Serial dilutions

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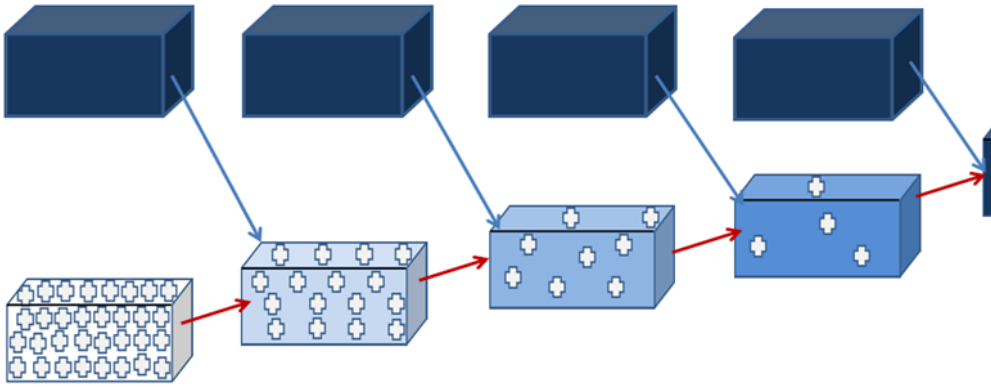
Often in dealing with chemical reactions you start with a highly concentrated solution and need to dilute it down to a working level. You can do this using the technique of **serial dilution**.

- As noted in Wikipedia (https://en.wikipedia.org/wiki/Serial_dilution): A **serial dilution** is the stepwise dilution of a substance in solution. Usually the dilution factor at each step is constant, resulting in a geometric progression of the concentration in a logarithmic fashion.

Does that sound confusing? Well, maybe this diagram can help:

The concept of serial dilutions



Notice in the figure that you start on the left with a concentration of 32 star chemicals in the lower container and you have another container containing only blue fluid.

- You now take equal parts of the solution containing the star chemicals and of the blue solution, to produce a solution which has 16 star chemicals – i.e., you do a 1 in 2 dilution.
- Now in a serial dilution the dilution factor is kept constant. So that means the next step of the serial dilution is most likely to use another 1 in 2 dilution.
- So in the next step you take 1 part of the solution with 16 stars and 1 part of the blue solution to produce a solution which has 8 star chemicals.

- Continue this process of 1 in 2 dilutions to produce, in turn, a solution which has 4 star chemicals, 2 star chemicals (and finally 1 star chemical though we haven't shown that in the figure).

That, in essence, is what serial dilution is.

https://drive.google.com/file/d/1hzXSY9777TuTqzquNz20Oz1hdUrIErcl/view?usp=sharing

Practise your understanding

Here is a link to a virtual lab to **Practise your serial dilution skills and understanding**

Understanding the process

The following material consists of Shockwave Flash videos of the process as you would conduct it in a laboratory environment, sourced from: http://www.val.biologycourses.co.uk/Serial_Dilutions/Serial_Dilutions1.html,

1. **Introduction to serial dilutions**

2. **The terminology in serial dilutions**

3. **Why and when do we want to do serial dilutions?**

4. **An example of a simple serial dilution**

5. **Dilutions and serial dilutions in the lab**

https://www.youtube.com/watch?v=NJyGg4SSVg0