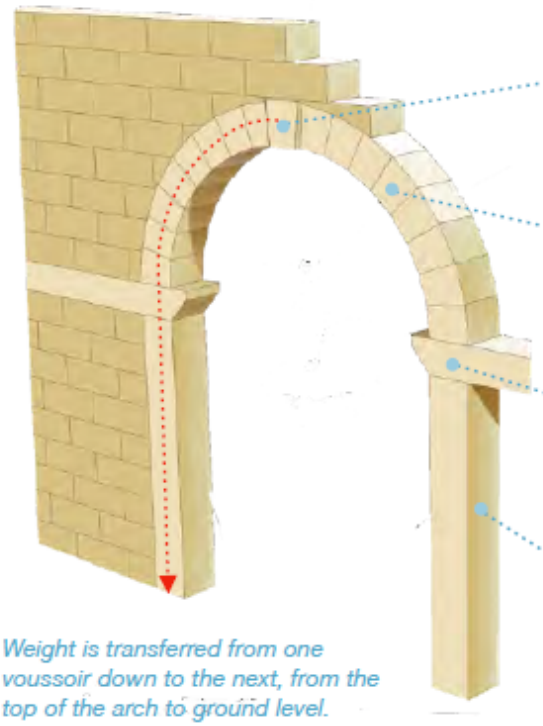
Arch structures

The Romans perfected the true arch, which is made of wedge-shaped blocks called voussoirs, with a keystone in the centre holding them in place. In a true arch, weight is transferred from one voussoir down to the next, from the top of the arch to ground level, creating a very strong structure. Although the Roman arch is a semi-circle shape, other types of curve are also strong. Modern arch bridges are based on mathematical curves such as an ellipse or parabola. The catenary arch is based on the curve of a line as it hangs between two supports, but inverted.



Weight is transferred from one voussoir down to the next, from the top of the arch to ground level.

A **keystone** is always at the top of an arch. It is sometimes larger than the stones around it. The keystone helps to lock the other pieces of the arch in place.

A **voussoir** (pronounced vu-swar) is a wedge-shaped stone. The topmost voussoir is called the keystone; the springer is the lowest voussoir.

An **impost** (sometimes called an abacus) is the topmost part of a pier or column. It is usually a flat piece of stone. It can be carved or decorated.

A **pier** is a vertical block of masonry (bricks or pieces of stone that have been stuck together with cement as part of a wall or building) supporting an arch. A column is a type of pier.

perfected: improved so it is the best it can be

ellipse: an oval shape, similar to a circle but longer and flatter

parabola: a curve like the path of something that is thrown up into the air