

Video Worksheet

The Atom P3 = Illusion of Reality

Name: _____

Period: _____ Date: _____

1. In _____ Hess discovered _____.
2. Cosmic Rays and _____ are related to each other.
3. In 1897, _____ studied radioactivity.
4. In 1905, _____ proved atoms exist.
5. Rutherford proved that the atom is almost entirely _____.
6. In _____, a shy awkward Paul Adrian Maurice Dirac changed science forever.
7. Dirac is considered the _____ most influential physicist in history.
8. His goal was to _____ Science.
9. The two ideas he tried to combine are _____ and Einstein's _____.
10. Quantum mechanics could not describe electrons moving at _____.
11. Dirac believed that everything had to be able to describe everything with _____.
12. In _____, Dirac had a revelation and was able to derive his math equation.
13. His equation can describe a particle of any speed, all the way up to the speed of _____.
14. Without knowing it, Dirac proved that there is another _____.
15. His math equation has _____ answers.
16. The first is the one describes the world we live in which is made of _____.
17. The second is the one that describes the existence of _____ - _____.
18. Each and every particle has an _____ - _____, which has the same mass, but the exact opposite properties.
19. If matter & anti-matter come in contact, total _____ occurs & massive amounts of energy would be released.
20. _____ are the first anti-matter that we learned how to use.
21. In _____, Carl Anderson used a _____ to deflect the particles in different directions.
22. He found something with the same mass as an electron, but with a positive charge. We call it a _____.
23. It would take _____ years to uncover the greatness of Dirac's equation.
24. The problem with his equation is that it describes only _____ electron.
25. _____ was the second greatest physicist in history, second only to Einstein.
26. The new theory Dirac was working on was called _____, or QED.
27. The value of the _____ of an e^- was proven in both labs and with Dirac's QED predictions.
28. It is as close to a theory of _____ as we have ever been.
29. Dirac basically proved that empty space is actually _____.
30. Empty space can _____ energy from the future, but only if it _____ immediately.