

Physics 1A: Mechanics

Week 1: Intro, Kinematics; Speed & Velocity

AIR TRACK

Week 2: Kinematics; Acceleration

BALL DROP
SIMULTANEOUS FALL
SHOOT THE MONKEY
BALLISTIC CART

Week 3. Newton's Three Laws

BLACKBOARD MECHANICS SET
INCLINED PLANE (WITH FRICTION BLOCKS)
SKATEBOARD REACTION CART

Week 4: Centripetal Force and Gravity

SPIN THE WINE GLASS
SPINNING LARIAT
MASS ON A SPRING

Week 5: Energy

BOWLING BALL PENDULUM
BALLISTIC PENDULUM
CAR JUMP
CONSERVATION OF ENERGY DOUBLE TRACK

Week 6: Momentum & Collisions

NEWTON'S CRADLE
ETHANOL ROCKET
TENNIS BALL AND BASKETBALL

AIR TRACK

Week 7: Rotational Motion

CENTER OF MASS
LEANING TOWER
HINGED STICK WITH BALL
ROLLING UPHILL ILLUSION
ROLLING DISK/HOOP/SPHERES
SPINNING STOOL
BIKE WHEEL GYRO

Week 8: Solids, Liquids, & Gases

MAGDEBURG SPHERE
CRUSH THE CAN
CARTESIAN DIVER
RULER LIFT
FLOATING BALL
VENTURI TUBE
TORRICELLI EFFECT

Week 9. Elasticity & Oscillations

HOOKE'S LAW APPARATUS

Week 10. Waves & Sound

ACOUSTIC INTERFERENCE
ACOUSTIC BEATS
DOPPLER SHIFT
WAVE MACHINE
GIANT SLINKY AND LONG SPRING
HOOT TUBE