

## 7.0: Classical Physics- Gravity and Energy Introduction

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The video shows astronauts moving around inside the International Space Station. Did you notice that they are able to float around and turn in different directions in a manner that is much different from how they would move on Earth? We often say that the astronauts in space are “weightless” or in a “zero-G” environment. But what do these terms really mean? And are they correct?

In this chapter, we consider gravity, the attraction of all matter to other matter. Gravity is the most familiar of the four fundamental forces of nature. It has been so for many thousands of years. However, only relatively recently have we achieved a basic understanding of what gravity is and how it works. In the following pages, we begin to explore the classical theory of gravity.

We will also explore the concept of energy in this chapter. Our focus will be on the energy due to gravity and the energy of motion, as well as the interplay between the two. By understanding gravity and energy we will gain a much deeper understanding of how objects move on Earth, in orbit, and in the Universe more broadly.

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