Curriculum Links
TI-15 Explorer™: Pieces of Pi

C

Year 7 Measurement

Statement of Learning Opportunities

- Students investigate and use the relationship between the radius and diameter of a circle and its circumference and area

Key Ideas

- The perimeter of a circle is called its circumference
- For all circles the ratio of circumference length to the diameter length will be the same
- This fixed ratio is called pi (π)
- Pi is an irrational number and cannot be exactly represented as a fraction or as a decimal. The only exact way of writing it is as a symbol – π
- The circumference of a circle can be calculated by the formula: $C = \pi D$ or $C = 2\pi r$

Key Vocabulary

Circle, Diameter, Radius, Perimeter, Circumference, Ratio, Pi (π), Rational, Irrational, Exact, Approximate, Formula

Lesson Overview

i) Discovery of π (or review of the meaning of π)
ii) Two different circumference formulas for different input information
iii) Adding and subtracting circumferences for more than one circle
iv) Assessment

Equipment

TI-15 Explorer™ calculators for students, copies of worksheets 1 & 2, copies of assessment sheet, string, ruler, PowerPoint display (optional)

Sequencing

develop and apply formulas for the perimeter of polygons given the relevant linear dimensions	investigate and use the relationship between the radius and diameter of a circle and its circumference	investigate and use the relationship between the diameter and radius of a circle and its area

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Indicators of Success

- Students can identify circles in their environment
- Students can identify and name parts of a circle; radius, diameter and circumference
- Students understand that the perimeter of a shape is the length of the measure around the boundary of the shape
- Students understand that circumference is the name given to the perimeter of a circle
- Students demonstrate that perimeter and circumference should be measured in length units (e.g. mm, cm, m, km)
- Students demonstrate knowledge that π is a letter of the Greek alphabet and that it is pronounced 'pi'
- Students demonstrate knowledge that π is chosen to represent the constant value of any circle's circumference divided by its diameter
- Students indicate that any decimal number representation of pi must be an approximation
- Students can find and use the π key on their calculator
- Students can calculate the circumference of any circle from a knowledge of the circle's radius or diameter and provide their answer in either exact or approximate form