

## PRIORITIES

Thursday

behaviour of material objects, such as falling bodies and projectiles. To us this seems obvious — today's scientific theories ~~are~~ routinely formulated in mathematical language, not only in physics but also in the biological and social sciences. But in Galileo's day it was not obvious: mathematics was widely regarded as dealing with purely abstract entities, hence inapplicable to physical reality.

• Galileo emphasized on testing hypothesis experimentally. This wasn't a widely accepted method of gaining knowledge in his times. The empirical approach of Galileo to studying nature continues even today.

• René Descartes developed a new mechanical philosophy, according to which the physical world consists of inert particles of matter interacting and colliding with one another. It tried to explain all observable phenomena in terms of motions of these corpuscles.

• This philosophy became the dominant scientific vision of the 17th century with other proponents being Huygens, Grassendi, Hooke and Boyle.

• The scientific revolution culminated in the work of Isaac Newton, whose masterpiece, Mathematical Principles of Natural Philosophy, was published in 1687.

• Newton elaborated on Descartes's theory, with remarkable precision and rigor, using mathematical techniques we now call calculus. Newton based his theory on the three laws of motion and the principle of universal gravitation.

• Strikingly, Newton was able to show that Kepler's laws of planetary motion and Galileo's

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