BAA Animation 11 – 3D Modelling

District Name: Yukon School District

District Number: 98

Developed by: Tyler Bradford

School Name: F.H. Collins Secondary

Principal's Name: Darren Hays

Board / Authority Approval Date:

Board / Authority Signature:

Course Name: Animation 11 – 3D Modelling

Grade Level of Course: 11

Number of Course Credits: 4

Number of Hours of Instruction: 120

Prerequisites: None

Special Training, Facilities or Equipment Required: Computer Lab, Animation Software, Develop skills with computer technology and relevant animation software

Course Synopsis:
This course is an in in-depth introduction to the art and technology of animation using computer modelling and 3-D animation software.

Rationale:
Computer animation is a growth industry in Canada. This course will provide students with an advanced introduction to digital animation, modelling and media production, with the intent of either preparing students for a career in the industry or complementing their skills in other areas.

Organizational Structure:

Unit/Topic/Module Descriptions:

Unit 1: Research and Problem Solving Time: 10 hours

Given the rapid advances in animation and modelling technology it is important that students develop life long learning skills. This unit will require students to begin working on those skills by accessing online and traditional materials, tutorials, etc., in order to advance their own skill level.

Curriculum Organizer: Resource Identification

Students will be able to identify a number of potential sources of information relevant to animation and modelling.

Curriculum Organizer: Resource Utilization

Students will be able to use various sources of information relevant to animation and modelling.

Curriculum Organizer: Resource Assessment

Students will:
- critique a resource that they have used
- present a summary of that critique to other students

Unit 2: Introduction to 3-D Modelling Time: 40 Hours

This unit will introduce students to 3-D modelling.

Organizer: Primitives and Polygons

Students will be able to:
- create primitives with control of appropriate parameters
- join primitives using Booleans, arrays and symmetries
- edit primitives at the face, edge and point level
- create a model of moderate complexity using a Box-modelling technique

Organizer: Splines

Students will be able to use splines to create lathe objects, extruded objects, text, and other appropriate objects.

Organizer: Materials and Mapping

Students will be able to:
- create textures using an image editing program
- combine textures to create a material
- apply materials to an object using non-UVW mapping techniques

Organizer: Modifiers and Deformers

Students will be able to use modifiers and deformations/lattices to enhance the appearance of the model

Unit 3: Introduction to 3D Animation Time: 40 Hours

This unit will introduce students to a variety of 3D animation techniques.

Organizer: Storyboarding

Students will use a storyboard to communicate their plans for a simple animation, including character movement and camera angles.

Organizer: Cameras and Lighting

Students will be able to:
- use an appropriate combination of cameras and lighting to enhance the animation
- use a variety of light sources, such as point, spot, ambient, diffuse, and volumetric lights

Organizer: Special Effects

Students will be able to use, appropriately, particles, lens effects, explosions, fire, waves, etc. or such other effects as required.

Organizer: Splines, Paths, and Timelines

Students will be able to:
- use spline and path based animation techniques
- use the timeline to produce keyframed animation

Unit 4: Introduction to Sound and Video Editing Time: 20 Hours

This unit will introduce students to the tools, technology and terminology of sound and video editing.

Curriculum Organizer: Sound

Students will be able to:
- record speech or sound effects on a computer and apply basic manipulations such as cutting, pasting, trimming and level equalization
- use and identify a variety of audio file formats and uses for each format
- convert between audio file formats

Curriculum Organizer: Video

Students will be able to:
- apply basic manipulation such as cutting, copying, pasting, trimming, etc. when joining video files together
- apply transitions between clips
- identify appropriate applications for a variety of common video file formats and codecs

Unit 5: Analysis of Animation Time: 10 hours

Students will develop their critical thinking ability through watching the works of their peers and of professional animators. They will apply these abilities by reflecting upon the strengths and weaknesses of their own work.

Curriculum Organizer: Peer Review

Students will:
- present a sample of their own work for peer review
- critique the strengths and weaknesses in the work of fellow students

Curriculum Organizer: Analysis of Professional Work

Students will:
- identify the wide variety of styles and techniques employed by professional animators
- identify techniques used by professional animators that can be applied to improve their own work

Curriculum Organizer: On-Line Resources

Students will identify and access on-line resources such as discussion forums and tutorials to improve their own work.

Instructional Components

- direct instruction
- indirect instruction
- interactive instruction
- independent instruction

- modelling
- practical creativity
- brainstorming
- group work
- analysis of commercial films and videos
- analysis of own and classmates' animation work

Assessment Components

Assessment will be conducted in keeping with good teaching practice. Expectations will be communicated to students prior to the beginning of each unit, and assessed at the end of each unit. The majority of the grade will be based upon the work produced by the students, and will reflect the class time and expected learning outcomes from that unit. Eighty per cent (80%) of the grade will be based on evaluations conducted throughout the course. This portion of the grade will reflect the students' most consistent level of achievement throughout the course, although special consideration may be given to the more recent evidence of achievement. Twenty per cent (20%) of the grade will be based on the evaluation of a final project. This assessment will be conducted thought a combination of teacher, peer, and self-assessment in a ratio determined by the teacher to best suit the needs of the class. It is understood that as the teaching of computer animation is a rapidly evolving field that it may be necessary for the teacher to modify these parameters within the boundaries of their professional judgement to ensure the best possible education and assessment for their students. Assessment components will include: hand drawing skills, computer modelling skills, sound and editing skills, etc.

Learning Resources

As a rapidly evolving field, it is expected that the learning resources will change over time. Examples of some recommended resources as of 2013 are:

- Software capable of 3-D modelling and animation (ie: Softimage XSI, Cinema 4D, 3DS Max, etc.)

- Software capable of editing and compiling video and sound files (ie. Adobe Premiere, iMovie , Audacity (freeware, sound only))

- Software capable of capturing and compiling single images to produce an animation (ie Flash, etc.)

Animation reference books:

"The Animators Workbook" by Tony White ISBN: 0-8230-0229-2

"Cartoon Animation - Basic Skills" by Walter Foster ISBN: 0-929261-50-x

"Cartoon Animation" by Preston J. Blair ISBN: 0-929261-51-8