

G IS FOR GRAVITY

The genre of music I am aiming for in this song is gospel. Gospel music began in the southern states of the USA, a few hundred years ago, as a way of setting Christian hymns to music. Yes, there is an irony in the fact that I'm using a religious musical style to sing about a scientific view of the world, and there's a possibility that I'll offend some people by doing so. If so... sorry!

Who was Isaac Newton? Isaac Newton was born on Christmas Day in 1642, and became one of the most important scientists in his day (the word 'scientist' didn't exist at that time, though, so he was known as a 'natural philosopher', which is almost the same thing). He figured out a whole new way of doing mathematics, called calculus, and also figured out lots about how light works, but he is most famous for his theory of gravitation.

Did Isaac Newton discover gravity? Well, no, of course not: everyone already knew that things fell down if you dropped them. The breakthrough Newton made was in figuring out that gravity is a fundamental force of nature – that everything everywhere will attract other particles towards it, not just the Earth. As I say in the song, "It's the same force making the moon spin round and making the apple fall down".

Did Isaac Newton discover everything there is to know about gravity? Well, no. About 230 years later, Albert Einstein vastly improved Newton's theory, in a theory called the General Theory of Relativity (see under 'R'). Newton's theory still works in most everyday circumstances, but if you're planning the flight trajectory of a spaceship, or predicting the way planets wobble around stars, or indeed navigating a car using GPS, Newton's theory will give you slightly inaccurate results and you need Einstein's theory instead. (If you're trying to predict the gravitational effects on extremely small scales, then neither theory is quite up to scratch, and you need to switch to quantum theory, see 'Q'. No-one has yet managed to combine Einstein's theory with quantum theory; once someone does, this theory will be the so-called 'Theory of Everything'.)

Was Isaac Newton quite as cool a dude as I make him out to be in the song? No, not really. There are lots of stories from his life which show him as unsociable, neurotic, proud and sometimes downright nasty. But the genre I'm going for in this song is Gospel, and since Gospel music is intended to praise and revere, I've chosen to be a bit nicer on him than perhaps he deserves. After all, his theory of gravitation was just one of many extraordinary and revolutionary theories he came up with.

A note about the title: This is not a song about g-force, although the 'g' in 'g-force' does stand for 'gravitational'. G-force is actually a unit of force that measures that feeling you get when you're in a car that's accelerating so fast that you're being pushed back against your seat (or decelerating so fast that you fling forward against your seatbelt). I've called it 'The G Force' as a kind of joke which isn't even funny, because the song is about a force that starts with the letter G.