

why does



a cd

look so

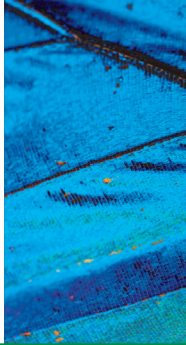
colourful ?

the answer to this question  
can help explain what guides  
bees to land on flowers !



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find out inside and online:

<http://royalsociety.org/>

[summer-science/2011/colour-nature/](http://summer-science/2011/colour-nature/)

<http://www.colours.phy.cam.ac.uk/>

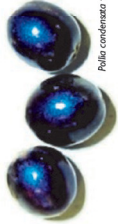
## plants dress to impress



Colours in nature serve an essential role in providing a wide range of signals: "I am fertile!", "I am easy!", "I am dangerous".

Most colours in nature are based on pigments, which absorb part of the light and reflect the colour you see. But some particularly vivid colours come instead from nanostructures. Structural colour is made by **transparent material ordered into periodic structures** on the 1/1000 mm length scale.

Some flowers and fruits use structural colour as well as pigment colour to help attract and guide the animals that pollinate or them or disperse their seeds.



*Pallo condensata* fruits

## tiny structures make beautiful colours

Tulip "Queen of the Night"



Compact Disk (CD)



The rainbow colours observed on CDs are a familiar example of **surface structure producing colour** by causing diffraction and interference of light.

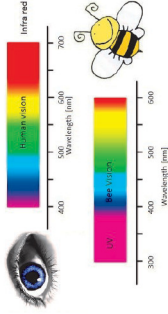
Now scientists are discovering how extremely small nanostructures, invisible to our eyes, are producing similar striking colours for plants. Researchers are also creating **synthetic materials with vivid structural colour**, such as the polymer opals shown below:



Visit our website to learn more about structural colour!

## animals see colours we cannot see

Intricate structures on plants can produce ultraviolet (UV) colours, **invisible to us but clear signals to insects** which play the important role of pollinator.



That is why some flowers, like the two shown below, look very different to a bee (left, UV photos) than they do to humans (right, visible range photos):



*Merzella Lindley*

*Arctostaphylos*