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Colors, Shapes, and Spaces in the Most Important Places

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by Christine A. Elmore

I am a second-grade teacher of Black children in an urban public school, and I am concerned to introduce my students to the notion of community awareness in a way that will open their eyes to new possibilities of discussing their own experience. In my curriculum-unit, entitled “Colors, Shapes, and Spaces in the Most Important Places,” we will examine some of the most elementary features of symbolic meaning in their immediate environment (i.e., the neighborhood and the classroom). One of the most significant places in many of my students’ lives is the weekly community-center, be it the neighborhood church or,—an ever more common phenomenon in Black urban neighborhoods in America, which I would like to focus on—the mosque, or place of gathering for prayer or meeting. *A primary objective will be to help my students to develop a language for analyzing and discussing the significant and decorative elements of the mosque and their classroom* . A study of a simple mosque will provide the occasion for taking a closer look at some of the salient features of Islamic design in general, and, in particular, the arabesque.

I will need to begin my unit with *a brief overview of Islamic religion’s influence on the art and architecture of Muslim peoples* . Despite the great diversity resulting from Islam’s temporal and geographic expanse, we will discover that there is a real unity inherent in Islamic art which can be attributed to a number of significant factors, some related to the faith and some not. We will then move on to a look at *the mosque* (*masjid, jamiae*), its origins and basic elements. In this section we will examine the symbolic meaning of some of the colors (green, gold, blue, turquoise), shapes (the dome and minaret), and spaces (the interior space and the orientation of the *qiblah*) characteristic of mosques. In the third section we will investigate two types of ornamentation typically, but not exclusively, used in mosques: geometric patterns and arabesque designs, analyzing the ways in which they conform to basic principles of ornamentation. This section will culminate, then, in a series of practical art-lessons designed to lead the students right into “that fantastic and charming world, which depends not on nature but on the imagination” (A. Racinet, “Polychromatic Ornament,” 1873, p.B)

My curriculum-unit will form the core component of a second-grade Social Studies program covering a four to 8-week time-period. It will incorporate critical reading, mathematics and art skills.

The objectives of my curriculum-unit will be:

1.) To develop a serviceable language for analyzing and discussing architectural and decorative

elements.
2.) To explore the interesting symbolism of colors, shapes and space within a mosque and a classroom.
3.) To instill a better understanding of the concept of design, and, in particular, the role of pattern, symmetry and fancy in Islamic design.
4.) To teach the practical use of such tools as a ruler, circle template, and paintbrush.
5.) To practice observational skills by viewing slides and photo-graphs of Islamic art and architecture.
6.) To provide an opportunity for the appreciation of some of the many contributions Islam has brought to the modern world, especially, of course, in its art.

The unit will be divided into three broad sections:

I—An appreciation of the ways in which Islam influenced the art and architecture of Muslim peoples. (We may focus especially on Egypt). A number of other factors contributing to the unity of Islamic art will also be noticed.
II—An examination of the mosque and its origins, focusing particularly on the symbolic meaning of some of its characteristic color and form-motifs and its use of open spaces.
III—A closer look at two types of Islamic ornamentation: geometric patterns and arabesque designs with the purpose of introducing second-graders to the rigorous, geometric aspects of design and to what might be called the efflorescence of the imagination in the arabesque.

Section I

In order to better appreciate the examples of Islamic architecture and ornament being presented in this unit, it is important to begin with a look at Islamic religion itself, and the very substantial influence on all aspects of life of the people who became Muslim, especially their relationship with nature and society.

The religion of Islam emerged in Arabia during the first decades of the seventh century, and very quickly spread and developed into not only a powerful state but also a great and diverse civilization. Richard Ettinghausen, in his chapter, “The Man-Made Setting” (part of the well-known collection of essays, entitled “The World of Islam,” 1976) describes how the “normative force of Islam” served as the foundation on which the whole civilization was built (p.59). Islam was able to create a way of life and fostered general attitudes

that Muslims from all regions of the Islamic sphere universally accepted. As an Islamic believer, one carried with him a strong sense of belonging to the whole Muslim community and of sharing certain distinct, common rituals and beliefs. The Muslims held a deep faith in the message of the Arabic Quraean (recitation) revealed directly by God to the Prophet Muhammad for the clear guidance of man-kind. They accepted implicitly all of the clear-cut duties entailed in being a believer and shared with all other Muslims a common image of the whole cosmos. Islam, thus viewed as a whole culture, had a profoundly formative influence on Muslim sensibilities. In "Islamic Art and Archeology: Collected Papers" (1984), Ettinghausen explains in detail how Islam "deeply influenced its architecture, the range and character of its iconography, the treatment and type of ornament, and the choice of material everywhere in its domain" (p.51).

Islamic religion posited three important ideological pre-dispositions which would determine the characteristic form of its artistic manifestations: the need to express unitive belief in the setting of communal, social practice; 'the negative requirement that this expression not take the form of visually mimetic imagery (i.e., either sculpture or figurative representation, both of which appeared to Muslims as idolatrous, if not brazenly magical); and, finally, the positive inclination to represent the most essential reality of Islamic religiosity, which is the sound and the meaning of the Arabic Quraean, in the written word.

The gathering place as basic forum: The immediate practice of Islamic religion required that there be at least one place of gathering in every community which was able to accommodate most of the inhabitants for Friday communal worship. The cathedral-mosque, which Oleg Grabar refers to as "the heart of the city" ("Cities and Citizens" in "The World of Islam," p.114) was both in early and late times, the most important social and political center in any urban setting.

Religious injunction as 'negative space': Due to Islam's unconditional monotheism and the view of God as the unique and only-Creator, with Whom no one could possibly compete, representations of living beings in religious art were effectively prohibited. Figurative representation in the view of Muslims, were obvious efforts to replace reality and to infringe on Divine prerogatives. As a result, secular art would come to develop at the expense of religious art.

The written word as 'positive space': Even more sacred than the mosque, Arabic writing became the primal visual manifestation of Islamic religion, science and culture. After the more abstract phenomena of recitation and memorization, Arabic writing, with its characteristic, beautifully flowing script became the worthy vehicle of the glorious Quraean, inclining Muslims to bestow a particular sense of holiness and dignity upon any written text. Calligraphy went on to become the most original and complex aesthetic expression in Islamic art.

Besides these features of Islamic aesthetic culture, there are a number of other, externally-imposed factors which served to preserve the unity and homogeneity of art and architecture in Middle Eastern and North African countries. The predominantly arid or semi-arid climate of these regions greatly influenced the focus of Islamic architecture. In an effort to provide the all-important access to water and protection from the heat, Muslim architects were primarily concerned with providing large, covered spaces with courts, and were less concerned with problems of interior light. Many buildings were erected around cistern-pools or fountains. Symbolically, water was always associated with gardens and paradise. Such architecture came to represent an ideal world, providing a sustaining refuge from the harsh climate and surrounding terrain.

Islamic artisans were not hesitant to use and modify the forms of those countries that were conquered by Muslim forces: Iranian, Indian, Greco-Roman, and Byzantine. Cosmopolitan Islam also encouraged the blending of themes from different regions, and when certain themes could not be adopted in their original form due to the restrictions against figurative representation, they were easily changed to abstract,

decorative patterns. A common practice was to transfer a particular technique or pattern from one medium to another. For example, a design in one country where stucco or wood was the medium was often adapted in another region for use in silverwork or tile inlay.

Islamic art has often been referred to as “the art of artisans,” and Grabar in his article on “Islamic Art and Architecture” (“Encyclopedia Americana,” 1982, p.505) describes it as “an art whose creators were more often fascinated by the technical possibilities of their media than by ideologies or by purely formal considerations.” It was in workshops that early Muslim artisans learned their skills. Masters of detail, these artists freely competed with each other in their attempts to create the most striking combinations of forms and themes of various origins. Grabar considers the greatness of Islamic art to be the result of this “endless virtuosity” (ibid.). Unlike the Western artist, who is viewed as a hero almost isolated from society, in Islamic art, creation and production was essentially non-individualistic. The artist had a generally anonymous character, which served to have an equalizing effect on artistic endeavors.

One final feature of Islamic architecture which we might mention is the lack of a sharp division between the sacred and the profane, as aptly evidenced in the prevalence of eyvaned structures (buildings with a high vaulted hall, usually in the center of a building complex whose entire front opened to an adjoining courtyard). These same edifices were adapted as mosques, theological schools, palaces, caravanserais, or even hospitals. Let us now take a more in-depth look at what has been called the most original and characteristic creation of Muslim genius;—the mosque.

Section II

Grabar, well describes the mosque as the “visible symbol of Islamic civilization’s essential unity” (“Cities,” p.114). The mosque was originally quite simple in make-up, and it was only later that it acquired certain additional elements.

Stanley Lane-Poole in his book, “The Art of the Saracens in Egypt” (1886), writes that the first mosque made up the courtyard of the Prophet Muhammad’s own house in Medina (AD 622), in what is now Saudi Arabia. It consisted of a small, square brick enclosure which was partially roofed over with wooden planks and which was supported on pillars made of palm stems plastered over. Provisions were thus made for worshippers in the mosque to have some privacy from the surrounding hub-bub of the town and protection from the hot sun (p.51). The courtyard wall facing the holy city of Mecca, called the qiblah wall, was provided with a roofed area where worshippers recited their prayers. This simple scheme with three main elements:—the courtyard, the qiblah wall, and the roofed prayer hall,—became the basic plan for all later mosque design. Let us now examine the symbolic significance of some of the ‘colors, shapes and spaces’ within a mosque.

The whole raison d’etre for the mosque is the provision of a wide-open, level, egalitarian space in which all believers can worship together facing the same direction. The only real partition was generally a corner in the back of the mosque ‘fenced off’ with a wooden screen (mashrabiyah) behind which the women could congregate in private. Crucial, therefore, to the architectural history of the mosque was the Muslim’s obligation to perform prayers. Prayer was, of course, a private act, but it was also a peculiarly collective one of the entire Muslim community. Grabar speaks of two characteristics of Islam: “an all-embracing, egalitarian one, in relationship to its own members; and a restrictive one in relationship to others,” which constituted “essential general requirements of what became the mosque” (“The Formation of Islamic Art,” 1973, p.101).

The mosque's interior came to be orientated inside by the mihrab, a niche, usually concave and lavishly decorated, found on the wall of the mosque, indicating the direction of Mecca, where the Prophet was first enlightened. Although the mihrab was perhaps not really an element of the earliest mosque plan, it was to become a universal feature in all later mosques, whether simple or grandiose. Grabar suggests that the mihrab "had a liturgical or symbolic sense in the faith itself" (ibid., p.115). We can trace the first appearance of the mihrab in the Umayyad mosque in Medina. It was thought to commemorate the place in the Prophet's house where he used to stand while preaching or leading prayers. Grabar proposes the idea that the mihrab's function became one of commemorating the presence of Muhammad as the first imam (ibid.).

Two significant shapes often found in mosques are the minaret (manarah) and the dome (qubbah). Towering above the low-lying mosque structure was the minaret, perhaps the most conspicuous feature of Islamic architectural style in Western eyes. It is from the minaret that the muezzin calls the faithful to prayer five times a day, and its shape is that of a high tower either attached or standing nearby the mosque. Why a tower when it was sufficient during the Prophet's time that the call to prayer be carried out from the roof of his house? Grabar traces the initial use of monuments used for the call to prayer to the corner-towers of a Roman temenos in Damascus which had been transformed into a mosque. Thus, a pre-existing architectural form was made a part of the new mosque and well-served an important liturgical need. It did not necessarily make the call to prayer to believers, dispersed throughout a noisy city, any easier or more effective, however. Grabar suggests that it was not for functional reasons that the minaret-form was adopted but rather for important symbolic ones. He interprets the minaret "as a symbolic expression of the presence of Islam, directed primarily at the non-Muslims in the city" (Formation, p.114). As minarets came to be so beautifully designed in such cities as Isfahan, Istanbul and Cairo, Grabar goes on to suggest that this form also became a symbol "of social, imperial or personal prestige or…a purely aesthetic device" (ibid.).

A feature of mosques which is less universal is the dome. Lane-Poole argues that because it is the roof of a tomb and has nothing to do with prayer, it is not an essential feature of a mosque (op.cit., p.60). When the mosque includes a chapel which contains the tomb of the founder or a member of his family, then there is a dome covering the tomb. He suggests that the origin of the dome might be traced to the cupolas covering the graves of Babylon (ibid.).

Despite all of these exotic and exquisite developments, the general mosque design always followed the simplest basic plan, a function as discernible in the most recent neighborhood mosques of America as it is in the grandest monuments of Mesopotamia, Syria, and Egypt.

According to Ettinghausen, the use of color in architecture represents a "special Islamic achievement" and is one that "strongly contrasts with the chromatic restraint in Western buildings" (Man-Made, p.69). Much of the landscape in the territories of Islam, stretching from the Atlantic to the China Sea, can be characterized as hot, arid, and barren areas having few striking features. What would bring visual relief to the weary traveler who has entered another in a series of mud-colored towns was the turquoise or blue-tiled dome or conical roof of a mausoleum or local mosque. Nader Ardalan and Laleh Bakhtiar in "The Sense of Unity" (1973) speak of the harmony of opposites achieved where the blue-green tiled roof of a mosque can provide a pleasing contrast to the buff-yellow tones of its barren surroundings. It is in this contrast of opposing hues that the intensity of each color is heightened (p.51). Exuberant color was employed in the decoration of the exterior as well as interior of some mosques, with the use of colorful, glazed tile combinations and mosaics favoring, in particular, dark blue and turquoise. Combinations of both analogous colors and opposing colors abound in nature. Typical of Islamic ornament is the juxtaposition of opposite colors in large areas with analogous colors interwoven in minute areas creating "distinct color sensations" (op. cit., p.54).

The typically Arab view of color is, in a sense, primarily one of light values. The Beduoin, coming in from the harsh, bright surroundings of the desert, regarded the lush valleys of Mesopotamia as black (the rural area of Iraq is called 'the black land', al-sawad). Black, in this sense, was for them the very color of life. Ardalan and Bakhtiar explain that color in Islamic tradition is considered typically from a metaphysical point of view, "one which sees the duality of light and darkness as permanent possibilities latent in the celestial Archetypes" (op. cit., p.47).

Ardalan and Bakhtiar focus on two systems of color which they call traditional, which, when combined, comprise the group of seven hues: black, white, sandalwood, red, blue, green, and yellow. In line with the traditional view, each color is representative of a particular sphere of correspondences and exhibits unique characteristics. In the system of three primary colors, the polar qualities of black and white are mediated by sandalwood (ochre). The latter is considered the neutral base upon which not only black and white, but also nature, represented in the system of four cardinal colors (red, blue, green, yellow), can act. Qualities of nature and of matter are assigned to each of these four primary colors as exemplified in the following diagram:

(figure available in print form)

Green, from the Islamic perspective, has always been considered the superior of the four cardinal colors, since red, blue and yellow are viewed as being embodied in the natural hue, yellow and blue combining to produce green, with red being seen as its "after-image". Symbolically viewed, "green is hope, fertility and eternity with its two inherent dimensions of past (blue) and future (yellow), and its opposite, the present, seen as red" (op. cit., p.50). It should be noted that the color, green, in Arab culture ranges all the way to turquoise and azure (Arabs refer to the sky as 'the green dome'). Briefly, in regard to gold, while Islamic artisans certainly appreciated the excellent qualities of this color, they did not go on to indulge in the mystique of gold that we note in the art of Byzantine Christian icons.

Thus, in Islamic art and architecture, what Ettinghausen calls "the decorative urge" was "much more pronounced than elsewhere, and purely ornamental motifs predominate" ("Man-Made," p.70). In our final section we shall examine two types of Islamic ornament: geometric patterns and the arabesque.

Section III

What role does geometry play in Islamic architecture and ornament? Keith Critchlow, explains how the four-square geometry of a mosque represents a foundation which is characteristic of sedentary peoples in the same way that among nomadic peoples radial and conical forms are prominent. It is geometry in Islamic architecture which serves as a link between city and citadel, a citadel and the buildings within it, or between a building and its doorways, screens, grills and windows ("Islamic Patterns: An Analytical and Cosmological Approach," 1976, p.102). In Islamic ornament as well, geometry plays a key role. Seyyed Hossein Nasr, in the foreword of Critchlow's book, speaks of the "essentially geometric nature" of Islamic art, whose artists "sought to penetrate into the very structure of physical existence...by ascending to the archetypal world of mathematics to discover the principal structures which are reflected within the very heart of matter" (p.6) Islamic art cultivated a way of ennobling matter through the use of geometric and floral patterns.

This "itch to make patterns" Lewis F. Day tells us in his book, "Nature in Ornament" (1977), was "one of the earliest symptoms of that artistic fever to which the human race has from the first been liable" (p.32). Muslim artists used a minimum of equipment and theory in creating complex geometrical patterns. New patterns

were simply variations of older ones, and were reflections of the underlying geometric structure of organic things. As Grabar writes, “the redundant became the main function of an artistic tradition, and as the tradition grew and developed, its every new motif, even inscriptions, were ornamentalized” (“Formation,” p.179). This predilection for abstract and infinite design is especially apparent in floral ornament, particularly in the many forms of the arabesque.

Arabesque technically refers to a certain form of decorative design in flowing lines intertwined. Racinet aptly describes Arabian ornament as being “built up and bound together in all its parts, everything connected…from the circumference to the centre all the interlacings take a common root in the ornament itself” (op. cit., p.22). As Grabar reminds us, Muslim artists adopted many artistic themes from earlier, conquered peoples, but because they could not always be used in their original form, they were often changed into decorative patterns leading to a certain amount of ambiguity between iconographically significant and purely ornamental forms. Arabesque, which the renown authority on decorative motifs, Alois Riegl, considered to be a transformation of a Greek palmette, was only one result of this tendency. Grabar prefers to describe arabesque, not only as a kind of design but also as a way to treat design (“Formation,” p.505).

There are two paradigms of normative Islamic thought which bear upon Islamic ornament, and which may serve to explain the perspective of arabesque as an idea rather than simply as a form. Muslims believe that God alone has the power to make anything permanent, and to avoid competing with God, man’s creations must not attempt to reflect physical reality. Secondly, in the typically Islamic doctrine of atomism it is held that all things are composed of and distinguished by numerous combinations of equal units. That the same combinations should appear would be considered a Divine miracle. The Muslim artist, then, seeking neither to imitate nor compete with God, “becomes free to recompose the units of nature he knows in any way he sees fit, and the more arbitrary and absurd the better” (“Formation,” p.192).

How are Islamic patterns distributed in space? In Islamic ornament there is the possibility for infinite growth. Ettinghausen writes that typically in Islamic ornament, the geometry of the pattern has the potential to multiply and extend itself forever, and it is only the border which introduces an obviously arbitrary break in that pattern (“Man-Made,” p.72). Archibald H. Christie, in his brief description of arabesques, describes the Islamic skill of playing off ground against pattern in which “the several parts of the design are so ingeniously shaped that we are in some doubt whether the design is planned in black upon a white ground or the reverse” (“Pattern Design,” 1969, pp. 108-109). Islamic design can best be defined as a relationship between forms, rather than simply a sum of forms. Moreover, due to the principle of arbitrariness, it is “neither its size nor the ornament’s internal forms which are dictated by anything but itself” (“Formation,” p.189). Racinet adds that in this style the continuity of the ornament completely fills the surface, “where nothing can be taken away without occasioning an unseemly void” (op. cit., p.22). The authors of the very useful teacher’s packet, “The Mathematics of Islamic Art,” (published by The Metropolitan Museum of Art in New York), admirably describe how arabesques achieve their two-dimensionality: “In arabesque patterns, the plant designs are often set against a contrasting background, but there is no intention for this foreground and background to create space. The arabesques interlace, weaving over and under in a way that makes them hug the surface” (page i). Characteristic also of Islamic geometric patterns is their tendency to “radiate symmetrically from a central point” (ibid.). Adding color to such patterns serves to distinguish forms and to emphasize rhythms, achieving a resulting harmony which Racinet so praises. In choosing and using colors, it is not the goal of the artist to imitate reality. Through the great liberty the artist exercises in his use of chromatics the severity of the design is redeemed (op.cit., p.3).

Before leaving our discussion of arabesque and geometric patterns, let us briefly consider the metaphysical

significance of such designs in Islamic art. Critchlow suggests that the use of frozen crystalline shapes and warm, fluid arabesques complement each other and correspond to the Islamic perspective of a fundamental symmetry of existence which revolves around the four-fold axis of heat and cold, moist and dry. Such patterns which combine arabesques and geometric patterns, are reflective of the idea that time is a flowing image of eternity (op.cit, p.192).

The role of ornament in Islamic art and architecture can hardly be exaggerated. Overshadowing the monumentality of even the most imposing Islamic edifice was its decorative excellence.

The Lesson-Plans

Second-graders, more aware of the varying abilities of their peers and older siblings, have reached an age where many may feel that they cannot draw and they will need lots of encouragement and praise as they are led through this series of lessons.

The following lesson-plans begin with a look at the basic lay-out of a mosque. The investigation of some of its 'colors, shapes and spaces' will be a simple vehicle for the introduction of the students to some elements of Islam and Muslim rituals and practices as well as basic aspects of Islamic design by means of instantaneous discussion. From there, in lesson-plan two my students will gain some historical perspective as they learn of the Islamic Empire and listen to a tale taken from the famous "Arabian Nights," whose illustrations are filled with Islamic design. Using a ruler, pencil, and grid, they will be free to fill the designated spaces with their own design-creations, combining lines and shapes in a variety of ways and experimenting with color. In the third lesson-plan we will move to an exploration of symmetry. The simple objective will be to really peak their curiosity as they are led through a series of "hands-on" activities suggested in our new mathematics text on the second-grade level ("Addison-Wesley Mathematics," 1993, pp. 259-260). Children best learn by doing and it is in this way that they will gain a better understanding of the role that symmetry plays in design.

My students are quite familiar with the triangle, square and hexagon as a result of creative pattern block-play and it is in the fourth lesson-plan where they will begin experimenting with the creation of interesting geometric patterns. These three regular polygons are considered by Ardalan and Bakhtiar as ideal for creating space-filling surface patterns which grow side by side where the vertices add up to 360 degrees (op. cit., p.40). In a series of activities the students, equipped with a pencil, ruler, circle template and grids, will learn to create geometric patterns using one or a combination of these polygons, overlapping or connecting them side by side in three regular lattices: diagonal, right-angled and circular. The viewing of slides and plates of Islamic design will further guide and inspire their attempts to create interesting designs.

In lesson-plan five the objective will be to free the students' imagination to fanciful design as they move from experimentation with the rigid, frozen geometric patterns to the more frolicsome and free-flowing arabesque. Since the objective is exposure to rather than mastery of the arabesque, the activities will be simple and will guide the students through the experience starting with simple exercises in completing arabesque-designs. From there, they will be free to experiment with the intertwining lines, symmetry and color as they create their own versions of the arabesque. At this point, we can try interspersing arabesques with calligraphy as is done is Islamic design.

As a culminating activity within this unit, I can foresee a possible application of our observations of the

mosque and its ornamentation to an informed discussion of the symbolic significance of our own classroom. We could consider such questions as: What are the geometric shapes found in the classroom, what is the function of the interior space, what do the windows signify, and is the blackboard not like the qiblah of knowledge?

Strategies

The following strategies will be employed to achieve the unit's objectives:

1.) Creating a model of a simple mosque using cardboard and wood based on the simple layout of a mosque presented in class.
2.) Using readings and illustrations from three children's books, "Moslems and Islam," by Leonard F. Holly, "The Muslim World," by Richard Tames, and "Muslim Festivals" by M.M. Ahsan to familiarize the children with some of the Islamic customs and traditions.
3.) Gaining some historical perspective on the Islamic Empire and listening to and discussing the story, "Aladdin and the Magic Lamp," whose illustrations include many beautiful examples of Islamic design.
4.) Viewing slides of Islamic objects (such as are provided in the teacher's packet, "The Mathematics of Islamic Art"), to gain an idea of Islamic geometric patterns and arabesque designs. In addition, samples of Islamic design taken from "The Grammar of Ornament," by Owen Jones, "The Decorative Art of Arabia," by Prisse D'Avennes and "Renaissance of Islam: Art of the Mamluks," by Esin Atil will also be viewed.
5.) Using a circle template and ruler, students will construct simple geometric pattern-designs using basic shapes: triangles, squares, hexagons. Following this, students will be taught how to make designs on a triangle and then a circle-grid increasing the complexity of the designs. "The Mathematics of Islamic Art" provides a series of activities which teach basic design to students, preparing them later to create arabesque designs. Students will also practice calligraphy and adding it to a design similar to the combinations typically found in Islamic ornament.
6.) Using pattern blocks to identify basic geometric shapes, and creating patterns with them that can be recreated on grids. Samples taken from Keith Critchlow's "Islamic Patterns: An Analytical Cosmological Approach" will serve as inspiration for the creation of geometric patterns.

Lesson Plan One

Objectives

To become familiar with the basic architectural elements of a mosque. To view pictures of mosques noting

their great diversity. To become familiar with some of the Muslim rituals and religious practices especially as they relate to the mosque. To become familiar with interior and exterior ornamentation of mosques.

Goal

To become familiar with the use of ‘colors, shapes and spaces’ in a mosque.

Materials

Simple plan of a mosque on posterboard with main elements labeled, glossary lists of basic elements of a mosque in Arabic, “The Muslim World” by Richard Tames, “Moslems and Islam” by Leonard F. Hobley, “Muslim Festivals” by M.M. Ahsan, “The Mosque of Ibn Tulun” edited by Amal Ahmad El Emary.

Vocabulary

adhan—announcement; the call to prayer.
fauwara—ablutions fountain.
imam—he who stands at the front, leader of prayers in a mosque.
Islam—submitting (to God); peace.
khutba—sermon delivered in a mosque at congregational prayer on Fridays.
masjid—a place of prostration; a mosque.
mihrab—recess in mosque wall denoting the direction of prayer.
manarah—minaret; the tall, slender tower of the mosque from which the adhan is called.
minbar—pulpit from which the khutba is delivered.
muaeadhdhin—muezzin; an official at the mosque who calls Muslims to prayer.
Muslim—a follower of Islam.
qiblah—the direction of prayer.
qubbah—a dome.
sahn—courtyard.
umma—the community of Muslims.
wudu—ablution performed before prayer.
zulla—prayer hall in a mosque.

Procedures

1. Begin by displaying the simple plan of a mosque having students come up and locate the sahn, mihrab, minbar, zulla, manarah, qubbah, and fauwara. Have them refer to their glossary lists as each element is pointed out.
2. Show them pictures of mosques, pointing out 'colors, shapes and spaces' in them. Discussion of Muslim rituals and traditions, using readings and illustrations taken from the children's books listed above, would also take place.
3. A larger model of a mosque could be constructed by the students using cardboard and wood.

Lesson Plan Two

Objectives
To use a pencil and ruler to create designs on an enlarged grid. To view examples of Islamic design on selected plates and in book illustrations.

Goal
Students will better understand how to fill in space on an enlarged grid with free-form designs of their own creation.

Materials
"The Decorative Art of Arabia" by Prisse D'Avennes, "Aladdin and the Wonderful Lamp" by Carol Carrick, a wall map of Arabia and Persia, two types of enlarged grids, pencil, ruler and colored pencils.

Procedures

1. To peak the students' interest, begin with a brief introduction to the "Arabian Nights" of which "Aladdin and the Wonderful Lamp" is a part. Discuss how the clever and very courageous Scheherazade keeps the Sultan Schahriar entertained day and night with a series of charming stories, one of which you plan to read to them now.
2. Refer to a map of Arabia and Persia, highlighting the area making up the Arabian empire. Point out the borders of the ancient dynasty over which the Sultan Schahriar reigned.
3. Read aloud "Aladdin and the Wonderful Lamp" displaying the colorful illustrations many of which employ Islamic design. Point out the floral and geometric patterns found on walls, doors, and rugs.
4. To serve as further elaboration of the possibilities of Islamic ornamentation, show plates found in "The Decorative Art of Arabia." In addition to beautiful examples of arabesques and geometric patterns are examples of Arabic calligraphy employed in design patterns.

5. Following these viewings and discussion, provide each student with an enlarged copy of the following diagram, a pencil and a ruler. Instruct through demonstration on a sample copy on display on the blackboard how to measure and mark off 4 inch points on all four sides of the diagram thus dividing it into 4 squares.

(figure available in print form)

Continue using the ruler to construct another square inside the circle.

(figure available in print form)

Finally, triangles are constructed by drawing diagonal lines across from each corner.

(figure available in print form)

Have the students identify these basic shapes: circle, square and triangle.

6. Provide each student with an enlarged rectangular grid consisting of nine such diagrams. Instruct them to fill each diagram with their own designs, suggesting they experiment not only with their own ideas but also refer to the Islamic designs earlier presented which remain on display for them to imitate.
7. Students are then to use colored pencils to add color to their designs. Encourage them to experiment with dark and light shades of color and to note the effect that they create.
8. Finished grids will later be laminated “magic carpets” on which they can accompany Aladdin on his many adventures. Many creative writing experiences can easily spring from these artworks.

Lesson Plan Three

Objectives
To become familiar with the concept of symmetry. To make symmetric figures and patterns. To view slides of Islamic design noting how symmetry is employed.

Goal
To better understand the role that symmetry plays in Islamic design.

Materials
Slides taken from the teacher's packet entitled "The Mathematics of Islamic Art," construction paper, ruler, scissors, pencils, crayons, 1-inch square graph paper, tempera paint, paintbrushes, and pattern blocks.

Procedures

1. To familiarize the students with the concept of symmetry, begin with a display of four half-completed shapes on the blackboard.

(figure available in print form)

Ask individuals to come up and draw in the other half of each shape. Refer to the broken line as the line of symmetry. Display the following objects or enlarged pictures of them: a sandwich, a butterfly, a spoon, and a leaf and point out that each has two matching parts. Have the students imagine and then indicate (or draw in) the line of symmetry going down the center of each.
2. Cut out a square from construction paper and draw a line down the center. How can we check if the two sides match? Fold it to demonstrate. Have students work in pairs. Each pair is provided with a square of construction paper which they fold in half. Instruct them to cut out a figure that begins and ends at the fold line. Before unfolding it, have them try to predict what each whole figure will look like. Then unfold them.
3. Each pair of students is given a piece of 1-inch square graph paper with a dark line cutting the paper in half. One partner colors some of the squares on one side of the line. Then the other partner colors the other half matching the squares. One row is colored at a time. Point out the symmetry of these patterns.

(figure available in print form)

4. Have students create symmetrical patterns using a mat with a line down the center and pattern blocks. Students put blocks on one side of the line and then they add blocks to the other

side to make the model symmetrical.
5. Each student is given a square piece of white construction paper. They are instructed to fold it in half. They are them to put some blobs of tempera paint on one side of the fold line. The paper is then folded once more and they rub it lightly. When it is opened, it shows lovely symmetrical designs.
6. End this lesson with a viewing of a series of slides of Islamic design. Point out the ways in which they are symmetrical.

Lesson Plan Four

Objectives
To create designs using the three polygons: the square, the hexagon and the triangle in various combinations. To create a 2D design by drawing geometric shapes overlapping and then painting them. To view examples of geometric patterns in Islamic design.

Goal
To better understand how the square, hexagon and triangle can be combined to create very interesting patterns.

Materials
“Islamic Patterns” by Keith Critchlow, slides from the packet, “The Mathematics of Islamic Art,” pencils, rulers, square and triangle grid paper, tempera paints, paintbrushes.

Procedures

1. Review with the students three basic shapes: the square, hexagon and triangle. Explain that by just using these three shapes in various combinations we can create some very interesting designs. On graph paper suggest the following possibilities:

(figure available in print form)

Demonstrate with ruler and pencil on graph paper how these designs can be created. Have the students try their own combinations.
2. Show other possibilities, some very complex, from the book, “Islamic Patterns.”
3. Have students create a design on white construction paper by overlapping these three polygon shapes to create new shapes. Each shape can then be painted.

(figure available in print form)

4. Slides of geometric patterns employed in Islamic design can then be viewed and discussed.

Lesson Plan Five

Objectives
1. To create arabesque designs on grids.

2. To view slides which employ arabesques in Islamic design.

Goal
To free one's imagination to fanciful design such as is reflected in the arabesque.

Materials
"The Grammar of Ornament" by Owen Jones, slides from the packet, "The Mathematics of Islamic Art," equilateral triangle grid and square grid, pencils, felt-tip markers, rulers.

Procedures

1. Begin with a viewing of slide 8 which shows a star-hexagon pattern. In imitation of this star-hexagon tessellation, provide each student with an equilateral triangle grid and two felt-tip markers and instruct them to begin by coloring a star in the center. Then they are to color the six hexagons around it with a different marker. They are to proceed outward from there to the edge of the paper. Discuss the ways in which their designs exhibit characteristics of Islamic art already discussed in previous lessons.
2. Show slide 3 which shows an arabesque design. This is an elaboration of the star-hexagon pattern just completed by the students. Show the students further examples of arabesque designs taken from "The Grammar of Ornament." Point out the ways in which these designs intertwine, are symmetrical and seem capable of extending infinitely. Contrast their free-flowing aspect to those of frozen geometric patterned designs.
3. To further expose the students to ways to create arabesques provide them with grids on which half-completed arabesque designs have been drawn for them to complete or on which they are required to connect dots to achieve a completed arabesque design. A third activity would be that of providing the students with an arabesque design which they are to add white and black paint in order to contrast figure and ground. Teacher demonstration on a sample could them be followed by student practice.
4. Finally, students would attempt to create their own arabesque designs. We may begin with designs of the Greek palmette and work our way up to the arabesque. It is here where we may also begin experimenting with interspersing our arabesque designs with calligraphy.

(figure available in print form)

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