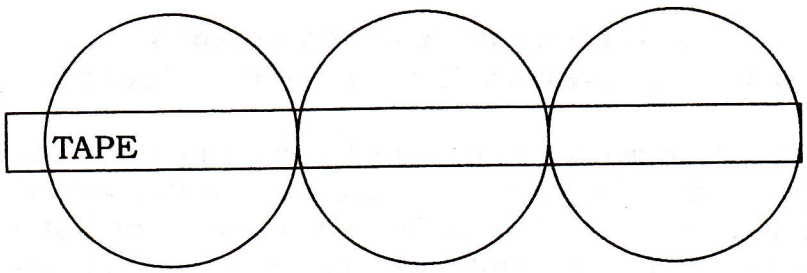

Figure 1

exactly once. The tape is then pulled free of the lid and attached full-length to the top of a desk or table.

One edge of the lid is placed at one end of the tape and a diameter-length is marked on the tape. The far edge of the lid is moved to the new mark and a second diameter length is marked. The teacher asks students to continue this until no tape is left, to then discuss what they see, and to be ready to share their findings with the class.

As groups share their findings, this conclusion should become clear: No matter what size circle is measured, the distance around is a bit more than three times the distance across; the ratio of circumference to diameter is constant at slightly more than three. At this point the teacher should inform students that when the ancient Greeks discovered this ratio, they honored it with a name: pi.

These three links conclude the first section of this chain of thought and activity, as students now move from one-dimensional ideas to a trio of notions in two dimensions.

Two Dimensions

The section involving two dimensions begins with the **fourth** link, a definition of area, here defined to be the number of squares of uniform size needed to cover a surface. The teacher may add that sometimes these squares are theoretical; students may wonder why squares were singled out, as triangles and other polygons might have been used instead. The answer: human cultures worldwide chose squares.

The rectangle can begin the **fifth link**, the use of analysis, in this chain of thought. Students provided with a 3 × 4 rectangle can easily discover that rectangle area can be calculated by formula as well as by drawing and counting squares.

From rectangle area, area of parallelogram and triangle may be derived by illustration or by cutting paper. From the triangle area formula comes a formula for area of a regular polygon,