TOTALLY TESSELLATED

Introduction

Suppose you were to cover a large surface (such as a floor) with little pieces of material. You would probably choose to design a repeating pattern since repeating patterns are usually more beautiful than a haphazard non-repeating one. When you finished, you would have designed a tessellation! Any repeating pattern of shapes that cover a plane without overlap is considered a tessellation. Thus, it is not surprising that tessellations and tilings can be found in many cultures, both ancient and modern.

The website below will help you learn more about tessellations:

http://library.thinkquest.org/16661/history.html

This assignment has 2 parts:

1. Answer the questions below to demonstrate an understanding of tessellations.
2. Create a tessellation using a design found in nature.

Part One

1. What are regular and semiregular tessellations?

2. What fields of research are associated with tessellations?

3. How far can tessellations be traced back in history and to where?

4. How did MC Escher create tessellations? Make a sketch.
   Hint: go to http://library.thinkquest.org/16661/escher/tessellations.1.html

You might want to use a book to find the following information:

5. What is symmetry? Give an example:

6. What is a transformation? Give an example:

7. Give an example of each:
   a. Translation:

   b. Rotation:

   c. Reflection:

Part Two

8. GO to: http://library.thinkquest.org/16661/templates/index.html and choose and print a pattern. Your final task is to use the microscopes to find a natural pattern to use as a tessellation. Suggestions may be to look at a blade of grass, a rock, a bug, anything up close will appear to have an ordered arrangement if you can magnify it enough!

Create a 6" x 6" Tessellation design.