Centre of the Cell

Science in Context

This activity encourages pupils to think about science in a wider context than just their school lessons. They will think about the contribution of science to society, and distinctions (or lack of them) between the different disciplines of biology, chemistry, physics and computer science.

Much of the content of Centre of the Cell aims to place science into a realistic context for visitors. Prepare them for this by asking them to explore their current ideas about science. This will encourage them to think about what they see in the Pod.

This activity, combined with a visit to Centre of the Cell, will also help pupils consider the many careers available in biomedical science, other than just 'doctor' or 'nurse'.

National Curriculum Links

Key Stage 3

Curriculum opportunities

4c) Use real-life examples as a basis for finding out about science
4e) Experience science outside the school environment, including in the workplace, where possible
4i) Prepare to specialise in a range of science subjects at Key Stage 4 and consider career opportunities both within science and in other areas that are provided by science qualifications

Key Stage 4

How science works

4) Applications and implications

Activity

1. Ask pupils to write down the following:

Their view of science
Their career ambitions
The careers in science that are available
Scientific/medical problems that still need tackling
Scientific/medical problems that have been solved

Unsolved problems include:
a cure for HIV/AIDS; effective rehabilitation for spinal cord injury patients; a common cold vaccine; successful brain transplants

"Solved" problems include:
the eradication of smallpox; the cause of and treatment for stomach ulcers; sequencing the human genome (note that genetic cures are still unavailable).

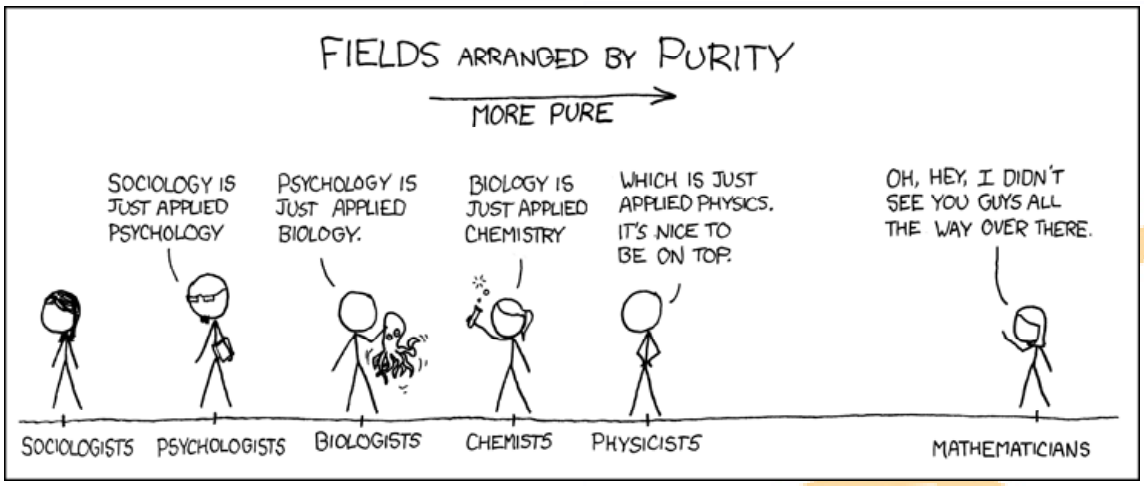
2. The table below shows how the scientific disciplines overlap, giving areas where, for example, a biologist might work with physicists, or a computer scientist might work with chemists.

Ask the pupils to draw out a blank table, and give them the list of answers, asking them to fit the right answer into the right part of the table.

	Projects involving both types of scientist			
	Biologist	Chemist	Physicist	Computer Scientist
Biologist		Blood testing	X-rays and imaging	Genetic epidemiology studies
Chemist	Drug development		Working at the nanoscale to develop location-specific medicines delivery systems.	Development of new dialysis machines.
Physicist	Developing artificial joints	Testing new materials ie for lightweight wheelchairs.		Nerve/muscle activity monitoring ie eye movements during sleep
Computer Scientist	Computational models to explore how the brain works	Testing new DNA detection/ sequencing techniques	Modelling enzyme-protein interactions at the atomic level	

Ask pupils if they can think of any other areas where the lines between the disciplines become blurred.

As part of a follow-up discussion, you may wish to discuss the following cartoon:



http://xkcd.com/435/

After you have visited the Pod, ask the students to review their answers and say whether or not their views on science and science as a career have changed.