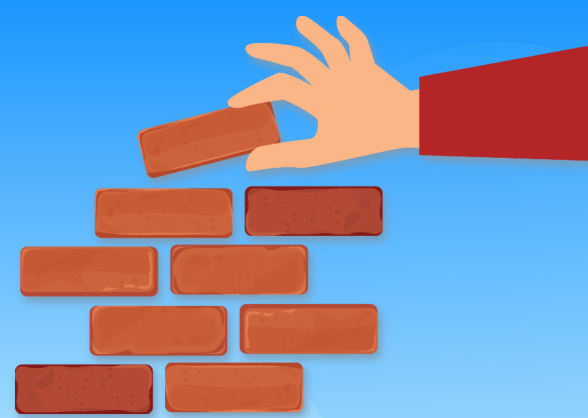


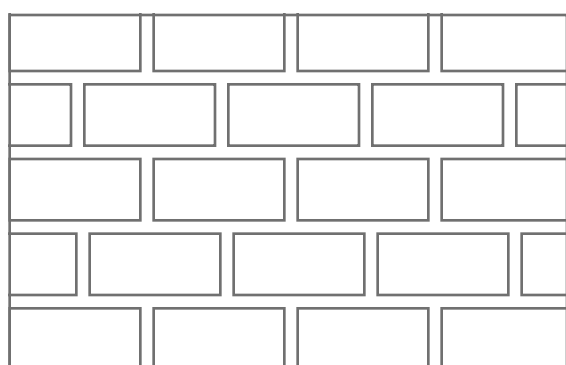
Building a wall



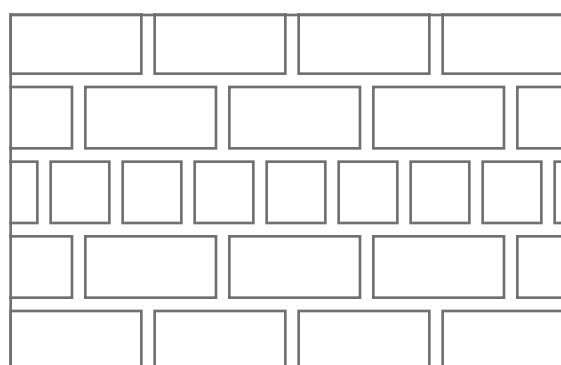
A **bricklayer** builds brick walls. They join bricks together using mortar.

Context

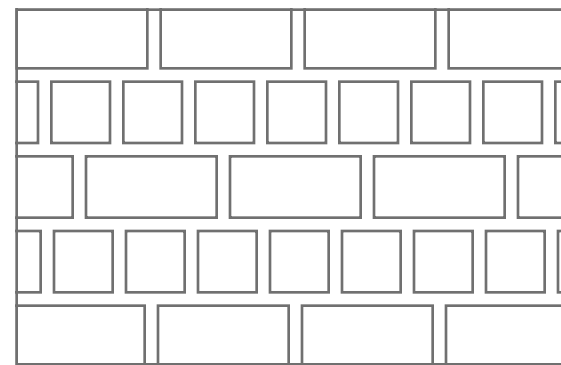
Bricks have been around for thousands of years. Assembled into many different patterns known as brick bonds. Most brick bonds require bricks of the same size. Uniform sizing creates regular repeatable patterns. The most common pattern is called a running bond.



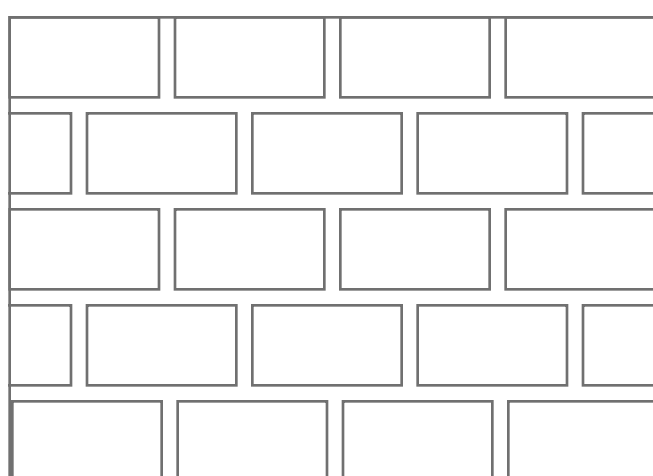
Running Bond



Common Bond



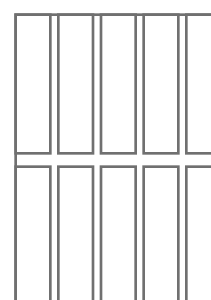
English Cross Bond



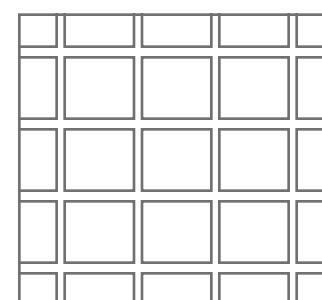
Third Bond
Oversize Brick



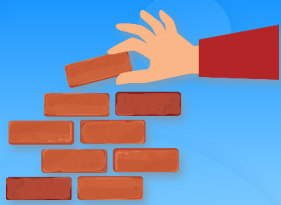
Stack Bond
Stretchers



Stack Bond
Soldiers



Slack Bond
Headers

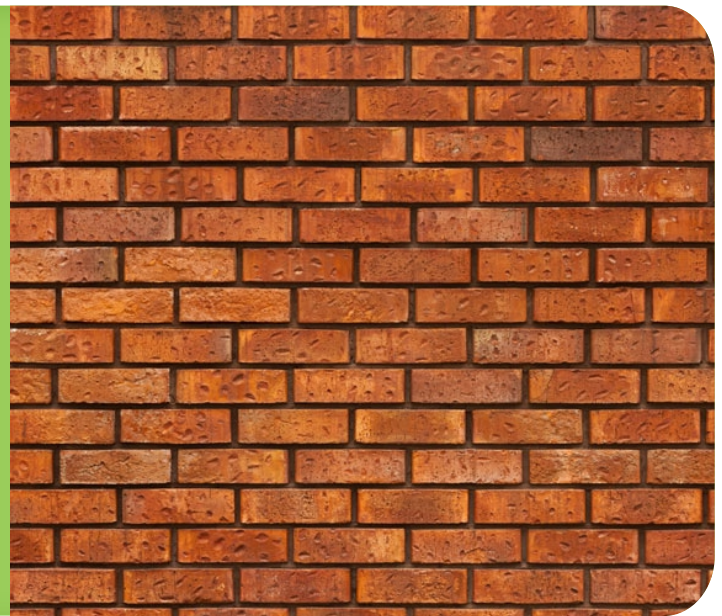


Have you ever thought...

Why do most buildings have a similar brick pattern?

Why are bricks rectangular instead of Square?

What makes a brick wall strong?



Take a look



Have a look and take photos at the different brick patterns where you live. Record what you find.

How many different types of patterns can you find from the seven listed above?

Have you spotted any different brick bonds?



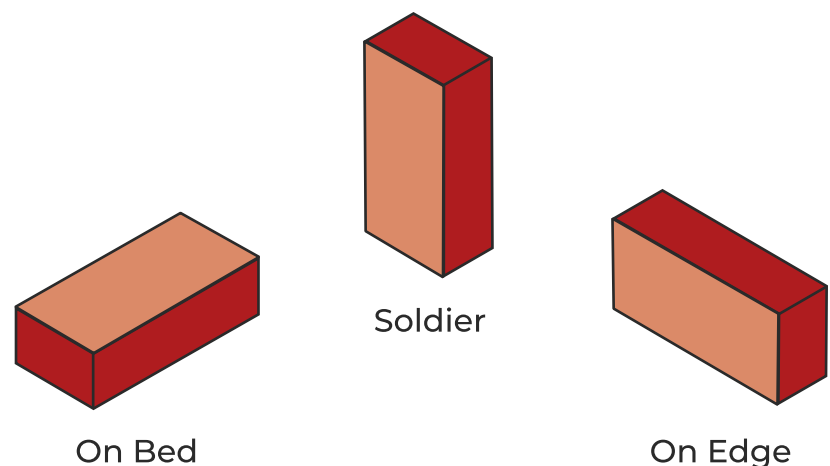
Investigate...

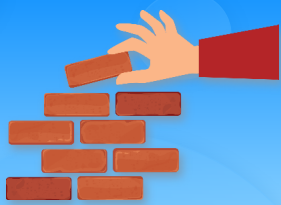
How many different brick bonds can you design?

You can replicate the ones shown above but also can you come up with some different patterns?

You can work on squared paper, use dominoes, cut-out shapes or even LEGO.

(Hint: they don't have to be laid in the same direction. The direction in which a brick is laid can create interesting patterns.)





Investigate square brick bonds as well as rectangular.

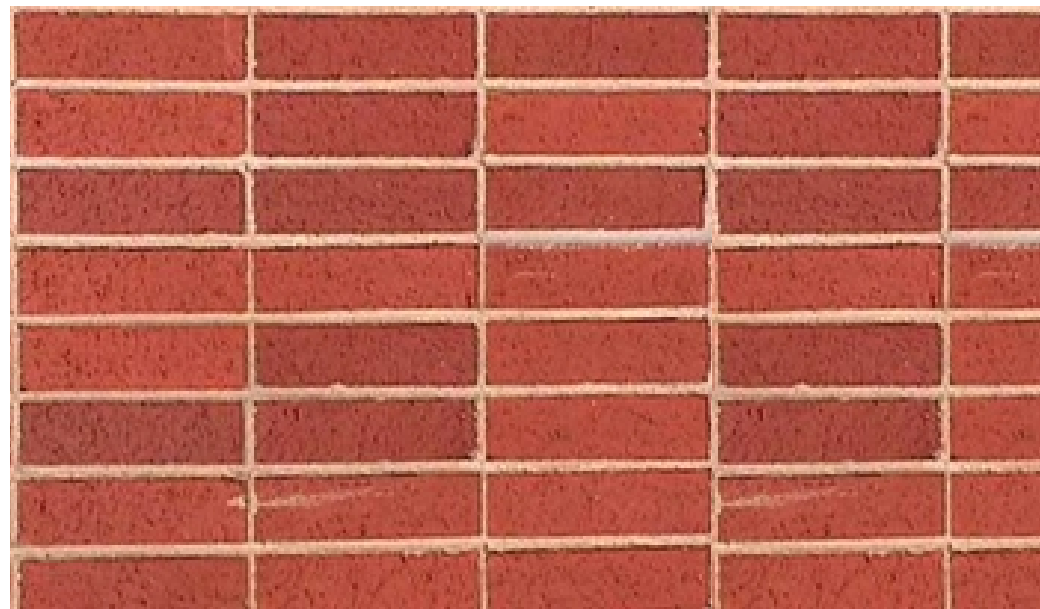
What do you notice?

Each row of bricks is called a **course**. Many brick bond patterns include some method of interlocking each row of bricks. Remember walls are required to support themselves.

Explore

Bricks should always be laid with staggered vertical joints to avoid creating a line of weakness.

If you stack bricks on top of each other what do you think will happen?
Can you see the lines of weakness in this picture?
Are there any lines of weakness in your patterns?

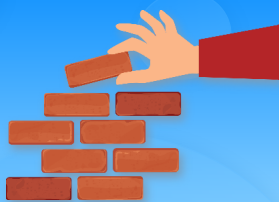


Challenge

Design a brick bond with no lines of weakness.

How do you know your wall is strong?





Did you know?

The Great Wall of China was made from 3.8 billion bricks.



The mathematics

The students through the investigation and exploration activities will be problem solving, recording, justifying and proving. The patterns they are creating require thinking about transformation, reflection and rotation.

