TESSELLATIONS & M. C. Escher
by Mrs. Heiser
What are Tessellations?

- The word 'tessera' in Latin means a small stone cube.
- They were used to make up 'tessellata' - the mosaic pictures forming floors and tilings in Roman buildings.
- Tessellations refers to pictures or tiles, mostly in the form of animals and other life forms, which cover the surface of a plane in a symmetrical way without overlapping or leaving gaps.

A Roman floor mosaic
The Beginnings

- The tilings in the Alhambra in Spain were laid out by the Moors in the 14th century.
- Colored tiles forming patterns
- Many truly symmetrical.
- They are not tessellations but they inspired young M.C Escher, who copied them into his notebooks and later converted some into true tessellations.
- These tilings never included animals or plants.
- Escher’s tessellations hardly ever left them out!

Escher's drawing of Alhambra tiling.
M. C. Escher

- Escher – regarded as the 'Father' of modern tessellations
- Famous for his impossible depictions like *Waterfall*
- Master of lino and wood cuts and produced many superbly crafted landscapes as well.

*Waterfall* - 1961
M. C. Escher

- Escher was born in Leeuwarden in Holland on June 17th, 1898.
- Youngest of 4 brothers.
- Referred to by his initials which stand for Maurits, Cornelis.
- His family called him Mauk.
- His father was a civil engineer.
- The family moved to Arnhem where he grew up and went to high school.

'Self Portrait in Chair' - 1920
Self-Portrait
M. C. Escher

Escher produced '8 Heads' in 1922 - a hint of things to come. Turn the picture upside-down if all the heads are not apparent.

He took a boat trip to Spain and went to the Alhambra.

There, he copied many of the tiling patterns.

'8 Heads' - 1922
The Alhambra Palace, Granada, Spain, 12th-13th Century

Reflective Symmetry noted in the lower tile patterns
Crystalline Structures & Wallpaper

- Escher showed his brother some of his work.
- The brother noted that it was similar to crystalline structures he had seen in a paper he read.
- The brother sent Professor George Pólya’s wallpaper designs from a Brussels library, saying that an artist could make use of this knowledge.

Pólya 17 Symmetries
Escher’s Last Tessellation

His last tessellation was a solution to a puzzle sent to him by Roger Penrose, the mathematician. Escher solved it and, true to form, changed the angular wood blocks into rounded 'ghosts'.

Penrose 'Ghosts' - 1971
China
Boy,
1936

Tessellation by M. C. Escher
Squirrels, 1936

Tessellation by M. C. Escher
Fish,
1938

Tessellation by M. C. Escher
Design for Wood Intarsia Panel for Leiden Town Hall, 1940

Tessellation transitions by M. C. Escher
Horsemen, 1946

Tessellation by M. C. Escher
4 Motifs, 1950

Tessellation by M. C. Escher
Scarabs, 1953

Tessellation by M. C. Escher
Fishes, 1958 Mural

Tessellation mural by M. C. Escher
Pegasus, 1959

Tessellation by M. C. Escher
Birds,
1967

Tessellation by M. C. Escher
Realism & Tessellations Combined

- Sometimes, M. C. Escher would combine realism and tessellations.
- *Reptiles* is an example of this combination.

'REptiles' - 1943
Metamorphosis I, 1937

by M. C. Escher

Realism & Tessellation Combined
Cycle, 1938
by M. C. Escher

Realism & Tessellation Combined
Day and Night, 1938
by M. C. Escher

Realism & Tessellation Combined
A Full Life

Escher died on March 27, 1972.
He had produced
- 448 woodcuts, linocuts and lithos and
- over 2,000 drawings.

M. C. Escher
Rhomboid possibilities - 1937 notebook
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✓ As a resource, these websites were used:
  http://www.tessellations.org/
  http://library.thinkquest.org/16661/escher.html
  http://www.herakleidon-art.gr/