S100: Science: a foundation course
S100/05: Science Course Unit 5

Executive Producer: Nat Taylor
Director: Tony Jolly
Contributors in the clip: Alan Walton

Clip transcript: A simulation of liquid diffusion.

Alan Walton:
A much more revealing characteristic for study is the diffusion of one liquid into another. Here I'm adding some white painted ball bearings to the tray. Let's watch them as they diffuse. It's easier to see what's happening if we use slow motion. It's clearly going to be a lengthy process so let's look at the situation after a period of time has elapsed. The white balls have spread out. A look at any one white bearing and you'll see that it's imprisoned in a cell whose walls are its nearest neighbours. To escape from its cell it must either wait until there is a gap in the walls, or until it has enough energy to push its neighbours apart and escape to an adjacent cell. Escape is comparatively rare, so diffusion in liquids is a slow process.