

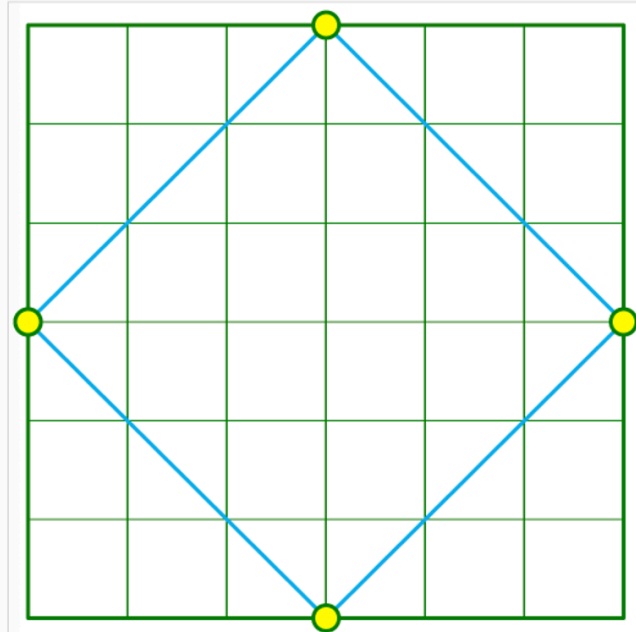
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6 Square Challenge

For ActivInspire, PowerPoint, interactive Excel file and these Teacher Notes go to:

<https://spiremaths.co.uk/6squarechallenge/>



The yellow dots can only move along their own sides of the outside square and only stop at the grid points including the corners.

What shapes can be made by the blue lines?

Six Square Challenge

Files available

- ActivInspire flipchart with all needed for lesson
- PowerPoint for lesson
- Interactive Excel Pupil File
- Interactive Excel Teacher File with Answers
- Teacher Notes including 2 Pupil Worksheets (this file)
- 3 gif files included with flipchart and PowerPoint

Overview

1. This activity can be left open or you can provide more guidance (list of quadrilaterals and/or triangles is available).
2. Excel file allows pupils to experiment as they move the yellow dots to create quadrilaterals, triangles and a straight line. Answers can be shown on worksheet (contains blank grids).
3. Alternatively can be done just on paper. Excel file can be used by teacher to demonstrate an example.
4. Answers provided both on paper (in this file, flipchart and PowerPoint) and in format of gifs.
5. Areas can be calculated (easiest way is to subtract triangles outside the quadrilateral or triangle from 36).

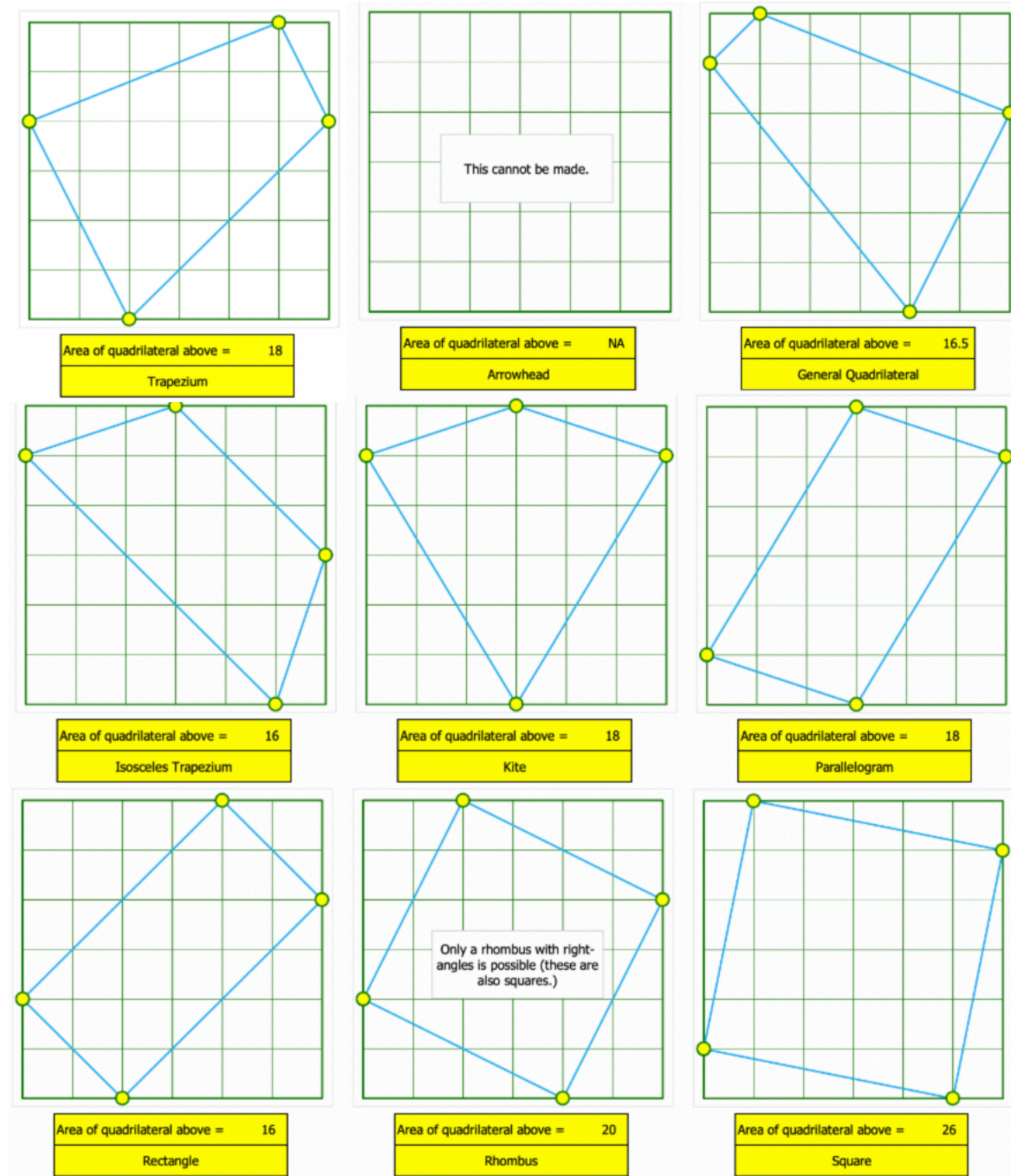
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Answers

Quadrilaterals

Arrowhead cannot be made. Rhombus is only made when a square is also made.


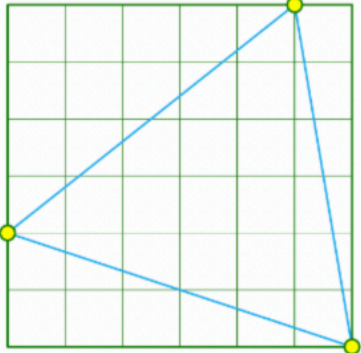
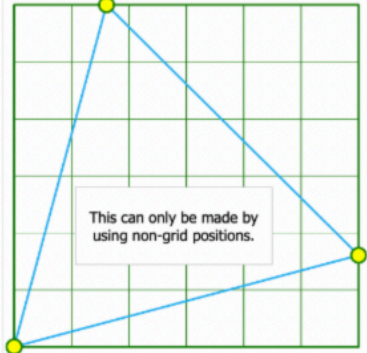
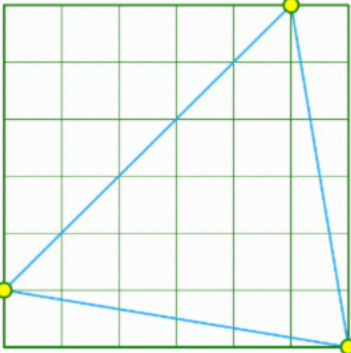
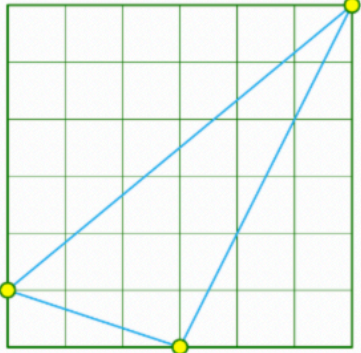
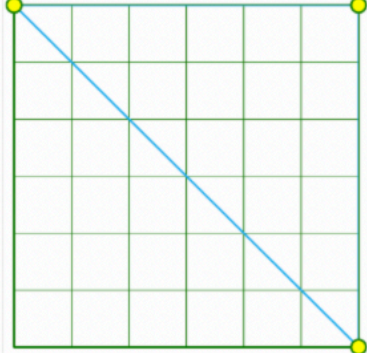
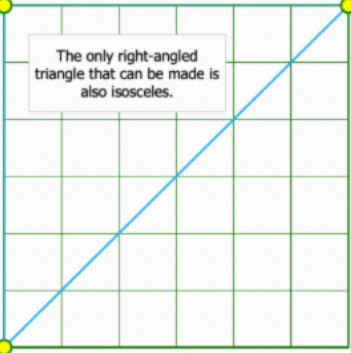
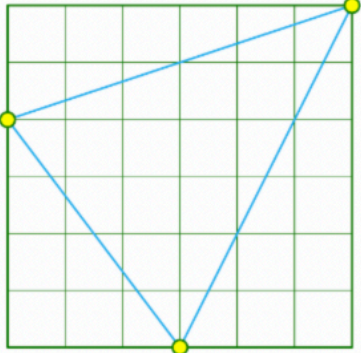
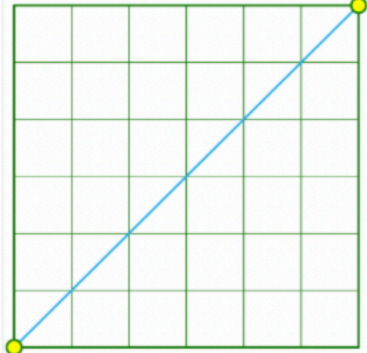


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Triangles

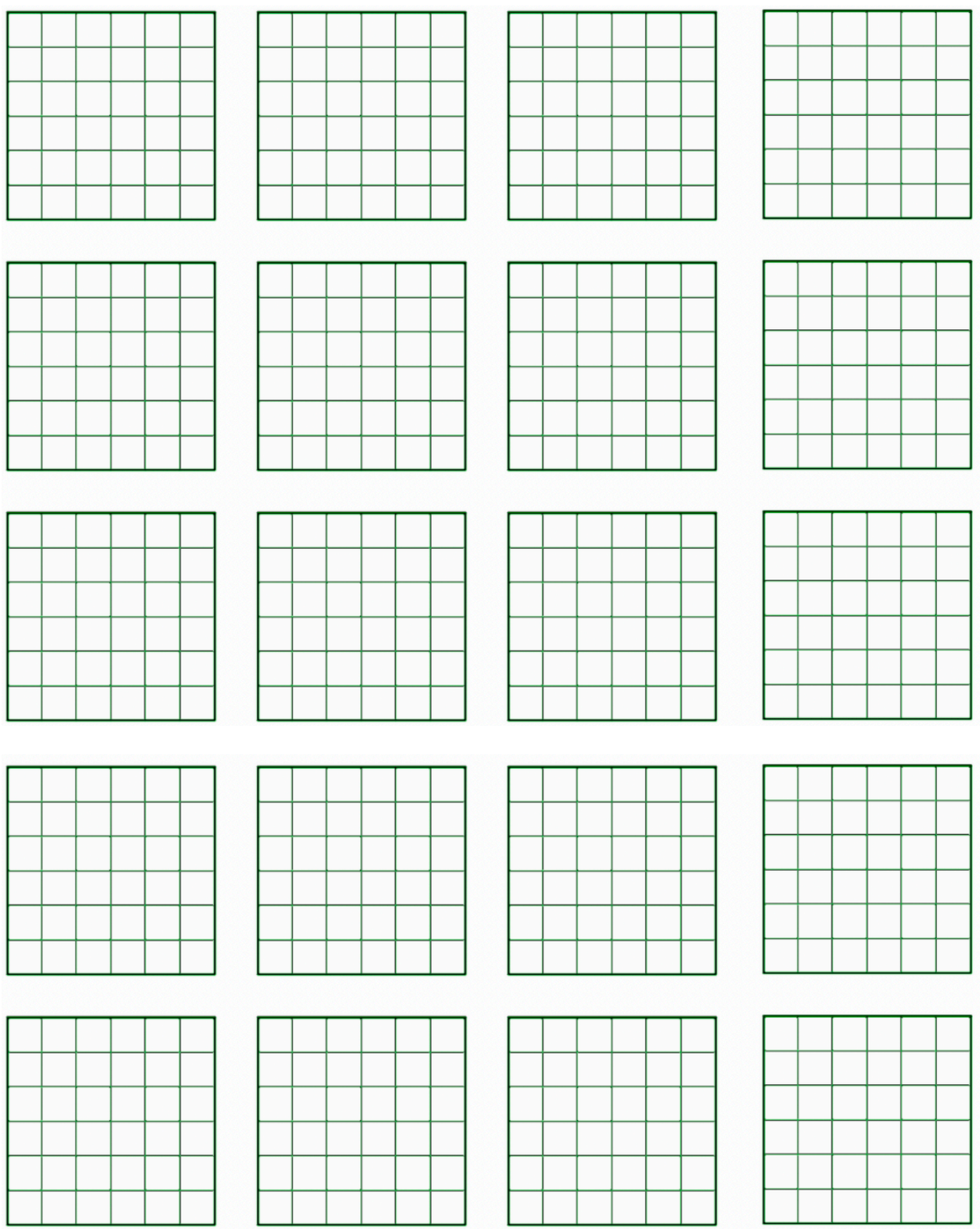
Equilateral triangle can only be made with non-integers, when points are Left and Bottom = (0, 0), Top = (1.6077, 0) and Right = (6, 1.6077). Right-angled triangle is only made when it is also isosceles.

 <p>Challenge Solution Here are the different triangles that can be made.</p>	 <p>Area of triangle = 17 Acute Angled Triangle</p>	 <p>Area of triangle ≈ 21.5 Equilateral Triangle</p>
 <p>Area of triangle = 17.5 Isosceles Triangle</p>	 <p>Area of triangle = 10.5 Obtuse Angled Triangle</p>	 <p>Area of triangle = 18 Right-angled Isosceles Triangle</p>
 <p>Area of triangle = 18 Right-angled Triangle</p>	 <p>Area of triangle = 15 Scalene Triangle</p>	 <p>Area of triangle = NA Straight Line</p>

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Worksheet: Blank 6 Squares



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Worksheet: Blank 6 Squares: Shapes named

Arrowhead General Quadrilateral Isosceles Trapezium Kite Parallelogram	Rectangle Rhombus Square Trapezium	Acute Angled Triangle Equilateral Triangle Isosceles Triangle Obtuse Angled Triangle	Right-angled Isosceles Triangle Right-angled Triangle Scalene Triangle Straight Line
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A 5x4 grid of 20 empty 10x10 coordinate grids. Each grid is a square divided into a 10x10 pattern of smaller squares by thin green lines. The grids are arranged in 5 rows and 4 columns, with a small gap between each grid. The entire set of grids is on a light gray background.