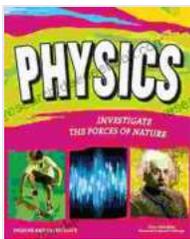


Investigate The Forces Of Nature Inquire And Investigate

Forces of nature are the fundamental forces that govern the behavior of matter and energy in the universe. They are responsible for everything from the motion of planets to the formation of stars. The four fundamental forces of nature are:



PHYSICS: INVESTIGATE THE FORCES OF NATURE

(Inquire and Investigate) by Jane P. Gardner

★★★★☆ 4.5 out of 5

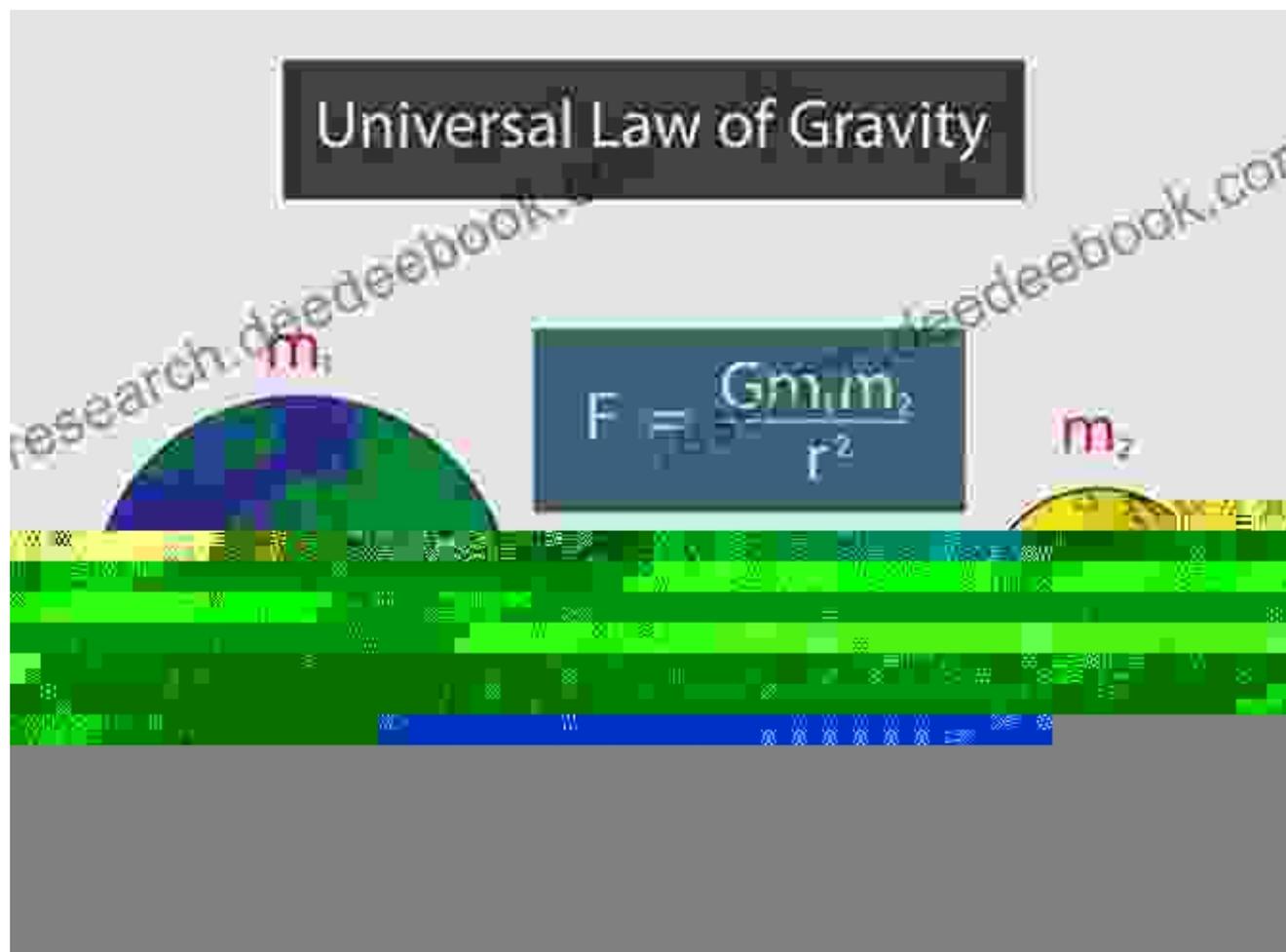
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Lending : Enabled



- Gravitational force
- Electromagnetic force
- Strong nuclear force
- Weak nuclear force

Gravitational force is the force of attraction between any two objects with mass. It is the force that holds the planets in orbit around the sun and the

moon in orbit around the Earth. Gravitational force is also responsible for the formation of stars and galaxies.



Electromagnetic force is the force between charged particles. It is responsible for the attraction between protons and electrons, which holds atoms together. Electromagnetic force is also responsible for the interactions between magnets and electric currents.

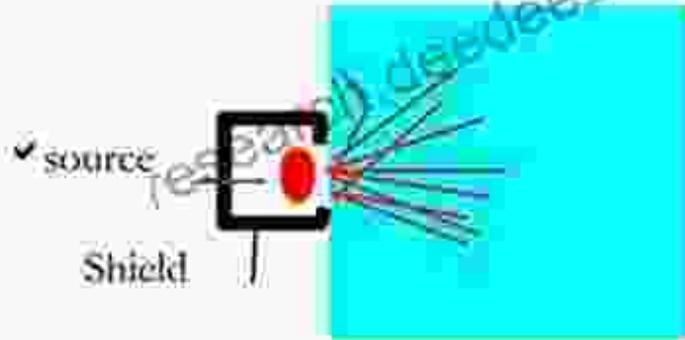
4) Interaction of Heavy Charged Particles with Matter

Sketch of Alpha Particle Paths in a Medium

Fast moving protons, ${}^4\text{He}$, and other nuclei are heavy charged particles.

Coulomb force dominates charge interaction.

They ionize and excite (give energy to) molecules on their path.

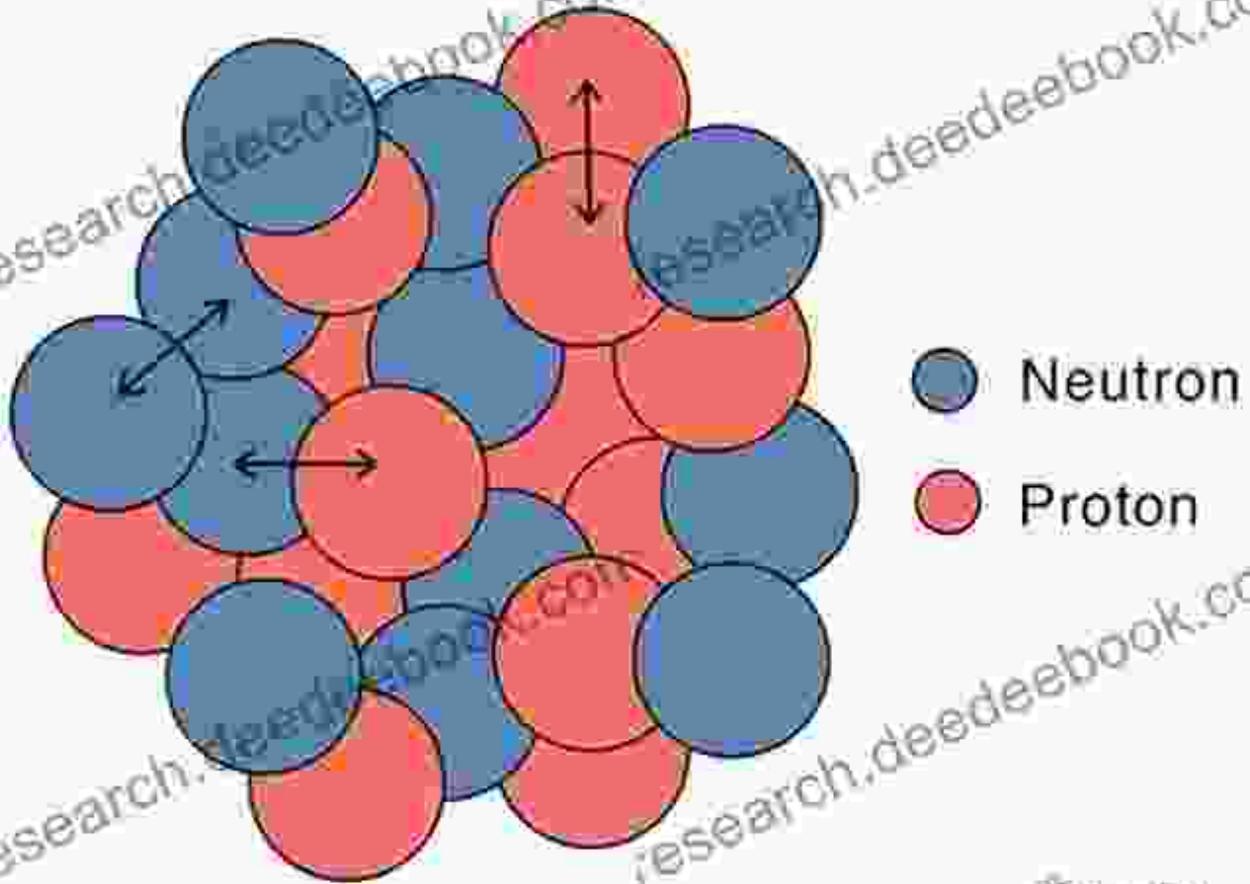


The Born-Bethe Formula for Energy Loss of Charged Particles.

$$-\frac{dE}{dx} = \frac{KMz^2}{E}$$

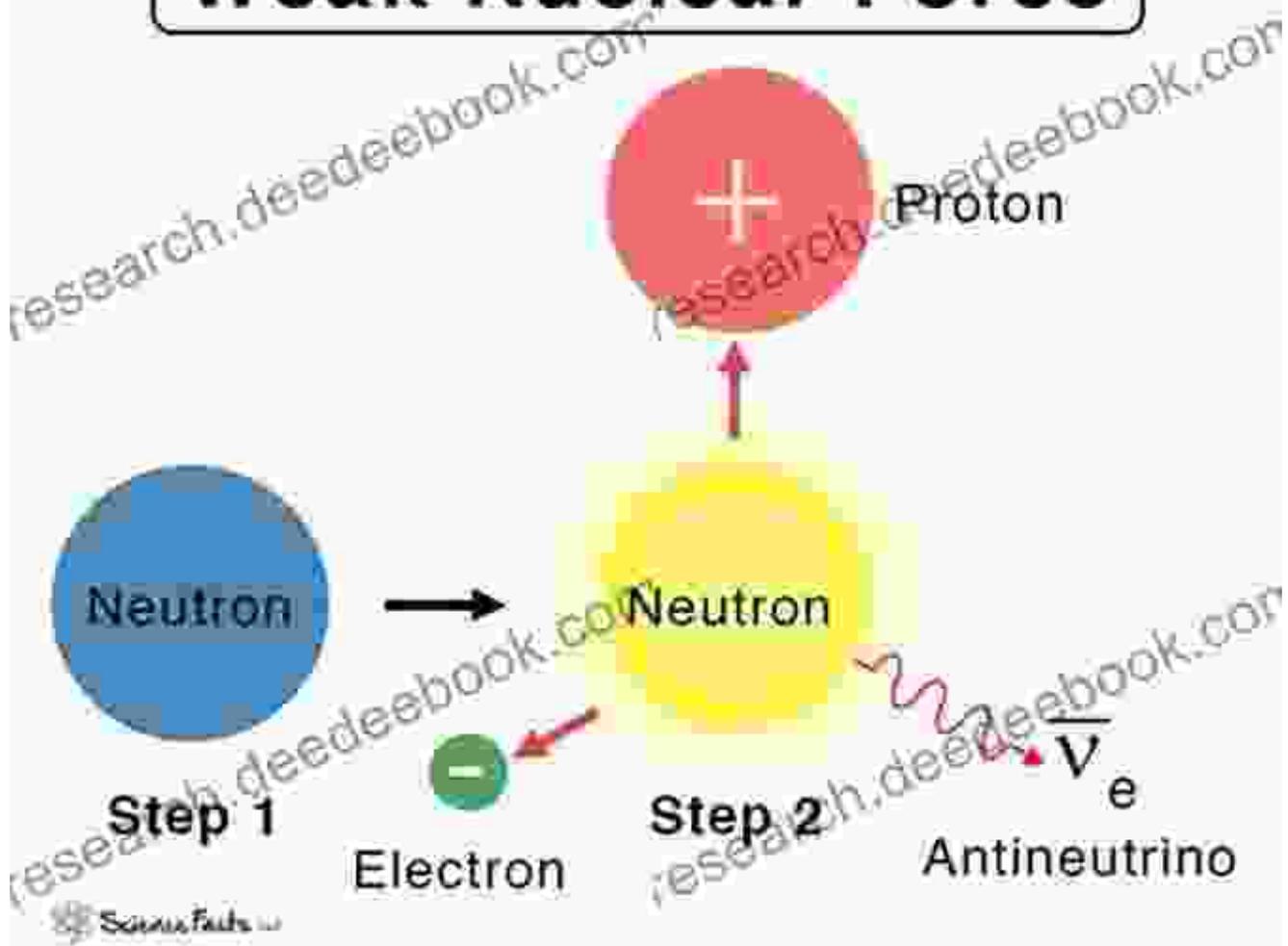
Strong nuclear force is the force that holds the protons and neutrons together in the nucleus of an atom. It is the strongest of the four fundamental forces, but it only acts over very short distances.

Strong Nuclear Force



Weak nuclear force is the force responsible for radioactive decay. It is the weakest of the four fundamental forces, but it is responsible for some of the most important processes in the universe, such as the formation of elements.

Weak Nuclear Force



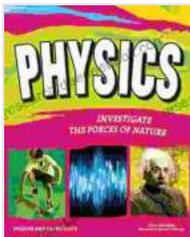
The forces of nature are the fundamental forces that govern the universe. They are responsible for everything from the motion of planets to the formation of stars. By understanding the forces of nature, we can better understand the universe around us.

How to Inquire and Investigate the Forces of Nature

There are many ways to inquire and investigate the forces of nature. Here are a few ideas:

- **Ask questions.** What are the forces of nature? How do they work? What are their effects?
- **Read books and articles.** There are many resources available to help you learn about the forces of nature.
- **Conduct experiments.** You can learn a lot about the forces of nature by conducting simple experiments.
- **Observe the world around you.** The forces of nature are all around us. Pay attention to them and you will learn a lot.

By inquiring and investigating the forces of nature, you can gain a better understanding of the universe around you.



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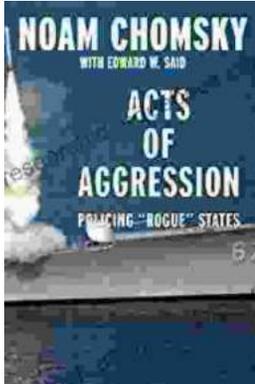
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