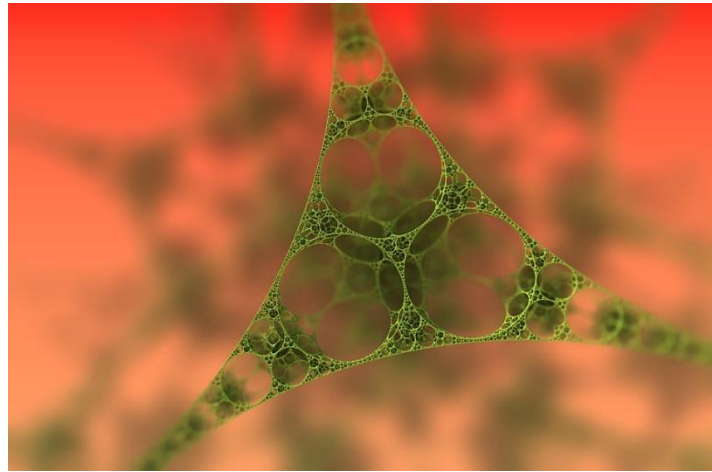


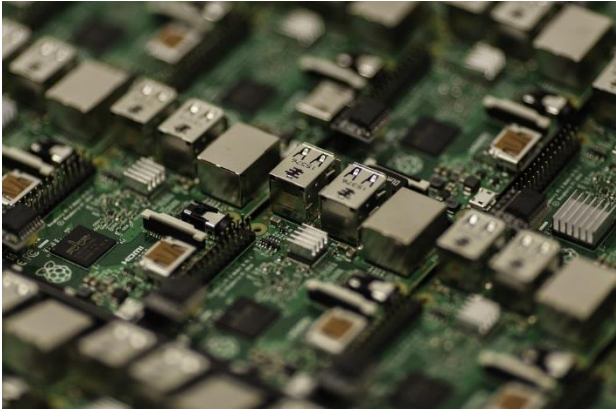
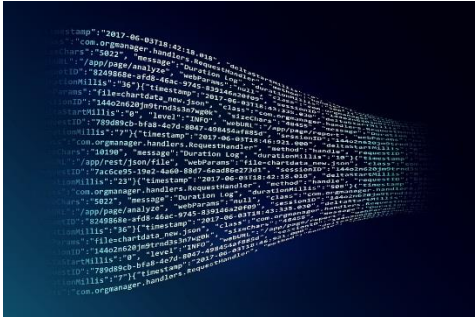
Is the next 'big idea' really small?



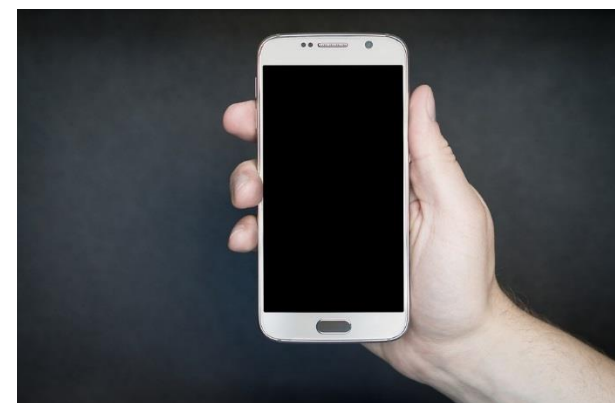
This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 665100.



How did each of these 'big ideas' change the world?



What links these images?



Is graphene this small 'big idea'?

- <http://www.graphene.manchester.ac.uk/discover/the-people/sir-andre-geim/>
- <http://www.graphene.manchester.ac.uk/discover/video-gallery/story-of-graphene/made-in-manchester/>

So what is graphene?

- <http://www.graphene.manchester.ac.uk/explore/the-story-of-graphene/>

Sticking with graphene...

- Read the Science Watch article

<http://archive.sciencemag.com/inter/aut/2008/08-aug/08augSWGGeim/>

- Explain how Andre discovered the Scotch Tape method for producing graphene.

Try to make some yourself!

<https://www.youtube.com/watch?v=PifL8bAybyc>

or

<https://www.youtube.com/watch?v=LwmxSjydPEE>

Graphene scientists awarded prizes

Andre Geim won a Nobel prize for science for his graphene discoveries. Many young scientists are also winning prizes for their work in nanotechnology:

- Water purification: Sebastian Leaper

<http://www.manchester.ac.uk/discover/news/manchester-scientist-develops-designer-membranes>

- Low power memory devices: Nazek EL Atab

<https://www.youtube.com/watch?v=x6uzZRJprZw>

Graphene: careers for the future

- The European Graphene Flagship

<http://www.azonano.com/article.aspx?ArticleID=4079>

Careers for the future: Nanotechnology engineers

- Eleanor Stride: Biomedical engineer

<http://www.plotr.co.uk/careers/nanotechnology-engineer/>

Or

[Nano medicine scientist](#)

Task

- Research one of these prominent nanotechnology scientists.
 - Make a presentation to explain what he/she discovered, the possible uses of the discovery and suggest how this might revolutionise products, processes or medical treatments in the future.
- Robert Langer
 - Gerd Binnig and Christoph Gerber
 - Mildred Dresselhaus
 - Sumio Iijima
 - Sean O'Brien, Richard Smalley, Robert Curl, Harry Kroto and James Heath.