Low Poly 3D Animal Sculpture Project

**Low poly** is a polygon mesh in 3D computer graphics that has a relatively small number of polygons. Low poly meshes occur in real-time applications (e.g. games) and contrast with high poly meshes in animated movies and special effects of the same era.

The term **low poly** is used in both a technical and a descriptive sense; the number of polygons in a mesh is an important factor to optimize for performance but can give an undesirable appearance to the resulting graphics.

**STEP ONE:** IMPORT .obj original high res 3D model in Autodesk Meshmixer program.

**STEP TWO:** PRESS CTRL + A (Select All) the 3D model should change colour because it is completely selected.

**STEP THREE:** PRESS SHIFT + R (Reduce Mesh) which will start the process of simplify the Mesh. Ensure Reduce Type has **Shape Preserving Selected** and begin moving the percentage slider to simply the 3D model.

Consider simplifying the detail of the 3D mesh to approximately 90% or more as the print off file will consist of many vertices and triangles which will need to be cut and folded and glued to make the finished sculpture. **IMPORT** Low Poly 3D model .obj file into Pepakura Designer 4 and export as unfolded objects BMPs to be printed.

**STEP FOUR:** CUT using scissors and SHAPE the various template pieces of your 3D model and then GLUE the various pieces together. **LOOK** at instructions if necessary. **WRITE** your Artistic Statement Template to document your artistic process.

**STEP FIVE:** REFLECT: Answer the following questions using the elements and principles of design and hand them in with your completed work for evaluation.

1. What part of your finished project did you find most successful and why?
2. What part of your finished project did you find least successful and why?
3. If you had to do this project, what part would you change or improve on and why?

Original Bird 3D model .obj file imported to Autodesk Meshmixer

Low Poly Bird 3D model .obj file with 90% reduced Mesh

Imported Low Poly Bird 3D model .obj file into Pepakura Designer 4 and exported as unfolded objects

Alyssa G – finished painted model
A) Influence(s) and research from past and present works:

B) Sculpture and mixed media techniques used in my work and how they support my intended visual message:
<table>
<thead>
<tr>
<th>Knowledge/Understanding</th>
<th>Level 0</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrates understanding of the elements &amp; principles of design in the sculpture (e.g. shape, line, colour)</td>
<td>Work does not meet assignments expectations for this category. Incomplete. 0</td>
<td>Student demonstrates limited understanding of the elements &amp; principles of design in the sculpture. 0.25</td>
<td>Student demonstrates some understanding of the elements &amp; principles of design in the sculpture. 0.50</td>
<td>Student demonstrates considerable understanding of the elements &amp; principles of design in the sculpture. 0.75</td>
<td>Student demonstrates a high degree of understanding of the elements &amp; principles of design in the sculpture. 1</td>
</tr>
</tbody>
</table>

| Thinking/Inquiry | Low Poly 3D Animal Sculpture | Work does not meet assignments expectations for this category. Incomplete. 0 | Student depicts imagery in the sculpture with limited effectiveness. 0.25 | Student depicts imagery in the sculpture with some effectiveness. 0.50 | Student depicts imagery in the sculpture with considerable effectiveness. 0.75 | Student depicts imagery in the sculpture with a high degree of effectiveness. 1 |

| Communication Clarity | Discusses research & influences in the artistic statement | Work does not meet assignments expectations for this category. Incomplete. 0 | Student discusses influences in the artistic statement with limited clarity. 0.25 | Student discusses influences in the artistic statement with some clarity. 0.50 | Student discusses influences in the artistic statement with considerable clarity. 0.75 | Student discusses influences in the artistic statement with a high degree of clarity. 1 |

| Reflective Questions: Strength, Weakness & Next Step | Explain use of sculpture and mixed media techniques in the artistic statement | Work does not meet assignments expectations for this category. Incomplete. 0 | Student explains use of sculpture and mixed media techniques in the artistic statement with limited clarity. 0.25 | Student explains use of sculpture and mixed media techniques in the artistic statement with some clarity. 0.50 | Student explains use of sculpture and mixed media techniques in the artistic statement with considerable clarity. 0.75 | Student explains use of sculpture and mixed media techniques in the artistic statement with a high degree of clarity. 1 |

<table>
<thead>
<tr>
<th>Application</th>
<th>Creative Process:</th>
<th>Level 0</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to solve a series of artistic problems, showing an awareness of formal qualities, visual conventions, and relevant ideas and concepts</td>
<td>Student demonstrates limited effectiveness in demonstrating the creative process and following procedures. 5-6</td>
<td>Student demonstrates some effectiveness in demonstrating the creative process and following procedures. 7-8</td>
<td>Student demonstrates considerable effectiveness in demonstrating the creative process and following procedures. 9-10</td>
<td>Student demonstrates superior effectiveness in demonstrating the creative process and following procedures. 11-15</td>
<td>Student demonstrates a high degree of using the elements &amp; principles of design &amp; sculpture &amp; mixed media techniques to produce a highly effective art work. 16-20</td>
<td></td>
</tr>
<tr>
<td>Demonstration of Skill Development &amp; following procedures including Clean Up</td>
<td>Incomplete. 0</td>
<td>Student demonstrates limited use of the elements &amp; principles of design &amp; sculpture &amp; mixed media techniques to produce an art work of limited effectiveness. 1</td>
<td>Student demonstrates some use of the elements &amp; principles of design &amp; sculpture &amp; mixed media techniques to produce an art work of some effectiveness. 2-3</td>
<td>Student demonstrates considerable use of the elements &amp; principles of design &amp; sculpture &amp; mixed media techniques to produce an art work of considerable effectiveness. 3-4</td>
<td>Student demonstrates considerable use of the elements &amp; principles of design &amp; sculpture &amp; mixed media techniques to produce an art work of considerable effectiveness. 3-4</td>
<td></td>
</tr>
<tr>
<td>Uses elements &amp; principles of design and sculpture and mixed media techniques to produce an effective artwork (e.g. line, shape and colour)</td>
<td>Incomplete. 0</td>
<td>Student explains use of sculpture and mixed media techniques in the artistic statement with some clarity. 0.50</td>
<td>Student discusses influences in the artistic statement with some clarity. 0.50</td>
<td>Student discusses influences in the artistic statement with considerable clarity. 0.75</td>
<td>Student discusses influences in the artistic statement with a high degree of clarity. 1</td>
<td></td>
</tr>
</tbody>
</table>

A1. The Creative Process: apply the creative process to create a variety of artworks, individually and/or collaboratively:
   A1.1 use various strategies, individually and/or collaboratively, with increasing skill to generate, explore, and elaborate on original ideas and to develop, reflect on, and revise detailed plans for the creation of art works that address a variety of creative challenges (e.g., extend their skills in using brainstorming, concept webs, mind maps, and/or groups discussions to formulate original and innovative ideas for an art work on a social or personal theme; use critical research skills to explore and elaborate on ideas; demonstrate fluency in formulating clear and detailed plans; demonstrate flexibility in revising their plans on the basis of reflection).
   A1.2 apply, with increasing fluency and flexibility, the appropriate stages of the creative process to produce two- and three-dimensional art works using a variety of traditional and contemporary media (e.g., extend their skills in working with a range of media; demonstrate flexibility in revising plans in response to problems encountered during other stages of the creative process; reflect on the effectiveness of preliminary versions of their work, and revise the work on the basis of reflection and self-assessment).
   A1.3 document their use of each stage of the creative process, and provide evidence of critical inquiry, in a portfolio that includes a range of art works created for a variety of purposes (e.g., ensure that their portfolio includes the following: evidence of critical inquiry associated with idea generation and elaboration; evidence of research on how different artists approach specific themes and/or use particular techniques that can be adapted in their own work; preliminary and final works to show evidence of thoughtful revision), and review and reflect on the contents of their portfolio to determine how effectively they have used the creative process.
A2. The Elements and Principles of Design: apply the elements and principles of design to create art works for the purpose of self-expression and to communicate ideas, information, and/or messages.

A2.1 apply the elements and principles of design with increasing skill and creativity to produce two- and three-dimensional art works that express personal feelings and communicate specific emotions (e.g., extend their skills in combining various elements and principles to convey a sense of fear, happiness, hopefulness, despair)

A2.2 apply the elements and principles of design as well as a wide range of art-making conventions with increasing skill and creativity to produce art works that comment and/or communicate a clear point of view on a variety of issues (e.g., extend their skills by manipulating elements and principles and using conventions in creative ways to produce an art work that conveys the point of view of a teenager living on the street or that comments on a current event or social issue)

A3. Production and Presentation: produce art works, using a variety of media/materials and traditional and emerging technologies, tools, and techniques, and demonstrate an understanding of a variety of ways of presenting their works and the works of others.

A3.1 use with increasing skill a wide variety of media, including alternative media, and current technologies to create two- and three-dimensional art works for a variety of purposes (e.g., extend their skills in the manipulation of a variety of media and technologies to create a sculpture for an outdoor space, a mixed-media work for display on the Internet, an installation evoking their cultural heritage)

A3.2 use with increasing skill a variety of traditional and current materials, technologies, techniques, and tools to create original art works for a variety of purposes and audiences

B1. The Critical Analysis Process: demonstrate an understanding of the critical analysis process by examining, interpreting, evaluating, and reflecting on various art works;

B1.1 demonstrate the ability to support their initial responses to a variety of art works with informed understanding of the works' artistic form and function (e.g., describe their initial response to an art work, and explain in detail how specific aspects of the work's content, formal qualities, and media inform that response)

B1.2 deconstruct with increasing skill and insight the visual content and the use of elements and principles of design in their own art work and the work of others (e.g., extend their skills in identifying individual elements and principles and aspects of the visual content in an art work, interpreting their function, and analysing their effect; compare and contrast the use of shape, form, line, texture, space, and balance in Frank Lloyd Wright's Falling Water and Moshe Safdie's Habitat)

B1.3 explain in detail, with reference to a variety of historical and contemporary art works (e.g., the social scenes painted by Pieter Bruegel the Elder; Joseph Paxton's Crystal Palace; works by Canadian war artists, such as Alex Colville's Bodies in a Grave or Molly Lamb Bobak's Private Roy, Canadian Women's Army Corps), how knowledge of a work's cultural and historical context, achieved through extensive research, has clarified and enriched their understanding and interpretation of a work's intent and meaning

B1.4 describe in detail and reflect on with increasing insight the qualities of their art works and the works of others, and evaluate the effectiveness of these works using a wide variety of criteria (e.g., provide an informed explanation of why a work of art is, or is not, successful with respect to its ability to communicate a message or emotion, its technical and aesthetic conventions, its form and stylistic qualities, its originality)

B2. Art, Society, and Values: demonstrate an understanding of how art works reflect the societies in which they were created, and how they can affect both social and personal values;

C1. Terminology: demonstrate an understanding of, and use correct terminology when referring to, elements, principles, and other components related to visual arts;

C1.1 extend their understanding of the elements and principles of design, and use terminology related to these elements and principles correctly and appropriately when creating or analysing a variety of art works (e.g., when analysing how artists' manipulation of space, movement, form, and proportion affects meaning in an installation or an environmental work)

C1.2 explain in detail terminology related to a wide variety of techniques, materials, and tools (e.g., techniques and materials associated with installation art; additive and subtractive techniques, digital manipulation, impasto, optical colour mixing, pointillism), and use this terminology correctly and appropriately when creating, analysing, and/or presenting art works

C1.3 explain in detail the stages of the creative process and the critical analysis process, and explain, using appropriate terminology, how these processes contribute to the successful creation and analysis of art works

C2. Conventions and Techniques: demonstrate an understanding of conventions and techniques used in the creation of visual art works;

C2.1 extend their understanding of a wide variety of techniques that artists use to achieve a range of specific effects (e.g., techniques used to create a range of textures in an art work, to develop the connection and relationship between forms in a composition, to draw attention to specific parts of a work)

C2.2 extend their understanding of the variety of conventions used in visual art (e.g., allegory, appropriation, juxtaposition, synectics; conventions associated with formalism, objective and non-objective abstraction, propaganda, realism, social commentary), and explain in detail how they are used in a variety of art works

C3. Responsible Practices: demonstrate an understanding of responsible practices in visual arts.

C3.1 apply the elements and principles of design related to visual arts;

C3.2 demonstrate appropriate health and safety procedures and conscientious practices in the selection and use of various materials, techniques, tools, and technologies when producing or presenting art works (e.g., demonstrate safe practices when creating installations, assemblages, earthworks, constructions, multimedia projects; demonstrate appropriate protocols, deportment, and respect for others when working in a studio or visiting a presentation space)