IQ: Interlocking Quadrilateral Puzzle Lamp Sculpture

Holger Strøm is well known for his use of subtle organic geometry and rhomboid shapes, creating a unique statement within contemporary interior design. A key Danish designer, Strøm’s lighting is often characterised by a simple, minimal and functional structure.

In 1972 Strøm designed the successful IQlight® system, a 'self-assembly' lighting construction made up of connecting quadrilaterals. The IQlight® system was created at the Kilkenny Design Workshops in Ireland where Strøm was based. The artist was initially asked to create a design for a cylindrical and a spherical lamp, both to be used within a Christmas display.

Through the 70’s Strøm’s lighting was manufactured by Kilkenny Illuminations Ltd, who sold over 20,000 lights worldwide. Today Strøm’s lighting is still making a statement, where in 2005 his IQlight® was awarded the "Interior Innovation Award" at the IMM furniture fair in Cologne, Germany, for innovation and originality.

STEP ONE: RESEARCH on the school network
K Drive: Mr.Arnett/AVI3M/4M/ Sculpture/Interlocking Quadrilateral Puzzle Lamp Sculpture/intro.htm

STEP TWO: CHOOSE one of the IQ: Interlocking Quadrilateral Puzzle Lamp Sculpture templates to create and assemble after WATCHING ALL the assembly videos.

STEP THREE: DRAW a series of at least 3 different conceptual IQ: Interlocking Quadrilateral Puzzle Lamp Sculpture sketches in your sketchbook. Consider line, shape and form.

STEP FOUR: GET APPROVAL from the teacher on one of your three sketches before starting to create your IQ: Interlocking Quadrilateral Puzzle Lamp Sculpture.

STEP FIVE: WRITE your Artistic Statement Template to document your artistic process.

STEP SIX: REFLECT: Answer the following questions on your completed work:

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 again, what part would you change or improve on and why?
How To Connect the Pieces

- All pieces are identical.
- **FRONT** – Angles from left to right upward.
- **BACK** – Angles from right to left downward.
- Assembly of each lamp uses pieces primarily with **FRONT FACING OUT**, unless shown in diagram with a black dot.
  This will indicate to flip the piece over and have the **BACK** side facing out.

- With **FRONT** only diagrams, you will connect only the same size hook – **Large to Large**, or **Small to Small**.

- Curved sides always position **OVER** straight sides to connect two pieces.
  This will continue throughout making the lamp, like jigsaw puzzle pieces matching to one another.

Lay out the pieces following the diagram. You can stick a removable label on the front side of each piece to show the row number as a guide; similar to the way each piece appears in the diagram. This will also ensure the right side is always facing outward.
Begin with row 1, connecting the 5 pieces to form a star shape.
Note: The pieces rotate clockwise and the last piece connects to the first piece to finish the row.

Row 2 will begin to widen the sphere, connecting the 1st row in a ring. Remember to hook with curved sides OVER flat sides.

Row 3 is the widest part of the sphere. After assembling row 3, check all your joined hooks; each pinwheel shape should be comprised of only the same size hooks.

Row 4 will connect the same as Row 1 and this will start to narrow your shape.

Row 5 will close the opening.
How To Connect the Lamp Cord

- Position the lamp with any 5-hook joint facing up.
- Unhook 2 of the hooks which will create an opening.
- Drop the socket with light bulb inside of the lamp, making certain not to allow the light bulb to touch any of the sides.
- To center the light bulb within the lamp, twist the cord.
- Make sure the light bulb is in the center of the lamp.
- Re-connect the hooks around the cord.

Light Bulb Use
- 40W Incandescent or lower
- For more lighting, USE CFL Light Bulb up to 100W.

WARNING: This is not a toy. As with any lamp, adult assembly is required.
For household use only. Risk of electrical shock may occur. **DO NOT** use in water.
A curved edge is ALWAYS placed over the straight edge of another piece.

**Below is the sphere being made. Once learning this basic shape, please try your hand at the other diagrams.**

1st row: 5 pieces
2nd row: 5 pieces
3rd row: 10 pieces
4th row: 5 pieces
5th row: 5 pieces

The first row is assembled into a rosette.

The five pieces of the second row are attached one by one in a ring around the first row’s rosette.

Turn the work upside-down so that it sits on the table like a bowl. See that all the hooks are correctly joined.

Now the third row is a ring of ten pieces, which are attached to the rim of the “bowl” and also joined to each other.

When the sphere is finished, check that all hooks are locked, and that curved edges cover all the straight edges.

(The pieces may be labeled with stickers that can be removed after assembly. The five pieces of the first row can be labeled “1”, those of the second row are labeled “2”, the ten of the third row are labeled “3”, and so on.)
A) Influence(s) and research from past and present works:

1. Who is Holger Strøm? (1)

2. What did Holger Strøm create? (1)

3. What does IQ stand for in IQlight® ? (1)

4. What was the lamp original designed for? (1)

B) Drawing, 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 work (e.g., line, shape, form, unity)</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 work. 0.25</td>
<td>Student demonstrates some understanding of the elements &amp; principles of design in the work. 0.50</td>
<td>Student demonstrates considerable understanding of the elements &amp; principles of design in the work. 0.75</td>
<td>Student demonstrates a high degree of understanding of the elements &amp; principles of design in the work. 1</td>
</tr>
</tbody>
</table>

| Thinking/Inquiry | Interlocking Quadrilateral Puzzle Lamp Sculpture | Work does not meet assignments expectations for this category. Incomplete. 0 | Student depicts Interlocking Quadrilateral Puzzle Lamp Sculpture with limited effectiveness. 0.25 | Student depicts Interlocking Quadrilateral Puzzle Lamp Sculpture with some effectiveness. 0.50 | Student depicts Interlocking Quadrilateral Puzzle Lamp Sculpture with considerable effectiveness. 0.75 |

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

| Reflective Questions: Strength, Weakness & Next Step | Work does not meet assignments expectations for this category. Incomplete. 0 | Student explains use of drawing, sculpture & mixed media techniques in the artistic statement. 0.25 | Somewhat coherent and somewhat complete. 0.50 | Clear and substantial answers. 0.75 | Superior and insightful answers. 1 |

| Application Creative Process: | Ability to solve a series of artistic problems, showing an awareness of formal qualities, visual conventions, and relevant ideas and concepts Preliminary Sketches (3) | Work does not meet assignments expectations for this category. Incomplete. 0 | Preliminary sketches are poorly/ incomplete. Concepts are poorly/ incomplete. Planning is tentative or nonexistent. (0.5) 0.5 | Preliminary sketches are somewhat clear and complete. Concepts are somewhat complete. Planning is somewhat substantial & shows some alternative ideas. (1-2) 1 | Preliminary sketches are mostly clear and complete. Concepts are complete. Planning is evident & shows some divergent thinking is evident. (2-3) 1-1.75 |

| Creative Process: Demonstration of Skill Development & following procedures including Clean Up | Work does not meet assignments expectations for this category. Incomplete. 0 | Student demonstrates limited effectiveness in demonstrating the creative process and following procedures. 5 | Student demonstrates some effectiveness in demonstrating the creative process and following procedures. 5-6 | Student demonstrates considerable effectiveness in demonstrating the creative process and following procedures. 7-8 | Student demonstrates superior effectiveness in demonstrating the creative process and following procedures. 8-10 |

| Uses elements & principles of design & drawing, sculpture & mixed media techniques to produce an effective artwork (e.g., line, shape, form, unity) | Work does not meet assignments expectations for this category. Incomplete. 0 | Student demonstrates limited use of the elements & principles of design & drawing, sculpture & mixed media techniques to produce an artwork of limited effectiveness. 1 | Student demonstrates some use of the elements & principles of design & drawing, sculpture & mixed media techniques to produce an artwork of some effectiveness. 2-3 | Student demonstrates considerable use of the elements & principles of design & drawing, sculpture & mixed media techniques to produce an artwork of considerable effectiveness. 3-4 | Student demonstrates a high degree of using the elements & principles of design & drawing, sculpture & mixed media techniques to produce a highly effective artwork. 5 |

| 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, to generate, explore, and elaborate on ideas and to develop and revise detailed plans for the creation of art works that address a variety of creative challenges (e.g., use brainstorming, concept webs, and/or groups discussions to formulate original ideas for thematic works and/or works of personal expression; use
research and discussions with a partner to explore and elaborate on ideas; use diagrams, notes, and/or outlines to help them formulate detailed plans for the art work; revise their plans on the basis of reflection)
A2.1 apply the appropriate stages of the creative process to produce and revise two- and three-dimensional art works using a variety of traditional and contemporary media (e.g., explore, experiment with, and refine their use of a variety of media; choose a medium/media appropriate for their planned art work; reflect on the effectiveness of preliminary versions of their work; revise their art work on the basis of reflection and useful feedback)
A2.3 document their use of each stage of the creative process, as well as varied and extensive research, in a portfolio that includes art works created for a variety of purposes (e.g., ensure that their portfolio includes evidence of idea generation and elaboration, research, investigation, planning, exploration, experimentation, and revision; include a variety of works created for different purposes), 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 explore how elements and principle of design can be used to convey emotion and enhance personal expression, and use a combination of these elements and principles to create two- and three-dimensional art works that express personal feelings and communicate specific emotions to an audience (e.g., explore how variations in line, value, form, proportion, and emphasis can be used to convey various emotions; adapt their findings to enhance expression in their art work)

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 explore and experiment with media, including alternative media, and current technologies, and use them to create a variety of art works (e.g., use media such as digitally enhanced photographs, transparencies, and/or found objects when creating a collage; create a mixed-media image reflecting their personal identity or cultural heritage)
A3.2 explore a range of traditional and current materials, technologies, techniques, and tools used by visual artists (e.g., Claude Monet’s use of optical colour mixing; Andy Warhol’s use of silkscreens; George Segal’s use of plaster bandage; Jean-Paul Riopelle’s use of a palette knife for impasto application of paint; Daphne Odjig’s use of interconnecting black lines), and adapt and apply them to create original art works
A3.3 describe appropriate standards and conventions for the presentation of different types of visual art works, and apply these standards and conventions when preparing their art works for presentation (e.g., ensure that their work is signed, labelled, dated, matted and/or mounted, that their three-dimensional work can be displayed safely, that the appropriate digital presentation technology is available and in working order)

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 the visual content and the use of elements and principles of design in their own art work and the work of others
B1.3 communicate their understanding of the meanings of a variety of historical and contemporary art works, based on their interpretation of the works and an investigation of their historical and/or social context
B1.4 describe and reflect on the qualities of their own art works and the works of others, and evaluate the effectiveness of these works, using a variety of criteria

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;
B2.1 explain the functions of various types of artworks (e.g., animation, various types of architecture, graffiti; propaganda, public, and religious art); works focused on personal expression;
B2.2 identify and explain ways in which various art works are a response to and a reflection of the societies in which they were created
B2.3 reflect on and explain how creating and analysing art works has affected their personal identity and values and/or changed their perceptions of society and social issues

C1. Terminology: demonstrate an understanding of, and use correct terminology when referring to, elements, principles, and other components related to visual arts;
C1.1 demonstrate an understanding of the elements and principles of design, and use terminology related to these elements and principles correctly and appropriately when creating or analysing art works (e.g., when describing how they have used elements and principles in a sculpture to convey a sense of movement)
C1.2 explain terminology related to a variety of techniques, materials, and tools (e.g., additive and subtractive techniques, blazig, gesso, intaglio, layering, palette knife, scumbling, transfers, single-lens reflex [SLR] cameras, software used to edit digital photographs), and use this terminology correctly and appropriately when creating, analysing, and/or presenting art works
C1.3 using appropriate terminology, explain the creative process and describe in detail the critical analysis process, with particular reference to the role of deconstruction in the latter process
C2. Conventions and Techniques: demonstrate an understanding of conventions and techniques used in the creation of visual art works;
C2.1 demonstrate an understanding of a wide variety of techniques that artists use to achieve a range of specific effects (e.g., techniques used to create the illusion of depth and perspective and to create texture on different surfaces; the use of additive and subtractive sculpture, layering, positive and negative space, and relief to create effects)
C2.2 demonstrate an understanding of a variety of conventions used in visual arts (e.g., allegory, expressive exaggeration, juxtaposition, synectics; conventions associated with heroic, narrative, naturalistic, propaganda, realistic, and satirical art), and explain how they are used in different types of art works
C3. Responsible Practices: demonstrate an understanding of responsible practices in 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)