Academic Year 2016/2017
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Grade 8
Physics

Contents	Learning objectives
Motion	-Describe an object's position -Describe an object's motion -Observe changes in position through experimentation
Speed	-Calculate an object's speed -Describe an object's velocity -Observe through experimentation the relationship between speed and distance
Acceleration	- Explain how acceleration is related to velocity -Calculate acceleration -Measure acceleration through an experiment
Forces	-Indicate that forces change motion -Describe types of forces and how unbalanced forces change an object's motion.
Force and mass determine acceleration	-Explain how Newton's second law relates force, mass and acceleration.
Gravity , friction and pressure	-Describe how mass and distance affect gravity -Investigate through experimentation how gravity affects falling objects
Friction	-Describe how friction affects motion -List the factors that affect friction -Explain air resistance
Pressure	-Explain how pressure is determined -Describe how forces act on objects if fluids
Work and energy	-Recognize how force and work are related -Identify how moving objects do work -Determine through an experiment how much work is done when lifting an object
Energy is transferred when work is done	-Recognize how work and energy are related -Demonstrate how to calculate kinetic, potential and mechanical energy -Explain the law of conservation of energy
Power	-Explain how power relates to work and time

	-Explain how power relates to energy and time -Describe some common use of power
Propagation of light	-Indicate the rectilinear propagation of light -Compare between a light ray and a light beam -Recognize different types of light beams
Reflection of light and plane mirrors	-Describe reflection -Describe the law of the angles of incidence and of reflection -Analyze the results of a graphical construction of the image of an object given by a plane mirror
Refraction of light	-Describe the refraction of light -Define the angle of incidence and the angle of refraction -Identify the limit angle of refraction
The index of refraction	-Know why does light change its direction as it pases from one transparent medium to another -Why does the refraction of light differ with the transparent media?
The total reflection of light	-describe what would happen if the beam of light passes from glass to air -Describe the total reflection of light
The thin lenses	-Deduce if all the lenses are identical -Indicate the main types of thin lenses -Indicate the different uses of lenses
Characteristics of thin lenses	-Indicate the main characteristics of thin lenses -How does a beam of light behave as it traverses each type of lens.
The images given by thin convergent lenses	-Identify how do the position and the size of the image vary with the different positions of the object