

Cheaper, flexible, eco-friendly phone screens developed

LONDON: Brittle, expensive smartphone screens may soon be a thing of the past, thanks to scientists who have combined silver and graphene to develop environment friendly, flexible displays that match the performance of existing technologies at a fraction of the cost.

The new approach also promises devices that use less energy, are more responsive, and do not tarnish in the air.

Indium tin oxide, which is currently used to make smartphone screens, is brittle and quite expensive.

The primary constituent, indium, is a rare metal and is ecologically damaging to extract. Silver, which has been shown to be the best alternative to indium tin oxide, is also expensive.

Scientists at the University of Sussex in the UK combined silver nanowires with graphene - a two dimensional carbon material.

The new hybrid material matches the performance of the existing technologies at a fraction of the cost.

"While silver nanowires have been used in touch screens before, no one has tried to combine them with graphene," said Alan Dalton from the University of Sussex. **PTI**

ACTIVITY I

➤ Answer the following:

- Complete the table; add five articles from the classroom (chalk, wood, paper, geometry box, tiffin box, eraser, belt, socks, shoes etc.) and predict the change in shape.

Object/ Material	Change in Shape (Flattens/Breaks into pieces)
Iron nail	
Coal piece	
Aluminium wire	
Pencil lead	

- Name the property that allows making of aluminum foils, is paper made the same way?
- Distinguish between malleability and ductility?
- Name one example each of a material that is hard, lustrous, malleable, ductile, sonorous and good conductors of heat and electricity.
- Name one material that has all the properties?
- Name one material that has none of the listed properties?
- Match the substances given in Column A with their uses given in Column.

A	B
(i) Gold	(a) Thermometers
(ii) Iron	(b) Electric wire
(iii) Aluminium	(c) Wrapping food
(iv) Carbon	(d) Jewellery
(v) Copper	(e) Machinery
(vi) Mercury	(f) Fuel



ACTIVITY II

- What happens when:
 - Dilute sulphuric acid is poured on a copper plate?
 - Iron nails are placed in copper sulphate solution?
- Write word equations of the reactions involved
- E-waste cannot be disposed like kitchen waste. Give reasons.
- Read the article and explain how the new material will help with ease of disposal.

ACTIVITY - I

1. Identify the picture given below. Mention its name and features.



ACTIVITY - II

1. Prepare a picture diary of any two leaders to show the comparison between the various movements in order to gain freedom from foreign rule in India based on the following points:
 - i. Methods of struggle
 - ii. Life style of the leaders
 - iii. Outcome of the struggle