

The visual examples in these pages are all meant to show that we can see various things depending on context and other factors. It is worth stressing how remarkable the pattern-detection ability of the brain is. The questions on page 225 indicate that the brain produces a highly processed version of reality to the conscious mind. Your ears must have heard the sounds of the conversation to be able to pick out your name, but some internal mechanism thought that the rest of the conversation was not interesting enough to bring it to conscious attention. Similarly, the brain 'fills in' the optical gap left by the blind spot using information from the other eye and by other more subtle techniques (see the blind spot demonstration on page 85 in this book).

Question D implies that, when tasting tea, we might have the same sensory input as the professional, but we are simply unable to process the data as well as he does. The point is that the taste isn't in the tea – it isn't even in the mouth – it's in the brain/mind! Just as babies learn to make increasingly refined judgements about the world naturally, so can adults, with training.

Question E shows that what our senses tell us goes well beyond the sensation. Our sense of balance is derived from a 'knowledge' that the small hairs in our ears are pointing in a certain way, but we end up with a conscious awareness of balance. In terms of sensation, this seems to have little to do with hairs pointing in any particular direction. This again indicates the massive level of processing and interpretation that the signals indicating hair orientation undergo!

The final illusions on page 226 of the Student's Book are excellent ones because many people can only see what is there once they have been told what they should be seeing – which is rather unusual!

Some activities on empiricism

You probably won't want to use all of these activities as they are a little repetitive, but select a few to bring a little fun to the lesson.

- Using websites to demonstrate the 'constructed' nature of perception

There are many 'illusion' websites out there. I think there is a danger that students see them as fun, but miss the point. Here are two extraordinary and spectacular research-based sites that avoid this danger.

Project Lite: <http://lite.bu.edu/vision/applets/lite/lite/lite.html>

MIT: <http://web.mit.edu/persci/demos/Motion&Form/master.html>

- Describe the teacher/room

Towards the end of the lesson write the following instruction on a piece of paper:

Write down a description of your teacher in as much detail as possible, paying particular attention to clothes, shoes, jewellery and other physical attributes. Do not consult with anyone else; do this in complete silence relying on your own observations only.

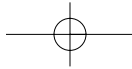
Hand the note to a student and ask them to read it out to the rest of the class once you have left the room. Remain outside for a couple of minutes. When you return to the room see what the students remembered. The results can be quite remarkable – sometimes students say the colour of my shirt is white when it is actually bright blue! It shows clearly that though the light from the teacher enters the eyes of the students, they do not 'see' the teacher.

A similar activity is to ask students to describe something which they have seen often, but which is not important – for example, the wall behind their desks, or something familiar outside the room. The point of selectivity arises again – and that there is more to seeing than meets the eye.

- Paris in the the spring

Show the students the sign below and ask them to read it. Show it fairly briefly, and ask the students not to call out. Most students will read 'Paris in the spring', which isn't what it says. Ask them again and again, holding it up briefly each time. Even after they know that it doesn't say 'Paris in the spring', some will not spot the second 'the' for a long time. They literally have not seen what it says despite the fact they were looking straight at it.

PARIS
IN THE
THE SPRING



■ Magic Eye

The Magic Eye stereograms are a first-class example of two different ways of imposing order on a set of optical inputs. Which image is the real one? We might say that one has more meaning than another, but does that make it better? The explanation of how stereograms work in Chapter 4 of Stephen Pinker's *How the Mind Works* (Penguin, 1997) is a fascinating extract to share with classes.

■ Messing around with taste

I have never done this, but colleagues have told me that if you give students grated white chocolate on crackers they taste cheese because that's what they expect. I have also heard that if you put a tasteless blue or brown dye in mashed potato then students will report that it tastes disgusting, even though the dye has had no 'real' effect. I can also imagine experiments with apple cubes and potato cubes.

■ The blind spot

The existence of the blind spot can easily be demonstrated. Take a blank sheet of paper and draw the following:



Tell the students to close their right eye and hold the paper about 50 cm from their face, so that the dot is straight in front of their left eye. They should look straight at the dot on the right-hand side, then vary the distance of the sheet from their face until the cross vanishes. They then cannot see what is literally right in front of them. The brain 'fills the gap' most of the time – again, the link between optical inputs and sight is not a straightforward one.

■ A violent incident

Arrange for a group of students to burst into the lesson violently, wearing odd clothes, and enact something rather bizarre and funny for roughly ten seconds (you should appear shocked) and then vanish. While your class is excited and babbling, hand out a question sheet and ask them to write down, individually, who was in the room, what happened and what it meant. The highly variable accounts of who and why are great entertainment and impress upon students the fallibility of even the most trustworthy eyewitness (oneself).

■ Dwarf buffalo

Present this true story and see if the students can explain it:

The Luti tribe of the Congo lived deep in the dark, dense jungle for hundreds of years, never venturing out until sometime earlier last century. When they did come out onto the plains, they found buffalo the size of pygmies. When this was later reported to outsiders, the Luti returned to the plains to show the pygmy buffalo, but the observers could only find regular buffalo. Why?

Answer: Deep in the jungle with no clear lines of vision the Luti had never learnt perspective – they hadn't learnt that smaller things could be more distant. This shows clearly how our view of reality has to be learned.

■ Context is everything

These visual stimuli, not quite illusions (overleaf and page 87), demonstrate how context is everything, and that perception is an active, not a passive process. You could photocopy these and show different ones to each half of the class. Ask each group whether the 'stripes' are vertical or horizontal and what the arrow is pointing at.

