

# ISLAMIC ART

## **Vedic square**

### Background

Vedic squares are a variety of geometrical patterns that are generated by the selection of number sequences and angles.

This is a style of art that can be drawn by hand using squared paper or by the use of computer. Although using a computer to generate patterns is not new the method I want to use is based in the early traditions of the Islamic religion.

Using the number patterns makes it distinctly Islamic dating back to the flowering of Muslim culture in the centuries immediately following the death of Muhammad.

### The Vedic Square

The design is based on a Vedic Square – an arithmetical sequence which was used within the Muslim tradition to produce patterns.

The square is made by taking a basic multiplication table and reducing all the numbers to single digits by adding any multiple digits together. So, if 6 times 6 = 36, the two digits of 36 are added together to give 9. Similarly, if 8 times 7=56, 5+6=11 and 1+1=2.

Hence the line for the two times table would be as follows:

2	4	6	8	10	12	14
becomes:				(1+0)	(1+2)	(1+4)
2	4	6	8	1	3	5

The whole table up to nine times nine turns out to be:

A	1	2	3	4	5	6	7	8	9
B	2	4	6	8	1	3	5	7	9
C	3	6	9	3	6	9	3	6	9
D	4	8	3	7	2	6	1	5	9
E	5	1	6	2	7	3	8	4	9
F	6	3	9	6	3	9	6	3	9
G	7	5	3	1	8	6	4	2	9
H	8	7	6	5	4	3	2	1	9
I	9	9	9	9	9	9	9	9	9

The table reveals a large number of different number patterns whether you read it horizontally, vertically or diagonally.

Muslim scholars and artists discovered that the various lines of the Vedic Square could be used to direct a design. By selecting a line of numbers, and using a constant angle of rotation, various designs could be produced.

For example, selecting the line E and the angle of 90 would mean that the line would initially move 5 units, rotate through 90 and move 1 unit, rotate through 90 and move 6 units and so on.

What becomes obvious is that some designs simply repeat themselves over and over again; some designs travel and would go on infinitely; others travel but over a restricted area and would ultimately repeat themselves.

By using combinations of different designs, an infinite number of variations of pattern are possible – often achieving remarkable levels of complexity and intricacy.

## **The Islamic Significance**

One of the most important principles which governs almost all Muslim art is a rejection of representational forms. As Allah (God) alone is the supreme creator and focus of human worship, the creation of representational works of art is in danger of being idolatrous. With the exception of Persian miniatures, almost all Muslim art is a combination of three modes of expression:

- (1) Calligraphy – usually based on the Qur'an. This expresses vividly the central place of the Qur'an in Muslim belief and the idea that the words and meaning of the sacred book should penetrate into every aspect of Muslim life.
- (2) Arabesque – free-flowing lines of foliage which express the flowing lines of creation whose rhythms are constantly shaped by the divine will of Allah.
- (3) Geometrical designs – these are of many kinds, those based on the Vedic Square being only one form. Issam El Said's book, "Geometric Concepts in Islamic Art" has examples of other approaches to such patterns. They are in essence all different forms of mathematical designs and can be replicated in schools as long as the mathematics is understood.

### The Vedic Square

While many forms of Islamic art use all three modes of expression in combination, the focus of this style is on the third, the geometrical form of design.

While it is highly abstract, it can be seen to express many basic and distinctive aspects of the Muslim religious vision. Interpreters differ in how they understand the patterns but some of the following ideas are often seen as central:

- \* The patterns express the Infinite and Never-ending nature of the Divine; they reveal the finite nature of mans vision, since we cannot complete the infinite pattern.
- \* They express in abstract form the design and order of a universe crated by God's will.
- \* The complexity and subtlety of the designs suggest levels and depths in the knowledge and understanding of the Divine.
- \* The complexity and diversity of the patterns can be seen as balanced with an underlying unity which draws any apparent confusion into a peaceful state of harmony – expressing the central Muslim idea that peacefulness and harmony in human life stem from acknowledgement of and submission to the true centre of the universe: God.

All of these ideas, and others, are distinctively Muslim, and the pattern of the geometrical designs both reflect and reveal these central aspects of the Islamic vision.

This can be done on squared paper but the main value of using a computer program is that it uses the computer to carry out the lengthy task of drawing the designs easily and quickly. As you watch the pattern emerging, it is possible to share something of the Islamic experience of fascination and wonder which stems from their understanding of the nature of man, God and the created order as expressed by the designs.

As well as using the computer pupils could be asked to work out how the original Muslim designers would have constructed the patterns using the simpler tools of a compass and ruler.

It would be a very valuable contribution to the development of pupils' religious understanding for them to understand something of the Islamic context of the designs, eg:

- \* Identifying some of the patterns used in Islamic Tiling, woodwork, printing, etc.
- \* Relating the design to (a) the pupils' own questions about how we picture God, the endlessness of the universe, the patterns and order of nature, conflict and peacefulness, etc, and (b) the ways in which the Muslim tradition has come to reflect and express those questions.
- \* Counteracting stereotyped views of the Muslim tradition – militancy, violence, etc, with an appreciation of the subtlety and sophistication shown in Islamic mathematics and design.

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