

REACHING OUT

We want to reach out!

As schools return, we look to support each school's efforts to get involved with the rich tapestry of culture and creativity within the borough. Tameside Cultural Services have been looking at how we can best use our years of experience and resources to support schools. We will link in with the Philosophy for Children, as well as the National Curriculum, the schools' recovery curriculum and the Five Ways to Wellbeing: Connect, Be Active, Take Notice, Keep Learning and Give.

Each month, we will share information relating to our education offer as well as giving further ideas and ways to engage with our offer in your classroom. There will be activities from each of the Cultural Services teams and we will take the opportunity to highlight one of our site based workshops as when we are able to, we cannot wait to welcome you back to our sites and great outdoors.



PATTERN

Why do we have pattern? Who uses pattern? Where do we see it? What can pattern tell us? How many different kinds of pattern can we think of? Pupils will explore the way pattern is used and what it can tell us. We will look at patterns from around the world and at artists who use pattern in their creative process. Participants will focus on the structure of pattern and how repeat patterns work, generating their own designs using different materials inspired by our collection and experiment with decoration.

culture
Tameside



GEOMETRIC PATTERN

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Pattern surrounds us. The ability to recognise and create patterns help us make predictions based on our observations; this is an important skill in math.

Understanding patterns help prepare children for learning complex number concepts and mathematical operations.

This is a hands-on geometry and shape activities. Pupils will learn, play, build and create using simple shapes and geometry with the outcome being creative – a geometric patterned quilt.

Tameside Museums and Galleries collections can expand, inspire and stimulate a child's learning and also tie directly with local heritage and your curriculum. This activity will get pupils thinking about maths and art. How you can bring together these elements of the curriculum, making amazing geometric patterns.

As a class, children can compare their different designs. You can even cut out the designs and combine them to create a classroom quilt!

Objectives This lesson enables pupils to develop skills: Creative thinking, Social development, Problem solving.

The challenge:

Your challenge is to create as many different geometric patterns as you can with triangles. If you want to develop this idea you could swap the triangles for circles.

TOP TIP: If you have a supply of pre-cut squares (and circles if wanting to develop this activity) you could use these to make this activity easier to prep and would allow for more pattern making.

For more information or to discuss please email:
portland.basin@tameside.gov.uk
or visit;
www.tameside.gov.uk/museumsgalleries/workshops



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- * First cut out 9 x 9cm squares.
- * Then cut the squares in half diagonally making triangles.
- * Each child will need 8 triangles (4 of each colour).
- * **Set out the materials for the activity:** 8 triangles, a glue stick, and the four-square quilt template. (You can print it out on white card to make it more sturdy, but plain paper will work too). If you have not got the template then you will need to draw out an 18cm square that is divided into quarters, showing 4 squares – as shown in the template.
- * Practice arranging the triangles inside the squares. Do not let the triangles overlap or go outside of the squares.
- * You can practice different approaches to pattern: symmetry, division, mirroring.
- * Try out making different designs using the triangles.
- * Once you find a design you like, glue your geometric pattern onto the paper.

Remember, you can cut out each geometric pattern and add all the squares together to create a geometric quilt.

Extension: This activity can be extended. You could cut out circles rather than squares, again cutting into exact quarters, as you did with the squares, and position, arrange and create a different geometric pattern with your new shapes.

Step by step photo instructions overleaf.

You will need:

Paper in two contrasting colours, pencil, ruler, scissors, glue and white card.

Optional:

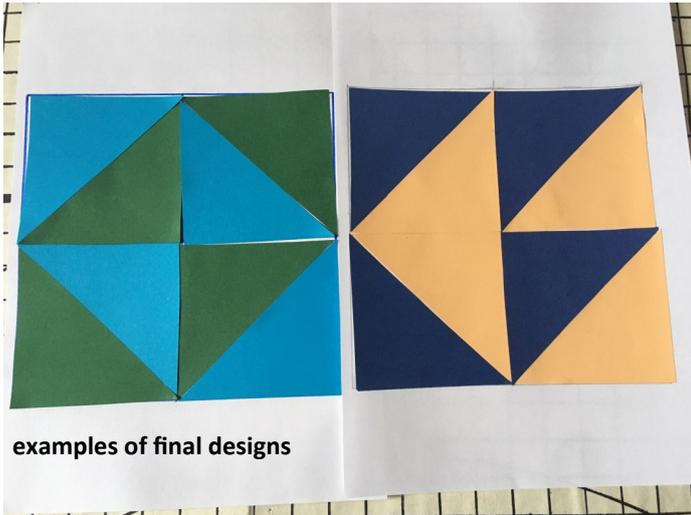
18cm four-square quilt template.



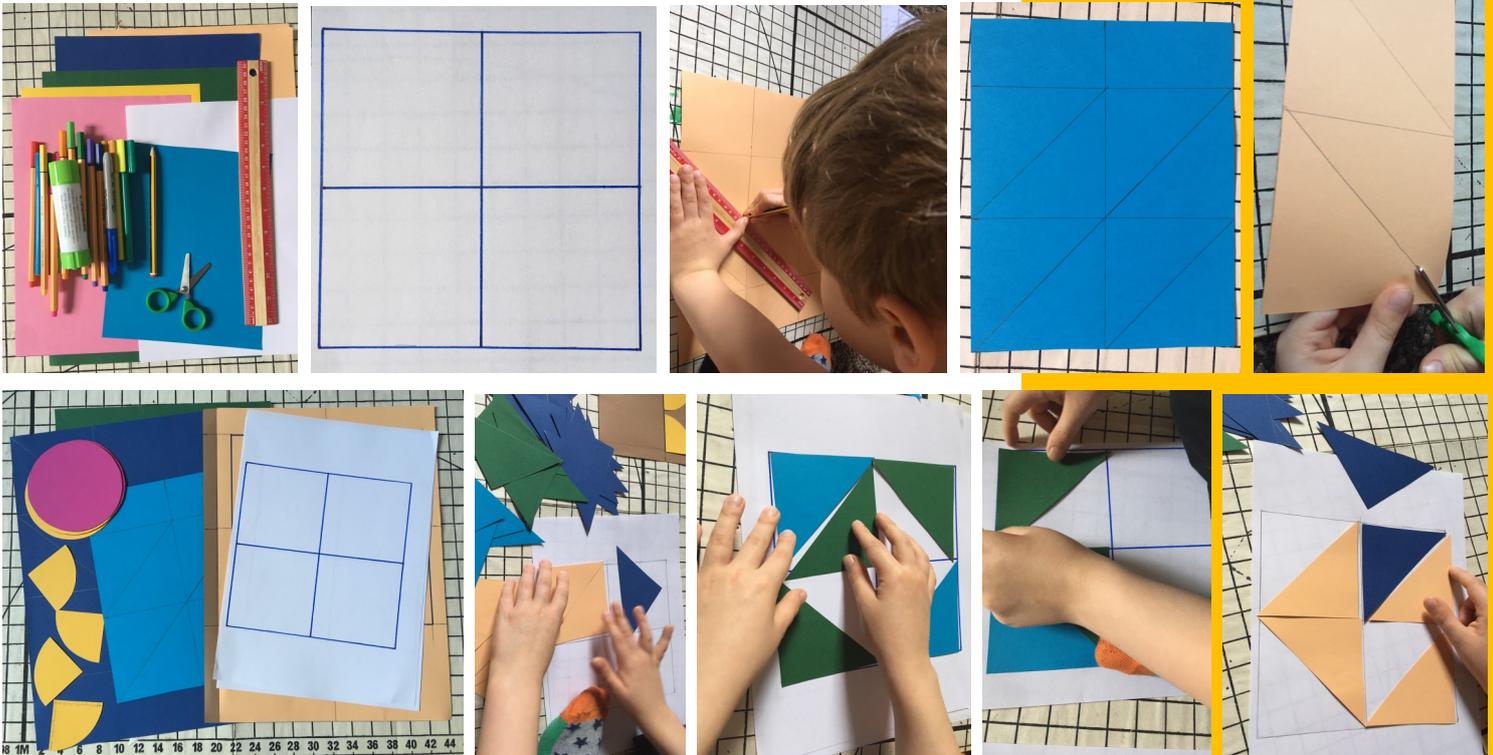
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STEP BY STEP PHOTO INSTRUCTIONS.



You will find the 18cm 'four square quilt template' on the next page.

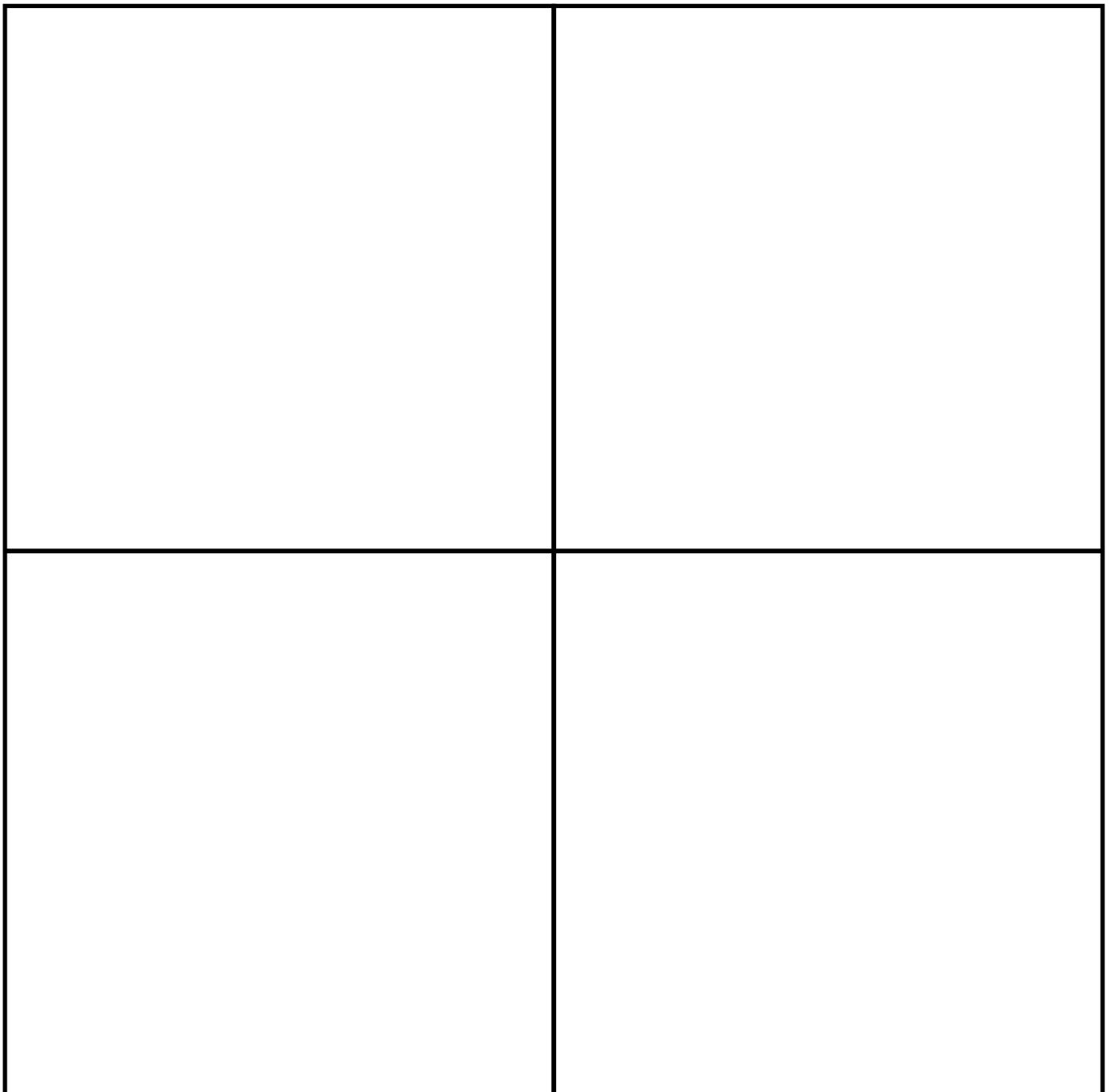


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Four square quilt template.

Use eight paper triangles to create your own quilt design. You will need 4 in one colour, 4 in another colour. Spend time planning your design. You can move the triangles into different positions. Perhaps you could design a pattern that has a line of symmetry? Or perhaps something that does not mirror in any way.



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National Curriculum links

Art and design programmes of study

Key stage 1 Pupils should be taught:

to use a range of materials creatively to design and make products.

to use drawing, painting and sculpture to develop and share their ideas, experiences and imagination.

to develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form and space.

about the work of a range of artists, craft makers and designers, describing the differences and similarities between different practices and disciplines, and making links to their own work.

Key stage 2 Pupils should be taught:

To develop their techniques, including their control and their use of materials, with creativity, experimentation and an increasing awareness of different kinds of art, craft and design.

Pupils should be taught:

to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay].

about great artists, architects and designers in history.

Maths curriculum

Aims

The national curriculum for mathematics aims to ensure that all pupils:

Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.



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Can solve problems by applying their mathematics to a variety of routine and non routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Key stage 1.

Year 1.

Number – fractions.

Statutory requirements Pupils should be taught to:

Recognise, find and name a half as one of two equal parts of an object, shape or quantity.

Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Measurement.

Pupils should be taught to:

Compare, describe and solve practical problems for:

Lengths and heights [for example, long/short, longer/shorter, tall/short, double/half].

Measure and begin to record the following:

Lengths and heights.

Geometry – properties of shapes.

Pupils should be taught to:

Recognise and name common 2-D including:

2-D shapes [for example, rectangles (including squares), circles and triangles].

Notes and guidance (non-statutory) Pupils handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. They recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other.



GEOMETRIC PATTERN



Geometry – position and direction

Statutory requirements Pupils should be taught to:

Describe position, direction and movement, including whole, half, quarter and three quarter turns.

Notes and guidance (non-statutory) Pupils use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside. Pupils make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.

Year 2.

Number – fractions.

Statutory requirements Pupils should be taught to:

Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity. Write simple fractions for example, $\frac{1}{2}$ of $6 = 3$ and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.

Geometry – properties of shapes.

Statutory requirements Pupils should be taught to:

Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.

Geometry – position and direction.

Statutory requirements Pupils should be taught to:

Order and arrange combinations of mathematical objects in patterns and sequences.

Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).



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Year 3.

Measurement.

Statutory requirements Pupils should be taught to:

Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).

Geometry – properties of shapes.

Statutory requirements Pupils should be taught to:

Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.

Recognise angles as a property of shape or a description of a turn.

Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.

Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

Year 4.

Geometry – properties of shapes

Statutory requirements Pupils should be taught to:

Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.

Identify lines of symmetry in 2-D shapes presented in different orientations.

Complete a simple symmetric figure with respect to a specific line of symmetry.



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Geometry – position and direction

Statutory requirements Pupils should be taught to:

Describe positions on a 2-D grid as coordinates in the first quadrant.

Describe movements between positions as translations of a given unit to the left/right and up/down.

Year 5.

Geometry – position and direction.

Statutory requirements Pupils should be taught to:

Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.

Notes and guidance (non-statutory) Pupils recognise and use reflection and translation in a variety of diagrams, including continuing to use a 2-D grid and coordinates in the first quadrant. Reflection should be in lines that are parallel to the axes.

Year 6.

Geometry – properties of shapes.

Statutory requirements Pupils should be taught to:

Draw 2-D shapes using given dimensions and angles.

Geometry – position and direction.

Statutory requirements Pupils should be taught to:

Describe positions on the full coordinate grid (all four quadrants).

Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

