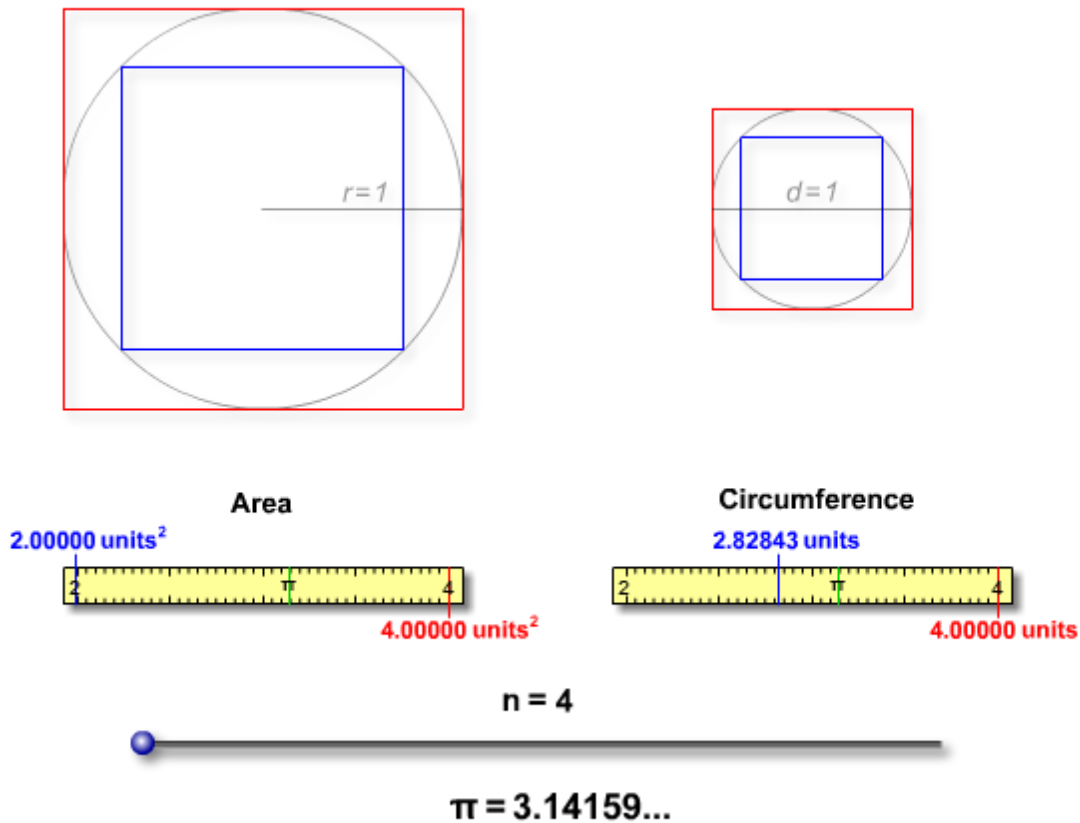


Illuminations - Computing Pi

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The applet shows 2 circles, each with an inscribed shape in blue and a circumscribed shape in red, one of the circles has a radius of 1 and the area of the inscribed and circumscribed shapes are given, the other circle has a diameter of 1 and the circumference of the inscribed and circumscribed shapes are given. The slider on the bottom increased the number of sides of the both the circumscribed and inscribed polygons and the area and circumference of the polygons will approach pi.

Grade Level: 7

PSSM Content Standard: Analyze characteristics and properties of two- and three- dimensional geometric shapes and develop mathematical arguments about geometric relationships.

CCSSM Content Standard: Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

Math Content: geometry, area, circumference, pi, limits

Evaluation

What is being learned? What mathematics is the focus of the activity/technology? Is relational or instrumental understanding emphasized?

The user of the applet gains an understanding of a couple ways the value of pi can be computed. The focus of the applet is mostly on relational understanding.

How does learning take place? What are the underlying assumptions (explicit or implicit) about the nature of learning?

The learning takes place visually and assumes that the users learn by interacting with the applet and observing what happens.

What role does technology play? What advantages or disadvantages does the technology hold for this role? What unique contribution does the technology make in facilitating learning?

The technology allows the user to see a visual explanation of how pi can be computed and the relationship between the area and circumference of a circle and its radius and diameter.

How does it fit within existing school curriculum? (e.g., is it intended to supplement or supplant existing curriculum? Is it intended to enhance the learning of something already central to the curriculum or some new set of understandings or competencies?)

The applet is intended to supplement the existing curriculum by giving students a visual explanation of a couple of ways pi is computed and the relationship between a circle's area and circumference to its radius and diameter.

How does the technology fit or interact with the social context of learning? (e.g., Are computers used by individuals or groups? Does the technology/activity support collaboration or individual work? What sorts of interaction does the technology facilitate or hinder?)

The technology would fit better as a support to students' understanding of what pi is and how it can be computed that the teacher can provide during a lesson.

How are important differences among learners taken into account?

Most of the applet is visual and does not help auditory learners or students that learn best by reading. Students also need some background knowledge about area and circumference and what is happening in the visualization in order to understand what it is trying to show and explain.

What do teachers and learners need to know? What demands are placed on teachers and other "users"? What knowledge is needed? What knowledge supports does the innovation provide (e.g., skills in using particular kinds of technology)?

Teachers will need to be able to explain the visualization to students because there is a lack of written or verbal explanation. Students will need to know about area and circumference of a circle and how these measurements relate to the radius and diameter of the circle.