

# Schooled by Isaac Newton

Read the passage from Newton's masterpiece, *Principia Mathematica*,<sup>1</sup> then answer the reflection questions that follow on the other side.

The six primary planets are revolved about the sun in circles concentric with the sun, and with motions directed towards the same parts, and almost in the same plane. Ten moons are revolved about the earth, Jupiter, and Saturn in circles concentric with them, with the same direction of motion, and nearly in the planes of the orbits of those planets; but it is not to be conceived that mere mechanical causes could give birth to so many regular motions, since the comets range over all parts of the heavens in very eccentric orbits; for by that kind of motion they pass easily through the orbs of the planets, and with great rapidity; and in their aphelions, where they move the slowest, and are detained the longest, they recede to the greatest distances from each other, and hence suffer the least disturbance from their mutual attractions. This most beautiful system of the sun, planets, and comets, could only proceed from the counsel and dominion of an intelligent and powerful Being. And if the fixed stars are the centres of other like systems, these, being formed by the like wise counsel, must be all subject to the dominion of One; especially since the light of the fixed stars is of the same nature with the light of the sun, and from every system light passes into all the other systems: and lest the systems of the fixed stars should, by their gravity, fall on each other, he hath placed those systems at immense distances from one another.

This Being governs all things, not as the soul of the world, but as Lord over all; and on account of his dominion he is wont to be called *Lord God...or Universal Ruler...* The Supreme God is a Being eternal, infinite, absolutely perfect...It is the dominion of a spiritual being which constitutes a God: a true, supreme, or imaginary dominion makes a true, supreme, or imaginary God. And from his true dominion it follows that the true God is a living, intelligent, and powerful Being; and from his other perfections, that he is supreme, or most perfect. He is eternal and infinite, omnipotent and omniscient; that is, his duration reaches from eternity to eternity; his presence from infinity to infinity; he governs all things, and knows all things that are or can be done...

We know him only by his most wise and excellent contrivances of things, and final causes; we admire him for his perfections; but we reverence and adore him on account of his dominion: for we adore him as his servants; and a god without dominion, providence, and final causes, is nothing else but Fate and Nature. Blind metaphysical necessity, which is certainly the same always and everywhere, could produce no variety of things. All that diversity of natural things which we find suited to different times and places could arise from nothing but the ideas and will of a Being necessarily existing.

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<sup>1</sup> Taken from: Isaac Newton. *Sir Isaac Newton's Mathematical Principles of Natural Philosophy and His System of the World*. Translated into English by Andrew Motte in 1729. The translations revised, and supplied with an historical and explanatory appendix by Florian Cajori. Volume Two: The System of the World. Paperback edition. Berkeley and Los Angeles: The University of California Press, 1962. pp. 543-547. [First edition, 1686-7]



# Reflection Questions

Name: \_\_\_\_\_

After reading the above passage from pen of Newton, give detailed answers to the following questions. Please include a specific quote from the essay in each answer.

1. What natural objects and events does Newton discuss in paragraph one?
2. According to paragraph one, how did the solar system come about?
3. According to paragraph two, what does Newton think God is like?
4. According to the last paragraph, what is the difference between God and nature?
5. Do you agree with any of Newton's ideas in the above essay? Why or why not?

