> This resource is part of a suite of materials created to inspire entrants, and support parents, teachers and those out-of-school to make deeper connections with their surroundings. The *maths inside* is waiting to be discovered!

Below, you can find an example documenting the submission journey for an **First Level** entry to the *maths inside* photo competition (credits).

We welcome entries, both individually and in groups, from all ages of children and young people, as well as parents, guardians, carers and teachers and anyone qualifying for the out-of-school category! See mathsinside.com for full details.

It's Huge!

What is the biggest thing that you can think of? How about the largest thing in your home, or outside near you? What is the *maths inside* it? How can you take a photo of it to show the *maths inside*? What title and commentary could you write to describe the *maths inside* your huge object?

Here's an example — a block of flats!

My actual block of flats is the biggest object I can find at home! Now that I have found the largest thing, what maths can we find inside it by looking closer? Can you see that in this photo there are lots of rectangles? This could lead to a title saying

> It's my home!

Followed by a commentary such as

> My block of flats has lots of rectangles

Although this is true, I think we can dig deeper into the maths in this photo of my block of flats.

To find more maths in this photo, we may ask "why are the rectangles laid out like this?". Does it make the flats look better? Can you find a pattern in the rectangles? Another question you may ask is "why have rectangles been used?". Why not another shape, such as circles?

By looking closer at the photo, you can see that there is symmetry between the windows of the flats! This makes the block of flats nicer to look at.

Now that we have found the symmetry in the windows, how can we use our photo to show this? Why could cropping the photo like below help show our *maths inside*?

Making the windows the main feature in our photo helps show that we have found the *maths inside* our huge object!

With our cropped photo, we can base our title and commentary around it! For example, our new title could be

> Symmetry!

With a commentary saying

> This photo shows that there is symmetry in my block of flats. This can be seen in the front windows

What could be another example of the *maths inside* my huge object: my block of flats?

Can you see that the doors on the top floor of my block of flats are rectangles? This is because it's an easy shape to build around because of its straight edges!

How can we dig even deeper than this though? We know other shapes have straight edges too, for example triangles. What is another reason that means that rectangles are easy to build with? What other facts about shapes do we know?

One thing we know about is angles!

As rectangles have right angles at each corner, they are easy to line up next to each other! This makes them easier to work with. Builders don't have to worry about whether there will be gaps in their walls, as each right angle will fit perfectly with the one next to it! Why can't triangles do the same thing?

Now that I have found another reason that rectangles are used in my flat of buildings, I can look even closer at my initial photo. How can we improve it to show off our knowledge about angles? Can you see that the windows in our photo are also rectangles, and use the same property we worked out above?

We could once again crop our photo so that it shows just the windows however when we do this our photo becomes blurry!

Could we take a closer photo of the windows so that our photo is better? After all, this is a photo competition! On a trip in Edinburgh I took this picture of the flats I saw there. Time to construct our final entry! We have our photo, but we're forgetting one thing - a *maths inside* sticker which can be found on the *maths inside* website!

Now that we have a clearer picture of windows, we can base our title and commentary around them! You could have a title saying

> Why Rectangles?

Followed by a commentary saying

> The window is rectangular. This is because it is the easiest shape to build with because their right angles allow them to sit next to each other without the worry of gaps

Now it's your turn! Where can you find something huge? You can find the biggest thing in your home, or go outside and find something huge! What maths can you find inside it?

Remember that submissions need to be original to be eligible for the maths inside photo competition. Judges can only accept original photos, commentaries and titles that are not featured, shared or displayed elsewhere (this includes social media and other competitions). See the T&C for more information, and please do get in touch if you have any additional questions.

credits

This suite of resources are the fruit of a collaborative project between undergraduate and postgraduate students from the University of Glasgow — School of Mathematics & Statistics, and Dr Andrew Wilson (*maths inside* Founder and Director).

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The photo Block of flats at Canford Cliffs, Poole is credited to *Malc McDonald*, the photo grassmarket, Edinburgh is credited to *Emran Yousof*.