

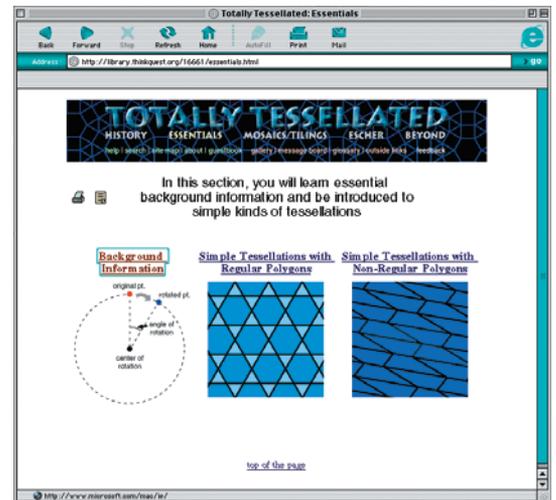
# Thinking Geometrically: Totally Tessellated

Involving students in a hands-on geometry unit is a fun way to finish the school year. The visual aspects of the content can engage students even in the last weeks of school. Once students begin to look at mathematical patterns and relationships, they can extend this thinking to other academic areas such as language arts, science, and social studies.

“Totally Tessellated,” at [library.thinkquest.org/16661/](http://library.thinkquest.org/16661/), is just the site to involve students in thinking geometrically. This site was written by competent high school students and used with an inner-city fifth-grade classroom in Phoenix to stimulate interest in geometry. The teacher used a computer and a projection system to show the site to the whole class. The students were excited by the site’s contents. They learned about the history of tessellations from both an artistic and a mathematical perspective, then explored the other categories on the site: “Essentials,” “Mosaics/Tilings,” “Escher,” and “Beyond.”

The “Essentials” section defines tessellation terms and uses examples with animated graphics to explain the concepts. The graphics helped the fifth graders see the differences between regular and nonregular polygons. The hands-on activities allow students to print and cut out shapes and rotate them to create tessellations.

The “Mosaics/Tilings” area gave students ideas for creating and modifying tessellations. They were especially interested in the examples of tessellations in this section. Students directed the



investigation by choosing links to explore.

No study of tessellations is complete without mention of an eminent creator of tessellations, Maurits Cornelis Escher. In the “Escher” section, students discovered many of his works and found links to other Escher sites.

The “Beyond” section introduces advanced and related topics concerning tessellations; it is a good section for students to explore individually. “Tessellation Tutorials,” located at [mathforum.org/sum95/suzanne/tess.intro.html](http://mathforum.org/sum95/suzanne/tess.intro.html), is an additional site for learning about tessellations. The site’s tutorials help students create their own tessellations by using a variety of computer applications.

After the fifth graders explored the “Totally Tessellated” site, they created their own tessellations. Using pattern blocks, they made representations of tessellations as the teacher circulated throughout the classroom and asked mathematical questions such as “What is the tessellating unit? Does this tessellation have symmetry? If so, can you show me the line of symmetry?” Next, students transferred their tessellations to paper using precut pattern-block shapes. As a follow-up to this lesson, the art teacher directed the students in making unique tessellations with their own polygons.

This free site can be a valuable tool in teaching mathematical ideas. It allows students to develop visual, geometric, spatial, and artistic skills as they explore the geometry of tessellations.

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