



2025-2026  
AP Physics 1 | Texas  
Scope & Sequence

**Course Overview:** The AP Physics 1 course reflects a commitment to what physics teachers, professors, and researchers have agreed is the main goal of a college-level physics course: to help students develop a deep understanding of the foundational principles that shape classical mechanics. By confronting complex situations or scenarios, the course is designed to enable students to develop the ability to reason about relationships, applying the use of mathematical routines, designing experiments, analyzing data, and making connections across multiple topics within the course.

Standards:										Academic Calendars			Essential Questions (optional)	Enduring Understandings (optional)	Lessons in this Unit (optional) <small>Bold indicates a required lesson Italics indicates an optional lesson Red indicates a teacher-created lesson</small>
Unit Number	Unit Title	Subunits (optional)	Number of Core Instructional Days	Number of Success/Flex Days	Number of Other Instructional Days (optional)	Number of Assessment Days	Recommended total number of class periods	Summative Assessment	Scanning Deadline <small>The last day student data will be incorporated for district-wide analysis</small>	Unit Start Date	Unit End Date	Assessment Date <small>Autogenerated dates by the scanning deadline Excludes all short constructed responses. All items to show scores by scanning deadline</small>			

FALL SEMESTER															
1	Kinematics	1D Motion	10	1		1	12	TX_SCI_APPhysics_F25_MUE1	9/11/2025				What is the difference between scalar and vector measurements? How do we describe constant velocity motion? How do we describe constant acceleration motion? How can we determine displacement, velocity and acceleration from a Position-time graph? How can we determine displacement, velocity and acceleration from a Position-time graph?	Scalar measurements only require a number and vector measurements must have a number and a direction. Constant velocity motion travels the same distance during each unit of time (typically seconds). Constant acceleration motion has a velocity that changes by the same amount during each unit of time (typically seconds). On a Position-time graph displacement is read from the y-axis, velocity is the slope, and acceleration can be determined (qualitatively) from the direction of curve of the graph. On a Velocity-Time graph displacement is the area under the curve, velocity can be read from the y-axis and acceleration is the slope of the graph.	
		2D Motion	9	1		1	11	TX_SCI_APPhysics_F25_UE1	9/25/2025				How is a 2D vector represented as a combinations of 1D vectors? How can we predict the time of flight of a projectile?	2D vectors can be "broken down" into perpendicular 1D component vectors (vertical and horizontal). Time of flight for a projectile depends on the initial vertical velocity component and the initial height above the group. It can be determined using kinematics equations for constant acceleration motion.	
2	Dynamics	Newton's Laws	20	1		1	22	TX_SCI_APPhysics_F25_MUE2	10/30/2025				How are the forces acting on an object/system modeled? What is a net force? How can Newton's Second Law be used to predict the motion of objects/systems? When object A pushes or pulls on object B, which object "feels" the greater force?	Free body diagrams are used to model and analyze the forces acting on an object/system. All forces are drawn starting at the center of the object/system in the direction they act and proportional in length to the magnitude of the force. The net force acting on an object/system is the sum of all the forces acting on that object/system. Newton's Second Law states that the acceleration of an object/system is proportional to the net force acting on it. According to Newton's Third Law, ALL forces exist in pairs of force between interacting objects where the magnitude of the paired forces is the same and the directions are opposite.	
		Circular Motion	9	2		1	12	TX_SCI_APPhysics_F25_MUE2	11/20/2025				How is the direction of the instantaneous velocity of an object in circular motion described? How is the net force on an object in circular motion described? What forces create circular motion?	The instantaneous velocity of an object in circular motion is always directed perpendicular to the circular path. The net force acting on an object in circular motion is always directed towards the center of the circular path. Any force or combination of forces can create the net force known as centripetal force. Typical examples in AP Physics are Tension, Friction, Force of Gravity, or a combination of Normal and Force of Gravity.	

Semester Exam Window: 12/8/25 - 12/19/25 | Scanning Deadline: 12/19/25

SPRING SEMESTER															
3	Energy		19	1		1	21	TX_SCI_APPhysics_F25_UE3	1/22/2026				What are Kinetic and Potential Energies? What is Mechanical Energy? How does the definition of a system impact the Mechanical Energy? What is the Conservation of Mechanical Energy?	Kinetic Energy is the energy and object has due to its velocity. Potential energy is the motion a system has due to the relative position of objects. Mechanical Energy is the sum of all the Kinetic and Potential Energies of a system. A single object can only have kinetic energy and a system can have both kinetic and potential energy. The total Mechanical Energy of a system will remain constant when outside forces do not act on it (frictionless).	
4	Momentum		14	2		1	17	TX_SCI_APPhysics_S26_UE4	2/19/2026				What is momentum? How does the momentum of an object/system change? How do the momentum and kinetic energy of a system change during collisions?	The momentum of an object depends on velocity and mass only. The change in momentum of an object is equal to the impulse on the object (Force x time). The momentum of a system is always constant during a collision. The kinetic energy of the system usually decreases during a collision but for elastic collisions it remains constant.	
5	Oscillations		5	2		1	8	TX_SCI_APPhysics_S26_UE5	2/27/2025				How does a restoring force differ from a "regular" force? How does the presence of a restoring force create simple harmonic motion? When is a simple harmonic oscillator moving with the greatest velocity, acceleration, net force? How does the mechanical energy change throughout a simple harmonic oscillation?	The magnitude of a restoring force is proportional to the displacement of an object from an equilibrium position and in the opposite direction as the displacement. Meaning that an object subject to a restoring force is always being pushed towards its equilibrium location. The net force, acceleration, and potential energy of a system in SHM are all proportional to displacement. The velocity and KE of a system in SHM are inversely proportional to the displacement. The Mechanical Energy of a system in SHM remains constant, when frictionless.	
6	Rotational Motion		20	2		1	23	TX_SCI_APPhysics_S26_UE6	4/16/2026				What are the parallels between linear motion rotational motion? What are the parallels between forces and torque?	Displacement, Velocity, and Acceleration all have angular equivalents that are proportional to the radius of the distance from the center of rotation. Rotational inertia depends on the mass of an object and the radius from the axis of rotation. Torque is analogous to force and is used in rotational version of Newton's First and Second Laws to describe rotational motion. Rotational Kinetic Energy is calculated the same as linear kinetic energy using rotational inertia and angular velocity. A Net Torque changes the rotational kinetic energy the same way a linear force change linear kinetic energy. A Net Torque causes Angular Impulse that changes angular momentum. Angular Momentum is conserved in collisions. Rolling is a simultaneous combination of linear and angular kinetic energy. For orbiting satellites the angular momentum and angular kinetic energy are constant for circular and elliptical orbits.	

Mock Exam Window: 3/23/2026 - 4/2/2026 Scanning Deadline: 4/09/2026

7	Fluids		11	1		1	13	TX_SCI_APPhysics_S26_UE7	5/7/2026				How is pressure related for force? How much pressure do people feel all the time? Why do heavy objects feel lighter under water? What is the relationship between the height of a water column and the velocity of the water flowing from an opening at the bottom?	Pressure is the magnitude of perpendicular force per unit area of a given surface. Atmospheric pressure is the pressure caused by the air in the atmosphere pushing downward. The buoyant force is an upward force exerted on a object submerged in a fluid that is equal to the weight to the fluid displaced by the object. The flow rate of an ideal fluid is proportional to the square root of its height difference between the top of the water and its opening (Torricelli's theorem).	
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AP Exam Date: Friday May 15th AM (subject to change)