Early career teaching – Engaging activities to get students thinking

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As I write this piece, my kitchen is full of small-scale practical experiments that I have been trying out. It's important that we try out the experiments that we want our students to do, for a number of reasons.

Not only do we need to check that they can be carried out safely, and we want to know that they work, but trying them out enables us to make any adaptations for specific classes and individuals. It also allows us to consider what questions we want to ask. And it reveals if there are times when students could become distracted, so we can think about what they could usefully be doing then (perhaps plotting a graph as they go along, for example).

I am trying out some biology experiments. I have placed Aqua Gel Balls in Lucozade (original) and salt solutions. The beads in each of the solutions have shrunk in size and the beads in the Lucozade have changed colour (the Lucozade being orange). However – this doesn't happen within the duration of a lesson – so this is an experiment that would either need to be run across a couple of lessons or delivered in *'Blue Peter: here's one I set up earlier'* style. Why do I like it? Because it gets students talking – perhaps asking why the beads have reduced in size? Is there a pattern to this? Why have the ones in the Lucozade turned orange? and so on.

By using things that students are familiar with, they can focus on what's happening. I haven't measured the mass of the beads; you can just compare them to ones left in water and observe the difference (a qualitative judgement).

Having said that, when the beads are in water, because they have (almost) the same refractive index they appear to be invisible, so careful handling is necessary (I used a sieve to separate them from the liquid that they were in). It is also important not to lose them down drains, as they can clog pipes.

I have also been trying some experiments with pineapple and jelly – pineapple contains an enzyme that prevents jelly from setting – so, if

a piece of pineapple is placed on the jelly, what happens? So far, I have tried a piece of fresh pineapple from a snack pack, a piece tinned in juice and a piece tinned in syrup. After a while, the ring that was tinned in juice has left an impression in the jelly, but it takes ages and is not the engaging activity that I had hoped for. (I have not yet tried a piece freshly cut from a pineapple – though I did try kiwi fruit, which is also reported to prevent jelly from setting.)

As I try out these activities, using items with which students are likely to be familiar, I wonder how the practicals could be adapted into simple investigations – what happens if we soak the pineapple in an acid or alkaline solution, for example? I might try that next.

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