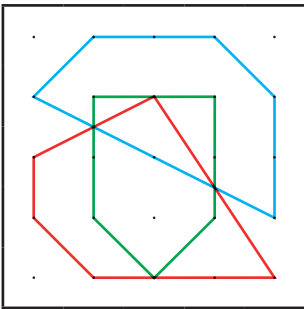




- 1) A polygon is regular when all sides are the same length and angles are the same size.
A polygon is irregular if the sides are not all the same length and the angles are not all the same size.
- 2) Polygon A is regular because *the three sides are the same length and all three angles are the same size*.
Polygon B is irregular because *although the sides are the same length, the angles are not all the same size*.



- 1) A is not an example of an irregular hexagon.
A polygon must not have any intersections at any other point than where two sides meet.
- 2) Accept any correct answer, for example:



Do not accept congruent pentagons.



- 1) The sum of the interior angles of both hexagons is the same value: 720° .
The children should explore pentagons, octagons, triangles and generalise that the sum of interior angles will be the same value whether the polygon is regular or irregular.



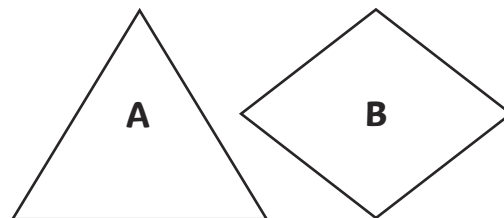
- 1) Give a definition of what is meant by regular and irregular polygons.
Remember to use mathematical vocabulary with accuracy.

Regular polygon: _____

Irregular polygon: _____

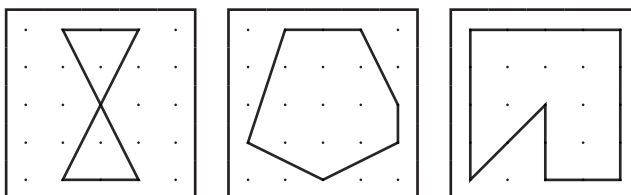
- 2) Are these polygons regular or irregular?
Prove it by measuring with your protractor and ruler.

Polygon **A** is _____ because _____



Polygon **B** is _____ because _____

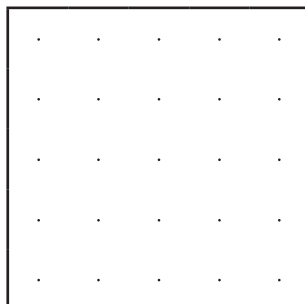
- 1) Margot makes some irregular polygons on a geoboard.



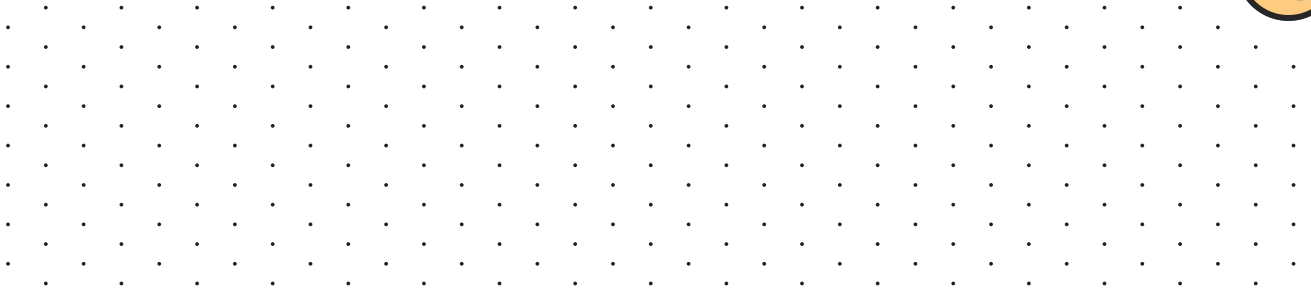
Which of these is not an example of an irregular polygon?

Explain how you know.

- 2) How many different irregular pentagons can you draw on the 5×5 geoboard?
Use a different colour for each pentagon or use isometric dotted paper to record on separate 5×5 grids.
Remember – they must not be congruent.



1) Draw a regular hexagon. Remember to use a protractor and ruler to check your shape is regular.



What is the sum of the interior angles? _____ degrees

Now draw an irregular hexagon.



What is the sum of the interior angles? _____ degrees

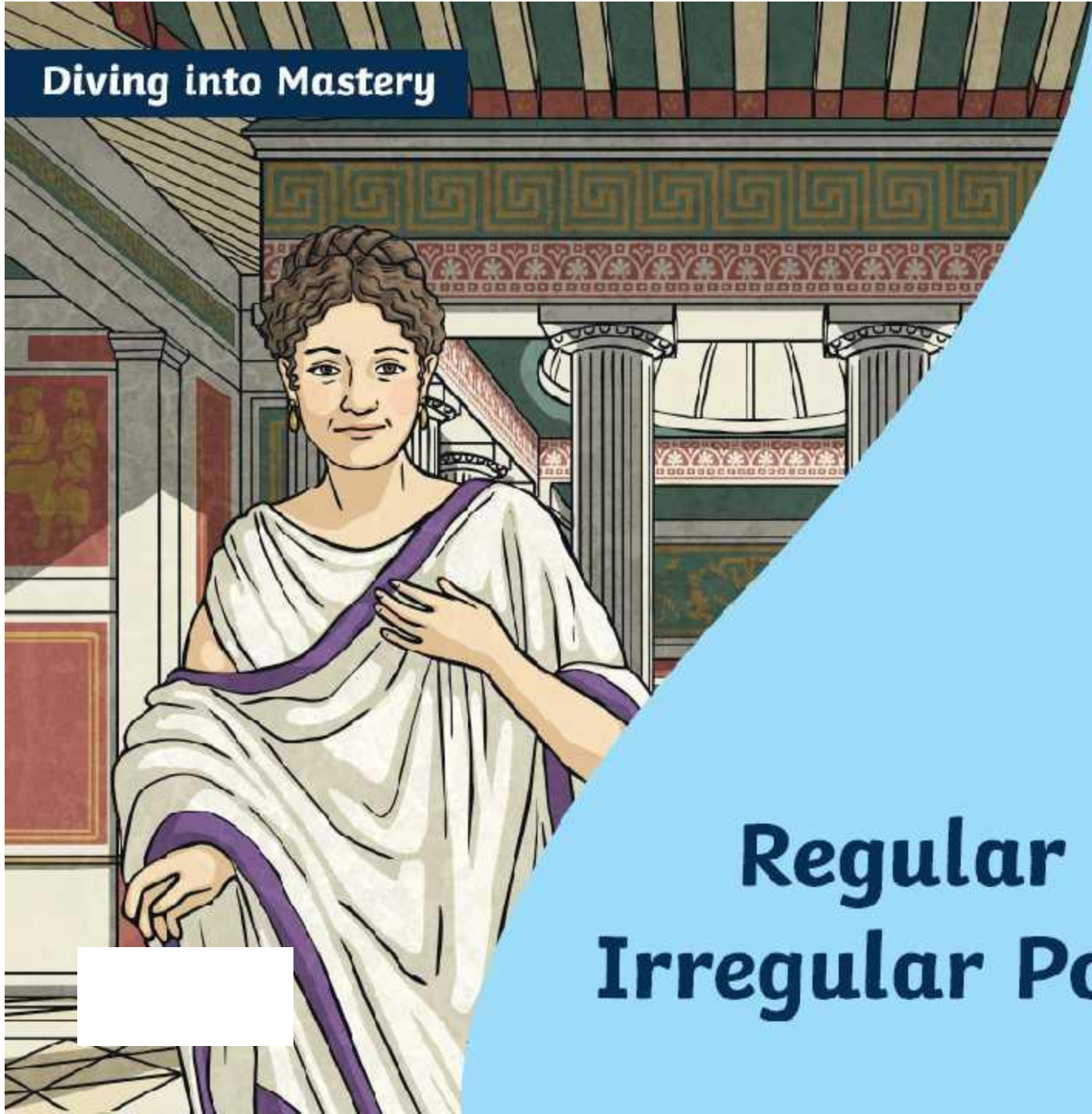
What do you notice?



Is the same true for regular and irregular pentagons?

Explore and compare other regular and irregular polygons.

Diving into Mastery



Regular and Irregular Polygons

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:



Diving



Deeper



Deepest

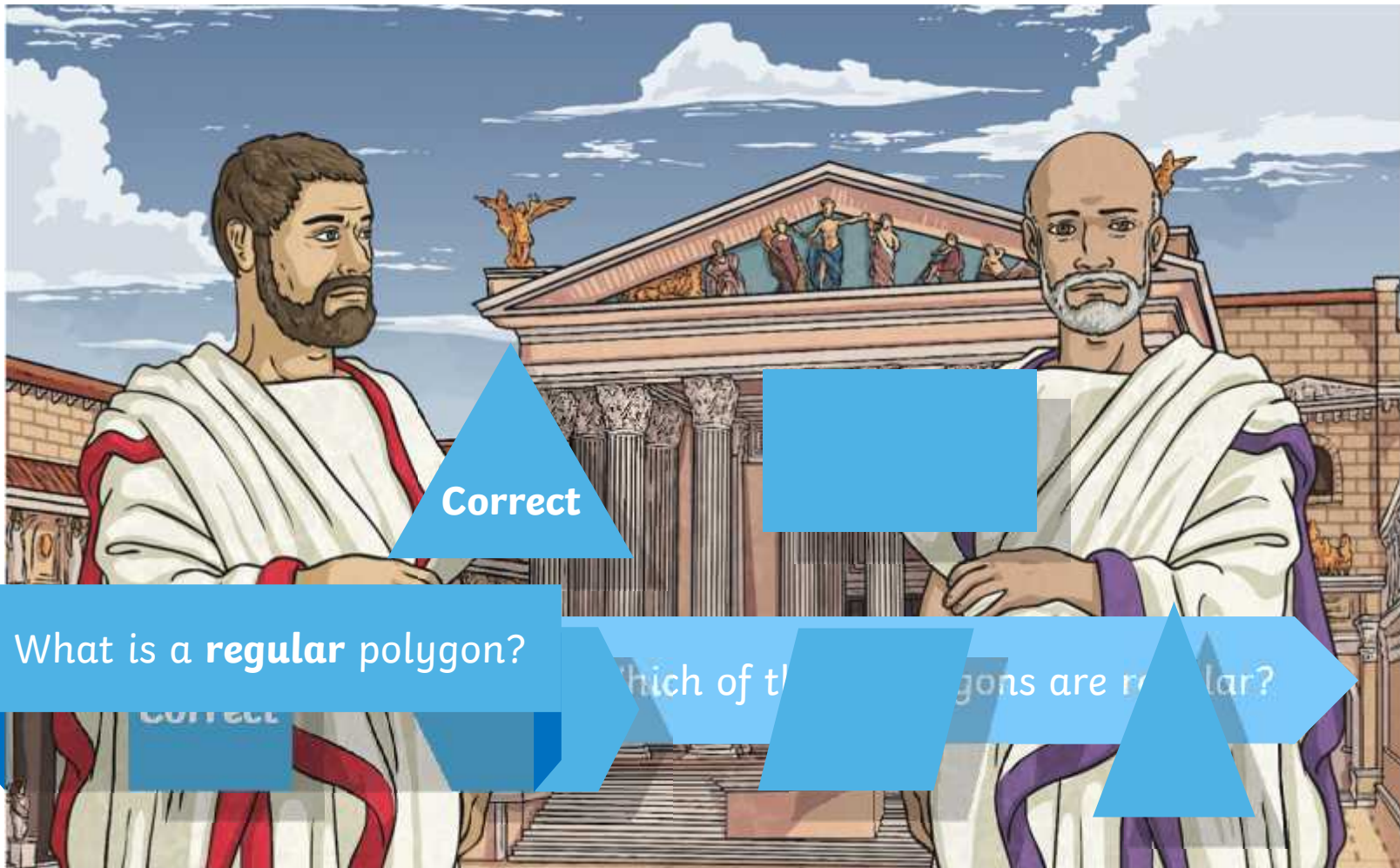
These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Aim

- Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.





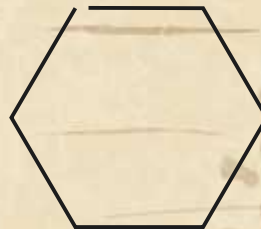
Correct

What is a **regular** polygon?

Which of the polygons are regular?



Which of these are not examples of regular polygons?



To be a regular shape, it must have equal sides and angles.



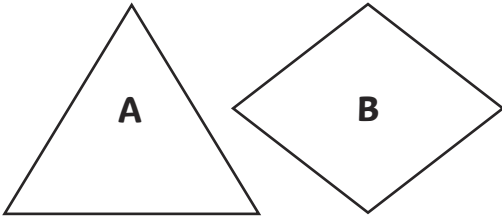


- 1) Give a definition of what is meant by regular and irregular polygons. Remember to use mathematical vocabulary with accuracy.



Regular polygon: ...

- 2) Are these polygons regular or irregular? Prove it by measuring with your protractor and ruler.
Polygon **A** is ... because ...
Polygon **B** is ... because ...

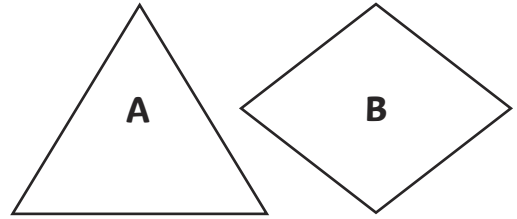


- 1) Give a definition of what is meant by regular and irregular polygons. Remember to use mathematical vocabulary with accuracy.



Regular polygon: ...

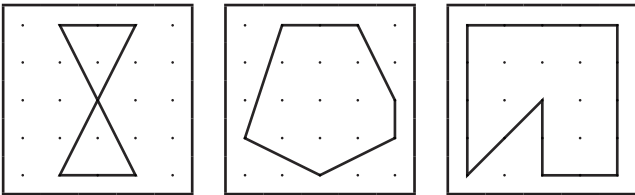
- 2) Are these polygons regular or irregular? Prove it by measuring with your protractor and ruler.
Polygon **A** is ... because ...
Polygon **B** is ... because ...



- 1) Margot makes some irregular polygons on a geoboard.

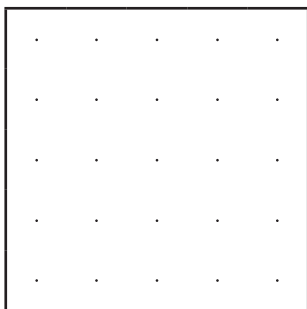


Which of these is not an example of an irregular polygon?



Explain how you know in your book.

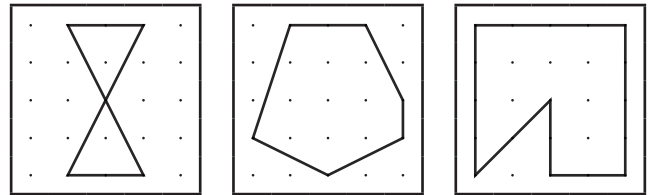
- 2) Copy the 5×5 geoboard into your book. How many different irregular pentagons can you draw on it? Use a different colour for each pentagon or use isometric dotted paper to record on separate 5×5 grids. Remember - they must not be congruent.



- 1) Margot makes some irregular polygons on a geoboard.

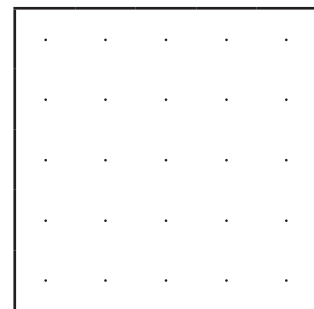


Which of these is not an example of an irregular polygon?



Explain how you know in your book.

- 2) Copy the 5×5 geoboard into your book. How many different irregular pentagons can you draw on it? Use a different colour for each pentagon or use isometric dotted paper to record on separate 5×5 grids. Remember - they must not be congruent.



- 1) Draw a regular hexagon in your book or on dotted isometric paper. Remember to use a protractor and ruler to check your shape is regular.



What is the sum of the interior angles? _____ degrees

Now draw an irregular hexagon.

What is the sum of the interior angles?

_____ degrees.

What do you notice?

Is the same true for regular and irregular pentagons?

Explore and compare other regular and irregular polygons.

- 1) Draw a regular hexagon in your book or on dotted isometric paper. Remember to use a protractor and ruler to check your shape is regular.



What is the sum of the interior angles? _____ degrees

- 2) Now draw an irregular hexagon.

What is the sum of the interior angles?

_____ degrees.

What do you notice?

- 3) Is the same true for regular and irregular pentagons?

Explore and compare other regular and irregular polygons.