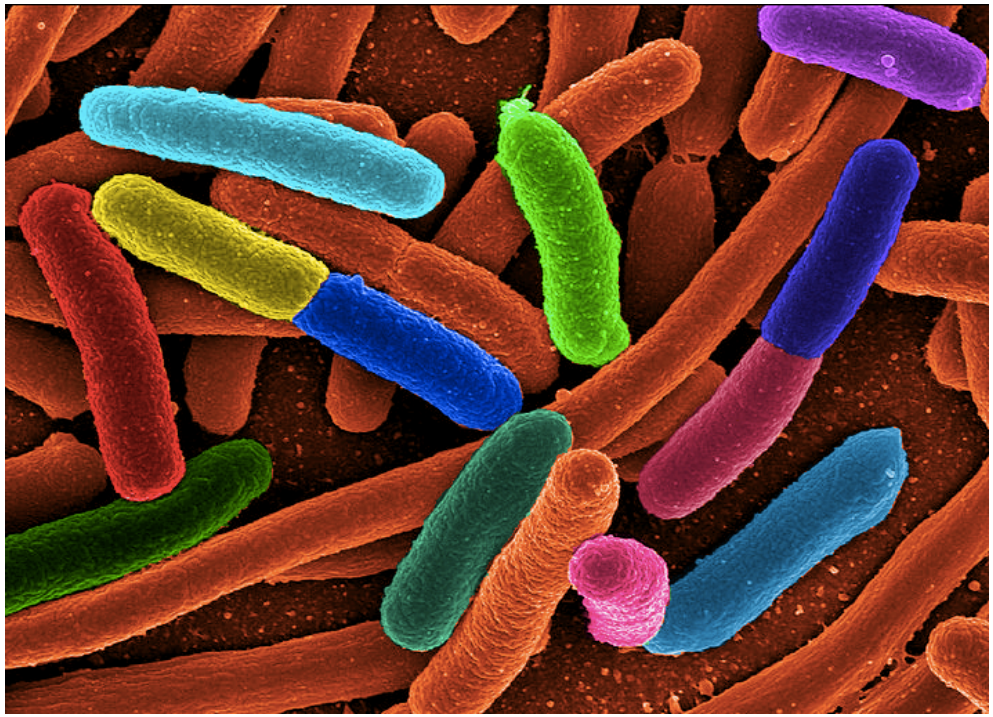
Topic	Bacterial growth	**Level**	GCSE (or any other course for students aged 14-16)
Ouctomes	1. To calculate how many bacteria are present after 24h 2. To appreciate why bacterial infections are potentially so dangerous		

E. coli divides about once every 20 minutes. If a patient was infected with one bacterium, how many bacteria would there be after 24 hours?



47223665000000000000

Assume the patient had a mass of 72 kg before infection and each bacterium has a mass of 9.5×10^{-13} g.

What would be the new mass of the patient?

Why in reality does the patient not reach this mass?

Working out

- 24 hours = 1440 minutes
- 1440/20 = 72 divisions
- Each division doubles the number
- 2^{72} = 4722366500000000000000 bacteria