

# Year 4 Translation, Rotation and Reflection: A Step-by-Step Guide for Parents

This step-by-step explanation to translation, rotation and reflection can help you support your child's learning at home. The subject is broken down into manageable chunks, providing you with a simple guide to follow when exploring translation, rotation and reflection together, either as part of homework or if you decide to give your child some extra support. Whether your child is only just beginning to explore this area of maths, or they are gaining confidence and want to find out more, you will find a step that matches where your child is at then have ideas for where to go next.

Within **this area of the website**, you will find a selection of resources intended to help your child learn about each step of this guide. Each step also contains a keyword or phrase that you can use to search the Twinkl site for more resources and activities designed to support your child in achieving that stage. Simply type the keyword or phrase into the search bar and press enter to explore together.



We hope you find the information on our website and resources useful. The contents of this resource are for general, informational purposes only. This guide is intended to offer parents general guidance on what subject areas tend to be covered in their child's year group and where they could support their children at home. However, please be aware that every child is different and information can quickly become out of date. There are some subject areas that we have intentionally not covered due to the nature of how they are taught or because a trained professional needs to teach these areas. We try to ensure that the information in our resources is correct but every school teaches the national curriculum in its own way. If you would like further guidance or are unsure in any way, we recommend that you speak to your child's teacher or another suitably qualified professional.

# Translation, Rotation and Reflection

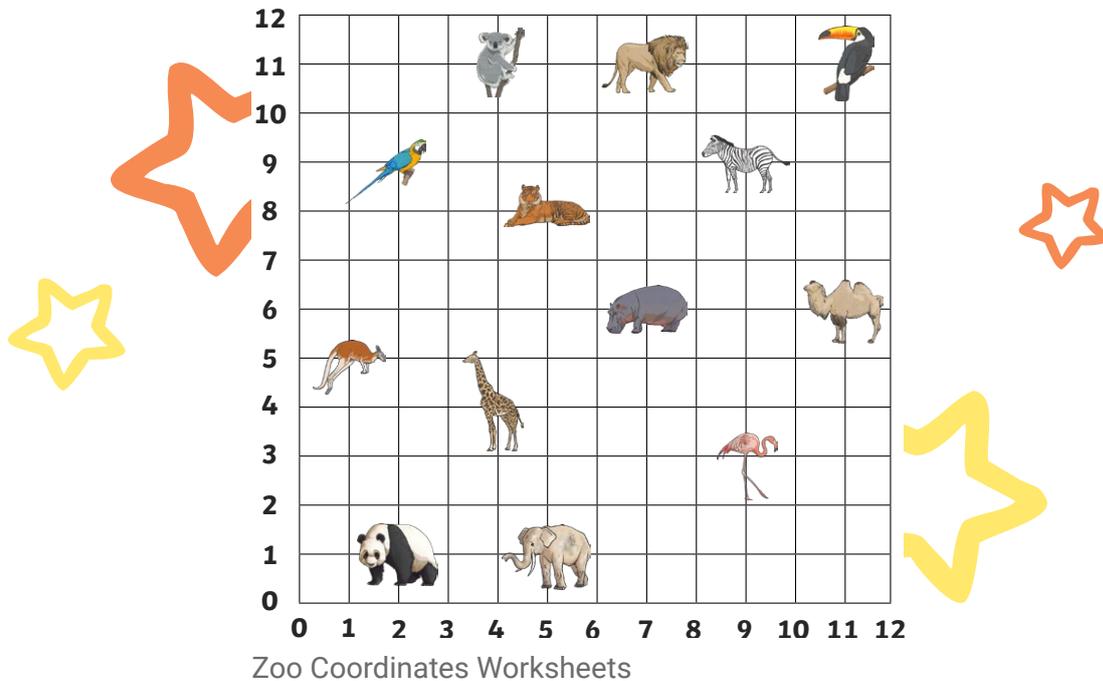
In key stage 2, your child will come across the terms translation, rotation and reflection when they are studying shape and direction in maths. Please see our **Year 3 Step-by-Step Parent Guide** to translation, rotation and reflection for a detailed explanation of what these concepts are.

In year 4, your child will continue to build on the knowledge they gained in year 3 about rotation clockwise and anticlockwise, knowing that a quarter turn is 90 degrees, half a turn is 180 degrees, a three-quarter turn is 270 degrees and a full turn is 360 degrees.

They will also be introduced to the concept of translations. When you are translating a shape in maths, you are simply moving it however many given units to the left or right, up or down. Each point on the shape has to move the same amount of distance and in the same direction.

Translations are often carried out on a grid using coordinates to plot the corners of the original shape as well as the shape after it has been translated. Coordinates describe a position on a grid. They are two numbers separated by a comma and surrounded by brackets, for example (5, 9). The first number always stands for the number you go along to on the x or horizontal axis and the second number represents the number you should go up to on the y or vertical axis to plot the point. A good way for children to get the order correct is to remember the saying, 'Along the corridor and up the stairs.'

For example, the position of the elephant on the grid below is (5, 1).



In addition to coordinates, your child may also be taught how to identify lines of symmetry in 2D shapes as well as to be able to accurately complete a symmetrical figure reflected across a line of symmetry.

As well as using the resources in this category and the keyword searches to find activities to help with translation, rotation and reflection, below are a few further ideas you could try at home to help your child make progress in this area of maths.



## Translation Game

Two players need to draw their own axes on a piece of graph paper, labelling the x and y axes up to 10. Create a barrier between the players. Each player has a small cube or counter. The first person places their counter on the grid and describes its position then performs a translation, giving instructions to the second player who performs the same movement with their cube. Check to see if both cubes are in the same place at the end.

## Rotation

Encourage your child to draw a character, shape or object on a piece of card or paper. Colour it in and cut it out. Next, use a drawing pin and stick it in the middle of the object before sticking it into a notebook or noticeboard with the pin. You can now rotate the drawing around the pin to see what it would look like after a 90 degree rotation, a 180-degree rotation etc.

## Tessellating patterns

A tessellating pattern is one where shapes fit together in a repeating pattern with no gaps or overlapping. Start with a square, a rectangle or an equilateral triangle and experiment with what patterns you can make using a single repeating shape. Can you find a line of symmetry within your pattern? Where have shapes been reflected?

## Design a poster

Challenge your child to design a poster suitable to show a younger child. The poster needs to contain illustrations and explanations about what translations, rotations and reflections are, clearly showing the differences between them and how each concept can change the position of a shape completely.



## Step 1

### Coordinates

In year 4, your child will be introduced to the concept of coordinates to describe the position of an object on a map or grid. They will learn how to describe where an object is using coordinates accurately with the x axis number first and the y axis number second. You can use our **Pirate's Treasure Map Activity** as a fun way to reinforce learning on how to locate and plot coordinates on a simple grid.

## Translations

In maths lessons at school, your child will be introduced to the concept of translations, which simply means moving shapes so that all points move the same distance and in the same direction. You can search our parents' hub for a range of resources, including PowerPoints, posters and activity sheets, to help your child reinforce their learning in this area.

## Step 2

## Step 3

### Coordinate translations

Your child will use their knowledge of coordinates and translations to move a shape on a grid, plotting its new coordinates after the translation has been carried out. Twinkl's worksheets, PowerPoints and challenge cards are a good way of deepening your child's understanding in this area of geometry.



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Imagine resources are designed to help your children to think creatively, question and imagine. Every week, a new topic consisting of five photos, each with related activities, is created.



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Twinkl Kids' TV is our wonderful YouTube channel dedicated to fun and informative video-style resources full of new and creative activities you can try at home!