Ratio

NRICH Task: Ratios & Dilutions

1. **If you diluted 100ml of the original solution with 100ml of water, what would be the concentration, in cells/ml, of your new solution?**

   Please justify your solutions and make sure they are recorded in your books

2. **Can you make a solution that is half the strength of the original?**
   What about one third of the strength? One quarter? One fifth?
   What about fractions with a numerator greater than 1?

   Please justify your solutions and make sure they are recorded in your books

3. **Are there any concentrations you can make in more than one way?**

   Please justify your solutions and make sure they are recorded in your books

4. **What can you say about the concentrations you can't make?**

   Please justify your solutions and make sure they are recorded in your books

Tabitha Steel – Swavesey Village College

Ratio

NRICH Task: Ratios & Dilutions

Extensions:

A series of dilutions can be performed, where a solution is diluted, and then the resulting solution is also diluted.

Find two dilutions which give a final concentration of:
- 50000 cells/ml
- 33333.33... cells/ml
- 75000 cells/ml
- 49000 cells/ml
- 24000 cells/ml
- 45000 cells/ml
- 26666.66... cells/ml

How many different ways can you find to make a final concentration of 25000 cells/ml?

Can you find any concentrations that are impossible to make using two dilutions?

List the necessary criteria for deciding whether a concentration is possible or not.

And Finally…

What happens if several dilutions are performed one after another?

Does the order in which I do the dilutions matter?

Tabitha Steel – Swavesey Village College

Tabitha Steel – Swavesey Village College