



132

The Art of Cookery, made Plain and Easy.

Vinegar of your own making, you need not boil it the first Year, but pour it on cold ; and the next Year, if any remain, boil it up again, skim it, and put fresh Spice to it, it will do again.

To pickle Gerkins.

TAKE what Quantity of Cucumbers you think fit, and put them in a Stone-Jar, then take as much Spring-water as you think will cover them : To every Gallon of Water, put as much Salt as will make it bear an Egg, set it on the Fire, and let it boil two or three Minutes ; then pour it on the Cucumbers, and cover them with a Pewter-dish, and over that a woollen Cloth, and tie them down close, and let them stand twenty-four Hours ; then take them out, and lay them in a Cloth, and another over them to dry them. When they are pretty dry, wipe your Jar out with a dry Cloth, and put your Cucumbers in, and with them a little Dill and Fennel, a very small Quantity. For the Pickle, to every three Quarts of Vinegar, one Quart of Spring-water, till you think you have enough to cover them, put in a little Bay-salt and a little white Salt, not too much. To every Gallon of Pickle, put one Nutmeg cut in Quarters, a quarter of an Ounce of Cloves, a quarter of an Ounce of Mace, a quarter of an Ounce of whole Pepper, a large Race of Ginger sliced ; boil all these together in a Bell-mettle or Copper-pot, pour it boiling hot on your Cucumbers, cover them as before. Let them stand two Days, then boil your Pickle again, and pour it on as before, and a third time, when they are cold, cover them with a Bladder, and then a Leather. Mind always to keep your Pickles close covered, and never take them out with any thing but a wooden Spoon, or one for the purpose. This Pickle will do the next Year, only boiling it up again.

You are to observe to put the Spice in the Jar with the Cucumbers, and only boil the Vinegar, Water and Salt, and pour over them. The boiling of your Spice in all Pickles spoils it, and loses its fine Flavour of the Spice.

FLOATING AN EGG WITH HANNAH GLASSE

Hannah Glasse (1708-1770), the daughter of Isaac Allgood a Northumbrian landowner, was a cookbook author.

In her 1747 book 'The Art of Cookery made Plain and Easy' a number of pickling recipes instructs the reader to place the item to be pickled into a stone jar, cover it in spring water and to every gallon of water, add as much salt as will make it bear an egg.

The item to be pickled is then left to sit in this saltwater solution for 24 hours. This process is also known as brining. It removes excess water from vegetables

making them crisper. It also prevents spoilage.



You can see a video of the experiment at <https://youtu.be/eB57HiKHefg>

HYPOTHESIS (YOUR THEORY)

In this experiment, you will float an egg in salt water, like Hannah Glasse.

Start by making a hypothesis. A hypothesis is your theory, what you think will happen – how many tablespoons of salt do you think you will need to add to 400ml of water to allow the egg to float?

My hypothesis:



EXPERIMENT EQUIPMENT



You will need:

- An egg
- A container such as a glass
- 400ml water
- Salt
- Two tablespoons – one for stirring and one for adding salt

EXPERIMENT METHOD

1. Pour 400ml of water into the container.
2. Add your egg.
3. Check, does the egg float?



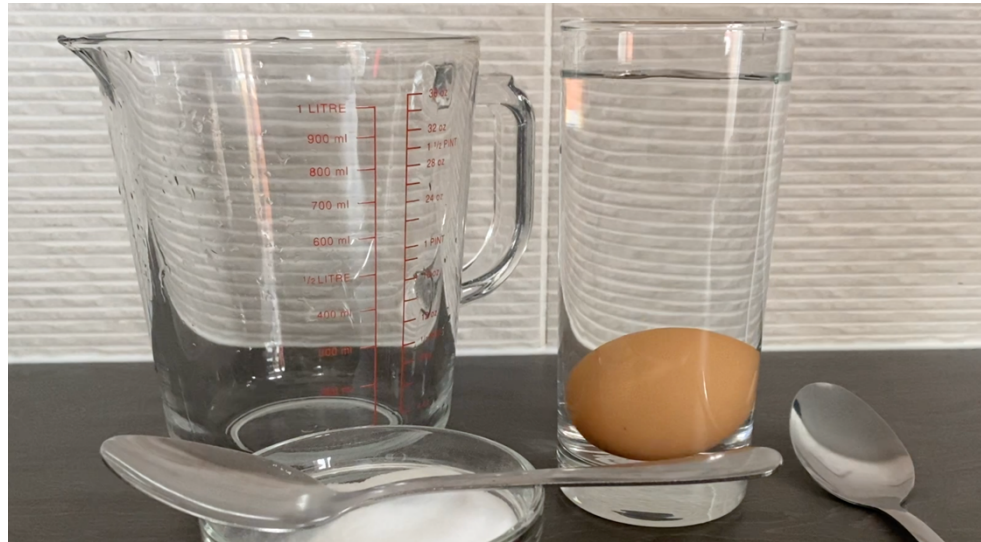
Why do things float?



Will the egg float in fresh water?



How much does the egg weigh?



Why does the egg float once salt is added?

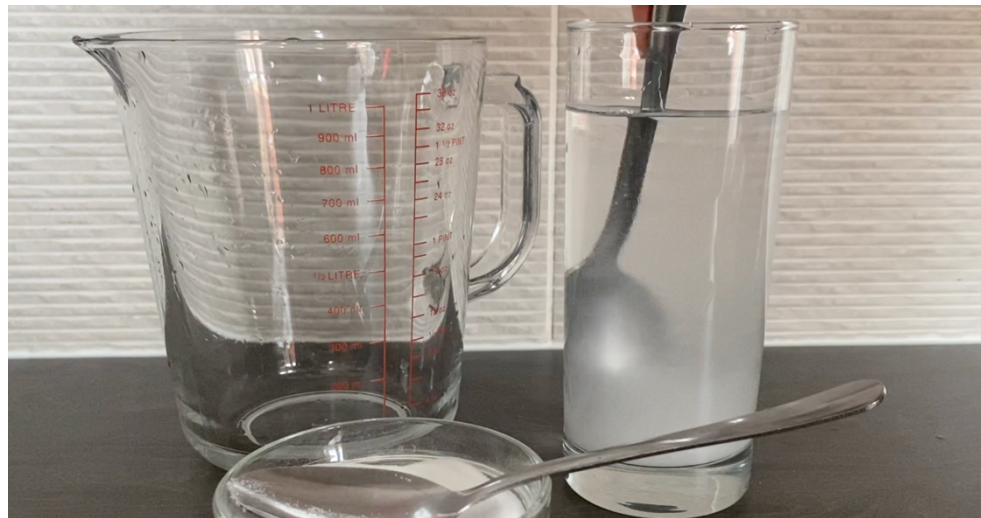


What does density mean?



What is a solution?

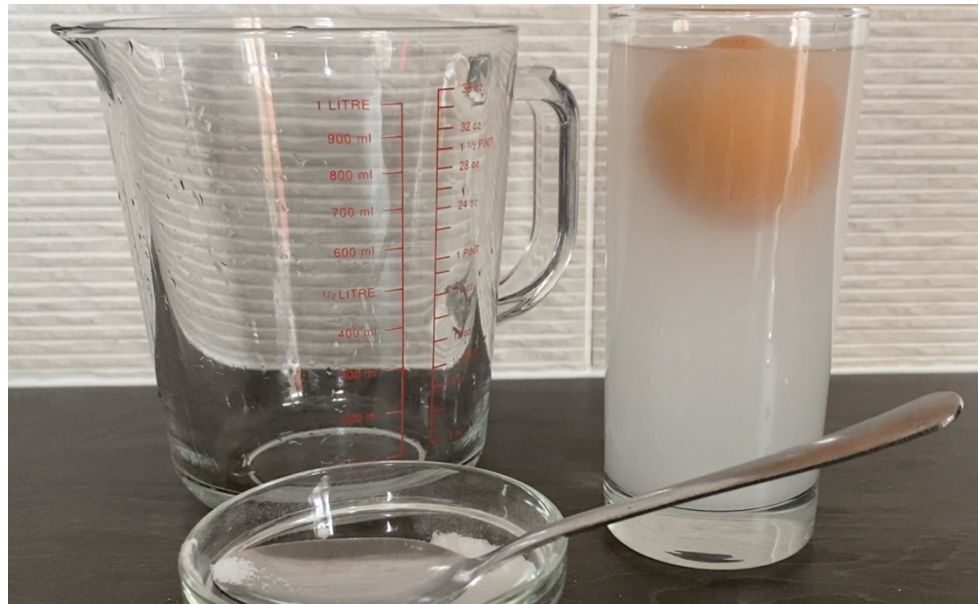
4. Add one tablespoon of salt to the water and mix well.



Taste the saltwater solution.
Can you describe how it tastes?



5. Check to see if the egg floats once one tablespoon of salt has been added.
6. If the egg did not float, keep adding salt one tablespoon at a time until it does float. Make sure you check to see if the egg floats after each tablespoon has been added.



Does all of the salt dissolve into the water or does some of it sink to the bottom of the glass?



What happens to the colour of the water once the salt has been added? Is it still see through?



What would happen if you kept adding salt to the water?

EXPERIMENT CONCLUSION

How many tablespoons of salt did you have to add before the egg floated? Was your hypothesis correct?

My conclusion:

SCIENCE BEHIND THE EXPERIMENT

Density is the only thing affecting whether something floats or sinks. If an object has a higher density than the liquid it is in it will sink. If it has a lower density, it will float. The density of an object or substance is its mass divided by its volume. The denser an item is, the heavier it feels for its size.

The egg is denser than the fresh water this causes it to sink. When you start dissolving salt in the water, the density of the water increases. Eventually the water becomes denser than the egg causing the egg to float.

WHAT'S NEXT?



Try changing the variables of your experiment. What happens if you use a different liquid? What happens if that liquid is carbonated such as sparkling water, or something sugary like a fizzy drink? What happens if you change the temperature of the liquid?



What happens if you use something other than salt? Repeat the experiment using sugar and flour. How many tablespoons does it take to get the egg to float? Make a new hypothesis, which solution do you think the egg will float in first? You could do this as a race! You can see a video of this at <https://youtu.be/ZD5EP3uEx4s>



What happens if you increase the amount of water used? What is the relationship between the amount of salt and water used? Is there a ratio rule that can be created to make sure this experiment works every time?



Repeat the experiment but make sure you don't fill the container full of water. Once the egg is floating, pour fresh water into the container. Make sure **not** to stir the mixture once the fresh water has been added. Does the egg float suspended between the saltwater and the fresh water?



What could you use other than an egg? Try the experiment using different items from your kitchen. You could make a different hypothesis for each item. Can you measure their density?



Have a go at making some pickles. You could use some of Hannah Glasse's recipes for inspiration. Think about what types of foods you can pickle. Can you write a recipe for your pickle?



Make a video recording or take photographs of your experiments. You could share the results with us to feature on our website.