

Name \_\_\_\_\_ Date \_\_\_\_\_

# Sir Isaac Newton: The Gravity of Genius

A&E and Poley

1. What was Isaac Newton's relationship with his mother?
2. What was the effect of *The Mysteries of Nature and Art* by John Bates on Isaac Newton?
3. What kind of formal instruction did Isaac Newton encounter upon enrolling at Trinity College at Cambridge?
4. What effect did the ideas of René Descartes have on Isaac Newton?
5. What did Isaac Newton do when plague struck Cambridge in 1666.
6. I. Bernard Cohen talked about how "...every discovery that Newton made had two aspects." What were those two aspects?
7. Francis Bacon suggested what method of inquiry that Isaac Newton followed in his studies of light?
8. The reflecting telescope was invented by Isaac Newton in order to overcome what problem with telescopes that used lenses?
9. What was the result of Isaac Newton sending his telescope to the Royal Society?
10. What problem was there with Isaac Newton taking on the job of Lucasian Professor of Mathematics at Trinity College at Cambridge?
11. What are the basic principles of alchemy? Why did alchemy appeal to Isaac Newton?
12. What was Isaac Newton's purpose in analyzing biblical scripture? How did he reconcile his religious beliefs with his scientific discoveries?

13. What did Edmond Halley convince Isaac Newton to do?
14. What method did Isaac Newton use to explain the motion of the planets?
15. When Isaac Newton introduced the idea of gravity acting at a distance, what objections were raised to it?
16. What conflict was there between Isaac Newton and Flamsteed?
17. What conflict was there between Isaac Newton and Leibnitz?
18. At the conclusion of the documentary, the British physicist Stephen Hawking calls Isaac Newton one of the greatest scientists in history. Explain why Hawking confers this accolade on Newton.
19. What is calculus? Why was Newton's invention of calculus significant? What does calculus help scientists to explain?
20. Why did Newton study Euclidian geometry? How did he apply geometry to study the motion of the planets?
21. What did Newton discover about light? Why was light considered a scientific problem in the sixteenth century? What did Newton believe was the relationship between light and objects?
22. How were scientific experiments financed and publicized in the seventeenth century? How is scientific work funded today? How did the education of a seventeenth-century scientist differ from the education offered to young scientists today?
23. What was the significance of Newton's work at the royal mint? What job did Isaac Newton undertake when he became head of the mint? How did he alter the way money was defined and exchanged?
24. How did the work of other scientists influence Newton's work? Why were questions about light, motion, and the planets among the most prominent problems facing seventeenth-century science?
25. In what ways is the modern space program the child of Isaac Newton? Would the exploration of space be possible if we did not know or understand Newton's laws of gravity?