Torus Sculpture Project

**NAME:______________**

In geometry, Villarceau circles are a pair of circles produced by cutting a torus obliquely through the center at a special angle. Given an arbitrary point on a torus, four circles can be drawn through it. One is in the plane (containing the point) parallel to the equatorial plane of the torus. Another is perpendicular to it. The other two are Villarceau circles.

They are named after the French astronomer and mathematician Yvon Villarceau (1813–1883). Mannheim (1903) showed that the Villarceau circles meet all of the parallel circular cross-sections of the torus at the same angle.

**STEP ONE: LOOK** at the following assembled photos of the Torus Sculpture.

**STEP TWO: WATCH** the assembly video on the K:drive/Mr.Arnett/AVI3M/4M/Sculpture/Torus Sculpture Project/Torus Sculpture Project Assembly Video and examine the template to see how the Torus Sculpture interconnects to make one work of art.

**STEP THREE: CUT** out the Torus Sculpture template with scissors.

**STEP FOUR: ASSEMBLE** the Torus Sculpture template by bending and curving the individual pieces of paper.

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

**STEP SIX: REFLECT:** Answer the following questions using the elements and principles of design and complete your Artistic Statement Template for formal 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 again what would you change or improve?
K:drive/Mr.Arnett/AVI3M/4M/Sculpture/Torus Sculpture Project/Torus Sculpture Project Assembly Video
A) Influences from past and present works:

1. Who is Yvon Villarceau? (1)

2. What is a Villarceau circles? (1)

B) Sculpture and Assemblage 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 painting (Shape, Form, Line, 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 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>
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<table>
<thead>
<tr>
<th>Thinking/Inquiry</th>
<th>Torus Sculpture</th>
<th>Torus Sculpture</th>
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<tbody>
<tr>
<td>Work does not meet assignments expectations for this category. Incomplete. 0</td>
<td>Student depicts the Torus in the sculpture with limited effectiveness. 0.25</td>
<td>Student depicts Torus in the sculpture with some effectiveness. 0.50</td>
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<thead>
<tr>
<th>Communication Clarity:</th>
<th>Discusses artistic influences in the artistic statement</th>
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<tbody>
<tr>
<td>Work does not meet assignments expectations for this category. Incomplete. 0</td>
<td>Student discusses influences in the artistic statement with limited clarity. 0.25</td>
</tr>
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<thead>
<tr>
<th>Reflective Questions:</th>
<th>Strength, Weakness &amp; Next Step</th>
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<tbody>
<tr>
<td>Work does not meet assignments expectations for this category. Incomplete. 0</td>
<td>Student explains use of sculpture &amp; assemblage techniques in the artistic statement with limited clarity. 0.25</td>
</tr>
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<tr>
<th>Application</th>
<th>Creative Process: Demonstration of Skill Development &amp; following procedures including Clean Up</th>
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</thead>
<tbody>
<tr>
<td>Uses elements &amp; principles of design and sculpture &amp; assemblage techniques to produce an effective artwork (Shape, Form, Line, Unity)</td>
<td>Incomplete. 0</td>
</tr>
</tbody>
</table>

| Uses elements & principles of design and sculpture & assemblage techniques to produce an effective artwork (Shape, Form, Line, Unity) | Incomplete. 0 | Student demonstrates limited use of the elements & principles of design and sculpture & assemblage techniques to produce an art work of limited effectiveness. 0.25 | Student demonstrates use of the elements & principles of design and sculpture & assemblage techniques to produce an art work of some effectiveness. 2-3 | Student demonstrates considerable use of the elements & principles of design and sculpture & assemblage techniques to produce an art work of considerable effectiveness. 3-4 | Student demonstrates a high degree of using the elements & principles of design and sculpture & assemblage techniques to produce a highly effective art work. 5 |

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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)
A1.2 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. 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.
A3.2 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

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 analyse their initial response to art works (e.g., describe their initial reaction to an art work and determine which specific aspects of the work and their personal experience led to their reaction)
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 (e.g., identify individual elements and principles and aspects of the visual content in an art work, interpret their function, and analyse how the artist has manipulated them to create impact, emphasis, mood, movement, and meaning; compare The Abduction of the Daughters of Leucippos by Peter Paul Rubens to the cover of a contemporary comic book about an action hero, with reference to the artists’ use of colour, line, shape, value, balance, and emphasis)
B1.3 explain, with reference to particular works, both historical and contemporary (e.g., J. M. W. Turner’s Rain, Steam, and Speed: The Great Western Railway; Maya Lin’s Vietnam Veterans Memorial), how knowledge of an art work’s cultural and historical context, achieved through research, has clarified and enriched their understanding of the work’s intent and meaning
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 (e.g., the works’ ability to convey a message or emotion; their technical merit; their stylistic qualities; the use of technique and successful manipulation of media/materials; the connection between form and message)

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 analyse the function and social impact of different kinds of art works in both past and present societies (e.g., the use of art works for ritualistic and religious purposes; for social and/or political commentary; as propaganda; as symbols of economic or social power; to commemorate people and/or historical events; to instruct)
B2.2 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 (e.g., with reference to their emotional awareness and their ability to express themselves; their awareness of stereotypes; their understanding of the meaning of objects and symbols associated with a variety of cultural groups; their awareness of and relationship to their physical environment; their position on social issues such as censorship, discrimination, inequality)

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, blazing, 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 associated with the use of materials, property, techniques, tools, and technologies in visual arts (e.g., the appropriate use of aerosol products, utility knives, printing presses, electrical tools, computers; an awareness of appropriate precautions to take when exposed to physical and chemical hazards), and apply these practices when creating and/or presenting art works