AP Physics
Instructor: Mr. Butler

End of Year Project

Purpose: To provide meaningful instruction after the AP exam that bridges, extends and assesses content and provides an opportunity for students to explore topics of interest. Students will work cooperatively to demonstrate their research and presentation skills and extend their knowledge of physical principles covered during the academic year.

Power Point Presentation (SE2)

Students will work cooperatively in teams of two to conduct research on topics in astronomy and modern physics. A 10-15 minute Power Point presentation will be the culmination of the research project which will take place during the last two weeks of school.

Power Point Rubric

	5	4	3	2	1
Content	Content is accurate and information is presented in a logical order.	Content is accurate but some information is not presented in a logical order, but is still generally easy to follow.	Content is accurate but information is not presented in a logical order, making it difficult to follow.	Content is questionable and information is not presented in a logical order, making it difficult to follow.	Content is inaccurate and information is not presented in a logical order, making it difficult to follow.
Slide Creation	Presentation flows well and logically. Presentation reflects extensive use of tools in a creative way. Correct number of slides.	Presentation flows well. Tools used correctly. Correct number of slides. Overall presentation is interesting	Presentation flows well. Some tools used to show acceptable understanding. Correct number of slides.	Presentation is unorganized. Tools are not used in a relevant manner. Lacking in number of slides.	Presentation has no flow. No tools used. Insufficient number of slides.
Slide Transitions	Transitions are smooth and interesting. Transitions enhance the presentation.	Smooth transitions are used on most slides.	Smooth transitions are used on some slides.	Very few transitions are used and/or they distract from the presentation.	No transitions used.
Pictures, Clip Art & Background	Images are appropriate. Layout of images is pleasing to the eye.	Images are appropriate. Layout is cluttered.	Most images are appropriate.	Images are inappropriate.	No images.
Mechanics	No spelling errors. No grammar errors. Text is in authors' own words.	Few spelling errors. Few grammar errors. Text is in authors' own words.	Some spelling errors. Some grammar errors. Text is in authors' own words.	Some spelling errors. Some grammar errors. Most of text is in authors' own words.	Many spelling errors and/or text is copied.

Astronomy Topics

Cosmology
Auroras
Dark Matter
Binary Star Systems
Survey of Unmanned Space Missions
Survey of Manned Space Missions
Neutron Stars and Black Holes
Quasars, Blazars, Pulsars and Magnetars
The Kuiper Belt and Oort Cloud
Stellar Evolution
Asteroids and Comets
The Moon: A Survey of its Important Features
Light and Telescopes
The Celestial Sphere:

1) Apparent-Diurnal Motions and Rotation
2) Horizon and Equatorial Coordinate Systems

Gravitational Lensing
Luna and Solar Eclipses
Galaxies: A Survey of Their Types and Structure
Solar System Planets: A Short Survey of Their Important Features
Exoplanets: The Hunt for Other Planets
Hubble's Law, Einstein and Dark Energy
GRB's (Gamma Ray Bursts)
Lunar Phases
The "Big Bang" and CBR (Cosmic Background Radiation)
Aerogel: Its origins, Properties and Applications

Modern Physics Topics

Special Relativity: Time Dilation and the Twin Paradox
$E=mc^2$ and Antimatter Pair Creation/Annihilation
Gravitational Redshift and Bending-of-Starlight
Riemannian Space-Time Curvature and Geodesic Orbits
Photons: Plank Blackbody Law, Einstein Photoelectric Effect and Compton Effect
Photons: Lasers and Holography
DeBroglie Matter-Wave Duality and Complementarity Principle
Heisenberg Uncertainty Principle [and the "Copenhagen Interpretation"]
The Quark-Gluon (or Chromodynamic) Nuclear Model
Superstrings or M-Theory
Quantum Entanglement
The Standard Model
Higgs and the God Particle
Survey of Worldwide Particle Colliders and Their Discoveries
Neutrinos: Explanation and Detection

AP Physics
Final Project
Power Point Rubric

Group Names_____

Topic _____

Checks indicate rubric score received in specific category.

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Total Score = _____ /25 = _____