

A desk with a lamp, a blueprint, and drawing tools. The background is a brick wall. A desk lamp is in the top left. A blueprint with architectural drawings is spread across the desk. In the foreground, there are drawing tools: a compass, a ruler, and several markers. The text "Transformations and Art" is centered on the blueprint.

Transformations and Art

Translations, Rotations, and Reflections



What is a transformation?

A TRANSFORMATION is a term used to describe four specific ways to move shapes. There are three TRANSFORMATIONS that result in congruent figures:

ROTATION: TURN

TRANSLATION: SLIDE

REFLECTION: FLIP

Another type of transformation is a dilation, which changes the size of the object. We will discuss dilations later.

Slide, Flip, or Turn ?



A desk with a lamp, a ruler, and a pencil. The background is a brick wall. The desk is white and has a lamp on the left, a ruler on the right, and a pencil at the bottom. The text is overlaid on the desk.

Rotation or Turn!

One hand in this sculpture by Rodin is rotated or turned to create the other hand!

Now you try:

<http://www.mathsisfun.com/geometry/rotation.html>

Slide, Flip, or Turn ?



A desk with a lamp, a brick wall, and a large blue arrow pointing right. The background is a brick wall. In the top left corner, there is a desk lamp with a blue shade. In the bottom right corner, there is a large blue arrow pointing to the right. Two red and white pens are lying on the desk. The text is centered on the page.

TRANSLATION OR SLIDE!

This painting is by John Beerman and the trees and clouds are examples of a slide or translation.

Now you try:

<http://www.mathsisfun.com/geometry/translation.html>

Slide, Flip, or Turn ?



A desk with a lamp, a brick wall, and a large blue arrow pointing right. The desk is covered with a white sheet of paper. A lamp is in the top left corner. A brick wall is in the background. A large blue arrow points from the bottom left towards the top right. Two red and white markers are on the desk, one near the arrow and one near the bottom right.

FLIP or REFLECTION!

This piece, that was created by Devorah Sperber using 5184 spools of thread, is titled “After the Mona Lisa 2” and is a great example of a reflection.

Now you try:

<http://www.mathsisfun.com/geometry/reflection.html>

The background of the slide features a desk with a lamp in the top left corner, a brick wall at the top, and a grid paper pattern. Two red pens are visible on the desk, one near the bottom center and one on the right side.

Your Assignment!

Create a symmetrical work of art using ONLY squares, triangles, and rectangles. Plan your design and be precise in your drawings and transformations. You must include translations, rotations, and slides and you must record the coordinates of the original as well as the translated figures and describe the translation of each.

Some Examples



