

Name: Paula Wood

Grade Level: Geometry

Topic: **Mandalas**

Class Time Needed: 1 day

- A. Objective
  - a. Students will learn to use geometric tools (protractor, compass, and straight edge) to construct a variety of figures (PASS 2.5).
  - b. Draw and analyze 2 dimensional figures (PASS 2.2).
  
- B. Materials
  - a. Geometric tools – protractor, compass, straight edge
  - b. Plain paper
  - c. Colored pencils, markers, etc.
  
- C. Resources
  - a. Discovering Geometry, by Michael Serra; Key Curriculum Press
  - b. Mandala PowerPoint presentation or lecture
  - c. <http://www.crystalinks.com/aztecalendar.html>
  - d. [http://www.mandalaproject.org/Mandalas/index\\_new.html](http://www.mandalaproject.org/Mandalas/index_new.html)
  
- D. Instruction
  - a. Using the Mandala PowerPoint presentation, introduce students to the concept of mandalas and the link between geometry, art, and cultural beliefs.
  - b. Show students example methods that may be used to create mandalas  
<http://hs.houstonisd.org/debakeyhs/Lessons/buildmnd.html>
  - c. Discuss the use of rotational symmetry in mandals.
  
- E. Assessment:
  - a. Student created mandala
  - b. Student worksheet

F. Reflection

Students enjoy this lesson because it reinforces geometric concepts, allows practice with their geometric tools, and allows for creativity. They enjoy learning how mandalas relate to the world and to rotational symmetry. The students are required to display their work creating a sense of pride in their work. They are also required to make geometric connections by identifying polygons found in their drawings.

I have done this lesson for several years and each year the students are already looking forward to the lesson and already have ideas to create their individual mandalas

I plan to continue using this lesson.

## Mandala Information

### Mandala

- A circular design arranged in layers radiating from the center.
- The word mandala comes from Hindu Sanskrit, the classical language of India, and means circle or center.
- The Hindus used mandala designs for meditation
- Appears in other cultures as well
  - Aztecs of Mexico – created magnificent stone mandalas for their calendar. At its center was a mask of the sun god. Surrounding the mask were symbols depicting an earthquake that the Aztecs thought would end the world. Around that was a band with the signs for the days of the Aztec year.
  - Cathedrals of Europe – In thirteenth century France, the architecture of the Middle Ages changed from the low, heavy, round-arched Roman-esque style to the tall, light, pointed arch of the Gothic style. With the Gothic style came the rose windows, bringing light and color, dramatically altering the look and feel of cathedrals.
  - Navajos of the southwestern US – performed healing rituals in which a “singer” uses multicolored sands to create patterns that are often circular. The sand paintings are sacred to the Navajo and are destroyed after they sing, but singers sometimes collaborate with artists to create reproductions of the paintings.
  - Swiss psychiatrist C. G. Jung (1875 – 1961) made psychological studies of the mandala and used it to treat patients. Jung and his patients drew a mandala, starting the design at the center and continuing outward. Taking turns, the patient drew, then the doctor, then the patient, until they felt the mandala was complete.

Student Worksheet  
**Mandalas**

1. Create a mandala of your own using your geometric tools.
  - a. Use as much of the 8.5" x 11' paper as possible.
  - b. Color your design.
  - c. Be neat.
  - d. Designs will be displayed.
2. Give examples of mandala designs you have seen or know about.
3. What corporate designs or logos are also mandalas?
4. Because they are circular, mandals often exhibit rotational symmetry. Does your mandala exhibit this type of symmetry? Explain your answer.