

# Exploring Your World



**Robert Hooke published this engraving of cloth in 1665.**

With a digital microscope, you can find out what the pioneers saw. A cotton handkerchief will allow you to see what Robert Hooke observed in 1665. The weaving of threads, alternatively in and out, is well displayed by the 60x lens. Sometimes weaving is more complex and the threads more tightly packed, which gives a better quality product. There may be a fault in a fabric, resulting in a hole. The question is: can the

garment be returned to the shop for a refund? Have a look with the microscope, and take some digital pictures. That will show you what is happening, and may provide the evidence you need. Modern technology has now introduced non-woven fabrics, and a microscope will show which is which. Non-woven fabrics are made of cotton threads containing a few plastic threads. The strands are laid at right-angles to each other, and are then bonded

by heat and pressure which melts the plastic. There is no in-and-out weaving process. Disposable kitchen cloths and wipes are often made of non-woven fabrics. A needle and thread look dramatic under a microscope - and there are sharp needles in nature, too. One of the first specimens chosen for the microscope in the 1600s was the needle-sharp sting of a nettle. It was discovered that the nettle leaf is covered with sharp



**A traditional tea-cloth under 60x is conventionally woven.**



**The structure of non-woven fabric under the 10x lens.**



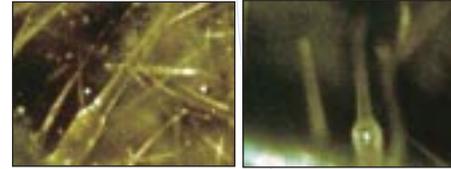
**Complex, tight weaving is used for a quality tablecloth - 60x.**



**An everyday object? Needle and thread under 60x.**



**At 60x you can clearly see the stinging hairs on a nettle leaf.**



**Details of the stinging hairs and their poison sacs can be studied at 200x.**

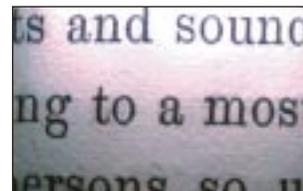


**Want to know how nettles sting? So did Robert Hooke.**

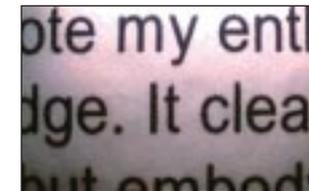
stinging hairs. They are made of silica, a form of glass secreted by the leaf cells, and are very pointed. At the base of each stinging hair is a rounded

sac containing acid. Each acts like a microscopic hypodermic needle and injects the acid into your skin. No wonder nettles sting. Look at print under

a microscope. Is a document genuine? A photocopy shows scattered particles of toner. Your microscope reveals which document is genuine.



**A page under the 10x lens - is it genuine or a copy?**



**How was this page produced? The 10x image doesn't say.**



**Here's the suspect document, which looks fine at 10x.**



**200x shows the edge is 'stepped' - this is inkjet printing.**



**At 200x you can see how the ink has soaked into the page.**



**At 200x the grains of toner are unmistakable. A copy.**