

2 3 1 f Modern Materials and Products

Preparation

- Read page 42

Resources

- LCD display watch or clock
- Commercial video *The Secret Life of the Quartz Watch*
- School LCD computer screens

- Mobile telephone screen
- Mobile telephone screen with EL backlighting

Liquid crystal displays

Suggest teacher finds an image of an LCD television

Suggest teacher finds an image of an LCD display

Phosphorescent pigments

Suggest teacher finds an image of phosphorescent pigments display

Electroluminescent lighting

Suggest teacher finds an image of electroluminescent display

Wider study

- How Stuff Works (LCD) <http://www.howstuffworks.com/lcd.htm>
- Sony flexible full colour paper screen
<http://uk.youtube.com:80/watch?v=k6bkmPjVF-k&feature=related>
- Phosphorescent pigments manufacturers
<http://www51.honeywell.com/sm/lumilux/index.html>
<http://www.dualglo.com>
- Electroluminescent lighting manufacturer
<http://www.cochief.com/?gclid=CPe9puyz5ZYCFQTnlAoduUE6OQ>

Assignment

- Look around the world about you for examples of products made from these materials, eg home television, toys, advertising displays

Homework

- As above

Revision questions

1. Explain the term LCD and give ONE example of its use

Specification and Learning Objectives

Structural composition, application and advantages/disadvantages of the following modern materials and products used by the graphics industry:

- liquid crystal displays (LCD)
- phosphorescent pigments
- electroluminescent (EL) lighting

Solutions to revision questions

Next page

1. Explain the term LCD and give ONE example of its use

- used as numerical & alpha-numerical indicators /displays
- have replaced LED's
- require much smaller currents than LDRs
- prolong the life of batteries / more energy efficient
- battery life is lengthened because LCD's use microamperes rather than milliamperes
- liquid crystals are organic, carbon-based compounds
- liquid crystals exhibit both liquid and solid characteristics
- applied voltage across a cell's terminal, containing liquid crystal, it will go 'dark' / react
- LCD's use a 7 segment pattern – giving numbers/letters
- Applying a voltage causes segments to go dark against a silvered background / or realign