9: Achievements and Contributions of Al-Andalus: Exploration of Material Culture and Science

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Overview:

During the more than 700 years of Muslim rule in the Iberian Peninsula, Muslim culture was both a center for receiving influences from other Muslim lands, and a center of innovation and adaptation in material culture and the sciences. Through an interface either on the Cities of Light web pages, or through a system of handouts printed from the web site at <www.islamicspain.tv> and made available to the class for study, students will use select readings and images that introduce them to a range of arts, sciences and technologies that contributed to the material culture of al-Andalus and its dissemination to other cultures. Through the collective learning activity, students can become "experts" in a number of fields they will present to the class from what they learned, and through the shared classroom experience, they will also be exposed to many other fields. An assessment activity aims to create a lasting impression of this information to round out the students' understanding of the contributions of al-Andalus to civilization.

Objectives:

Students will be able to

- identify numerous areas of achievement in material culture and the sciences in medieval al-Andalus.
- describe a selection of contributing fields of knowledge and activity from al-Andalus during the centuries of Muslim rule in the Iberian Peninsula.
- list individuals who contributed as scientists, artists and writers in the area of material culture and the sciences.
- assess the importance of al-Andalus as a center of activity and contributing culture in the areas of material culture and the sciences.

Materials:

"Magic Squares" game board, Student Handout 9a for note-taking on the topics and print-outs of the 1-2 page text and image information texts and images that correspond to the topic named in each square on the grid, **Student Handouts 9.1 to 9.25**.

Time:

1-2 class periods and/or option of a homework assignment for preparation

Procedure:

Teachers can assign the students to choose a given number of rows up or across, complete a diagonal row or rows, or a pattern of numbers that add up to a certain sum. They will be responsible for presenting the material to the rest of the class. When the class is de-briefed on their exploration, they will gain an overall idea of the cultural and scientific ideas that took place in al-Andalus during the eight centuries of Muslim rule

and its aftermath in the translation effort, and the effects of the diffusion of this knowledge.

Students can also be assigned to freely choose a square (corresponding to the labels on the chart on the next page), and select the handout that corresponds to the topic. Teachers can assign the students to choose a given number of rows up or across, complete a diagonal row or rows, or a pattern of numbers that add up to a certain sum. Users will be able to acquire a broad overview of the cultural and scientific ideas that took place in al-Andalus during the eight centuries of Muslim rule and its aftermath in the translation effort, and the effects of the diffusion of this knowledge in a short period of time by surveying the images and following the links according to their interest.

Student Handout 9a: Magic Squares for Exploring Material Culture and Sciences in al-Andalus

The labels on this set of "Magic Squares" refer to contributions to the arts, sciences, and technologies that al-Andalus contributed to the world. Select any vertical, horizontal, or diagonal row and ask the teacher for the readings that correspond to the numbers in the row you have chosen, or find them online at <www.islamicspain.tv>.You will become a class expert in the information contained in those readings. Be ready to briefly summarize the knowledge you have gained and share it with the class. You will learn about the areas you did not choose from your classmates. Use the note-taking organizer in Handout 9b to take notes.

1 Medicine	2 Glass	3 Chemistry	4 Botany	5 Physics & Optics
6 Surgery	7 Pharmacology	8 Music	9 Astronomy	10 Mathematics
11 Textiles	12 Carving	13 Leatherwork	14 Ceramics	15 Architecture
16 Navigation	17 Metallurgy	18 Geography	19 Engineering	20 Zoology
21 Cuisine	22 Agriculture	23 Hydraulic Technology	24 Calligraphy	25 Games

Student Handout 9b: Notes Organizer for the Magic Squares Activity

CONTRIBUTION	NOTES ON INFORMATION	DRAWING OR SYMBOL THAT REPRESENTS THIS CONTRIBUTION
1 Medicine		
2 Glass		
3 Chemistry		
4 Botany		
5 Physics & Optics		
6 Surgery		
7 Pharmacology		
8 Music		
9 Astronomy		
10 Mathematics		