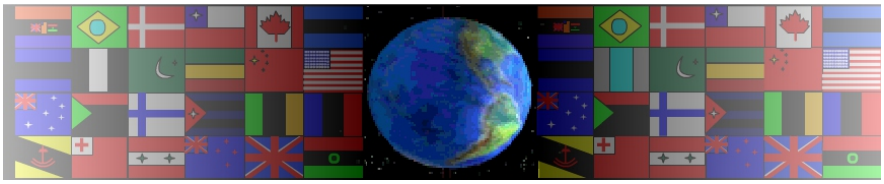
REVISION CARDS - NANOMATERIALS

On behalf of The World Association of Technology Teachers

W.A.T.T.



World Association of Technology Teachers

This exercise can be printed and used by teachers and students. It is recommended that you view the website (www.technologystudent.com) before attempting the design sheet .

REVISION CARDS - NANOMATERIALS

1. WHAT ARE NONOMATERIALS ?

A single particle of a nanomaterial, has an average size between 1 to 100 nanometres (nm), which is extremely small. 1 nano is regarded as equal to the distance across three atoms.

Some nanomaterials are special coatings use to protect surfaces and resist damage. They can be used on; Sporting equipment: Golf clubs, tennis racquets, lacrosse sticks, socks and phone displays.

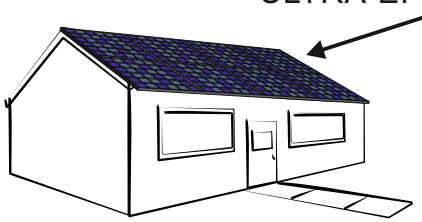
SCRATCH RESISTANT NANOMATERIAL COATING APPLIED TO THE DISPLAY

2. NANO-CRYSTALLINE MATERIALS

These are materials with a nano-grain size of less than 100nm.

One practical application is in ultra-efficient solar panels, manufactured from nano-crystalline materials, converting sunlight into electricity, very efficiently.

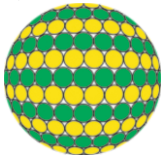
NANO CRYSTALLINE BASED SOLAR PANEL, ULTRA-EFFICIENT



3. QUANTUM DOTS

Quantum Dots are minute particles with unparalleled electronic properties, sometimes referred to as semiconducting nanocrystals.

ALLOYED QUANTUM DOT



Each liquid below, has a different proportion of two types of semiconducting nano-crystals, dissolved in a liquid. As a result, a range of photoluminescent colours are produced.

They have a potential role in medicine, as sensors inside the human body.

1. What are nanomaterials? Include a general description of their use. *4 marks*

1. Describe one detailed use of a nanomaterial. See cards 2 and 3. *4 marks*