Autumn Block 6

Shapes with 4 sides

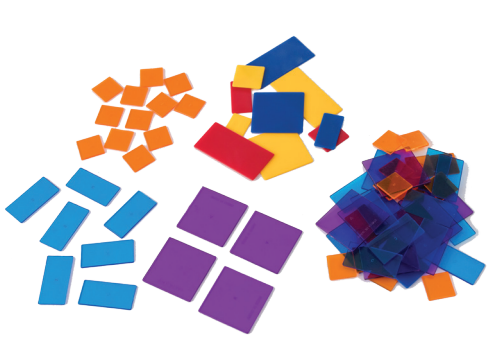
White Rose MATHS

Teacher guidance

Key books

- *Bear in a Square* by Stella Blackstone
- *Square* by Mac Barnett and Jon Klassen
- *Shapes, Shapes, Shapes* by Tana Hoban
- *Night Monkey, Day Monkey* by Julia Donaldson
- *The Fox in the Dark* by Alison Green

Key resources



Top tips

- Pre-cut gummed paper shapes are a great resource to support children both in making shape pictures and combining shapes to make other shapes. The sticky surface allows them to stay in place.
- Encourage children to fold paper and look at the creases they have made. This helps support the idea that shapes can be made from other shapes. Children can then cut the shapes they have folded to make mini jigsaws.

Small steps

Step 1	Identify and name shapes with 4 sides
Step 2	Combine shapes with 4 sides
Step 3	Shapes in the environment
Step 4	My day and night

Identify and name shapes with 4 sides

Notes and guidance

In this small step, children notice squares and rectangles all around them and begin to describe their properties.

They should be introduced to mathematical language for describing the properties of squares and rectangles, such as 'sides', 'straight' and 'corners'.

When introducing the properties of the shapes, children begin to understand that both rectangles and squares have 4 straight sides and 4 corners.

They also begin to understand that squares are a special kind of rectangle, where each of the 4 sides are equal in length.

When using physical representations of 2-D shapes, ensure that they are as thin as possible to support children's understanding that 2-D shapes are completely flat.

Books

- *Bear in a Square* by Stella Blackstone

Key questions

- What do you notice about your shape?
- Which shapes are the same as yours? Which are different?
- How do you know they are the same/different?

Possible sentence stems

- This shape is a _____.
- This shape is the same/different because...
- This shape has _____ sides/corners.

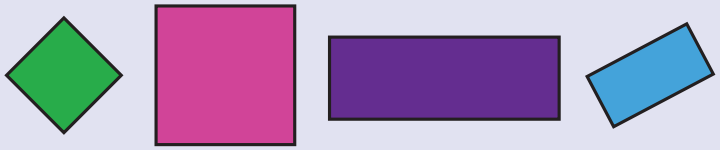
Links to the curriculum

- *Development Matters* – 3 and 4-year-olds – Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language.
- *Birth to 5 Matters* – Range 6 – Uses informal language and analogies, (e.g. *heart-shaped and hand-shaped leaves*), as well as mathematical terms to describe shapes.

Identify and name shapes with 4 sides

Adult-led learning

Show children a selection of squares and rectangles.



Encourage children to explore the shapes and talk about what they notice.

Ensure that the shapes are shown in different orientations.

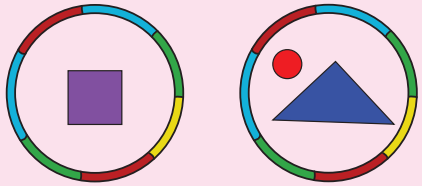
Read shape books such as *Bear in a Square* by Stella Blackstone and pay particular attention to the square and rectangle pages.

Encourage children to identify the different shapes on each of the pages.

Where can you see a square? Where can you see a rectangle? Prompt children to talk about the properties of each shape.

Hide a range of squares, rectangles, circles and triangles for children to find. Prompt them to find, identify and name the shapes.

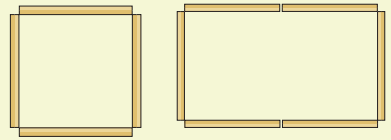
Provide two hoops and encourage children to sort the shapes into those that have 4 sides and those that do not have 4 sides.



As children are sorting, ask them to explain why they are placing each shape in that group.

Use craft matchsticks to build squares and rectangles.

Ask children to predict how many matchsticks they will need to make each shape.



What is the smallest square they can make? What is the largest?

How many matchsticks did they use?

What is the smallest number of matchsticks needed to build a rectangle?

Combine shapes with 4 sides

Notes and guidance

In this small step, children build on their prior learning on properties of shapes by investigating how shapes can be combined to make new shapes.

Prompt children to investigate which shapes they can make by combining different sizes of squares and rectangles. For example, two rectangles can be put together to make a larger rectangle or a square. Get children to fold paper squares and rectangles, predicting what shape they will find. Emphasise that these shapes are flat to develop children's understanding of 2-D shapes.

Point out that a shape can have other shapes within it, just as numbers can be made up of other numbers. In provision activities, point out how shapes can be joined and partitioned in everyday contexts, such as preparing sandwiches for snack time.

Children may take this investigation further to combine other shapes they are familiar with, such as two identical right-angled triangles to make a rectangle or a square.

Books

- *Square* by Mac Barnett and Jon Klassen

Key questions

- What do you notice about your shape/shapes?
- Which shape could these two/three shapes make?
- What shape could this make when you fold it?
- How many different shapes can we make by folding the paper?

Possible sentence stems

- The shapes make a _____.
- I can fold this shape to make a _____.
- I need _____ to build a square/rectangle.

Links to the curriculum

- *Development Matters* – Reception – Compose and decompose shapes so that children recognise a shape can have other shapes *within* it, just as numbers can.
- *Birth to 5 Matters* – Range 5 – Enjoys partitioning and combining shapes to make new shapes with 2D and 3D shapes.

Combine shapes with 4 sides

Adult-led learning

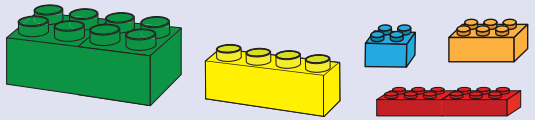
Have a range of flat paper squares and rectangles for children to explore. Ask children to investigate which new shapes they can make by combining different combinations of the shapes.

Task children to make a large, medium or small square or rectangle.

Is there a different way to make the same size shape?

Provide paper, paint and small plastic bricks for children to print with.

Ensure that there are a range of sizes.



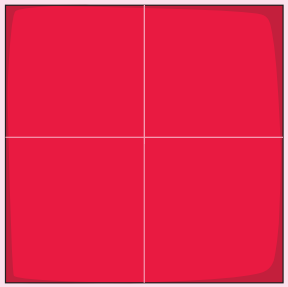
Which bricks make the best square and rectangle pictures?

Encourage children to fill the paper edge-to-edge with their squares and rectangles.

Provide children with paper shapes to explore.

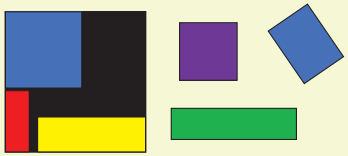
Demonstrate to children how, when we fold a shape, we can see the shapes inside the shape.

Encourage children to predict what shapes they will make when they fold their own shapes.



Give children a shadow or outline for them to fill using different sizes of 4-sided shapes.

Can they fill the whole space without overlapping their shapes?



If there are any gaps, what shape are the gaps?

Encourage children to talk about their pictures.

Shapes in the environment

Notes and guidance

In this small step, children use their knowledge from the previous two small steps to identify squares and rectangles in the environment.

As in earlier blocks, there will be examples of 'almost' shapes in the environment. It is important to discuss with children why cream crackers, for example, are not square.

Provide different opportunities for children to notice shapes on the flat surface of objects in the classroom, outside and on walks around the local area. Encourage them to find shapes within other shapes.

Reinforce that 2-D shapes are flat and encourage children to talk about the properties and make comparisons between the shapes they find. Encourage children to find the shapes within shapes in the environment, such as windows or doors. For example, a 'No entry' sign has a rectangle inside a circle.

Books

- *Shapes, Shapes, Shapes* by Tana Hoban

Key questions

- What shapes can you see?
- How do you know it is a square/rectangle?
- Where can you see small/large shapes?
- Where can you see shapes within shapes?

Possible sentence stems

- I can see a _____.
- This shape is the same/different because …
- I know this shape is/is not a _____ because …

Links to the curriculum

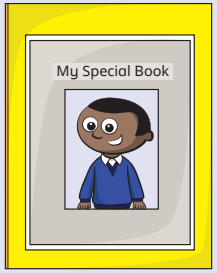
- *Development Matters* – Reception – 3 and 4-year-olds – Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language.
- *Birth to 5 Matters* – Range 5 – Shows awareness of shape similarities and differences between objects.

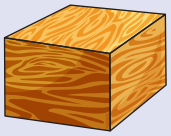
Shapes in the environment

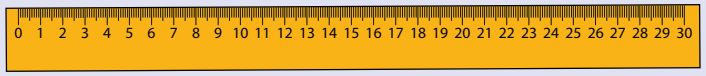
Adult-led learning

Go on a shape hunt around school.

Ask children to point out where they see squares and rectangles on the surface of everyday objects.







Challenge children to say what is the same and what is different about the shapes they find. Ask children to explain how they know it is that shape.

Provide a selection of real-life scenes to show children, such as buildings or street scenes.

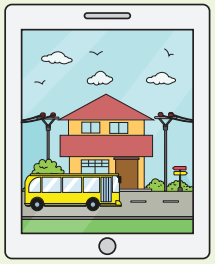
Task children to find the squares and rectangles in the pictures.

Where can they see shapes within shapes?

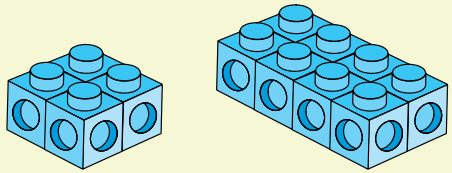
Go on a walk around the local area and hunt for shapes.

Children could take photographs of the shapes they see on the walk.

These could be used to make a shape display when you get back to school.



Show children how four linking cubes can be joined so that two of the faces are square.



Task children to find other quantities of cubes that will join to make square faces or rectangular faces.

My day and night

Notes and guidance

In this small step, children will begin to distinguish and talk about the difference between the key events in their daily routine. They will recognise what occurs during the day compared to at night. They will use language such as 'first', 'then', 'after', 'before', 'day', 'night', 'morning', 'afternoon', 'today' and 'tomorrow' to describe different events.

Children begin to measure time in simple ways by counting how many days or sleeps are left until an important event. The concept of time can often be difficult for children to understand. Building blocks can be used to represent the number of days or sleeps there are until an event, removing one each day to support children's understanding.

Rhymes

- *This Is the Way We Brush Our Teeth*

Books

- *Night Monkey, Day Monkey* by Julia Donaldson
- *The Fox in the Dark* by Alison Green

Key questions

- What are we going to do now/next/later/this afternoon?
- What do you do during the day?
- What do you do at night-time?

Possible sentence stems

- First/then we will...
- Before/after _____ we will...
- There are _____ days/sleeps until...
- During the day we...
- At night-time/lunchtime we...

Links to the curriculum

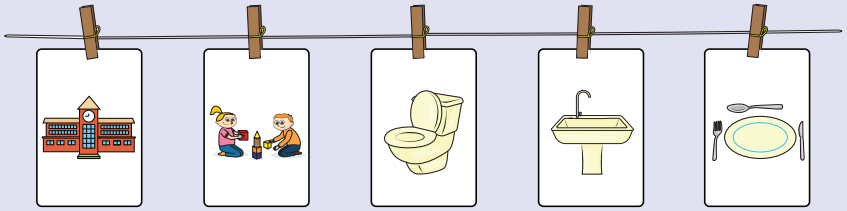
- *Development Matters* – 3 and 4-year-olds – Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then ...'
- *Birth to 5 Matters* – Range 6 – Is increasingly able to order and sequence events using everyday language related to time.

My day and night

Adult-led learning

Make a visual timetable of important events in the school day.

Order the events each day and talk about what we are doing 'first', 'next', 'then', 'after' and 'later'.

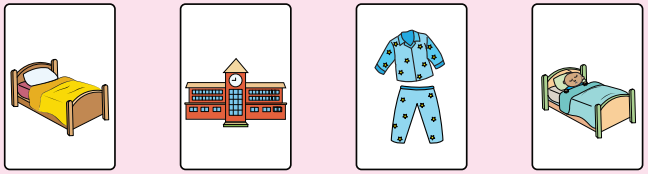


Refer to the timetable throughout the day, asking children questions relating to it.

Use stories and non-fiction books, such as *Night Monkey, Day Monkey* by Julia Donaldson or *The Fox in the Dark* by Alison Green, to introduce the idea of nocturnal animals.

Explain that as we go to sleep, some animals are waking up because they come out at night.

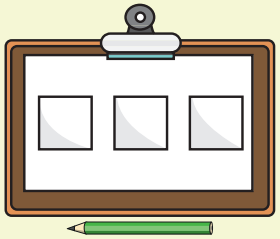
Provide children with different pictures illustrating things that we do during the day and at night.



Encourage children to sort the images into two piles and talk about what we do in the day and at night.

Provide children with a blank visual timetable.

Prompt them to draw and sequence activities that they do at home or after school.



Prompt them to discuss the fact that some days are different to others, and compare what they do on a weekday with what they do on a weekend.

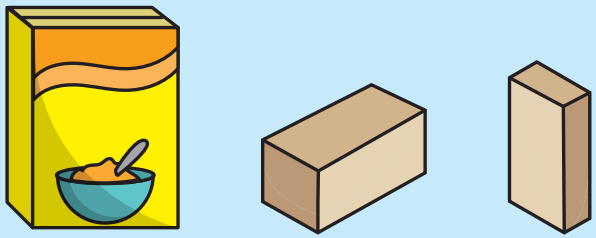
Continuous provision

Display pictures of buildings or street scene images.

Discuss the different types and shapes of homes and buildings. Provide a variety of boxes and ask children to build their own models to create a street scene.

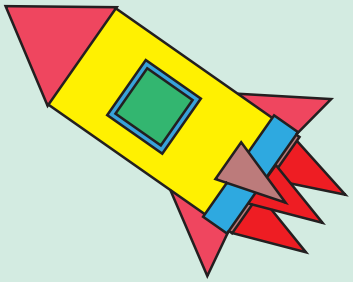
Encourage them to add square and rectangular windows and use torches to light the buildings up from the inside.

Provide children with a range of small construction blocks and everyday objects, such as cereal boxes, with which they will be able to print.



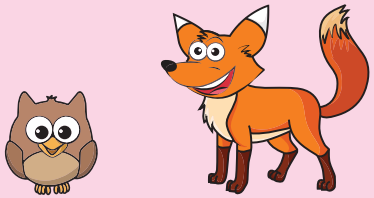
Task children to print with objects and identify the different shapes they make.

Support children to make different shape pictures with squares and rectangles and use their prior knowledge of circles and triangles.



Encourage children to talk about and describe their picture.

Introduce nocturnal animals to the small world area.



Encourage children to make homes for the animals.

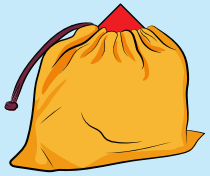
Talk about the names of the animals and where and when they might like to go to sleep.

End of block checkpoint

Checkpoint 1

Hide a range of flat 2-D shapes in a feely bag or underneath a cloth.

Partially reveal a shape, encouraging children to say what different shapes it could be or could not be and why.



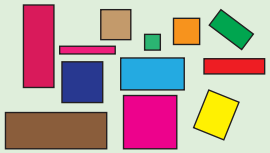
Pull the shape out further.
Do they still think it could be the same shape?

What has changed about the shape? What is the same?

Checkpoint 2

Provide children with a selection of paper squares and rectangles in various sizes and colours.

Prompt them to combine two shapes to make a rectangle or a square.



Are they able to combine three or four shapes?

Which ways will work?

Which ways will not work?

Checkpoint 3

Label a daytime and night-time area outside.

Call out an activity familiar to children and ask them to run to the daytime or night-time area. For example, stars appear, we put on our pyjamas, we get dressed, we eat lunch or owls wake up.

Encourage children to suggest some of their own daytime and night-time activities.