

Active Physics Correlation to the Illinois Standards (Late High School)

<p>"X" = Coverage Secondary concept of the activity or problem. Students gain a basic understanding or introduction of the concept.</p> <p>"XX" = In-depth Coverage Primary concept that is the focus of the activity or problem. Students gain thorough understanding of the concept.</p>	Communication			Home			Medicine			Predictions			Sports			Transportation		
	Chapter 1	Chapter 2	Chapter 3	Chapter 1	Chapter 2	Chapter 3	Chapter 1	Chapter 2	Chapter 3	Chapter 1	Chapter 2	Chapter 3	Chapter 1	Chapter 2	Chapter 3	Chapter 1	Chapter 2	Chapter 3

STATE GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.

A. Know and apply the concepts, principles and processes of scientific inquiry.

11.A.5a Formulate hypotheses referencing prior research and knowledge.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
11.A.5b Design procedures to test the selected hypotheses.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
11.A.5c Conduct systematic controlled experiments to test the selected hypotheses.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
11.A.5d Apply statistical methods to make predictions and to test the accuracy of results.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
11.A.5e Report, display and defend the results of investigations to audiences that may include professionals and technical experts.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

B. Know and apply the concepts, principles and processes of technological design.

11.B.5a Identify a design problem that has practical applications and propose possible solutions, considering such constraints as available tools, materials, time and costs.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
11.B.5b Select criteria for a successful design solution to the identified problem.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
11.B.5c Build and test different models or simulations of the design solution using suitable materials, tools and technology.				XX														
11.B.5d Choose a model and refine its design based on the test results.				XX														

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11.B.5e Apply established criteria to evaluate the suitability, acceptability, benefits, drawbacks and consequences for the tested design solution and recommend modifications and refinements.				X														
11.B.5f Using available technology, prepare and present findings of the tested design solution to an audience that may include professional and technical experts.				XX														
STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.																		
A. Know and apply concepts that explain how living things function, adapt and change.																		
12.A.5a Explain changes within cells and organisms in response to stimuli and changing environmental conditions (e.g., homeostasis, dormancy).																		
12.A.5b Analyze the transmission of genetic traits, diseases and defects.																		
B. Know and apply concepts that describe how living things interact with each other and with their environment.																		
12.B.5a Analyze and explain biodiversity issues and the causes and effects of extinction.																		
12.B.5b Compare and predict how life forms can adapt to changes in the environment by applying concepts of change and constancy (e.g., variations within a population increase the likelihood of survival under new conditions).																		
C. Know and apply concepts that describe properties of matter and energy and the interactions between them.																		
12.C.5a Analyze reactions (e.g., nuclear reactions, burning of fuel, decomposition of waste) in natural and man-made energy systems.												X						

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12.C.5b Analyze the properties of materials (e.g., mass, boiling point, melting point, hardness) in relation to their physical and/or chemical structures.																			
D. Know and apply concepts that describe force and motion and the principles that explain them.																			
12.D.5a Analyze factors that influence the relative motion of an object (e.g., friction, wind shear, cross currents, potential differences).													X	XX	XX	XX	XX	XX	XX
12.D.5b Analyze the effects of gravitational, electromagnetic and nuclear forces on a physical system.														XX	X	XX	XX		XX
E. Know and apply concepts that describe the features and processes of the Earth and its resources.																			
12.E.5 Analyze the processes involved in naturally occurring short-term and long-term Earth events (e.g., floods, ice ages, temperature, sea-level fluctuations).																			
F. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it.																			
12.F.5a Compare the processes involved in the life cycle of stars (e.g., gravitational collapse, thermonuclear fusion, nova) and evaluate the supporting evidence.																			
12.F.5b Describe the size and age of the universe and evaluate the supporting evidence (e.g., red-shift, Hubble's constant).																			