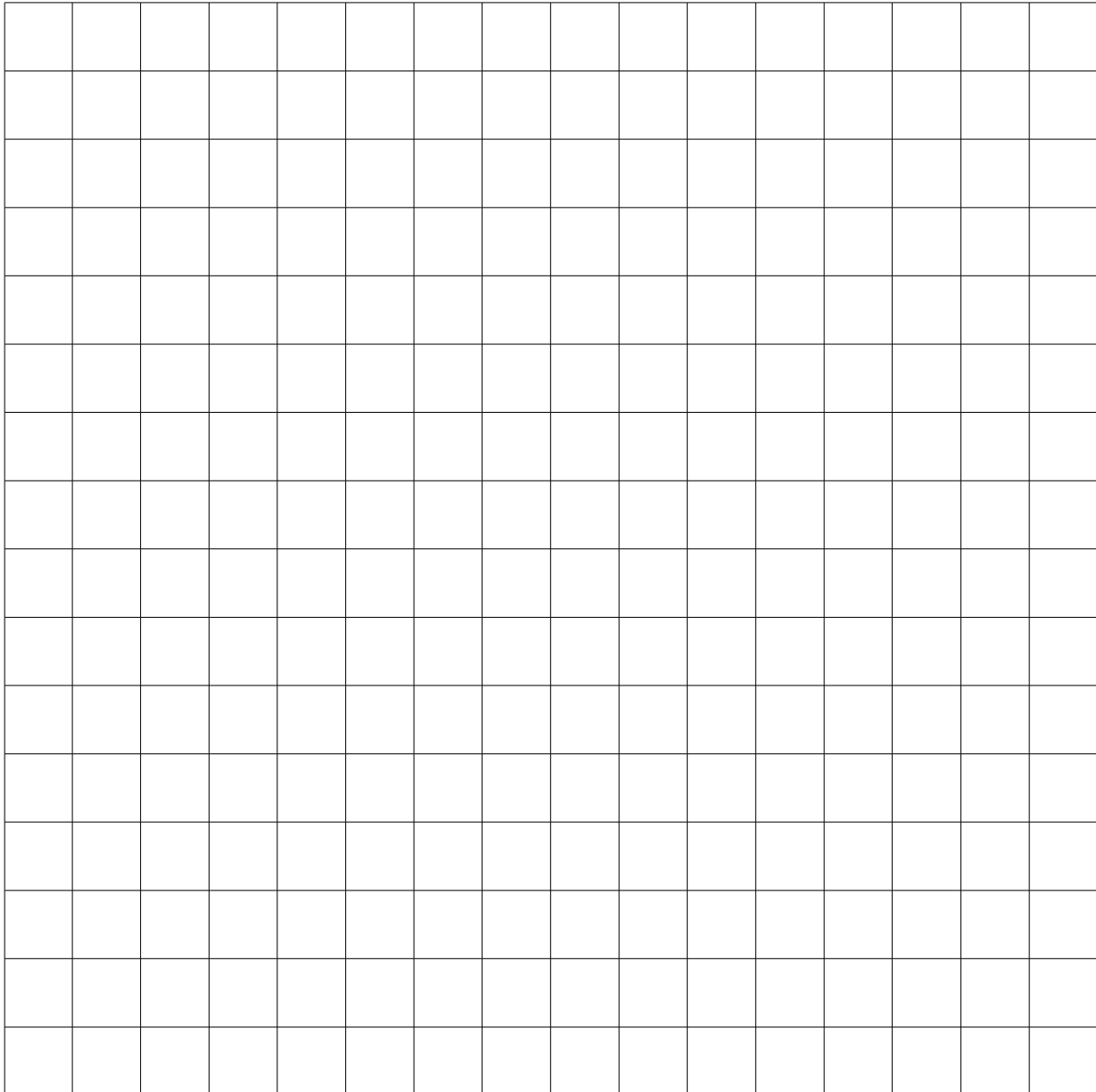


Epoch of Bubbles

An analogy for the Epoch of Reionisation:
When the first stars and galaxies formed



Each box is 1cm x 1cm

Make some bubble art!

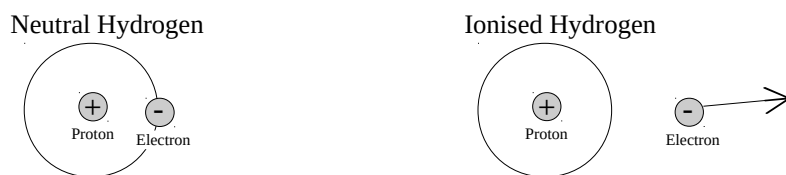
Are all your bubbles the same size? Why?

What could you change to get different sized bubbles?

Epoch of Bubbles

An analogy for the Epoch of Reionisation:
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When the Universe was only about 200 million years old the first stars formed and produced light that had lots of energy and could change the surrounding gas in large, bubble-like structures. The gas was neutral hydrogen, meaning the positively-charged proton in the nucleus was balanced with a negatively-charged electron orbiting it. The star-light was able to change it to ionised hydrogen, meaning the electron was stripped from the atom, leaving it positively charged, or an 'ion'.



The size and temperature of the stars was important.

If the star was large and hot, it produced more of this very energetic light and could ionise many hydrogen atoms, creating a large ionised region around it.

If the star was small and cool it could ionise a small amount of the hydrogen so the ionised region was smaller.

The density of the hydrogen gas was also important.

If there was lots of hydrogen close to a star, the light from the star would ionise a certain number of hydrogen atoms, but the ionised region may be small.

If the same amount of hydrogen was spread over a very large area, the same number of hydrogen atoms would be ionised, but the ionised region would be large.

Studying these ionised regions and the gas they formed from can tell us about how and when the first stars in the Universe formed.

How do you think the bubbles you created compare to the reionisation regions in the early Universe? (Hint: imagine a tiny star in each bubble!)