanities

9.3 Critical Response
A. Critical Processes
B. Criteria
C. Classifications
D. Vocabulary for Criticism
E. Types of Analysis
F. Comparisons
G. Critics in the Arts

9.4 Aesthetic Response
A. Philosophical Studies
B. Aesthetic Interpretation
C. Environmental Influences
D. Artistic Choices

NATIONAL VISUAL ARTS STANDARDS

1. Understanding and applying media, techniques, and processes
2. Using knowledge of structures and functions
3. Choosing and evaluating a range of subject matter, symbols, and ideas
4. Understanding the visual arts in relation to history and cultures
5. Reflecting upon and assessing the characteristics and merits of their work and the work of others
6. Making connections between visual arts and other disciplines

PERFORMANCE ASSESSMENTS:

Students will demonstrate achievement of the standards by:

1. Demonstrating the ability to think and respond creatively (Course Standard 1,2,3)
2. Demonstrating the ability to respond critically to work of art, in writing and orally, using the critical analysis format (Course Standard 1,5,6,7);
3. Developing art works that are sculptural in nature that include subtractive and additive concepts (Course Standard 2,3,4);
4. Demonstrating the ability to meet all expectations, criteria, and objectives for each lesson at a proficient level (Course Standard 2,3,4);
5. Demonstrating excellent craftsmanship and precise technical skills (Course Standard 2,3,4);
6. Developing a vocabulary related to sculptural processes and their properties as applicable in each unit of study (Course Standard 1,5,6,7);
7. Demonstrating manipulative and organizational skills in art performance appropriate for his or her level (Course Standard 2,3,4,5);
8. Applying knowledge of art criticism aesthetics, studio, and art history in the creation and discussion of the artwork (Course Standard 1,5,6,7);
9. Maintaining a portfolio of work completed for each unit of study (Course Standard 2,3);

10. Completing self-assessment (performance, creative growth and development, problem solving ability, and craftsmanship of work) (Course Standard 1,7,8,11)
11. Participating in additional assessments will include quizzes, tests, class work, homework, journals, class participation, and teacher observation/assessment (Course Standard 1,7,8,11,12);
12. Demonstrating effective use of class time (Course Standard 9).

DESCRIPTION OF COURSE:
This course will explore an overview of the history of animation and computer animation, visual aesthetics, cinematography and the production of an animated short. Students will learn to model using a 3D animation program along with the application of texture mapping, lighting, camera movement and animation.

TITLES OF UNITS:
1. Exploring the history of animation 1900's to Present – (Week one)
2. Exploring the history of computer animation 1980-Present – (Week one)
3. Recognizing The Elements and Principles of Design – (Week two-three).
    - Line
    - Shape & Form
    - Value
    - Color & Color Theory/ Physics of color
    - Space
    - Texture
    - Balance
    - Unity
    - Context
    - Emphasis
    - Pattern
    - Movement & Rhythm
4. Critical Analysis of Animated Cells (Week three)
5. Critical Analysis of Animations (Week three)
6. Cinematography, Cameras & Lighting (Week five)
7. Using the tools and utilities for:
    - Navigation and Display (Week four)
    - Creating Objects (Week four)
    - Transforming Objects (Week four)
    - Animating Objects (Week five)
    - Modifying Objects (Week four)
    - Editing Objects (Week five)
    - Creating Compound Objects (Week five)
    - Assigning Cameras (Week five)
    - Assigning Lights (Week five)
    - Creating Maps & Materials (Week five)
    - Rendering and Special Effects (Week five)

8. Creating a storyboard and creating groundwork for an animated short. (Week six)
9. Animation Production Week (Week Seven to Week Twenty)

SAMPLE INSTRUCTIONAL STRATEGIES:
1. Cooperative Learning
2. Group Activities
3. Classroom climate influence learning
3. Individual Activities
4. Self-directed learning
5. Demonstrations
6. Research
7. Writing
8. Projects

MATERIALS:
1. Teacher made resources
2. Student made resources
3. Animation Videos
4. Animation Reference books
5. On-line resources and animation websites
6. Computer program 3-D Studio Max current version
7. Applicable computers
8. Video Tapes
9. Video Editing equipment and programs
10. Animated Cells
11. Other related videos

METHODS OF ASSISTANCE AND ENRICHMENT:
1. Guest speakers (animators)
2. Teachers from other disciplines
3. Attending animation presentations/animations/festivals

PORTFOLIO DEVELOPMENT:
1. Students will enter a well-written critical analysis of an animation for their portfolios
2. Students will enter various animated cells into their portfolios

METHODS OF EVALUATION:
1. Teacher assessment
2. Student assessment
3. Worksheets
4. Storyboards
5. Problem- solving activities using rubrics
6. Individual projects
7. Group participation and Group projects

INTEGRATED ACTIVITIES:
Writing- Students will write a story for a group animation.
Math concepts –Students will use math formulas and math concepts throughout their production of an animation.

Physics – Students will study the physics of color and apply this information to their group animation.