

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!

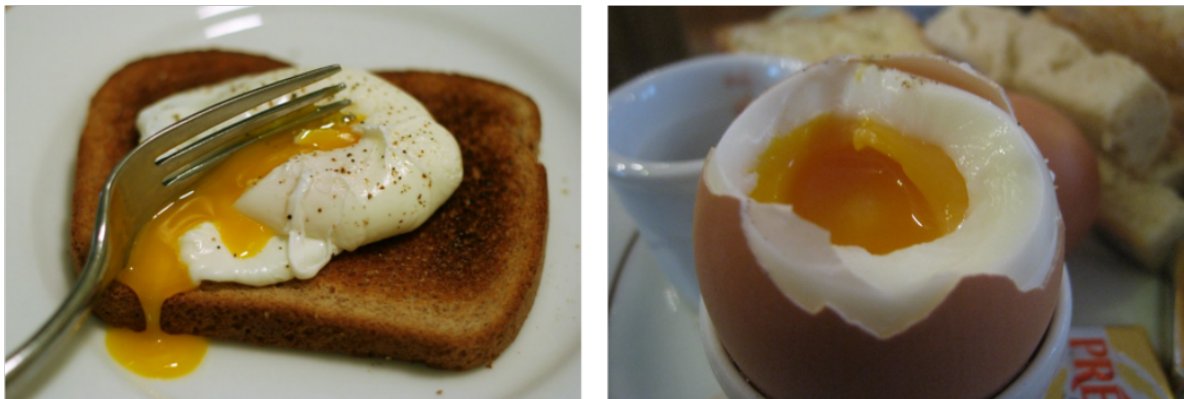
Below, you can find an example documenting the submission journey for an **Third/Forth Level** entry to the *maths inside* photo competition ([credits](#)).

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](https://mathsinside.com) for full details.

## The Order of Things

Have you ever wondered why life is so complicated, messy or chaotic? Why at the same time is so beautiful and interesting with countless dreams to pursue? Why every decision we make it will shape our future? Well, this is because the *order matters!*

Let's explore this concept through a simple example. Can you see how the two images are related?



Of course, both show eggs. But the left one is a poached egg and the right one is a boiled egg.

*Why does the order matter here?* You could think that the order matters in which egg you will eat first. But there is something deeper here! This something is not in the pictures, but you can spot it from the pictures. This something is the *order of the steps* needed to make the eggs.

Say that you wake up in the morning and want to make eggs for your friends. They don't like fried food, so basically you can only boil the eggs. The two main moves you need to make are

*A: boil the egg*

*B: remove eggshell*

Making move *A* first and then move *B* gives a boiled egg. Making move *B* first and then move *A* gives a poached egg. So, *changing the order of the same moves gives different results!*

And now as a mathematician, being a very curious person, what can you ask? For example, what would happen if, before boiling the egg, we opened a small hole on the eggshell using a pen? What would be the result and the shape of the cooked egg? *What name would you give to this discovery?*

What two (or more!) different actions can you find in your surroundings? What is the result when you make these moves in different orders? Can you capture this in a photo with the different outcomes next to each other? How could you title and write about this in a commentary? *What will you find in your journey of discovery?*

With all these thoughts in my head, I took the photo below of my two very different eggs!



Perhaps choosing a title like

The Order of the Eggs

and a commentary

Boiling an egg and then removing the shell results in a boiled egg. But, if we first remove the shell and then boil it, we get a poached egg. The two eggs are very different, and some people might prefer the one over the other. This is an example where the order we do things matters.

This is a good commentary, but we can still find deeper reasons why this is happening.

Can you spot the why? And if yes, can you see the how?

So, for a better commentary we would also add that

... The main reason this is happening is the eggshell! For example, when we boil the whole egg, the eggshell doesn't really change. In fact, the eggshell stays firm and gives shape to the yolk and the white. This leads to a nice-looking boiled egg. Now, if we first break the eggshell then the yolk and white will be uncovered in the boiling water. This is the reason why a poached egg has a messier shape.

I also thought that the eggs were quite small in my photo, and so when I added the maths inside sticker I cropped (cut-off) some of the unwanted parts of my photo to focus on the subject to make it clear. Here is my entry

The Order of the Eggs



Boiling an egg and then removing the shell results in a boiled egg. But, if we first remove the shell and then boil it, we get a poached egg. The two eggs are very different, and some people might prefer the one over the other. This is an example where the order we do things matters. The main reason this is happening is the eggshell! For example, when we boil the whole egg, the eggshell doesn't really change. In fact, the eggshell stays firm and gives shape to the yolk and the white.

This leads to a nice-looking boiled egg. Now, if we first break the eggshell then the yolk and white will be uncovered in the boiling water. This is the reason why a poached egg has a messier shape."

We don't care about order because "order matters for cooking eggs". We care about it because it creates variety, beauty in nature and fun! Mathematics is the science that studies the order of things. In mathematics one tries to find and understand how things are related and in which order, and mathematicians always ask "Why?"

*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 *Poached Egg* is credited to [Greg Hirson](#). The photo *L'œuf à la cocque* is credited to [sansplans](#). The photo *The Order of the Eggs* is credited to Dimitrios Gerontogiannis.