THE BIG NUMBER

The Philosophy

This session needs a little bit of general knowledge – that is why it is KS2, but half the fun is how the children try to apply their limited general knowledge to solve the problem. There are two basic issues. The first is whether 'facts' about the world expressed in numbers are literally true. The second is whether we can know facts about the world just by thinking about them – or extrapolating from the basic facts we have and if not, where do these numbers come from.

Stimulus

Begin by writing this number on the board: 6 800 000 000 (You can update this number by checking on the net, particularly if you think you will use the population counter mentioned below. I usually round it like this so that children can handle TQ1 more easily.)

Task Question 1

✔ How do you say this number?

Let the children discuss this in pairs for a short time, and then get their answers. Ask them to justify their ideas if they can. Bear in mind that 8-10 year old children will have a varying grasp of place value (hundreds, tens, units etc). Some will be struggling with the basics, while others will say things like 'I know that six noughts means a million'. Another thing to look out for is the answer 'Six thousand eight hundred million' which is kind of correct, as well as 'six billion, eight hundred million'. (Often it will be expressed in newspapers etc as 6.8 billion – but I don't usually go there, as some are already struggling.) This whole section is really just a warm-up, taking 2-5 minutes, but can be very lively.

Task Question 2

✔ This is a number I found on the internet. What question did I ask? What is this the number of?

(Take care that all the children get the question – you may have to rephrase it slightly, e.g. 'This is the number of... what?') After 2 minutes of pairwork, (during which check each pair gets the question!) everyone should be able to give an answer so you may want to select speakers yourself that don't usually speak. Let them know that they can have fun with it if they want (the number of leaves on all the trees... the number of cats in London...). Some children will have some serious guesses. Ask which answers might be right, and why. Every time this session has been done at least one child has suggested that it is the population of the world. Sometimes they have been laughed at, sometimes they have been believed.

Confirm that the information you were looking for was the number of people in the world. (Note that not all children know the word 'population', so don't assume. But some children will, so just get them to explain.) Of course, you don't necessarily have to do that. You could do it all hypothetically – If it's the number of cars in England, how would they know? Etc. But it's fun to tell them.

Task Question 3

✔ Is this number right?

Nested Questions:

✔ Does the real amount of people change too quickly for the number to be right? (Does it go up or down, or both? Children will speculate on whether there are more births or deaths and try to use logic to prove it.)

✔ How can they count the people?

Task Question 4 (Optional but popular)

✔ Go to this website: http://galen.metapath.org/popclk.html (On the day you can find it by googling 'world population counter')

This website is a live counter of the population. First get the children to just watch it. Then get them to say what it's doing – unbelievably many will say that it is going up and down just because they think it should!! This will re-fuel the debate as they start to ask whether this information is more reliable than the static, rounded figure we started with.

You could actually skip TQ3 and go straight to this website when you confirm that you were searching for the world population.

Two last points to have in mind:

1. This discussion could get snagged on facts – the population is getting higher... oh no it isn't etc. But you can steer it fairly easily by asking the children how they know these facts, and what these facts prove. They can actually be wrestling with a priori versus a posteriori knowledge.

2. This was initially conceived as an introduction to sessions on identity (e.g. Where Are You? in The If Machine), but sparked so much interest it became a stand-alone session. So it can be used to introduce those themes for future weeks – there are nearly 7 billion of us, so are any two of us exactly the same? Why/Why not? How can that be possible? What makes you you?