AGA KHAN MUSEUM CURRICULUM PROJECT

WATER FOUNTAINS AND ARCHITECTURAL DECORATION IN ISLAMIC ART
VISUAL ARTS UNIT PLAN GRADE 12

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These resources were prepared by teachers, for teachers in partnership with the Aga Khan Museum, the Ontario Ministry of Education, and the Ontario Art Education Association. These Curriculum-linked resources were inspired by the Museum's Permanent Collection. Object information and images courtesy of the Aga Khan Museum.

Visual Arts Unit Plan Grade 12 AVI4M

Unit: Water Fountains and Architectural Decoration in Islamic Art

Connections to the Aga Khan

Context
Students will learn to understand the role of water fountains in public and private places throughout Islamic history, and will recognize, understand and create geometric patterns, mosaics, tiles and architectural decoration used in water fountains with examples from the Aga Khan Museum. They will employ an enquiry-based model to create the designs for a decorative fountain with a geometric pattern design, or, where possible, they may actually design and build a working fountain. Through their art making students will make many connections to STEAM based education (Science, Technology, Engineering, Art, and Math).

The Ontario Curriculum Grades 11 and 12, *Revised,* 2010*:* Visual Arts Grade 12 AVI4M
Curriculum Expectations

Overall and Specific Expectations

A. Creating and Presenting
A1. The Creative Process: apply the creative process to create a variety of art works, individually and/or collaboratively;

A1.1 - use a variety of 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

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

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 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

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

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

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

B. Reflecting, Responding and Analysing

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

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

B1.3 – explain in detail, with reference to a variety of historical and contemporary art works 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

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

B2.1 analyse, on the basis of research, the function and social impact of different kinds of art works in both past and present societies

B2.2 assess the impact of socio-economic, political, cultural, and/or spiritual factors on the production of art works

B2.3 assess the impact that the creation and analysis of art works has had on their personal identity and values and their perceptions of society

C. Foundations

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 analyzing a variety of art works

C1.2 explain in detail terminology related to a wide variety of techniques, materials, and tools 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

C3. Responsible Practices: demonstrate an understanding of responsible practices related to visual arts.
C3.2 demonstrate appropriate health and safety issues and conscientious practices associated with the use of materials, property, techniques, tools, and technologies when producing or presenting art works

Overall Learning Goals

At the end of unit students will be able to:

- Understand the role of water fountains in public and private places throughout Islamic history;
- Recognize and understand the use of geometric patterns, mosaics, tiles and architectural decoration in Islamic art history;
- Use the creative process and an inquiry-based model to plan, create and share their own geometric artwork and contribute to a collaborative artwork;
- Identify and describe ways in which their artwork describes their own identity and values, and the society in which they were created;
- Co-create success criteria and understand what their successful learning looks like and what to look for during the learning and how to reflect and articulate what they have learned through this process.

Water Features in Islamic Art and Architecture: Form and Function

Instructional Components and Context

Readiness
What students need to know and be able to do in order to complete the lesson:

- Knowledge of the elements and principles of design would be an asset.

Please note, teachers may refer to the lessons found in *Learning at the Aga Khan Museum. A curriculum resource guide for teachers grades one to eight.* In particular, in grades six to eight: a project combining science and art in which students look closely at

a fountain as both a work of art and a functional structure and create a scale drawing of the fountain in the museum and make a small working model of a fountain (pp 125-134).

The Guide is available as a free download at
https://www.agakhanmuseum.org/learn/educators#teachers

Whole Class⇒ Guided Analysis "Water in Islamic Art and Architecture."
Show this Google Slide show: www.bit.ly/agakhangrade12 to familiarize students with key background information [text from the power point]:

Background

- There are many different purposes for water fountains in public and private places throughout Islamic history
- Cultural/religious purposes
- In Islam, worshippers pray directly to Allah and believe that out of humility and respect, prayer should be done with a clean heart, mind and body
- They are therefore expected to wash before praying
- Some mosques would have fountains where people might be able to wash up
- This ritual washing is called "wudhu"

Ancient Air Conditioners

- Some fountains were created for drinking, bathing and also as an ancient "air conditioner" to help cool down the buildings

Syrian fountain at Aga Khan Museum

- Fountains with many jets, like the one from the Aga Khan museum, were fed by gravity, by hydraulic machines, or by underground tunnels known as "qanats", which took water from an aquifer to the place where the water was needed; the "qanat" system is still in use in Iran and parts of Arabia and Central Asia today
- Recent research has revealed that the fountain at the Aga Khan museum originated in Syria, end of 15thC.
- This type of fountain was usually incorporated into a domestic interior

Contemporary Uses

- Increasingly they are used for decoration; the sound of falling water from its multiple jets would create a comfortable atmosphere of soothing calm
- Gardens
- In gardens, an Islamic or Persian garden style will usually have a central water feature or reflection ponds
- The Aga Khan museum has five granite reflecting ponds in the gardens at the entrance to the museum
- Reflecting pools at the entrance to the museum combine contemporary and historical elements

Geometric patterns in Islamic Art

- built on combinations of circles and squares, which are repeated, overlapped, dissected with line segments, and combined to form intricate patterns
- many of the patterns are tessellations which can repeat to infinity
- geometric designs were used to embellish a wide range of works of art (architectural decoration, ceramics, calligraphy, metalwork, textiles and illuminated manuscripts)
- This form of decoration stressed the importance of unity, logic and order

Minds On 150 minutes

Visit the Aga Khan Museum, Toronto. If you are unable to visit the gallery, go to their website for links to images from their collection and use other on-line resources to see images of Islamic tiles, mosaics, ceramics and architectural details.

Whole Class⇒ Guided Tour
At the museum, please note the following and bring to the attention of students:

- Five granite-lined pools in the formal gardens outside the entrance, designed by architect Vladimir Djurovic for tranquil reflection https://www.agakhanmuseum.org/about/museum-and-site
- Fountain, Egypt 15th century and later; marble and sandstone mosaic 430 x 430 cm (or images of the fountain from the powerpoint presentation)

Individual or Small Group⇒ Experiential Learning at the Museum
Prompt: Teacher will ask student to take notes in their notebooks or journals as they visit the Aga Khan Museum (in person, or virtually if a trip cannot be arranged) using the following guiding questions:

1. *Consider the fountain as both a work of art and a functional structure*
- *What is the basis for the designs of the fountain?* (Geometric shapes; symmetry; patterns; central area of focus for the fountain)
- *What is the benefit of using a mathematical pattern in creating these designs?* (repeat patterns over large areas; strength and rigidity in architecture; mass production; inexpensive; locally produced materials)
- *Where have you seen similar repeat patterns or shapes in the architecture or decoration of our homes, schools, local buildings? (*brick, interior tiles, landscaping, public fountains, specific local examples)
- *Which of the elements and principles of design are most prominent in the design?*
- *How did a fountain work in Islamic times compared with how it would work today?*

2. *What are the benefits of visiting a museum?* (see in real life a collection of the artistic, intellectual and scientific heritage of Muslim civilizations across the centuries; deeper understanding of the artworks; find similarities and differences among our cultures; recognize the creative and mathematical processes common to each other, and to artworks throughout different cultures and times; ability to think critically about art and culture)

Whole Class or Small Group⇒ Think Pair Share Debrief
After exploring the museum, revisit the guiding questions and discuss what was learned, and what questions remain.

Action! Designing Your Own Fountain 75 – 225 minutes

Instructional Components and Context

Readiness
Knowledge of the elements and principles of design are an asset. Previous experience working with clay or various sculpture and construction materials will be useful for groups who create the fountains they design.

If constructing fountains, students and the teacher can be encouraged to bring relevant materials to school, such as 2L pop bottles, old tiles, etc.

Art-making Inquiry Question: How can you design a fountain which reflects your understanding of the arts of Muslim Societies and makes connections to a more contemporary society? Consider these possibilities *(and refer to the guiding questions found below as you work through the creative process):*

Terminology
Earthenware
Ceramic made of clay fired to a porous state that can be made impervious to water by the use of a glaze

Fritware
Ceramic made of quartz, glass, and clay that is harder and more durable when fired than earthenware. Fritware was a major Muslim invention in the 11thC in Egypt and Iran

Lustre
A technique for decorating ceramics and glass; on ceramics, metal alloys are applied to a fired ceramic object. After further firing, the ceramic surface has an iridescent sheen. Lustre was a major Muslim invention in 9thC Iraq.

Materials
- Paper, pencils, rulers, compass
- Geometric grids (i.e. hexagon, octagon or dodecagon grids) or tessellation grids
- Materials and quantities will change dependent upon the inquiry chosen below:
    - A) Heron's Fountain: 3 empty water bottles; 3 lengths of tubing (9", 11", 15"); small amount of plasticene
    - Matte ceramic tiles, paint, brushes (and a top coat to seal the final artwork)
- OR
    - B) Mosaic glass, thin-set mortar; glasses, plates, recycled materials

- Hydraulic submersible pump
- Some ambitious projects may require building a wooden frame, or using found or purchased materials – the possibilities are endless!

Whole Class or Small Group⇒ Fountain Design
Student designs may be on paper, with plans, grids, and drawings, or, where possible, students may actually create a working fountain with mosaic tiles, or glazed clay tiles that the students make.

1. The class will decide on the size, location, and purpose of their fountain. Some considerations might be: temporary or permanent? Interior or exterior?
2. Student designs may be contributing to one large, collaborative fountain, or teacher may decide to group students of 4 or 5 to create smaller-scale fountains
3. The teacher will decide the type of water fountain mechanism to use, or the teacher will challenge the students to determine which mechanism to use, to satisfy the results of part A. For example, if students are making a temporary fountain, they may search the internet for plans to create a "Heron's Fountain" (using plastic 2L bottles and straws), perpetual fountains, or perhaps purchase any number of submersible pumps for this purpose.

Guiding Questions:

- Where did your ideas come from? How did your planning change and elaborate over time? How has your design changed or improved based on feedback from peers and teacher? What revision or refinements have you made?
- Which of the elements and principles of design are most prominent in your design? How would your design change if you were to use different elements and principles?
- In what ways have you used your visual arts skills in math? And your math skills in art?
- How does your design reflect the designs and techniques common to Islamic fountains? How does your design reflect a more contemporary culture?
- How have you used the creative process?

Class Discussion ⇒ Debrief
Students share their fountain designs with their classmates, demonstrating an ability to explain their choices in terms of: elements and principles of design, materials, connections to Islamic design and the Aga Khan Museum visit, and which features they found the most interesting and would like to incorporate into their group and/or class fountain.

Assessment:
A triangulated assessment strategy (observations, conversations and product) will be relied on throughout this unit, offering ample opportunities for assessing for, as, and of learning, while meeting the performance standards on the achievement charts.

All of the inquiry-based activities and consolidation have ample opportunities for differentiated instruction and modifications during assessments, both by the student

self-selecting the opportunities, or by the teacher encouraging individual students to choose appropriate activities for their own growth.

Teachers will be looking for students to demonstrate:

- knowledge and understanding of content
- thinking skills through planning and processing and through critical and creative thinking
- communication by expressing and organizing ideas, and in creating a final product for a specific audience
- application of knowledge and skills to next context, and makes connections to themselves, their community or the world beyond them

Assessment for learning

Assessment FOR learning will be measured by noting questions and responses through the background lesson. Teachers may wish to provide a more in-depth study based on the students' responses.

Assessment as learning

Assessment AS learning constitutes feedback from both teacher and peers, students monitoring their own progress and making adjustments, discussions, and teachers will pose questions to make students' learning explicit. Teachers can collect evidence of observations and conversations in a variety of ways from low-tech (paper notes, post-its, observation checklists, notes in staff handbooks) to using technology tools available (audio recording conversations and observations, Google docs, Evernote, blogs, etc).

Assessment of learning

To conduct assessment OF learning, students and teacher will co-construct a rubric outlining the success criteria to determine the essential learning for the final geometric design and the Choice Board activities (see below), and include in the overall response an opportunity for both student and teacher to share which aspects of the artwork or creative process were done well, which need improvement, and next steps.
A possible rubric is attached at **BLM#1 Water Fountains and Architectural Decoration in Islamic Art – Rubric**

Consolidation 150 - 300 minutes

Individual⇒Choice Board: Demonstration of Learning

Demonstrate your learning by completing one of the activities on the Choice Board attached as **BLM#2 Water Fountains and Architectural Decoration in Islamic Art – Choice Board.**

1. Respond to the guiding questions throughout this lesson in a blogpost
2. Create a travel brochure about Islamic fountains and the areas from which they come
3. Create a Kahoot! (or similar app) quiz for your classmates on the essential learning for this lesson

4. Write a blogpost about your visit to the Museum and what you've learned about Islamic fountains and how your learning has affected your identity and values
5. Use any of the arts or a combination of the arts (dance, drama, media and/or music) to demonstrate your learning
6. Film a news report about your trip to the Aga Khan. Interview some of your classmates. Include examples of fountains as art.
7. Write a formal essay on the artistry and function of fountains in Islamic art from ancient times to contemporary society.
8. Film a news report about the fountain(s) that your class has created. Be sure to talk about what you learned through the creative process.
9. Your Choice (following a discussion with teacher).

Teachers will provide students with an opportunity to share their work in a gallery walk, critique, or art show.

Extension Activity: a student or groups of students could be tasked with curating the student art show, creating a blog or website (or adding to the school's existing "arts" webpage) which documents the student work and artist statements, or writing a review of the show for a newspaper, newsletter or blogpost.

Resources:

Bentley, P. & Kana'an, R. (2015). *Learning at the Aga Khan Museum. A curriculum resource guide for teachers grades one to eight*. Toronto, ON: Aga Khan Museum. https://ww.agakhanmuseum.org/learn/educators#teachers

Ontario Ministry of Education. (2010). *The Ontario curriculum, grades 11 and 12: The arts, revised.* Toronto, ON: Queen's Printer for Ontario.

The Aga Khan Museum (2017). *Learning at The Aga Khan Museum.* Free pdf download at www.agakhanmuseum.org/learn/educators#teachers

The Aga Khan Museum (2017). Retrieved from www.agakhanmuseum.org

The Aga Khan Museum (2017). *The museum and site.* Retrieved from www.agakhanmuseum.org/about/museum-and-site

The Aga Khan Museum (2017). *Water fountains and architectural decoration in Islamic Art.* Retrieved from www.bit.ly/agakhangrade12