

Contributions of Muslims during the Golden Age of Islam

City Building and Architecture

The City of Baghdad

1. One of the most glorious Muslim cities was the Abbasid capital of Baghdad. Baghdad was more centrally located to be a capital than Damascus.
2. *This location was a crossroads of trade routes connecting distant parts of the empire.*
3. It took 100,000 architects, workers, and craftspeople four years to build the new capital.
4. Shops, markets, and residences grew up outside the walls of Baghdad. Bridges, palaces and gardens all added to its splendor.
5. *One Arab historian of the 11th century called Baghdad "a city with no equal."*

The Mosque

1. Mosque, Muslim house of Worship
2. Mosques usually had a minaret (tower) with a small balcony where the muezzin chanted the call to prayer. Fountains were in the courtyard for washing before prayers.
3. *The imam, or prayer leader gave his sermon from a raised pulpit call the minbar.*
4. Design styles and materials went into building mosques. They reflected diversity of their empire.
5. *Like cathedrals of Europe, mosques expressed the religious faith and the artistic heritage of their builders.*

Scholarship and Learning

1. Acceptance of the Arabic language helped promote learning
2. *Arabic became the language throughout Muslim Lands.*
3. A shared language and love of learning allowed scholars in Europe, North Africa, and the Middle East to exchange ideas.
4. Among the texts studied by Muslim scholars were the works of ancient Greek thinkers such as the philosophers Plato and Aristotle.
5. *Following the example of the Greeks, Muslim philosophers used reading and logic to prove important truths.*
6. Ibn Sina, Persian, became Islam's most famous philosopher.
7. *He believed that all knowledge came from God and that truth could be known through revelation and reason.*
8. He presented logical proof that the soul was immortal. His work influenced many thinkers in Medieval Europe.

Science and Technology

Zoology

1. Scientific study of animals.
2. *Books were written about the structure of animal bodies and others explained how to make medicines from animals.*
3. In the 800s a scholar named al-Jahiz presented theories about the evolution of animals.

Astronomy

1. Astronomy had many practical uses for Muslims such as compasses and astrolabes to locate Mecca.
2. *These instruments allowed worshipers far from the holy city to pray facing the right direction.*
3. Muslim astronomers also simply wanted to learn about the universe.
4. Some realized that the earth rotated like a spinning top.
5. *Many questioned the accepted idea that the Earth was the center of the Universe.*

Irrigation and Underground Wells

1. Much of the land under Muslim rule was hot and dry.
2. *Muslims restored old irrigation systems and designed new ones.*
3. They built dams and aqueducts to provide water for houses, fields, and mills.
4. *They improved existing systems of canals and underground wells.*
5. *Muslims used water wheel to bring water up from canals and reservoirs.*

Geography and Navigation

1. Muslim geographers examined animals of different regions and divided the world in to climate zones.
2. *Muslim scientists calculated the circumference of the Earth within nine miles of the correct value.*
3. Muslims created extremely accurate maps.
4. *A scholar in Muslim Spain produced a world atlas with dozens of maps of lands in Europe, Africa, and Asia.*
5. A work called, The Book of Roads and Provinces.
6. Travelers were another source of knowledge.
7. To aid in their travels, Muslims used navigational instruments. Muslim scientists perfected the compass and astrolabe.
8. *Muslims probably learned about the compass from the Chinese.*
9. Compasses allowed people to identify the direction they were traveling.
10. *The astrolabe was probably invented by the Greeks.*
11. With this instrument, sailors at sea could use the position of objects in the sky to pinpoint their location.

Mathematics

1. Muslims advanced the field of mathematics by basing their studies on the work of Greek and Indian mathematicians.
2. *One great scholar was Al-Khawrizmi who is best known as the father of Algebra.*
3. In fact, the word algebra comes from the title of one his books.
4. Al-Khwarizmi's famous book was translated into Algebra in the 12th century.
5. *The translation of his book helped to popularize Arabic numerals in Europe.*
6. Muslims learned this way of writing from Indian scholars.
7. Muslims also spread the concept of zero.
8. *Zero also made it easier to write large numbers.*

Medicine

1. Muslims learned a lot about medicine from the Greeks, Mesopotamians, and Egyptians.
2. Muslim doctors established the world's finest hospitals.
3. *Most cities had at least 1 or 2 and they served as teaching centers for doctors in training.*
4. Pharmacists made hundreds of medications.
5. *Some drugs dulled patients' pain. Antiseptics were used to clean wounds.*
6. Drugs such as opium put patients to sleep before operations.
7. *Muslim surgeons amputated, removed tumors, removed cataracts, and stitched up wounds after surgery.*
8. Muslim doctors made many discoveries and helped spread knowledge.
9. Medical schools used many of the Muslims works once they were translated into Arab.

Bookmaking and Literature

1. In the 8th century Muslims learned the art of making paper from the Chinese. This encouraged the creation of books which in turn encouraged the spread of Muslim literature.
2. *Craftspeople turned bookmaking into an art form.*
3. They illuminated the bindings and pages with designs in gold and miniature paintings.
4. *Books become a big business in the Muslim World.*
5. More than 100 bookshops lined streets in Baghdad.
6. *Arabs had a rich heritage of storytelling and poetry. Arab poetry often honored love, praised rulers, or celebrated wit.*

7. Prose eventually replaced poetry for recording history, events, and traditions.
8. Muslim literature was enriched by Sufism , or Islamic mysticism.
9. *This type of religious practice involves intense personal experiences of God rather than routine performance of rituals.*

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Art and Music

Geometric and Floral Design

1. Earned fame for their decorative art.
2. *Muslims rejected the use of images of humans or animals in their visual art, especially religious art.*
3. A type of design called Arabesque took its beauty from the natural world.
4. *Artists crafted stems, leaves, flowers, and tendrils into elegant patterns that were repeated over and over.*
5. Artists also used geometric shapes in their designs.
6. Circles, triangles, squares, and hexagons had special meaning to Muslims.
7. *Artists used simple tools – rulers and compasses – to create abstract designs. Circles, triangles, squares, and hexagons had special meaning to Muslims*

Calligraphy

1. The highest form of decorative art, the art of beautiful handwriting.
2. When Muslims began copying the Koran they felt that only calligraphy was worthy to record the words of God.

3. Calligraphers used sharpened reeds or bamboo dipped in ink to write on parchment and paper.
4. Most featured round letters and cursive writing, in which the script flows and letters within words are connected.

Textiles

1. Muslims in the Middle Ages brought great artistry to textiles.
2. *Valuable cloths sometimes featured long bands of inscriptions or designs.*
3. Clothes showed rank and served as status symbols in the Muslim world.
4. *The Caliph wore robes made of the most valuable materials.*

Music in Muslim Spain

1. Persian musical styles influenced the cities in the east. Cordoba developed a blend of Arab and native Spanish cultures.
2. A key figure in this cultural innovation was Ziryab.
3. *He established Europe's first conservatory, or music school.*
4. Singing was an essential part of Muslim Spain's Culture.
5. *Musicians and poets worked together to create songs about love, nature, and the glory of the empire*
6. This music influenced later forms of music in Europe and North Africa.