KNTV PHILOSOPHY
ISAAC NEWTON

Programme-related questions
(and answers)

1. Where did Isaac Newton come from, and when was he born?
(He was born in Lincolnshire on Christmas Day 1642.)

2. What did the word 'philosophy' mean in ancient Greek?
(It meant 'love of knowledge or wisdom'. Scientists were known as 'philosophers' in ancient times.)

3. What simple everyday event did Newton see that made him realise that there must be an invisible force at work?
(He saw an apple fall to the ground from a tree near his house, and realised that there had to be a force preventing it from simply floating away. He called this force 'gravity'.)

4. What effect does gravity have on human beings?
(It's what stops people flying off the surface of the Earth as it rotates.)

5. What were Newton's three Laws of Motion?
(1 Objects stay still, or carry on moving in a straight line, unless a force acts upon them.
2 The harder you push something, the faster it moves.
3 Every action has an equal and opposite reaction.)

6. Why did Newton argue with the mathematician Gottfried Leibniz?
(Both men claimed to have invented calculus. Newton had kept his work secret, not knowing that Leibniz was simultaneously developing a similar theory. Newton campaigned against Leibniz for years, and accused him of copying his work.)

7. List three words that describe Isaac Newton.
(Moody, bad-tempered, scruffy, brilliant, dedicated, hard-working, rigorous, loner.)

8. How did the work of Johannes Kepler inspire Newton?
(In an era where most people didn't believe that the earth was spinning, Kepler was one of the first to think about planetary orbit. He discovered that planets have an elliptical orbit around the sun.)

9. What discovery was made by Galileo that fitted in with Newton's ideas?
(He dropped objects with different weights from the top of a high building and discovered that they both fell to the ground at the same speed.)

10. Name two natural phenomena that Newton was able to explain.
(Newton explained that the sun sets because the earth is rotating, so it drops out of sight. He also explained that a rainbow is formed from light refracted and reflected in drops of water vapour.)

11. Name ways in which Newton's work has influenced modern-day inventions.
(An understanding of how gravity works helped scientists develop space travel, influenced car and airplane design, and enabled lifts, cranes and parachutes to be invented. Satellite TV depends on the principle of planetary orbit.)

12. How did Newton inspire future generations of scientists?
(Until Newton's time, scientists didn't always record their work properly. He took detailed notes on all his experiments with precise measurements, which proved that his ideas were correct.)