Form D-1: Application for Approval of a Locally Developed Course of Study

This form must be submitted to the Regional Office, Ministry of Education, or the French Education Branch(FEB) for French courses no later than **May 1** for approval for semester one and **December 1** for approval for semester two. This submission prior to the first year of implementation is a request to pilot the Locally Developed Course of Study. Significant changes in years two through five require resubmission of this form. The Locally Developed Course of Study submission should be in electronic format.

Application is submitted by:

Christ the Teacher R.C.S.S.D. #212	1
School Division Name	Region

45A Palliser Way	Yorkton	S3N 4C5
P.O. Box/Street Address	Town/City	Postal Code

Animation 10L	10	1.0
Proposed Course Title	Grade Level	Credit Value

30	August, 2012	Ongoing
No. of Students	Date of Commencement	Expiry Date

If you intend to implement this course in more than one school within your division, please identify all of the additional schools by **school number** and **name**.

#3660403	Sacred Heart High School		
School No.	School Name	School No.	School Name

Approval is requested to offer for credit the Locally Developed Course of Study as described.

Barb MacKesey	May 1, 2012
Director of Education or Designate	Date

Regional Director of Education or Designate	Date

Form D-1 (con't): Application for Approval

Is the proposed course adapted or adopted from one in another school division? Yes
Note: If the course is to be delivered by the external jurisdiction, please refer to the *Credit Transfer Guide: Secondary Education* (appears in the Registrar's Handbook) for information on how credits for such courses are awarded and recorded.

Adapted ■ In the course outline described below, indicate clearly the adaptations that will be made to the original course to make it suitable for use by the local school division.

Adopted o Attach a copy of the cover page of Form D-1 and a copy of Form D-2 from the originating school division to show its approval. The conditions of approval outlined on the original D-2 apply to the adopting school division.

4164902	Bethlehem Catholic High School	Greater Saskatoon Catholic S. D.	
School No.	School Name	School Division	Region

Animation 10L	10	
Course Title	Grade Level	Course Code

Is the proposed course a provincially developed course from another province that meets the needs of the students in your school division?

Yes o   No ■
If yes, complete the following

Province	Number of hours of instruction

Course title	Grade Level

Course Outline
Attach a detailed description of the course that includes:

Rationale
Explain the reasons for offering this course. The rationale will describe the intent or purpose for the course.

Animation can be found in a variety of forms and media throughout the world today. Whether you are looking at an animated short on a web site, glancing at a 3d model on the cover of a leading magazine or sitting and watching a full length animated film, animation can be seen as a medium for communicating everything from a simple thought to a complex story. Although the final product in each of these examples is different, the basic skills needed to plan and create the animated sequences are the same.

This course is a hands-on course allowing students the opportunity to engage in the planning, constructing and publishing of animated projects. The plan will take the form of sketches, storyboards and scripts. After being grounded in the traditional principles of animation, students will use computer software to model objects, organize and render animated scenes, and composite a final product. At each level, the student is expected to maintain a portfolio to show how their skills have developed over the term of the course. This course provides students with the opportunity to become engaged in authentic and relevant learning opportunities in which to practice and develop skills related to computer animation and its uses in society currently.

The course can be added to the spectrum of subjects which are grouped in the Practical and Applied Arts.

Sacred Heart High School last updated this course in 2007 and has now rewritten the course in terms of curricular outcomes and indicators. Part of the front end rational and back end ideas have been adapted from the Animation 10L course submitted by Greater Saskatoon Catholic in 2011.

Purpose

The animation 10 course is designed to provide the opportunity for students to:

1. Develop an awareness of competencies and personal values related to careers in animation and related fields.
2. Understand the history of animation and future trends in animation technology.
3. Develop and apply skills and knowledge in the planning, design, development, and publication of original animations using current 2D and 3D animation software and techniques.

Animation Curriculum Goals:

The goals are broad statements identifying what students are expected to know and be able to do upon completion of a particular area of study. Goals of the animation curriculum:

- To understand the origins of animation.
- To understand the role and influence of computer animation technology in today's world.
- To understand the basic principles of animation in traditional and computer based animations.
- To understand modeling/animating concepts through the use of 2D/3D animation software packages.
- To understand the importance of having and developing a portfolio for a career in any 2D/3D related industry.
- To develop problem solving skills.

Cross-curricular Competencies and Outcomes:

Animation encourages incorporation of the Cross-curricular competencies. The incorporation into Practical and Applied Arts programs and through other curricula offers many opportunities for students to develop knowledge, skills and abilities necessary to make the transition to career, work, and adult life.

Develop Thinking; constructing their knowledge and skill in the context of creation of the visual representation of ideas (DT)

- Analyze a particular context for the ways that parts influence each other and create the whole
- Explore complex systems and issues using a variety of approaches such as models, simulations, movement, self-reflection and inquiry
- Imagine and create central images or metaphors for subject are content or cross-disciplinary ideas

Develop Identity and Interdependence; develop a sense of self, how they interact with others, and the influence of technology on their world (DI)

- Develop skills, understandings, and confidence to make conscious choices that contribute to the development of a healthy, positive self-identity
- Value the varied abilities and interests of individuals to make positive contributions

Develop Literacies; develop, use and evaluate technological knowledge and skills to express ideas (DL)
- Access and use appropriate technologies to investigate ideas and deepen understanding
- Select and critically evaluate information sources and tools based on the appropriateness to specific tasks
- Determine and use languages, concepts, and processes that are particular to a discipline when developing ideas and presentations
- Select and use appropriate technologies in order to communicate effectively and ethically

Modules:

Module 1: Role and Influence of Animation and Career Development

Suggested time: 3-5 hours   Prerequisite: None   Level: Introductory

Overview: This module encourages students to reflect on the role and influence animation has in affecting our lives. Part of this influence can be captured by the types of career opportunities this field has created. As a result students will have the opportunity to investigate careers related to animation. Students will research current and future employment trends, and develop a possible career path based on their own interests, values, and skills as compared to those of people in the Animation industry.

Module 2: Artistic Process and Traditional Animation

Suggested Time: 10 - 15 hours   Prerequisite: none   Level: Introductory

Overview: This module provides students with an opportunity to explore one of the traditional forms of animation and the traditional skills and processes that accompany the basic principles of animation. From this grounding, students will be able to transfer this knowledge into 3 dimensional computer animations later in the course.

Module 3: Introduction into 3 Dimensional Computer Modeling

Suggested Time: 40 - 50 hours   Prerequisite: Modules 1 and 2   Level: Introductory

Overview: This module provides students with an introduction into 3 dimensional computer modeling as a prerequisite into 3 dimensional computer animation. Modeling is an important area students must master to gain success in creating a 3 dimensional animated sequence.

Module 4: Lighting and Surfacing

Suggested Time: 5 - 10 hours   Prerequisite: Modules 1-3   Level: Introductory

Overview: This module provides students with a brief look at the lighting required to light a single frame or an animated computer sequence.   It also covers an introduction into surfacing an object and applying an image map. Both of these concepts could be applied throughout module 3 as students begin creating models or it can be left as a way of integrating the modeling component with the layout or scene component of an animation.

Module 5: Introduction into Computer Animation Sequences

Suggested Time: 10 - 15 hours   Prerequisite: Modules 1- 4   Level: Introductory

Overview: This module provides students with a brief introduction on how to take the models created in module 3 and make them perform some action in an animated sequence.

Module 6: Final Project and Animation in the Industry

Suggested Time: 10 - 15 hours   Prerequisite: Modules 1-5   Level: Introductory

Overview: This module provides students with an opportunity to use the remaining time in the course to create a final project and to present their work to an audience.

Examples of Learning Outcomes
Briefly outline the basic knowledge, skills and attitudes that students will develop through enrolment in the course.

Does this course have a prerequisite?   Yes o   No ■
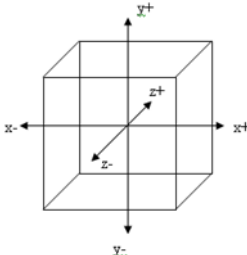If yes, please indicate prerequisite.

Outcomes:

Outcome *Students will:*	**An10**.1: Identify, discuss and explain the role and influence of animation in today's world. (DT, DI)	
Indicators *(The following indicators may be used to determine whether students have met the corresponding outcome.)*	Notes *(The following notes are provided in support of instruction, learning, and assessment.)*	
a. Identify familiar animation examples and techniques.	Ask students to list examples of animated videos, films, and multimedia products. Examples could include: ▪ television shows ▪ movies ▪ commercials ▪ children's cartoons ▪ web sites ▪ video games	
b. Explore how animation has evolved from the first animated film to the computer animation of today.	Present information to the students on the history of animation by looking at featured films in the last 20 years. Films like "Tron", Star Trek I, up to the new Star Wars provides an excellent time line for the development of computer animation. Most of the new movies provide a behind the scenes look at the development of the film. It would be important to examine the credits at the end of a film to appreciate the number of different groups whose collaboration and team work made the film possible.	
c. Discuss how the evolution of animation has impacted society	Students could discuss in small groups how animation has impacted different areas in society including: • Entertainment • Health • Automotive and Architectural Design • Travel • Art	

d. Analyze the purposes and advantages of using animation rather than other forms of media.	Have students list reasons why a person might choose to create an animated story or other animation product. In creating their list, students should reflect on the following questions:
	
	▪ What can you do with animation that you cannot do with live action?
	Possible answers could include:
	
	   - lighting which is impossible in real life situations.
	   - destruction of 3d models vs. real life objects.
	   - exploration of futuristic environments.
	
	▪ What might attract a person to working in animation?

Outcome *Students will:*	**An10.2**: Explore and develop an understanding of the career development opportunities related to the field of Computer Animation. (DL, DI)

Indicators *(The following indicators may be used to determine whether students have met the corresponding outcome.)*	Notes *(The following notes are provided in support of instruction, learning, and assessment)*
a. Identify various applications of 3D graphics and animation.	Students will be asked to brainstorm a list of examples of where animation can be found in society. Possible answers could include: • Entertainment • Movies • Gaming • Health Sciences • Architecture • Aerospace • Advertising • Law Enforcement Students will identify Animation job titles (Animator, Industrial Designer, 3D Modeler, Technical Director), research post-secondary training opportunities, and identify factors for employability and advancement.
b. Identify, explain and examine different Animation careers.	Students could be asked to: Identify different Animation job titles including but not limited to Animator, Modeler, Industrial Designer, Technical Director, & Texture Artist. In addition students could also: Identify the members of a 3D graphics and animation team. Investigate career opportunities, trends, and requirements related to 3D graphics and animation careers Research female animators and animators from many cultures (Gender Equity and Multi-cultural Education). Investigate trends associated with 3D graphics and animation careers. Investigate the realities and requirements of working in the animation industry.
c. Explore educational and training requirements and demonstrate an understanding of career development opportunities related to computer animation.	There are a variety of strategies that students can use to explore what is involved in making animation a career. Some suggestions could include: Survey existing 3D graphics and animation businesses to determine what training is required. Survey universities and colleges to determine programs, degrees and training availability. Identify possible factors for employability and advancement in 3D careers Develop a realistic career plan to help guide further educational pursuits in an animation career.
d. Identify and use a variety of resources for career research.	Students could use a variety of resources such as correspondence with Post-Secondary Recruiting personal, guided searching, informational blogs etc… to research a variety of opportunities in this pathway.
e. Determine personal skills, values, and interests that would enhance career development choices.	Identify personal interests and abilities related to Animation careers Identify personal creative talents, organizational and leadership skills, and special interest areas Students could use resources provided at www.jobbank.gc.ca to complete the Career Exploration Research Assignment *See Appendix A*

Outcome *Students will:*	**An10.3**: Understand and apply the process of planning, creating and publishing an animated sequence.(DT,DL)

Indicators *(The following indicators may be used to determine whether students have met the corresponding outcome.)*	Notes *(The following notes are provided in support of instruction, learning, and assessment)*
a. Explore the different forms of traditional animation and identify the advantages and disadvantages of each.	Students should be introduced(given the opportunity to try!! Or research the characteristics) to some of the characteristics behind the following **cel animation** the animator draws or paints characters and scenes onto clear cels which resemble photocopier transparencies. The principle of cel animation is to draw the same object with small differences between cels to show movement. **pixilation** building off the idea of cel animation - pixilation involves the use of a video camera to tape intervals of movement of a 3d character. **claymation** building off the idea of pixilation, claymation involves the use of a video camera to tape intervals of a special type of plasticene. **rotoscoping** rotoscoping is an animation technique in which animators trace over live-action film movement, frame by frame, for use in animated films. Examples of each of these can be shown and talked about with the students.
b. Explore the traditional principles of animation.	The following concepts have been accepted as key traditional principles to make animation move effectively. ▪ Squash and Stretch ▪ Timing and Motion ▪ Anticipation ▪ Staging ▪ Follow Through and Overlapping Action ▪ Straight Ahead Action and Pose-to-Pose Action ▪ Slow In and Out ▪ Exaggeration ▪ Secondary Action ▪ Appeal Use online resources and completed examples to demonstrate the concepts to students. *See Appendix B for a more thorough explanation of the above.*
c. Analyse animation sequences to identify the traditional principles of animation.	Students could analyze popular animations to define examples of the 12 principles.
d. Demonstrate and apply the traditional principles of animation.	Students should experiment with each of the above concepts by creating 2 frames(cels) of a very simple object like a "flour sac" or an " animated toaster." to demonstrate and apply each of the above concepts. Students could be given access to programs like Swish or Adobe Flash to meet the above task(s).
e. Identify the importance and demonstrate the parts in creating a storyboard.	Students should learn that storyboards are the animators blueprints for production. *See Appendix C for an example of a story board.*

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<tr>
<td colspan="2"></td>
<td>Provide students with examples of storyboards.

NFB Videos such as the NFB mini documentary Run Away explains the process of development of an animation from initial concept to final production and the role of storyboards (http://www.nfb.ca/film/Runaway_making_of_animator_cordell_barker/)

It important to tell students that creating storyboards does not require highly developed drawing skills. Storyboards are meant to be sketches and scenes can contain stick figures. Storyboards can be divided into scenes for larger animations; or broken down into individual shots for smaller animations.

At this level, students should use storyboards to organize individual shots.

Students should understand that the Captions under each panel of the storyboard will provide suggestions for audio, lighting, shot selection, setting, sequence of media, sounds, and music.</td>
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<tr>
<td>f.</td>
<td>Design and Plan an animated sequence by creating a storyboard.</td>
<td>Students should be given the opportunity to create a storyboard to design and plan a small animation sequence (an example might be a popular children's fable). Students should be given several different styles of storyboard templates to work with. Demonstrate several completed storyboards as well as sites that allow writers to create storyboards online collaboratively.</td>
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<td>g.</td>
<td>Create an animated sequence and apply the traditional principles of animation.</td>
<td>Students can choose from one of the traditional processes discussed in the beginning of the module to create a basic sequence, or students could use a 2d software program like Macromedia Flash and use key frames to create cels which would speed up sequential drawings.</td>
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Outcome *Students will:*	An10.4: – Understand, demonstrate and apply 3d animation techniques in modelling and texturing. (DL, DT)

Indicators *(The following indicators may be used to determine whether students have met the corresponding outcome.)*	Notes *(The following notes are provided in support of instruction, learning, and assessment)*
a. Locate and position points and objects in 3D space	Present the following diagram to students to help them conceptualize how to navigate in 3d space. Begin by having students try to plot out points in a 3d system. Students should then learn to identify the different faces of a simple objects and how they relate to 3d space. (e.g. back of an object is the xy plane) The software chosen will also have a navigation control to place points, polygons, and objects at certain locations. A good grounding in the ability to move about on all axes will facilitate modeling in this unit.
b. Navigate around and use the basic tools of a 3D software package	Students should be introduced to the software package by walking them through the following basic procedures. ▪ file functions e.g. creating and saving an object. ▪ configure display panels e.g. perspective vs. wire frame. ▪ know the basic tabs that identify different controls in the program (Drill students that the tabs match which control you would like to select. Ex creating a 3d box is under the 'create' tab.) ▪ configuration of shortcut keys to commonly used controls. ▪ the undo feature to undo the last procedure performed.
c. Create 3D boxes and spheres	Students should be given time to simply create boxes and spheres. They can use the <u>navigation tool</u> and the <u>numeric tab</u> to create the following: ▪ a pyramid of boxes centered in 3d space ▪ a simple worm (from spheres)
d. Select the points, edges, and polygons that make up the sphere and box.	Have the students practice selecting the polygons and points that make up a common shape like the box or sphere. Have students work with a box that has been subdivided and have them select different polygons and points.
e. Select and name surfaces.	A natural step after an object has been created is to select the object and assign surfaces.
f. Create and apply a texture to a surface.	Once an object has been surfaced a simple texture can be created to enhance the object's appearance.
g. Modify objects using common commands	After selecting a polygon or object, students should be taught to modify the object/polygon by doing the following: ▪ moving the object/polygon ▪ rotating the object/polygon ▪ bending the object/polygon ▪ poling the object/polygon ▪ twisting the object/polygon ▪ extruding the object/polygon

		Small projects can be created to ensure that the above skills are being applied.
h.	Design and create a scene using basic primitives	Now that students know how to navigate and modify a sphere and box they can now use the same skills with other primitives to create a scene of objects. The instructor could arrange 3d shapes that students must replicate using any of the following: • box • sphere • donut • wedge • spline cage • gear • platonic solid
i.	Carry out the concept of *rendering* out a simple scene.	To allow students to see the results or their work, time can be taken to render out a simple scene. The concept of rendering can be explained but should be limited to rendering a simple frame instead of a sequence.
j.	Extend the complexity of a shape by creating more geometry	A box or sphere can have more points/polygons added to it by doing the following: ▪ beveling the object ▪ smooth shifting a polygon to a new location. Creating corners on boxes, bookcases, simple models of people are possible after learning these two skills.
k.	Use layers when working with complex objects.	To achieve a complex scene requires the use of layers in an object. Students need to : ▪ create objects on different layers ▪ navigate between layers ▪ understand the difference between foreground layer(layer being worked on) and background reference layer(wireframe layer used as reference for location) A good assignment to do at this time would be to create a telephone with a touch numeric pad as a good way to bring out the concept of layers and review the modeling skills so far. Other small assignments, which require the use of layers, can be practiced to help aid in the development and the ongoing review of these skills before tackling a complex scene.

l.	Create a complex scene using basic primitives and layers.	It is important that at this stage students practice the skills they have learned thus far and familiarize themselves with multiple layers.
		
		Possible assignment could include creating and setting a table for breakfast by modeling, positioning and texturing the following items:
		   • wine glass/bottle
		   • candlestick and candle
		   • cups and glasses
		   • forks, knives, spoons etc…

m.	Design and create a basic 3D character	A possible model could be a simple segmented character that would have balls as joints and cylinders as arms, legs etc. To increase the complexity of the model students could create complex eyes that could be morphed as endomorphs to later animate.

		Another model could be an inch worm made up of adjacent spheres.
n.	Use parent layers and the concept of "parenting" to form a basic model.	Most models require the concept of parenting where 'child ' layers are linked to a 'parent' layer. An example might be in the creation of a hand. The fingers would need to get parented to the palm and the palm parented to the wrist etc.
o.	Investigate and discuss what it means to model "efficiently"	Students should investigate and discuss modeling efficiently which entails: ▪ keeping track of the number of polygons used to create a model. Depending on how you have chosen how to create a model can determine the 'polygon count' that was used. A low polygon count is preferred without jeopardizing design or functionality. ▪ removing all 0 and 1 point polygons.

Outcome *Students will:*	An10.5: Understand, demonstrate and apply basic lighting principles when showcasing a character and objects in a scene or animation. (DL, DT)
Indicators *(The following indicators may be used to determine whether students have met the corresponding outcome.)*	**Notes** *(The following notes are provided in support of instruction, learning, and assessment)*
a. Discuss the effect lighting can have on a character and objects in and scene or animation	Students should be shown examples in the industry where digital lighting has been used to enhance the picture or animation and a discussion should follow concerning the impact this technique can have on overall presentation.
b. Create and apply a distance light to a scene or animation.	A distance light is simply a 'global light' which is providing the general lighting to a scene. Students can think of it as natural light generated naturally by the sun, moon, a well lit room or any nonspecific source.
c. Create and apply a point light(lens flare) to a scene or animation.	When you create a scene that has a direct light like a candlestick or a flashlight often you see the effect of the light on an object but you do not see the object supplying the light as a 'light generator.' Creating a 'lens flare around the flashlight or candlestick creates a glow to give the object that realistic look. Examples could include candles, flashlights, light bulbs, sparks and more.
d. Create and apply a spotlight to a scene or animation	Some situations require creating spotlights to give certain objects lighting or to generate a certain mood. Mood can be created by creating shadows with the use of spotlights. Examples could include canister lighting, headlights on cars, studio simulation lighting and more.
e. Design a lighting plan and create a specific mood using a combination of lighting techniques.	Once students have had the opportunity to try the different lighting concepts separately they can now design and use a combination of different light sources to create a specific mood or lighting scheme.

Outcome *Students will:*	**An10.6:** Understand, demonstrate and apply basic surfacing techniques to objects or characters.(DL, DT)

Indicators *(The following indicators may be used to determine whether students have met the corresponding outcome.)*	Notes *(The following notes are provided in support of instruction, learning, and assessment)*
a. Apply a simple surface to an object or character.	Once models (objects/characters) have taken shape geometrically, the next step to give them life is to apply a simple texture to a surface. The surface can take on a variety of different looks but some terms that can be applied are: ■ Color - the color of the selected surface ■ Luminosity - the brightness or self-illumination of the surface ■ Diffuse - the amount of light the surface receives from the scene ■ Specularity - The amount of shine on the surface ■ Glossiness - the spread or shine on a surface. A High Glossiness setting keeps the specularity, or shine, to a tight hotspot, similar to glass. ■ Reflection - The amount of reflection to a surface ■ Transparency - amount of transparency in a surface ■ Refraction Index - The amount of light that bends through a surface, such as water or glass. ■ Translucency. The ability of light to pass through a surface, such as a thin leaf or piece of paper. ■ Smoothing - A shading routine to make a surface appear smooth ■ Smooth Threshold - This is how much smoothing will be applied to the surface. Generally, the default of 89.5 is too high.
b. Apply an image map to a surface.	Any image created in a photo editing application like Photo Shop can be projected on a surface to create a special texture. A simple assignment such as a backdrop can be created at this time to introduce this concept.
c. Discuss how texturing an object can affect the time it takes to render an image or scene	Rendering out a single frame of an object and changing the texturing requirements will allow students to see how the texturing of an object has a direct impact on rendering times.
d. Analyze how an object's distance away from the camera dictates texturing choices.	Students should experience scenes where a "background" object has realistic textures – but is too far away from the camera. The statement "all objects in a scene should have different degrees of texturing" should be critiqued.

Outcome *Students will:*	**An10.7:** Demonstrate understanding of modeling and animating by designing and creating basic animation sequences.(DL,DT)

Indicators *(The following indicators may be used to determine whether students have met the corresponding outcome.)*	Notes *(The following notes are provided in support of instruction, learning, and assessment)*
a. Analyze a basic motion like a "walk cycle" to determine how to key frame an object or character to complete the motion in an animated sequence.	Before beginning the sequence, a simple motion like walking should be : ▪ broken down into the objects (joints, legs etc) ▪ the physical motion of each of the objects (how one foot is in the air while the other makes contact.) ▪ timing of the motion - how long does it take for a common stride to occur and how long is the motion to occur. ▪ key framing of the motion - could be mapped out on a storyboard. ▪ hierarchy of objects/layers - the idea that the torso goes up

	and down through a walking cycle.
b. Create key frames for each component of motion.	The motion needs to be key framed and key frames need to be copied along the time line of the entire motion sequence to repeat the action.
c. Examine and apply cinematic techniques to an animated sequence.	Once the motion has been key framed and is complete, correct cinematic techniques should be applied such as: ▪ field of view ▪ camera angles ▪ camera moves (panning, dolly shot, crane shot, tilt shot etc.
d. Explore different rendering formats of and render a final scene.	Students should be taught the concept of rendering and the different choices that are available. The following should be considered: ▪ different output formats - Quicktime vs. avi ▪ understand NTSC format and know frames per second - film vs. video ▪ codecs for compression
e. Composite a final animated sequence.	Using a compositing program like Final Cut Pro, IMovie, Adobe Premiere, Windows Movie Maker, to complete the animation. Music, an introductory frame and credits can be added to complete the sequence

Outcome *Students will:*	**An10.8:** Demonstrate skills and knowledge of animation techniques through application of concepts.(DT)	
Indicators *(The following indicators may be used to determine whether students have met the corresponding outcome.)*	**Notes** *(The following notes are provided in support of instruction, learning, and assessment)*	
a. Plan, model and animate a final project.	Students can pair up or be placed in larger groups, to plan a final project. They can use models they have already created or create new ones and place together an animated sequence.	
b. Present animated sequences to an audience.	Students need to present their animations to their peers and instructor. The students should: • identify animation techniques/styles available and identify/explain animation techniques used. • identify possible enhancements to the project. • identify/describe any difficulties encountered with the project. • evaluate, edit, and redo to improve the quality of the animation. • peers will provide comments on story development, animated models, and the animated sequence.	
c. Design, organize and create a portfolio that will showcase individual skills and knowledge.	Students need to realize that the industry requires you to present the skills you have as a way of acquiring employment or an educational/training opportunity. It is important that students have a digital copy of their work. Students could even be asked to compile their work in a "commercial" format that would allow them to showcase their acquired skills.	

Incorporation of the Various Core Curriculum Initiatives

Provide a minimum of six statements addressing each of the CELs to indicate how each CEL will be incorporated into the LDC. Other initiatives include the First Nations, Métis, and Inuit Content and Perspectives; Gender Equity; Resource-based Learning; and Multicultural Education. Describe how the various initiatives will be incorporated into the Locally Developed Course. See Appendix D for sources of information on Core Curriculum.

Common Essential Learnings

Animation encourages full incorporation of the common essential learnings (CELs). The incorporation of the CELs into Practical and Applied Arts programs offers many opportunities for students to develop knowledge, skills, and abilities necessary to make the transition to career, work, and adult life.

Throughout the animation curricula, the CELs foundational objectives are stated at the beginning of each module with the following codes:

COM	=	Communication
NUM	=	Numeracy
CCT	=	Critical and Creative Thinking
TL	=	Technological Literacy
PSVS	=	Personal and Social Values and Skills
IL	=	Independent Learning

Common Essential Learnings Foundational Objectives

- To develop the students' abilities to access knowledge. (IL)
- To develop a contemporary view of technology. (TL)
- To develop an understanding of both the value and the limitations of using computers to create animation. (CCT)
- To demonstrate an understanding of why animation is replacing regular film and video production (CCT)
- In developing an animated sequence, students will examine a complicated movement in order to break it down into a basic progression of steps.(CCT)
- To analyze every day objects and reproduce them using common shapes.(CCT/TL)
- To develop students who can take a project and work out a time line to complete it on their own. (IL)
- To develop and extend the ability to work and navigate in 3D space.(NUM)
- To extend the knowledge and ability to work with points, polygons and surfaces.(NUM/TL)
- To appreciate the work of others and refrain from the use of copyrighted images and 3d objects.(PSVS)
- To encourage the development of interpersonal skills using group work and projects.(PSVS/COM)

Incorporating Career Development Competencies

Describe how you plan to integrate Career Development Competencies in the Locally Developed Course. Refer to the *BluePrint for Life/Work Designs* framework. See Appendix A for more information.

In Animation 10 students will develop career awareness related to working in the 3D graphics industry. Identify personal interests and abilities related to 3D Graphics careers. Identify 3D graphics and animation job titles. Investigate career opportunities, trends, and requirements related to 3D Graphics and animation careers. Identify factor for employability and advancement in 3D careers

During the very beginning of the course, students identify different career opportunities using 3d and design. Areas that are covered include the medical field, architecture, industrial design, education, crime scene investigation and military training.

First Nations, Métis, and Inuit Content and Perspectives

The Animation program:

- Addresses the various cultural groups in Saskatchewan and Canada and models respect for cultural diversity.
- Reflects an awareness that class, gender, region, and religion all influence individuals.
- Includes resources that are representative of various cultural backgrounds promoting sensitivity and an awareness of potential cultural and gender bias.

- Encourages students to investigate the role of Aboriginal animators in current media through the demonstration and critique of animation used in Canadian productions. Students identify the work of major Canadian contributors in animation including those of First Nations ancestry.

Gender Equity

All students have a right to a learning environment that is gender equitable. Attitudes, behaviours, and language that contribute to gender equity is modeled and taught in the Animation course.

The Animation teachers provide for fairness at school and work for gender equity by educating students' individual hearts and minds. They can:

- ask students to think critically about what they know and are studying and to consider who is advantaged and disadvantaged
- model equitable and inclusive language in all interactions
- model respectful listening
- allow equal opportunity for input and response from all students
- help students recognize how personal language use can create and sustain an inclusive community
- establish an atmosphere in which issues are a valid and open topic of discussion
- challenge stereotypes and binary thinking
- have equally high expectations for all students across areas of study
- acknowledge the accomplishments of women and men
- ensure that all students have comparable time and access to equipment and resources, including teacher's time and attention
- incorporate diverse groupings in the classroom
- use gender-balanced resources that reflect and respect equity and diversity
- discuss any biased material with which students come in contact
- celebrate equity and challenge stereotyping.

Resource Based Learning

The Animation program encourages students and teachers to use a variety of resources in their learning and teaching. In the Animation program, it is important for teachers to:

- consider and use a wide range of graphic, visual, auditory, and human resources in their planning
- create a classroom environment rich in resources
- encourage students to use a variety of resources
- model resource use by acting as a co-learner with students and by using a wide range of materials and resource people
- incorporate resources and locational and research skills in appropriate lessons
- help students to determine for themselves the knowledge, skills, and resources they need to accomplish a learning task
- incorporate resource-based assignments and projects for students
- collaborate with resource centre staff and other teachers in planning and teaching units
- encourage students to explore a variety of print and non-print, electronic, and online sources, databases, and resource centres for both information and enjoyment
- encourage students to draw upon appropriate resources in their own communities
- choose resources that are representative of various cultural groups, both genders, sexual orientation, different historical periods, different countries, and various age groups and abilities.

Multi-cultural Education – the cultural climate in the animation classroom will:

- Ensure that all students have equitable opportunities to learn and meet high standards.
- Provide a safe learning environment, free from stereotypes, teasing, bullying, and harassment.
- Use culturally responsive activities, resources, and strategies to organize and implement instruction.
- Discuss and reflect upon cultural diversity and multiple perspectives.
- Ensure that guest speakers or presenters reflect that cultural diversity of the classroom across all disciplines.

Examples of Instructional Approaches

Include examples of the instructional approaches selected as appropriate for the proposed course and provide examples of their use in the Locally Developed Course of Study.

The classroom teacher will use a variety of instructional strategies in order to both meet the objectives of a module and the individual needs and strengths of the students. Sample instructional approaches will include:

a. Direct instruction - This strategy includes methods such as lecture, didactic questioning, explicit teaching, practice and drill, and demonstrations. The direct instruction strategy will be used for providing information or developing step-by-step skills. This strategy also works well for introducing other teaching methods, or actively involving students in knowledge construction.

b. Indirect Instruction - In contrast to the direct instruction strategy, indirect instruction is mainly student-centred, although the two strategies can complement each other. Indirect instruction seeks a high level of student involvement in observing, investigating, drawing inferences from data, or forming hypotheses. Examples of indirect instruction methods include reflective discussion, concept formation, concept attainment, cloze procedure, problem solving, and guided inquiry. This strategy is most appropriate when:

- thinking outcomes are desired;
- attitudes, values, or interpersonal outcomes are desired;
- process is as important as product;
- students need to investigate or discover something in order to benefit from later instruction;
- there is more than one appropriate answer;
- the focus is personalized understanding and long term retention of concepts or generalizations;
- ego involvement and intrinsic motivation are desirable;
- decisions need to be made or problems need to be solved; and,
- life-long learning capability is desired.

c. Interactive instruction relies heavily on discussion and sharing among participants. Seaman and Fellenz (1989) suggest that discussion and sharing provide learners with opportunities to "react to the ideas, experience, insights, and knowledge of the teacher or of peer learners and to generate alternative ways of thinking and feeling" (p. 119). Students can learn from peers and teachers to develop social skills and abilities, to organize their thoughts, and to develop rational arguments.

The interactive instruction strategy allows for a range of groupings and interactive methods. These may include total class discussions, small group discussions or projects, or student pairs or triads working on assignments together. It is important for the teacher to outline the topic, the amount of discussion time, the composition and size of the groups, and reporting or sharing techniques. Interactive instruction requires the refinement of observation, listening, interpersonal, and intervention skills and abilities by both teacher and students.

d. Experiential learning is inductive, learner centred, and activity oriented. Personalized reflection about an experience and the formulation of plans to apply [earnings to other contexts are critical factors in effective experiential learning. Experiential learning occurs when learners:

- participate in an activity;
- critically look back on the activity to clarify [earnings and feelings;
- draw useful insights from such analysis; and,
- put [earnings to work in new situations. (Pfeiffer & Jones, 1979)

Experiential learning can be viewed as a cycle consisting of five phases, all of which are necessary:

- experiencing (an activity occurs);
- sharing or publishing (reactions and observations are shared);
- analyzing or processing (patterns and dynamics are determined);
- inferring or generalizing (principles are derived); and,
- applying (plans are made to use [earnings in new situations).

The emphasis in experiential learning is on the process of learning and not on the product. A teacher can use experiential learning as an instructional strategy both in and outside the classroom. For example, students could be asked to present an animation project as part of the job interview process.

e. Independent Study refers to the range of instructional methods which are purposefully provided to foster the development of individual student initiative, self-reliance, and self-improvement. While independent study may be initiated by student or teacher, the focus here will be on planned independent study by students under the guidance or supervision of a classroom teacher. In addition, independent study can include learning in partnership with another individual or as part of a small group. For example students will be asked to plan, model and animate in a final project.

Examples of Assessment and Evaluation Techniques

Provide examples of the assessment and evaluation techniques that will accurately reflect student progress during the course.

Student evaluation will include:

- formative evaluation to determine the degree to which students are learning the course material and the extent to which their knowledge, understandings, skills and attitudes are developing.
- summative will occur at the end of each module to determine what has been learned, to summarize student progress, and report on progress to students, parents, and educators.
- Diagnostic evaluation at the beginning of the year or module to identify students who may require adaptations to ensure that they are being sufficiently challenged.

A variety of assessment techniques will be used to allow students to demonstrate the extent of their knowledge, skills, and attitudes in a variety of ways. Sample techniques include:

- Individual evaluations
- Project evaluations
- Self and peer-assessment
- Portfolios
- Group evaluations
- Observation Checklists
- Rating scales
- Written assignments
- Presentations
- Homework
- Performance tests
- Short-answer items

Assessment Criteria and Conditions	Suggested Emphasis
Assessment of student achievement will be based on:	

• Teacher-directed evaluation (written exams) designed to test the student's ability. For example:
  ➢ Identify and describe fundamental concepts of animation allowing the illusion of movement.
  ➢ Identify and describe two animation styles and the techniques used to create them.
	10%

• Assignments/projects/labs	60%

• A portfolio consisting of:
  ➢ At least two exercises each a minimum of 100 frames long and demonstrating creative use of animation technique.
  ➢ At least two different animation projects that demonstrate planning, use of equipment and tools, and creative use of animation technique.
	10%

• Final project	20%

Instructional Materials

Provide a list of key resources, both print and non-print. The list should be developed in a complete bibliographic format and must include author, copyright date, title, place of publication, publisher, and format description (e.g., print, video, film, CD-ROM, audiotape, software). Please note that resources may also include human resources (e.g., program support personnel, mentors, organizations), and electronic resources such as databases and Internet sites. It is advisable to select current and available resources.

Note: Applicants are responsible for ensuring that copyright laws are followed. Developers are responsible for obtaining all appropriate copyright clearances for their course and provide evidence of copyright clearance as part of their submission. Course materials that appear to demonstrate copyright infringement will not be approved.

a. **Software**

  ▪ Newtek LightWave 3D
  ▪ Adobe Flash CS4
  ▪ Adobe Premiere
  ▪ Garage Band
  ▪ Audacity

b. **Instructional Resources**

Animation: Basic Camera Techniques (video). (Art is … Video Series). Crystal Productions (CVE), 1998. 29 min.

Animation: The Basic Principles (print). Brian Lemay, 2000.

Animation 10 Level: Introductory Theme ; Introductory CTS, Communication Technology /D. 23 ©Alberta Learning, Alberta, Canada (1997) COURSE COM1070: http://www.learning.gov.ab.ca/k_12/curriculum/bySubject/cts/comTech/com1070.pdf - 14.9KB

Cel Mates (video). National Film Board of Canada (NFB), 1992. 13 min.

Communication Production and Technology 10,20,30 "Animation" (Optional Module) Saskatchewan Learning: http://www.sasked.gov.sk.ca/docs/paa/cpt/index.html.

Computer Careers for Artists (video). Double Diamond Corporation (CVE), 1994. 23 min

Digital Character Animation 2, Volume 1 - Essential Techniques: Maestri, G. (1999). Indianapolis, Indiana.:New Riders Publishing. (Book)

Inside LightWave   7.0 Ablan, D. (2002). Indianapolis, Indiana.:New Riders Publishing. (print)

notes taken from Jonathon Gilbreath, animator and film director, Austin Texas
http://www.cyberinkstudios.com

notes taken from " 3D Computer Animation Course Development" Shawn Mckenna

c.   Websites:

Careers
   a.   http://www.jobsetc.gc.ca/toolbox/quizzes/quizzes_home.do%3bjsessionid=10B5724B2695ECD0244019081506F6EF.jvm9
   b.   http://www.careercruising.com/
   c.   http://www.workingincanada.gc.ca

General Animation Awareness and History of Animation

   a.   http://www.nfb.ca
   b.   http://www.pixar.com
   c.   http://electronics.howstuffworks.com/tv-animation1.htm
   d.   http://en.wikipedia.org/wiki/Category:Canadian_animators
   e.   http://joshuamosley.com/UPenn/courses/Ani/AnimationHistory.html
   f.   http://djdesignerlab.com/2010/01/15/history-of-animation-media-innovation-and-experimentation/
   g.   http://brightbytes.com/collection/per_vis.html
   h.   http://www.howcast.com/videos/148840-How-To-Create-a-Phenakistoscope
   i.   http://www.howcast.com/videos/1085-How-To-Create-a-Flip-Book
   j.   http://www.howcast.com/en/videos/169724-How-To-Create-a-Zoetrope
   k.   http://soramimi-works.net/mola/praxi.shtml
   l.   http://www.wikihow.com/Make-a-Thaumatrope
   m. http://www.benettonplay.com/toys/flipbookdeluxe/guest.php

Animation Techniques

   a.   http://pharosproductions.com/aosma/smhome.html
   b.   http://www.awn.com/tooninstitute/lessonplan/bounceball.htm#bounce
   c.   http://www.idleworm.com/how/anm/01b/bball.shtml
   d.   http://www.angryanimator.com/word/2010/11/26/tutorial-2-walk-cycle/
   e.   http://www.maximized.co.uk/animation/walkcycle.shtml
   f.   http://www.magentagalaxy.com/blog/2010/11/flash-animation-tutorial-animate-a-walk-cycle/
   g.   http://animation.about.com/od/flashanimationtutorials/ss/flash29walkcycl_2.htm
   h.   http://www.flashframer.com/create-a-realistic-flash-animation-lip-sync/
   i.   http://www.newgrounds.com/portal/view/206271
   j.   http://www.voidix.com/Rotoscope.html
   k.   http://flash.editme.com/Rotoscoping
   l.   http://www.carrotrevolution.com/rotoball/index.html
   m. http://tinyurl.com/7xexn

Appendix A: *Career Exploration Research Assignment*

This assignment will be a summary of your career research to date. It will consolidate your findings from your youth employment quizzes and your career research

Assignment Specifics

Choose TWO careers that interest you that pertain to some aspect of animation (2D or 3D).

1. Type a summary of your research and include the following data for each career:
   - Summary of the career (3-5 sentences that explains the nature of the job)
   - Required training and education
   - Working conditions
   - Career outlook
   - Earnings
2. What did you learn about this Career? Or, what surprised you?
3. Based on your quiz results, what skills and interests do you have that would make you a good fit for this career?
4. Please list at least 5 personal qualities, explaining how each would contribute to your success in this career area.
5. How does this career fit and not fit with your values?
6. What specific next steps will you take to continue to explore this career further?
7. Can you comment on why it is important to investigate more than one possible career?

Appendix B: "Traditional Principles of Animation"

1. SQUASH AND STRETCH
This action gives the illusion of weight and volume to a character as it moves. Also squash and stretch is useful in animating dialogue and doing facial expressions. How extreme the use of squash and stretch is, depends on what is required in animating the scene. Usually it's broader in a short style of picture and subtler in a feature. It is used in all forms of character animation from a bouncing ball to the body weight of a person walking. This is the most important element you will be required to master and will be used often.

2. TIMING AND MOTION
Expertise in timing comes best with experience and personal experimentation, using the trial and error method in refining technique. The basics are: more drawings between poses slow and smooth the action. Fewer drawings make the action faster and crisper. A variety of slow and fast timing within a scene adds texture and interest to the movement. Most animation is done on twos (one drawing photographed on two frames of film) or on ones (one drawing photographed on each frame of film). Twos are used most of the time, and ones are used during camera moves such as trucks, pans and occasionally for subtle and quick dialogue animation. Also, there is timing in the acting of a character to establish mood, emotion, and reaction to another character or to a situation. Studying movement of actors and performers on stage and in films is useful when animating human or animal characters. This frame by frame examination of film footage will aid you in understanding timing for animation. This is a great way to learn from the others.

3. ANTICIPATION
This movement prepares the audience for a major action the character is about to perform, such as, starting to run, jump or change expression. A dancer does not just leap off the floor. A backwards motion occurs before the forward action is executed. The backward motion is the anticipation. A comic effect can be done by not using anticipation after a series of gags that used anticipation. Almost all real action has major or minor anticipation such as a pitcher's wind-up or a golfers' back swing. Feature animation is often less broad than short animation unless a scene requires it to develop a characters personality.

4. STAGING
A pose or action should clearly communicate to the audience the attitude, mood, reaction or idea of the character as it relates to the story and continuity of the story line. The effective use of long, medium, or close up shots, as well as camera angles also helps in telling the story. There is a limited amount of time in a film, so each sequence, scene and frame of film must relate to the overall story. Do not confuse the audience with too many actions at once. Use one action clearly stated to get the idea across, unless you are animating a scene that is to depict clutter and confusion. Staging directs the audience's attention to the story or idea being told. Care must be taken in background design so it isn't obscuring the

animation or competing with it due to excess detail behind the animation. Background and animation should work together as a pictorial unit in a scene.

5. FOLLOW THROUGH AND OVERLAPPING ACTION
When the main body of the character stops all other parts continue to catch up to the main mass of the character, such as arms, long hair, clothing, coat tails or a dress, floppy ears or a long tail (these follow the path of action). Nothing stops all at once. This is follow through. Overlapping action is when the character changes direction while his clothes or hair continues forward. The character is going in a new direction, to be followed, a number of frames later, by his clothes in the new direction. "DRAG," in animation, for example, would be when Goofy starts to run, but his head, ears, upper body, and clothes do not keep up with his legs. In features, this type of action is done more subtly. Example: When Snow White starts to dance, her dress does not begin to move with her immediately but catches up a few frames later. Long hair and animal tail will also be handled in the same manner. Timing becomes critical to the effectiveness of drag and the overlapping action.

6. STRAIGHT AHEAD AND POSE TO POSE ANIMATION
Straight ahead animation starts at the first drawing and works drawing to drawing to the end of a scene. You can lose size, volume, and proportions with this method, but it does have spontaneity and freshness. Fast, wild action scenes are done this way. Pose to Pose is more planned out and charted with key drawings done at intervals throughout the scene. Size, volumes, and proportions are controlled better this way, as is the action. The lead animator will turn charting and keys over to his assistant. An assistant can be better used with this method so that the animator doesn't have to draw every drawing in a scene. An animator can do more scenes this way and concentrate on the planning of the animation. Many scenes use a bit of both methods of animation.

7. SLOW-OUT AND SLOW-IN
As action starts, we have more drawings near the starting pose, one or two in the middle, and more drawings near the next pose. Fewer drawings make the action faster and more drawings make the action slower. Slow-ins and slow-outs soften the action, making it more life-like. For a gag action, we may omit some slow-out or slow-ins for shock appeal or the surprise element. This will give more snap to the scene.

8. EXAGGERATION
Exaggeration is not extreme distortion of a drawing or extremely broad, violent action all the time. It¹s like a caricature of facial features, expressions, poses, attitudes and actions. Action traced from live action film can be accurate, but stiff and mechanical. In feature animation, a character must move more broadly to look natural. The same is true of facial expressions, but the action should not be as broad as in a short cartoon style. Exaggeration in a walk or an eye movement or even a head turn will give your film more appeal. Use good taste and common sense to keep from becoming too theatrical and excessively animated
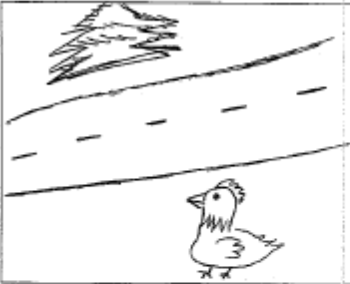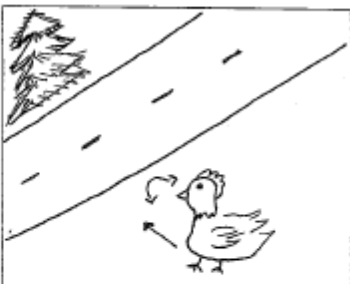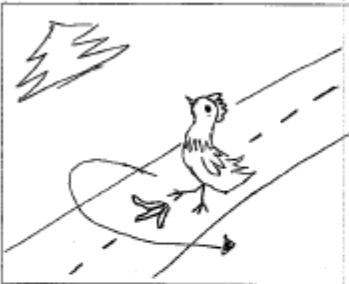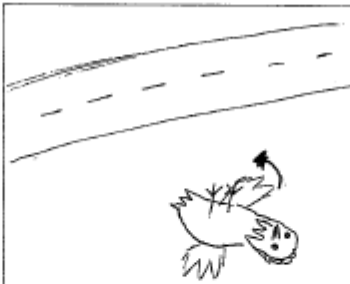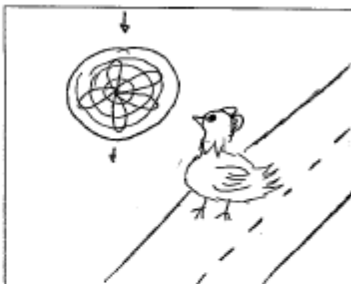

9. SECONDARY ACTION
This action adds to and enriches the main action and adds more dimension to the character animation, supplementing and/or re-enforcing the main action. Example: A character is angrily walking toward another character. The walk is forceful, aggressive, and forward leaning. The leg action is just short of a stomping walk. The secondary action is a few strong gestures of the arms working with the walk. Also, the possibility of dialogue being delivered at the same time with tilts and turns of the head to accentuate the walk and dialogue, but not so much as to distract from the walk action. All of these actions should work together in support of one another. Think of the walk as the primary action and arm swings, head bounce and all other actions of the body as secondary or supporting action.
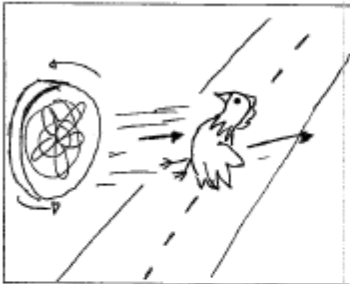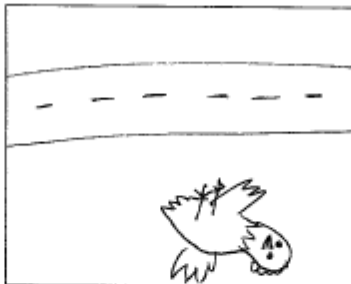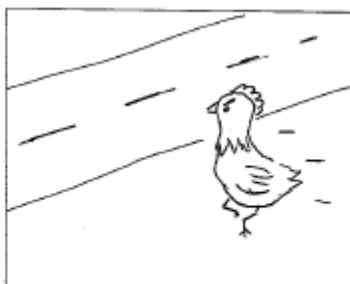

10. APPEAL
A live performer has charisma. An animated character has appeal. Appealing animation does not mean just being cute and cuddly. All characters have to have appeal whether they are heroic, villainous, comic or cute. Appeal, as you will use it, includes an easy to read design, clear drawing, and personality development that will capture and involve the audience¹s interest. Early cartoons were basically a series of gags strung together on a main theme. Over the years, the artists have learned that to produce a feature there was a need for story continuity, character development and a higher quality of artwork throughout the entire production. Like all forms of story telling, the feature has to appeal to the mind as well as to the eye.
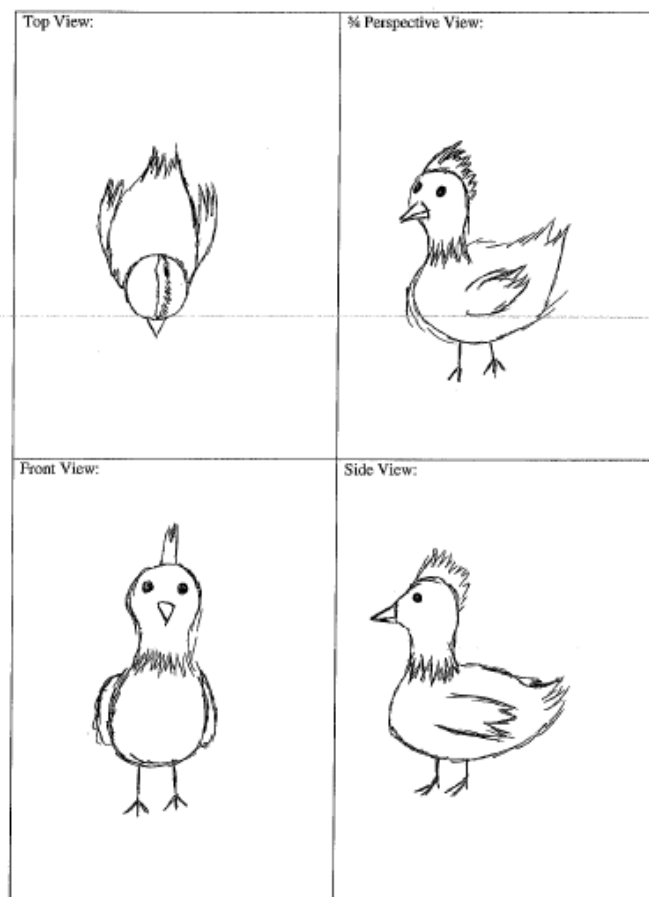
Appendix C: Story Board Example

Team #:	Written by: Allison, Lauren + Christine	TITLE: CHICKEN CHANCES
1	**2**	**3**
	Why did the Chicken cross the road?	
Action: Chicken approaches the road	**Action:** Black Screen, white writing.	**Action:** Chicken looks both ways, then starts to walk on road
Sound: happy music	**Sound:** Continue with happy music	**Sound:**
Notes:	**Notes:**	**Notes:**

4	5	6
Action: Chicken steps on banana peel on road a slides back to where he started from and falls down.	**Action:** Chicken gets up, looks both ways and starts across road again (see slide 3)	**Action:** Chicken is halfway across road when a giant fan appears.
Sound: happy music stops Slipping noise sad music - wa wa wwaaa	**Sound:** happy music starts again	**Sound:** fan lands with a "plunk" on the ground
Notes:	**Notes:**	**Notes:**

7.	8	9
Action: fan turns on and blows chicken back to where he started	**Action:** Chicken lands on the side of road.	**Action:** Chicken gets up angrily and charges toward the highway WITHOUT looking both ways
Sound: fan whirling noise chicken: "Ahhh!"	**Sound:** land with a "plop"	**Sound:** "mad" music
Notes:	**Notes:**	**Notes:**

Team #:	Written by:	TITLE:

10	11	12
	Well ... he didn't	CREDITS
Action: When Chicken is almost across, a truck comes a hits him.	**Action:** BLACK SCREEN, WHITE WRITING	**Action:** black screen, white writing
Sound: trunk noises, honk "SPLAT!"	**Sound:**	**Sound:** MUSIC
Notes:	**Notes:**	**Notes:**

Top View:	¾ Perspective View:

Front View:	Side View:

Appendix D: Possible Project list

2D Animation

1) Basics of sketching – draw basic objects found around the classroom – focus on line, curve , and proportion
2) Monitor Man and Mouseboy Project
Sketch characters, sketch storyboard from given script, digitize characters in Flash, create animation using characters and storyboard

3D Animation

Basic primitives modelling and animation:

1) 3d pyramid – create a basic xyz axis pyramid using boxes.

Introduction and use of layers, move tool, rotate tool, copy/paste/selection techniques for object models, animate using endomorphs and basic rotation functions, rendering a scene.

2) Worm movie – create a 5 segment worm using spheres

Introduce concepts of pivot points, object parenting, character blocking in a scene, camera angle and shot types, basic lighting, basic object modelling techniques using point and polygon move features to create objects for worm to interact with in movie,.

Intermediate object modelling and animation:

1) Dining Room Scene – create a dining room scene complete with objects you would find in a table setting.
Use features such as size, stretch, scale, bevel, extrude, lathe, clone, object array, mirroring, band saw, knife, and other techniques used to create more complex models. Introduce the concept of surface texturing and extension of lighting techniques.

2) BOB stickman character – create a stickman like character to interact with dining room scene.
This project is used as a cumulative final project using all objects from semester work and to act as a portfolio piece of student work.
Introduce a basic walk cycle, extend concepts of parenting, pivot points and limits, selection techniques, lighting, and camera work.

Evaluation of the Locally Developed Course of Study

Course developers should develop an evaluation plan for the duration of the approval cycle of the Locally Developed Course. Course developers should reflect on the effectiveness of the course during the pilot year and subsequent years of the five-year cycle. Evaluation of the Locally Developed Course of Study should take place before submission to renew the course.

Program evaluation will be completed by the Animation 10 instructors. The instructors conduct an annual review of the Animation 10L program. Student course evaluations will also play an important part in future course directions.