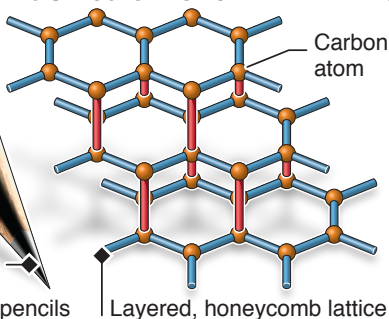


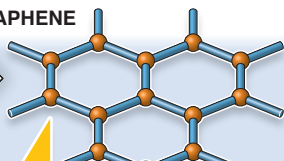
Graphene desalination theory

As the human population rises, desalination – the expensive process of extracting salt from sea water in order to produce fresh drinking water – is becoming critically important. *Graphene* could make it affordable

ATOMIC STRUCTURE OF GRAPHITE

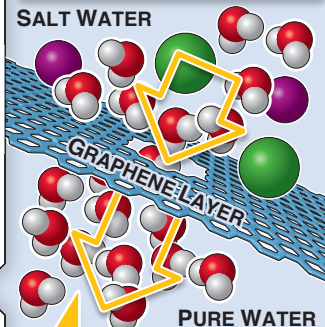


GRAPHENE



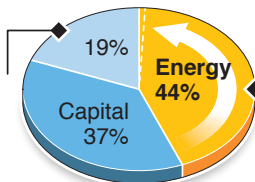
Theorised for decades, **Graphene** is one atom-thick layer of pure carbon – finally created in UK lab in 2004

SALT WATER



Precise holes cut into layer of graphene allow water molecules through but hold back **sodium** and **chlorine**

TYPICAL NON-GRAPHENE DESALINATION COSTS

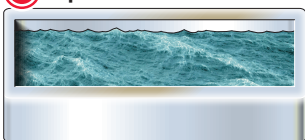


Graphene filtration could reduce energy use by **99%**

Graphite used as "lead" in pencils

DESALINATION PROCESS

① Input: Sea water



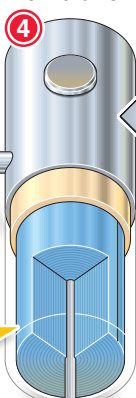
② Sediment pre-filter



③ Carbon pre-filter

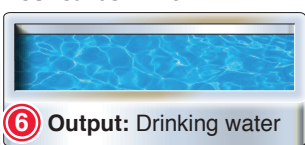


Reverse osmosis membrane



Running costs

Post-carbon filter



⑥ Output: Drinking water

Layers of graphene require **50%** less pressure to push sea water through than current desalination filters