

Title	Seljuk Motifs and Their Meanings Using Computational Thinking	Time	2 hours
Subject:	History, Art, Mathematics and Geometry		
Aims	Students will learn about the importance and meaning of Seljuk motifs in art and architecture and apply computational thinking to create their own designs based on these motifs.		
Key CS elements:	Decomposition; Pattern recognition; Abstraction; Algorithm design.		
Age group :	06-08 years old		
Learning situations:	Seljuk Art and Motifs: Understanding the historical context and symbolism.	Activity type:	in-class activity for Art and History and Geometry
Resources:	<ol style="list-style-type: none"> 1. Books and Publications 2. Museums 3. Online Resources 4. Academic Journals and Articles 5. Websites on Islamic Art and History 6. Cultural and Historical Documentaries 7. University Libraries and Online Databases 		
Learning development:			
<p>Introduction Who were the Seljuks? Briefly introduce the Seljuk Empire (11th-14th centuries) and its significance in history, focusing on its contributions to art and architecture.</p> <p>Seljuk Art and Motifs: Show images of common Seljuk motifs, such as:</p> <p>Geometric Patterns: Stars, hexagons, and tessellations. Floral Motifs: Stylized plants, leaves, and vines. Animal Motifs: Lions, birds, and other symbolic animals.</p>			

Symbolism of the Motifs:

Stars and Geometry: Represent order, infinity, and the universe.

Floral Patterns: Represent nature, life, and paradise.

Animals: Symbolize strength, protection, and leadership (e.g., lions).

Ask students to share what shapes and symbols they notice and what they might represent to them.

Types of Seljuk Motifs:

1. Geometric Patterns:

Tessellations: Geometric patterns that repeat endlessly without gaps. These patterns often consist of stars, hexagons, and polygons. They are symbolic of the infinite nature of the universe and the order found in creation.

Stars: Multi-pointed stars (often eight or ten points) are a common geometric motif in Seljuk art. The star patterns often represent harmony and the cosmic order, as stars are associated with the heavens and the universe.

Interlaced Designs: These motifs often feature interwoven lines, creating complex, symmetrical designs. They symbolize unity, interconnectedness, and balance.

2. Floral and Plant Motifs:

Arabesques: These are stylized, flowing patterns of intertwined leaves, vines, and flowers. The arabesque design often symbolizes the eternal nature of life and paradise in Islamic culture.

Lotus and Palmettes: Lotus flowers and palmette patterns are common floral motifs. They represent purity, renewal, and divine beauty.

Rumi Motif: This is a stylized motif resembling a split-leaf or a double spiral, often found in Seljuk tiles and ceramics. It represents the movement of the spirit or life's eternal flow.

3. Animal Motifs:

Lions: The lion motif symbolizes strength, courage, and protection. It is often used in architectural elements, metalwork, and ceramics.

Birds (Eagles, Hawks): Birds symbolize freedom and spiritual ascension. In Seljuk art, birds like the eagle or falcon were often depicted to convey leadership, nobility, and power.

Mythical Creatures: The Seljuks also used motifs of mythical animals, such as griffins, to represent both the strength of earthly creatures and the supernatural.

Symbolism of Seljuk Motifs:

Geometric Motifs: Represent the order and structure of the universe, reflecting the Islamic belief in the unity and infinity of God (Allah). The repetition of patterns without a clear beginning or end symbolizes eternity and the spiritual nature of life.

Floral and Nature Motifs: Symbolize life, growth, and paradise. In Islamic tradition, gardens and nature are associated with heaven, and Seljuk motifs often reflect this connection.

Animal Motifs: Serve both decorative and symbolic purposes, often representing power, protection, and spiritual virtues.

Applications of Seljuk Motifs:

1. Architecture:

Tilework: Seljuk architecture is renowned for its use of decorative tilework, where geometric and floral motifs are intricately painted or carved into ceramics.

Mosques and Madrasas: Seljuk mosques and religious schools (madrasas) feature elaborately decorated walls, domes, and mihrabs (prayer niches) with these motifs.

Carvings: Stone and wooden carvings on building facades, doors, and arches commonly feature Seljuk motifs, creating intricate patterns that reflect spiritual and cultural values.

2. Metalwork and Ceramics:

Seljuk artisans were skilled in creating fine metalwork (bronze, copper) and ceramics, often adorned with geometric, floral, and animal motifs. These items were used in daily life but also carried spiritual and artistic significance.

3. Textiles and Carpets:

Seljuk motifs are often seen in textiles, such as rugs and carpets, where the designs feature intricate geometric patterns or stylized animals. The patterns in textiles reflect a blend of both practical and spiritual symbolism.

Historical and Cultural Significance:

Religious Influence: The motifs reflect Islamic religious ideals of unity, infinity, and the divine presence in nature. Geometric designs, in particular, are linked to the idea of tawhid (the oneness of God), showing how mathematics and symmetry mirror divine creation.

Cultural Identity: For the Seljuk Empire, these motifs were a way to communicate power, beauty, and religious devotion, uniting different regions under a shared artistic and architectural identity.

I. Decomposition

1. Decompose Seljuk Art:

- Break down Seljuk motifs into their basic components:
 - Geometric Motifs: Stars, polygons, tessellations.
 - Floral Motifs: Arabesques, lotus flowers, vines.
 - Animal Motifs: Lions, birds, mythical creatures.

2. Group Activity:

- Divide students into groups and assign each group a category of motifs (geometric, floral, or animal). Ask them to list the individual components they see in the motifs (e.g., points, leaves, animals).

II. Pattern Recognition

1. Identifying Patterns in Seljuk Motifs:

- Guide students to observe and recognize patterns in the motifs. For example:
 - Geometric motifs are repetitive and symmetrical.
 - Floral motifs have curving, flowing shapes that resemble nature.
 - Animal motifs represent power and leadership.

2. Discussion:

- Ask students to share the patterns they observed in their group and how the patterns might reflect cultural or symbolic meanings (e.g., infinity in geometric shapes symbolizes the universe).

III. Abstraction

1. Abstracting the Key Ideas of Motifs:

- Discuss with students how we can abstract (simplify) complex motifs into key concepts. For example:
 - Geometric patterns → Unity and order in the universe.
 - Floral patterns → Life and paradise.
 - Animal motifs → Strength and protection.

2. Abstraction Task:

- Ask students to create a simple symbol that represents one of the abstract ideas (e.g., draw a geometric shape to represent infinity)

IV. Algorithm Design

Step 1: Choose a Motif Category

Decide whether to design a geometric, floral, or animal motif based on your understanding of Seljuk patterns.

Step 2: Decompose the Motif

Break down the motif into smaller, recognizable components:

Geometric: Shapes like stars, polygons, and tessellations.

Floral: Leaves, vines, flowers.

Animal: Choose an animal (lion, bird, etc.) and identify its key features.

Step 3: Identify Patterns

Look for symmetry and repetition in your chosen motif.

Geometric: Create repeating patterns or symmetrical shapes.

Floral: Focus on flowing, interconnected lines.

Animal: Use key shapes repeatedly (e.g., feathers, paws).

Step 4: Abstract the Concept

Simplify the design by focusing on the essence of the motif.

Geometric: Represent order or infinity using repeating patterns.

Floral: Symbolize life and growth through curving lines.

Animal: Highlight strength or protection by emphasizing key animal features.

Step 5: Start Drawing the Basic Structure

Begin sketching the main components of your motif:

For geometric designs, start with a central shape (e.g., star) and build outward.

For floral motifs, begin with the center of a flower or vine and add elements symmetrically.

For animal motifs, sketch the outline of the animal and add stylized details.

Step 6: Add Symmetry and Detail

Enhance the design by adding symmetry or repeating elements. Ensure all parts of the motif follow a consistent pattern (e.g., geometric repetition, floral flow, or animal symmetry).

Step 7: Review and Adjust

Examine your motif to check for balance and consistency. Make any adjustments to maintain symmetry or enhance the abstraction of the key idea.

Step 8: Finalize the Design

Complete your motif by refining details, adding shading, or incorporating more intricate patterns as necessary.

Step 9: Present and Explain

Share your final motif with the class, explaining how you applied decomposition, pattern recognition, and abstraction in your design process.

V. Activity

- Students use the steps they've designed to create their own Seljuk-inspired motif on paper.
- Encourage them to experiment with different patterns, colors, and shapes while maintaining the symmetrical and repeating nature of Seljuk art.

VI. Reflection

- Summarize the importance of Seljuk motifs in art and architecture.
- Reflect on how computational thinking (decomposition, pattern recognition, abstraction, and algorithm design) helped simplify the creative process.
- Encourage students to think about how they can apply these thinking skills to other areas, such as problem-solving or artistic creation.

VII. Conclusion :

- Ask students to present their motifs to the class.
- Encourage them to explain the choices they made and how they applied computational thinking to create their designs.
- Facilitate a discussion on how breaking down the process helped them create a complex design step by step.

Homework:

- Digital Design: Use a simple drawing software or app to recreate their motif designs digitally, applying the same computational thinking steps.
- School Display: Create a class exhibition of the students' Seljuk motifs, showcasing their understanding of historical art and their creative processes.

Assessment:

- Participation in discussions and activities.
- Creativity and effort in designing their own motifs.
- Ability to explain the steps and reasoning behind their design process.

Expected results:

By the end of the lesson, students will have a deeper understanding of the Seljuk Empire's artistic and cultural heritage. They will successfully apply computational thinking principles—decomposition, pattern recognition, abstraction, and algorithm design—to break down complex motifs, recognize recurring elements,

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and create their own Seljuk-inspired designs. Students will demonstrate an appreciation for the symbolic meanings behind geometric, floral, and animal motifs and develop creative, culturally relevant patterns, showcasing both their analytical and artistic skills.

Notes:

Materials:

Visuals of Seljuk motifs (e.g., stars, geometric shapes, plant motifs)

Whiteboard and markers

Drawing paper and pencils

Colored markers or crayons

Rulers and compasses (optional, for geometric designs)