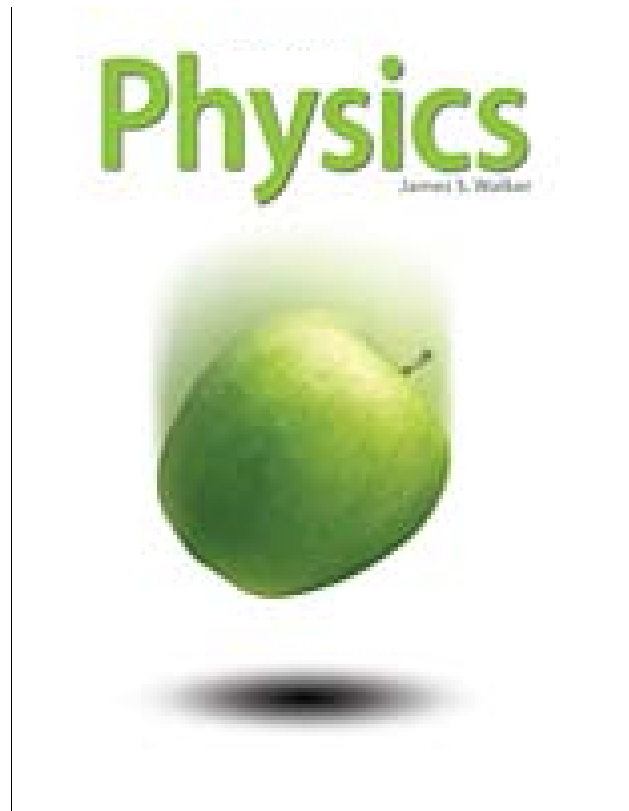


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A Correlation of

**Savvas
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to the

**Alabama Content Standards
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INTRODUCTION

This document demonstrates how *Pearson Physics, ©2014* meets the Alabama Content Standards for Physics, grades 9-12. Correlation page references are to the Student and Teacher's Editions.

Pearson Physics offers a new path to mastery— a “concepts first” approach that supports a superior, step-by-step problem solving process.

Pearson Physics is the only high school program that blends conceptual development and quantitative problem solving. The conversational and engaging writing style, numerous and varied examples, annotated art program, and dual emphasis on concepts and math— together with MasteringPhysics®— deliver a superior program.

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Alabama Content Standards for Physics High School	Pearson Physics ©2014
ALABAMA COURSE OF STUDY – SCIENCE	
PHYSICS CORE – HIGH SCHOOL	
Students will:	
1. Explain linear, uniform circular, and projectile motions using one- and two-dimensional vectors.	SE/TE: 127-128, 129, 130, 131-133, 134-136, 231-232
<ul style="list-style-type: none"> • Explaining the significance of slope and area under a curve when graphing distance-time or velocity-time data Example: slope and area of a velocity-time curve giving acceleration and distance traveled 	SE/TE: 54-56, 60, 76-77, 86, 92-95, 101, 457
<ul style="list-style-type: none"> • Describing forces that act on an object Example: drawing a free-body diagram showing all forces acting on an object and resultant effects of friction, gravity, and normal force on an object sliding down an inclined plane 	SE/TE: 162-163, 170, 171, 173, 175, 176, 307-310
2. Define the law of conservation of momentum.	SE/TE: 242-244, 246
<ul style="list-style-type: none"> • Calculating the momentum of a single object 	SE/TE: 230, 233
<ul style="list-style-type: none"> • Calculating momenta of two objects before and after collision in one-dimensional motion 	SE/TE: 249, 250, 254, 255-256
3. Explain planetary motion and navigation in space in terms of Kepler's and Newton's laws.	SE/TE: 308, 327-331
4. Describe quantitative relationships for velocity, acceleration, force, work, power, potential energy, and kinetic energy.	SE/TE: 32, 52, 73, 74, 75, 78-79, 86, 90, 95, 100, 153-155, 197-201, 202-204, 211-215
5. Explain the concept of entropy as it relates to heating and cooling, using the laws of thermodynamics.	SE/TE: 403-405, 406

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<ul style="list-style-type: none"> • Using qualitative and quantitative methods to show the relationship between changes in heat energy and changes in temperature 	SE/TE: 343-345, 385-387
6. Describe wave behavior in terms of reflection, refraction, diffraction, constructive and destructive wave interference, and the Doppler effect.	SE/TE: 475, 476-478, 507-512, 533, 599-605, 654-660, 665
<ul style="list-style-type: none"> • Explaining reasons for differences in speed, frequency, and wavelength of a propagating wave in varying materials 	SE/TE: 474-475
<ul style="list-style-type: none"> • Describing uses of different components of the electromagnetic spectrum, including radio waves, microwaves, infrared radiation, visible light, ultraviolet radiation, X rays, and gamma radiation 	SE/TE: 537, 539-541
<ul style="list-style-type: none"> • Demonstrating particle and wave duality 	SE/TE: 864-865, 866-867
<ul style="list-style-type: none"> • Describing the change of wave speed in different media 	SE/TE: 473, 474
7. Describe properties of reflection, refraction, and diffraction. Examples: tracing the path of a reflected light ray, predicting the formation of reflected images through tracing of rays	SE/TE: 565-569, 599-605, 647, 654-660, 665
<ul style="list-style-type: none"> • Demonstrating the path of light through mirrors, lenses, and prisms Example: tracing the path of a refracted light ray through prisms using Snell's law 	SE/TE: 570, 599, 600, 604, 605
<ul style="list-style-type: none"> • Describing the effect of filters and polarization on the transmission of light 	SE/TE: 545-546, 547-549, 550-552
8. Summarize similarities in the calculation of electrical, magnetic, and gravitational forces between objects.	SE/TE: 685, 705-707, 789-792

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<ul style="list-style-type: none"> • Determining the force on charged particles using Coulomb's law 	SE/TE: 683, 684, 685, 693, 915
<p>9. Describe quantitative relationships among charge, current, electrical potential energy, potential difference, resistance, and electrical power for simple series, parallel, or combination direct current (DC) circuits.</p>	SE/TE: 718-720, 721-722, 745, 748, 749, 750-751, 757-758, 759-760, 762