GEOMETRY

LEVEL 1:

Polygons: Identify and name polygons with 3, 4, 5, 6 and 8 sides.

LEVEL 4:

Polygons Area and Perimeter: Examples show how to calculate area and perimeter of regular and composite polygons.

Calculate: Area and Perimeter of **Composite Polygons** Tool.

Unit Land Activity: Print an **Activity Sheet** for each student, **Plot Points**, **Graph Shape** and calculate **Area and Perimeter.**

LEVEL 5:

Circles: Review Examples and Formulas, including Steps Around the 1/2 Circle and Pi Mosaic Activities.

Circumference and Area of Circles: use a calculator and 3.14 for Pi, round answers to 2 decimals

Volume and Surface Area of Spheres: Print 3 Examples Sheet, use calculator, Pi=3.14, use **Spheres Tool** for more practice.

LEVEL 6:

Circles: **Given 1 component** of a circle **determine the other 5**, answer in terms of PI, - no calculators.
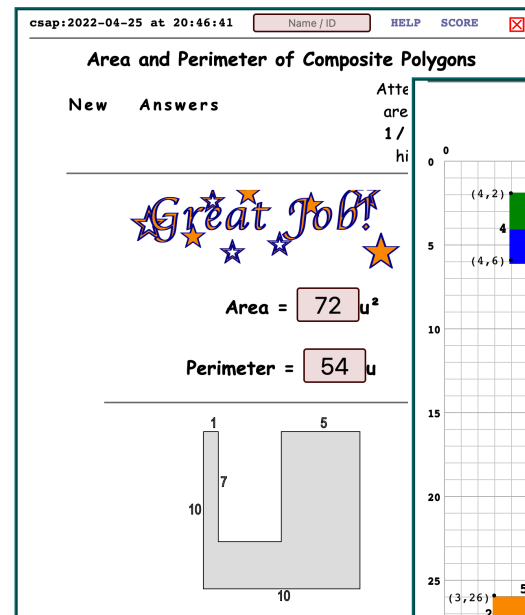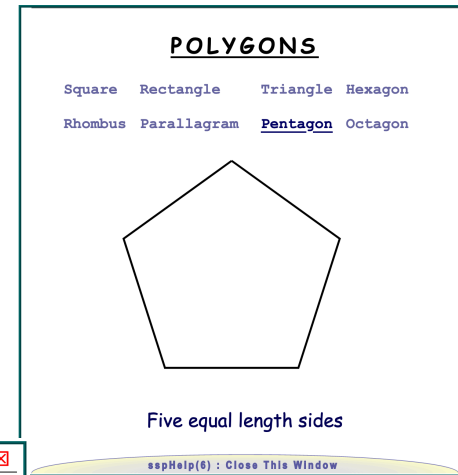
Distance Between Two Points: Review the Algebraic Example and copy the Geometric Example into notes.

Calculate Distance: between points using $A^2 + B^2 = C^2$, use a calculator and **round answers** to 2 decimals.

Geometry starts with identifying shapes of 8 regular polygons and calculating perimeters. Examples showing how to find area and perimeter are helpful

The Composite Polygon Tool generates endless practice with

POLYGONS

Square Rectangle Triangle Hexagon

Rhombus Parallagram **Pentagon** Octagon

Five equal length sides

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Area and Perimeter of Composite Polygons

New   Answers

Great Job!

Area = 72 u²

Perimeter = 54 u

TOWN'S LOGO

PERIMETER

4 + 2 + 2 +
2 + 22 + 5 +
2 + 12 + 2 +
5 + 24 + 6

88 units

AREA

12 x 2 = 24
22 x 2 = 44
6 x 2 = 12
2 x 2 = 4

24+44+12+4

84 units²

(X,Y) Points
(3,26)
(3,28)
(15,28)
(15,26)
(10,26)
(10,2)
(4,2)
(4,6)
(6,6)
(6,4)
(8,4)
(8,26)
(3,26)

Plot the Points
Connect the Dots
Calculate Perimeter
Calculate Area
Reset

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these calculations.

The Unit Land Activity requires printing an activity sheet for each student and have them graph (X,Y) Coordinates, draw the shape, and calculate perimeter then break it up into squares and rectangles to calculate the area.
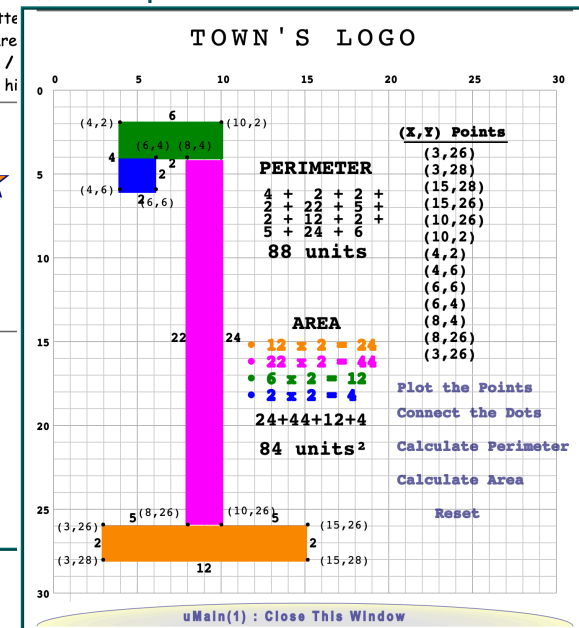
CIRCLES AREA ARC RADIUS PI

Examples defining terms and formulas may be reviewed first.

Radius and Pi (π)   Area   **Circumference**

Circumference
← is around the outside →

$2 \pi R$

Steps Around ½ Circle   Pi Mosaic

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○ Easy ◉ Hard   Run Score Page
New   Answer   reset   hide

You Rock!

3.00π u →

Radius	6	u	☺
Diameter	12	u	☺
1/2 Circ	6	πu	☺
1/4 Circ	3	πu	☺
1/2 Area	18	πu²	☺
1/4 Area	9	πu²	☺

The Circles Tool in Easy mode and the Spheres Tool, operate similarly generating a Radius

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Goto Circles   Attempt / Correct
New   Answer   Area: 2 / 1   Volume: 2 / 1
                                  reset   hide

A sphere with a 29 inch Diameter

Surface Area = 2640.74 in²

! Great Job !

! Well Done !

Spheres Tutorial

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Volume = 12763.58 in³

or Diameter, using 3.14 for Pi they calculate areas and volume, entering answers rounded to 2 decimal places.

in Hard mode one element is given and students find the other 5, entering answers in terms of Pi, No calculators. Pi Mosaic and Steps Around the

Half Circle Activities may be worked anytime.

DISTANCE BETWEEN TWO POINTS

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New   Answer   Attempt/Correct
                                        2 / 1
                                     reset   hide

Great Job!

Distance = 18.87

(Answer to 2 Decimal Places)

$A^2 + B^2 = C^2$

$A = (8 - -2) = 10$

$B = (9 - -7) = 16$

$10^2 + 16^2 = C^2$

$100 + 256 = C^2$

$C^2 = 356$

$C = \sqrt{356}$

$C = 18.87$

Distance Between 2 Points features a tool generating 2 points on a grid, students are asked to find the distance between them.

A tutorial with an algebraic example shows step-by-step operations to solve for distance.

A geometric Example animates a proof of the Pythagorean Theorem:

$$A^2 + B^2 = C^2$$

THE GEOMETRY

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Click to Find the Length of C
1: Draw a Square with Area = C²
2: Draw outer square touching C at corners

NOTICE

4 Triangles

Legs a and b

Length=(a + b)

Area=(a + b)²

Area = C² +
4 Triangles

Pythagorean
Theorem

Area = C² +
(4) (½) ab

$(A + B)^2 = C^2 + (4) \frac{1}{2} AB$

$A^2 + 2AB + B^2 = C^2 + 2AB$

$A^2 + B^2 = C^2$

Try Some Calculations

THE ALGEBRA

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Find Length of Line $\bar{C}$ on a Grid

a
$\bar{C}$
A 1.5
← 7 →
← B Units →
b

Lines Parallel to Grid Lines can be Measured

Diagonal Lines Are Caluclated Using:

$$A^2 + B^2 = C^2$$

$(7)^2 + (1.5)^2 = C^2$

$49 + 2.25 = C^2$

$C = \sqrt{51.25}$

$C = 7.16$ units

The Pathagorean Theorem