



## Starters 5-10 mins

Snack, Cackle & Pop..... 2 mins

Snack: grab a snack before you begin!

Cackle:



**Engineer**



**Engifar**

Pop: Stemillions Playlist on Spotify

[bit.ly/stemillionsplaylist](http://bit.ly/stemillionsplaylist)

Meet Her..... 5 mins

Roma is a Structural Engineer who constructed The Shard, the tallest building in the UK and the fourth tallest in Europe. She is also an active campaigner for women in engineering.

Watch: [bit.ly/032MeetThem](http://bit.ly/032MeetThem)

Discuss:

- ★ What do you think of Roma's job?
- ★ If you could design any building, which one would it be?

## Desserts 5 min

Share with us ..... 1 min

Upload photos on [Twitter](#) or [Instagram](#) and tag @Stemettes and #Stemillions.

Ask Them..... 2 mins

Got a question? Ask Away! [bit.ly/Ask-Away](http://bit.ly/Ask-Away)

Digest..... 2 mins

Digest this Meal Plan - [complete this form.](#)

## Mains 20 mins - choose ONE only

MAKE..... 20 mins

**You will need: A4 paper, sticky tape, books.**

Many buildings use columns to help hold them up.

What shape do these columns need to be?

1. Take 3 pieces of A4 paper.
2. On each piece of paper and tape the long sides together, make sure there is a 6cm overlap.
3. You should now have 3 cylinders. Take 1 cylinder & shape it into a triangle. Take the final cylinder and shape it into a square.
4. Now you have 3 different shaped columns.
5. Now test the strength of each column by carefully adding books to the top.

Which shape is the strongest?

Next time you go to a big building or a parking garage, look out for the columns in the building.

EXPLORE..... 20 mins

**You will need: your imagination.**

Roma likes to dance in her spare time. Create a dance to show how The Shard was constructed.

Indian classical dancing, ballroom & latin are Romas favourite dance styles, but choose any style.

Feb 2009 - the old building is demolished to make room for The Shard and construction begins

Oct 2009 - a concrete core is poured to make a stable centre for the building

May 2010 - the concrete core is at 80m high and cranes begin to add metal and glass to the outside

Nov 2010 - The Shard becomes the tallest building in London, builders keep adding the glass exterior

Feb 2011 - the concrete core reaches its final height

Mar 2012 - The Shard reaches its final height when the spire is added to the top

Jun 2012 - The Shard is opened to the public