	Air Racer	Bean Sorter	Bridges + Structures	Build a Boat	Crazy Contraptions	Electric Racer	Electromagnetic Crane	Flag Waver	Fluid Power Lab	Geared Wind Turbine	Gears & Pulleys Tinker Set	Genetics' Lab	Grab Lab	Basic Hydraulic Arm	Hydraulic Claw	Hydroponics	Mousetrap Vehicle	Mini Wind Turbine	Projectile Launcher	Pump It! Lab	Rubber Band Racer	Sail Car	Toy Design Workshop	Wiggle Bot	Wind Lift
Grade 1																									
Understanding Life Systems:																									
1.2 Problems/Changes from Extinction												X													
2.3 Investigate/Compare Physical Characteristics of Plants + Animals												X				X									
2.4 Basic Needs Physical Traits of Plants																X									
3.1 Identify Environments												X				X									
3.2 Identify Physical Traits: Plants + Animals												X				X									
Understanding Structures and Mechanisms																									
1.1 Minimize Waste in the Environment	X		X	X				X			X		X		X	X		X	X	X	X	X	X	X	X
1.2 How Materials Are Made + Recycled	X	X	X	X			X	X			X		X		X	X		X	X	X	X	X	X	X	X
2.3 Investigate Properties of Materials	X	X	X	X			X	X			X		X		X	X		X	X	X	X	X	X	X	X
2.4 Design, Build, Test Structure for a Specific Purpose (w/ Problem Solving)	X		X	X							X		X		X	X		X	X	X	X	X	X	X	X
2.6 Communicate Findings/Design Decisions in Different Forms	X		X	X							X		X		X	X		X	X	X	X	X	X	X	X
3.1 Describe Objects of Many Materials	X	X	X	X				X			X		X		X	X		X	X	X	X	X	X	X	X
3.2 Structures Support Frameworks	X		X	X									X			X		X	X		X	X	X	X	X
3.4 Function/Purpose of Observable Characteristics, Using Senses	X	X	X	X				X			X		X		X	X		X	X	X	X	X	X	X	X
3.5 Identify Materials in a Structure	X	X	X	X				X			X		X		X	X		X	X	X	X	X	X	X	X
3.6 Distinguish Nature | Human-Made	X	X	X	X				X			X		X		X	X		X	X	X	X	X	X	X	X
Understanding Matter + Energy																									
2.3 Design + Construct a Device That Uses Energy to Perform a Task	X	X		X			X	X			X		X	X	X	X		X	X	X	X	X	X	X	X
2.6 Sun's Energy, Basic Human Needs																X									
2.7 Science | Tech Vocabulary																X									
2.8 Communicate Findings | Info																X									
Grade 2																									
Understanding Life Systems																									
2.2 Describe Physical | Behavioural Characteristics of Different Animals												X													
2.5 Animal Adaptations, Environmental Adaptations												X													
2.7 Science | Tech Vocabulary												X													
2.8 Communicate Findings | Info												X													
3.2 Animal Adaption + Survival												X													
Understanding Structures & Mechanisms: Movement																									
1.1 Impact of Simple Machines	X			X				X			X		X					X	X	X	X	X	X		X
2.2 Explore Different Types of Movement	X	X		X				X			X		X		X			X	X	X	X	X	X	X	X
2.3 Structure + Function of Simple Machines (wheel + axle, ramp slope…)	X		X	X							X		X								X	X	X		
2.4 Design, Build, Test Mechanism With One or More Simple Machines			X	X							X		X		X			X	X		X	X	X		X
2.5 Vocabulary: Push, Pull, Wheel, Axle, Inclined Plane, Beside, Above	X	X	X	X			X				X		X		X			X	X		X	X	X		X
2.6 Communicate Findings | Info	X	X	X	X			X	X			X		X		X			X	X		X	X	X	X	X
3.1 Describe Ways Objects Move	X	X		X				X			X		X					X			X		X	X	
3.2 How Object's Positions Can Change	X	X		X				X			X		X		X			X	X	X	X	X	X	X	X
3.3 Six Basic Types of Simple Machines (lever, inclined plane, pulley, wheel/axle, gear, screw, wedge)	X		X	X			X				X		X					X	X		X	X	X	X	X
3.4 Simple Machine, Humans, Force	X		X	X			X				X								X		X	X	X		X
3.5 Identify Simple Machines in Real Life			X	X			X				X								X		X	X	X		X
Understanding Matter + Energy																									
2.2 Investigate Properties of Liquids				X											X	X				X					
2.4 Liquids, Buoyancy				X																X					
2.5 Design, Build, Test Structure That Floats/Interacts with Liquids				X											X	X				X					
3.2 Describe Properties of Liquids				X											X	X				X					
Understanding Earth + Space																									
1.1 Human Impact on Air + Water	X			X											X	X		X		X		X			X
2.2 Air Charateristics/Uses (Sail Boats)	X			X														X				X			X
2.3 Water Characteristics/Uses				X											X	X				X					
2.4 Water Cycle, Evaporation																X									
2.6 Vocabulary: Solid, Liquid, Vapor, Evaporation, Condensation																X				X					

	Air Racer	Bean Sorter	Bridges + Structures	Build a Boat	Crazy Contraptions	Electric Racer	Electromagnetic Crane	Flag Waver	Fluid Power Lab	Gearded Wind Turbine	Gears & Pulleys Tinker Set	Genetics' Lab	Grab Lab	Basic Hydraulic Arm	Hydraulic Claw	Hydroponics	Mousetrap Vehicle	Mini Wind Turbine	Projectile Launcher	Pump It! Lab	Rubber Band Racer	Sail Car	Toy Design Workshop	Wiggle Bot	Wind Lift
Grade 3																									
Understanding Life Systems																									
1.1 Importance of Plants to Humans																X									
1.2 Human Impact on Plants/Growth																X									
2.2 Observe/Compare Parts of Plants																X									
2.3 Germinate/Grow Seeds																X									
2.4 Plant Adaptations to Environment												X				X									
2.6 Vocabulary: Stem, Leaf, Root, Pistil, Stamen, Flower, Adapt, Germination																X									
3.7 Describe Different Ways Plants Are Grown for Food																X									
3.8 Environment, Plant Survival																X									
Understanding Structures + Mechanisms																									
1.1 Effects of Strong/Stable Structures on Society | Environment		X	X				X				X							X	X		X		X		X
2.2 Experiment With Materials and Construction Techniques to Strengthen Structures		X	X	X			X	X			X				X	X		X	X		X	X	X		X
2.3 Push, Pull, Force on Shape/Stability		X	X	X			X				X		X	X	X	X		X	X		X	X	X	X	X
2.4 Design/Build Strong Structure	X	X	X	X			X	X			X		X	X	X			X	X	X	X	X	X	X	X
2.5 Vocabulary: Compression, Tension, Strut, Ties, Strength, Stability			X		X		X				X			X					X	X	X				X
3.1 Structure Supporting Framework, Size, Shape, Purpose, Load	X		X	X			X				X		X	X					X	X	X	X		X	X
3.3 Strength = Ability to Support a Load			X								X		X	X	X				X	X	X	X	X		X
3.4 Stability - Balance/Fixed in One Spot			X					X			X							X	X						X
3.5 Properties of Materials	X	X	X	X			X	X			X		X	X	X	X		X	X	X	X	X	X	X	X
3.6 Material Strength Can be Altered		X	X	X			X	X			X		X	X	X	X		X	X	X	X	X		X	X
3.7 Improve Structure Strength/Stability			X																						
3.8 Strength | Stability Function (Bridge)			X				X	X			X										X		X		X
3.9 Forces on Shape, Balance, Position	X		X				X	X			X		X					X	X		X			X	X
3.10 Struts | Ties Under Load			X	X											X						X	X	X		X
Understanding Matter + Energy																									
1.1 Effects of Forces in Nature	X		X	X							X							X				X			X
2.2 Forces That Cause Objects to Move, Stop Moving or Change Direction	X			X	X						X			X	X			X	X	X	X	X	X	X	X
2.3 Effects Increasing | Decreasing Force (add magnets, change weight or balance)		X	X	X	X		X	X			X		X		X			X	X	X	X	X	X	X	X
2.4 Design, Build Device w/ Force for Controlled Movement (*rubber bands, boats, magnets, crane, marble run*)	X	X		X	X		X	X			X		X	X	X			X	X		X	X	X	X	X
2.5 Push, Pull, Load, Distance, Speed	X			X	X		X	X			X			X	X			X	X	X	X	X	X		X
2.6 Communicate How Device was Designed/Built/Improved	X	X	X	X	X		X	X			X		X	X	X	X		X	x	X	X	X	X	X	X
3.1 Identify Force as Push or Pull	X	X		X	X		X	X			X		X	X	X			X	X	X	X	X	X	X	X
3.2 Identify Different Forces: Gravity, Electrostatic, Magnetic	X	X			X		X								X				X		X	X	X	X	X
3.3 Different Forces (magnets, muscle, gravity, friction) impact an object at rest		X			X		X				X		X		X				X		X	X	X	X	X
3.4 Direct (Pull Toy) or Indirect Force Interactions (gravity, magnetism)					X		X				X				X				X		X		X		X
3.5 Forces in Everyday Life	X			X	X		X	X			X		X	X	X	X		X	X	X	X	X	X		X

Grade 4

	Air Racer	Bean Sorter	Bridges + Structures	Build a Boat	Crazy Contraptions	Electric Racer	Electromagnetic Crane	Flag Waver	Fluid Power Lab	Geared Wind Turbine	Gears & Pulleys Tinker Set	Genetics' Lab	Grab Lab	Basic Hydraulic Arm	Hydraulic Claw	Hydroponics	Mousetrap Vehicle	Mini Wind Turbine	Projectile Launcher	Pump It! Lab	Rubber Band Racer	Sail Car	Toy Design Workshop	Super Wiggle Bot	Wind Lift	Wind Pump
Habitats + Communities																										
1.2 Extinction + Depletion of Species												X														
2.2 Food Chain Plants, Animals, Humans												X														
2.3 How Plants + Animals Use Habitats												X														
2.5 Habitat, Population, Adapt, Food Chain												X														
3.1 Define, Understand Habitats												X														
3.3 Factors Impact Survival in Habitats												X				X										
3.7 Structural Adaptations in Habitats												X				X										
Pulleys + Gears																										
1.1 Gear + Pulley Systems in Daily Life						X				X	X										X					X
1.2 Environmental Impact Gears|Pulleys						X				X	X															X
2.1 Safety Procedures Gears|Pulleys						X				X	X										X			X		X
2.2 Changes in Force, Distance, Speed, Direction in Pulley + Gear Systems						X				X	X										X			X		X
2.3 Design, Build, Test a Gear or Pulley System for a Specific Task						X				X	X										X			X		X
2.4 Vocab: Gear, Pulley, Force, Speed						X				X	X										X			X		X
2.5 Write/Present Info on Gears|Pulleys						X				X	X										X			X		X
3.1 Purpose of Gear + Pulley Systems						X				X	X										X			X		x
3.2 Rotary Motion, Energy Transfer						X				X	X										X			X		X
3.3 Motion Transfer (rotary to linear, rack, pinion system, oscillating)						X				X	X										X			X		X
3.4 Gears in One Plane and Two Planes						X				X	X										X			X		X
3.5 Systems Using Force | Using Speed						X				X	X										X			X		X
3.6 Pulley Systems in Daily Life						X				X	X										X			X		X
3.7 Bicycle Gear System											X															X
3.8 Input/Output in Mechanism						X				X	X										X			X		X

Grade 5

	Air Racer	Bean Sorter	Bridges + Structures	Build a Boat	Crazy Contraptions	Electric Racer	Electromagnetic Crane	Flag Waver	Fluid Power Lab	Geared Wind Turbine	Gears & Pulleys Tinker Set	Genetics' Lab	Grab Lab	Basic Hydraulic Arm	Hydraulic Claw	Hydroponics	Mousetrap Vehicle	Mini Wind Turbine	Projectile Launcher	Pump It! Lab	Rubber Band Racer	Sail Car	Toy Design Workshop	Wiggle Bot	Wind Lift	Wind Pump	Yeast Mobile
Structures + Mechanisms																											
1.2 Societal Use of Structures	X		X	X	X	X	X			X	X			X	X				X		X	X			X	X	
2.2 Measure and Compare, Force Required to Move a Load (Lift Book) Using Different Mechanical Systems					X		X		X		X		X	X	X					X			X	X	X		
2.3 Scientific Inquiry/Research to See How Structures Withstand Forces	X	X	X	X	X		X		X		X				X	X	X	X	X	X	X	X	X	X	X	X	X
2.4 Design, Build Test a Frame Structure (*Bridge, Tower*) to Withstand External Force or a Mechanical System (*Crane*)			X		X		X						X		X	X	X	X	X	X	X	X	X	X	X	X	
2.5 Vocabulary: Tension, Compression, Torque, System, Load			X				X				X		X							X	X	X	X	X	X	X	
2.6 Communicate Findings | Info			X				X				X		X							X	X	X	X	X	X	X	
3.1 Identify Internal Forces Acting on Structure (Compression, Tension)			X				X				X		X							X	X	X	X	X	X	X	
3.2 External Forces (Load)			X				X			X	X		X							X	X	X		X	X	X	
3.3 Advantages of Mech. Systems		X	X	X	X	X	X	X		X	X		X	X	X		X	X	X	X		X	X	X		X	X
3.4 Nature/Structural Consequences			X	X	X	X	X				X		X		X					X	X	X			X	X	
Matter Properties + Changes																											
3.1 Matter, Mass, Occupying Space									X					X	X				X							X	X
3.2 Properties of Solids, Liquids, Gases									X					X	X				X							X	X
Conservation Energy + Resources																											
1.1 Long Term Human Impact Environment		X				X	X			X						X		X				X			X	X	
1.2 Technology + Energy Consumption							X			X						X		X							X	X	X
2.3 Design, Build, Test Device to Transform One Form Energy into Another (See How Energy is "Lost" in Transition)	X	X		X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X		X	X	
2.4 Energy, Heat, Light, Sound, Electrical, Mechanical, Chemical	X	X		X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.1 Identify Different Forms of Energy	X			X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.2 Renewable/Non-Renewable Energy	X			X		X	X			X	X					X		X			X	X			X	X	X
3.3 How Energy is Stored/Transformed	X	X		X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.4 Energy Cannot be Created nor Destroyed, Only Changed	X	X		X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.5 How Energy is "Lost" (Friction)	X			X		X											X				X	X					X

	Air Racer	Bean Sorter	Bridges + Structures	Build a Boat	Catch the Bug	Crazy Contraptions	Direct Drive Wind Turbine	Electromagnetic Crane	Electric Racer	Flag Waver	Fluid Power Lab	Geared Wind Turbine	Gears & Pulleys Tinker Set	Genetics' Lab	Advanced Hydraulic Arm	Hydraulic Claw	Hydroponics	Judo-Bot	Mini Wind Turbine	Mousetrap Vehicle	Advanced Projectile Launcher	Pump It Lab	Advanced Rubber Band Racer	Sail Car	Sumo-Bot	Super Spring Scale	Super Wiggle Bot	Wind Lift	Wind Pump	Yeast Mobile
Grade 6																														
Life Systems: Biodiversity																														
2.2 Investigate + Classify Organisms in Habitats														X																
2.3 Compare Organism Characteristics														X			X													
2.4 Vocabulary: Classification, Organism, Natural Community, Interrelationships, Vertebrate, Invertebrate, Stability, Characteristics, Biodiversity														X																
3.3 Biodiversity Creates Survival/Resilience														X			X													
3.7 Impact of Invasive Species														X																
Structures + Mechanisms: Flight																														
2.2 Investigate Properties of Air (Mass…)	X										X				X	X			X		X			X				X	X	
2.3 Adaptations | Traits of Flying Living Things														X							X									
2.4 Design, Build, Test Flying Device																					X			X						
2.5 Aerodynamics, Compress, Flight, Glide, Propel, Drag, Thrust, Lift	X			X																			X							
3.2 Compression/Insulation of Air											X				X	X													X	
3.3 Four Fources: Lift, Weight, Drag, Thrust	X			X																	X			X						
3.6 How Four Forces of Flight Can Be Altered	X			X																	X			X						
Electricity + Electrical Devices																														
1.1 Environmental Impact: Electricity Canada					X			X	X																			X	X	
2.1 Safety Procedures for Electricity	X	X		X	X		X	X	X	X		X							X						X		X		X	
2.2 Design/Build Parallel Circuits					X														X										X	
2.4 Design, Build Device Producing Electricity					X				X																				X	
2.5 Design, Build Device Transforms Electricity	X			X	X			X	X	X									X					X		X			
2.6 Current, Battery, Circuit, Transform, Static, Electrostatic, Energy					X			X																						
2.7 Communicate Findings | Info	X			X	X			X	X	X									X					X		X		X	
3.1 Current Vs. Static Electricity					X																									
3.3 Indentify Good Electrical Conductors					X			X	X										X							X			
3.4 Energy Transformed into Electricity					X		X	X	X			X															X	X	X	
3.6 Simple Electrical Circuit Components					X			X	X																		X			
3.7 Series | Parallel Circuits					X																									
Space																														
3.3 Basic Biological Needs In Space																	X													
3.4 Technological Tools | Devices Needed for Space Exploration (robotics, rovers, arms, pressurized suits)								X	X		X				X	X	X						X				X			

	Air Racer	Bean Sorter	Bridges + Structures	Build a Boat	Catch the Bug	Crazy Contraptions	Direct Drive Wind Turbine	Electromagnetic Crane	Electric Racer	Flag Waver	Fluid Power Lab	Geared Wind Turbine	Gears & Pulleys Tinker Set	Genetics' Lab	Advanced Hydraulic Arm	Hydraulic Claw	Hydroponics	Judo-Bot	Mini Wind Turbine	Mousetrap Vehicle	Advanced Projectile Launcher	Pump It Lab	Advanced Rubber Band Racer	Sail Car	Sumo-Bot	Super Spring Scale	Super Wiggle Bot	Wind Lift	Wind Pump	Yeast Mobile
Grade 7																														
Interactions in the Environment																														
1.2 Costs |Benefits of Protecting Environment								X								X	X											X	X	
2.2 Design/Build Model Ecosystem, Exploring Biotic + Abiotic Interactions (e.g Greenhouse)																	X													
2.3 Research Ways Balance Can be Affected in an Ecosystem (drought, invasive species, forest fire, loss of predator or prey)														X																
2.4 Sustainability, Biotic, Ecosystem, Community, Population, Producer														X			X													
3.1 Ecosystem = System of Interactions Between Living Organisms & Environment														X			X													
3.3 Producers, Consumers, Decomposers														X			X													
3.4 Transfer of Energy in Food Chain, Extinction														X																
3.8 Human|Tech Interactions in Environment														X			X											X	X	
Structures + Mechanisms: Form, Function																														
1.1 Factors in Building/Designing Structures (function, efficiency, ease, aesthetics, cost, environment, safety, health, legality)			X	X		X		X	X				X						X		X		X	X		X	X	X	X
1.2 Ergonomics, Safety of Design, Tools	X	X	X	X		X	X	X	X	X		X	X		X	X		X	X	X	X		X	X	X	X	X	X	x	x
2.2 Design, Construct, Use Physical Models to See Effects of Forces on Structures (bridge tension, torsion, scissor pivot)			X	X		X		X	X			X	X		X	X			X	X			X				X		
2.3 Structure's Ability to Support a Load	X		X	X		X		X	X		X	X	X		X	X		X	X	X		X	X	X			X		X	X
2.4 Efficient Ways to Support Loads	X		X	X		X		X	X		X	X	X		X	X		X	X	X		X	X	X			X		X	X
2.5 Structural Safety Techniques	X	X	X	X		X	X	X	X	X		X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.6 Truss, Beams, Ergonomics, Shear, Torsion			X			X							X													X					
3.1 Classify: Solid Structures, Frames, Shells			X	X		X		X	X			X			X	X	X	X	X			X	X				X	X	X	X
3.2 Gravity, Structural Stability		X	X			X		X					X		X	X		X			X	X	X	X				X	X	X
3.3 Magnitude, Direction, Point of Application, Plane of Application of Force to Structure			X			X	X		X			X	X						X	X	X		X	X				X	X	X
3.5 Role of Symmetry in Structures			X			X		X		X			X				X	X	X		X		X					X	X	
3.6 Factors That Can Cause Structure to Fail			X			X							X					X				X	X					X	X	
3.7 Factors of Suitable Materials, Manufacture	X	X	X			X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pure Substances + Mixtures																														
2.5 Mechanical Mixture, Solution, Solute, Insoluble, Saturated, Unsaturated, Dilute																	X					X								X
3.6 Identify Components of a Solution																	X					X								X
Heat in the Environment																														
3.8 Identify Sources of Greenhouse Gases																	X												X	

	Air Racer	Bean Sorter	Bridges + Structures	Build a Boat	Catch the Bug	Crazy Contraptions	Direct Drive Wind Turbine	Electromagnetic Crane	Electric Racer	Flag Waver	Fluid Power Lab	Geared Wind Turbine	Gears & Pulleys Tinker Set	Genetics' Lab	Advanced Hydraulic Arm	Hydraulic Claw	Hydroponics	Judo-Bot	Mini Wind Turbine	Mousetrap Vehicle	Advanced Projectile Launcher	Pump It Lab	Advanced Rubber Band Racer	Sail Car	Sumo-Bot	Super Spring Scale	Super Wiggle Bot	Wind Lift	Wind Pump	Yeast Mobile
Grade 8																														
Mechanical Systems in Action																														
1.1 Assess the Impact of Automating Work		X				X		X		X		X	X						X								X	X	X	
2.2 Investigate Work Done in Everyday Life				X		X	X	X	X			X	X		X				X									X	X	
2.3 Mechanical Advantage			X	X		X		X	X	X	X	X	X		X	X		X	X	X	X		X		X	X	X	X	X	X
2.4 Create Mechanical Device to Perform a Function/Need (eg carry load across room)	X	X		X		X		X	X	X		X	X		X	X		X	X	X	X		X	X	X	X	X	X	X	X
2.6 Mechanical Advantage, Input, Output, Friction, Gravity, Forces, Efficiency		X	X	X		X		X	X	X	X	X	X		X	X		X	X	X	X		X		X	X	X	X	X	X
3.1 Identify Types of Systems (Mechanical, Body, Optical, Health, Ecosystem)					X	X		X	X				X	X	X		X						X		X		X	X	X	
3.2 Purpose, Inputs, Outputs of Systems	X	X		X	X	X	X	X	X		X	X	X		X	X		X	X	X			X	X	X		X	X	X	X
3.3 Processes/Components of System		X		X		X	X	X	X	X		X	X		X	X	X		X	X			X		X			X	X	X
3.4 Work, Force, Energy, Efficiency		X				X	X		X			X	X		X	X			X	X			X	X	X	X		X	X	X
3.5 Work = Force x Distance	X			X		X	X	X	X			X	X		X	X			X	X			X	X				X	X	X
3.6 Calculate Mechanical Advantage						X	X	X	X			X	X					X					X					X		X
3.7 Mechanical Systems, Heat, Friction	X								X											X			X	X						X
3.8 Social Factors Influencing a System (e.g recycling centers as waste increases, ease of work for pulleys + gears, hydraulics)			X	X		X	X	X	X		X	X	X		X	X	X		X										X	
Matter + Energy: Fluids, Hydraulics																														
1.1 Impact of Hydraulic Technologies											X				X	X	X					X							X	
2.1 Safety Procedure: Tubing, Cylinders											X				X	X	X	X				X							X	
2.2 Mass-to-Volume Ratio of Substance Amounts											X						X					X								
2.3 Explore Density of Liquids											X						X					X								
2.4 Applications of Fluid Mechanics (aeronautical research, shipping, food service, plumbing, hydrodynamic engineering)											X				X	X	X	X				X							X	
2.5 Experiment With Changing Fluid Flow Rates											X						X					X								
2.6 Design, Build, Test Hydraulic | Pneumatic Devices (Pascal's Law, Brake, Hoist, Arm)											X				X	X		X				X							X	
2.7 Viscosity, Density, Particle Theory of Matter, Hydraulic, Pneumatic											X				X	X	X	X				X							X	
2.8 Communicate | Present Devices, Models											X				X	X	X	X				X							X	
3.1 Define | Compare Viscosity											X																			
3.2 Mass, Volume, Density: Property of Matter											X						X					X								
3.3 Solids, Liquids, Gases											X						X													
3.4 Compressibility of Gases | Liquids											X				X	X		X				X							X	
3.5 Buoyancy, Density				X																							X			
3.6 Pressure, Volume, Temperature											X											X							X	
3.7 Pascal's Law											X				X	X		X				X							X	
3.8 Natural vs Manufactured Hydraulics											X				X	X	X					X							X	
Earth + Space: Water Systems																														
1.1 Evaluate | Reduce Personal Water Use																	X					X							X	
2.3 Test Water Samples pH, Salinity, Chlorine																	X													
2.5 Design, Build, Test Water System Device (filtration, irrigation model, pump)																	X					X							X	
2.6 Water Table, Aquifer, Salinity																	X					X							X	

	Air Racer	Bean Sorter	Bridges + Structures	Build a Boat	Catch the Bug	Crazy Contraptions	Direct Drive Wind Turbine	Electromagnetic Crane	Electric Racer	Flag Waver	Fluid Power Lab	Geared Wind Turbine	Gears & Pulleys Tinker Set	Genetics Lab	Advanced Hydraulic Arm	Hydraulic Claw	Hydroponics	Judo-Bot	Mini Wind Turbine	Mousetrap Vehicle	Projectile Launcher	Advanced Rubber Band Racer	Sail Car	Sumo-Bot	Super Spring Scale	Super Wiggle Bot	Wind Lift	Wind Pump	Yeast Mobile
Grade 9																													
A. Scientific Investigation Skills																													
A1.1 Formulate Hypotheses, Predictions	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X
A1.2 Use Appropriate Instruments/Materials (cylinders, ball + spring, pH paper)	X			X	X		X	X	X		X	X	X		X	X	X	X	X	X				X	X			X	X
A1.5 Conduct Inquiries, Control Variables, Adapt Procedures, Use Equipment Safely, Accurately, Collect Data, Observations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.6 Gather, Record Data, Graphs, Tables	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X
A1.8 Qualitative/Quantitative Data	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.10 Draw Inquiry Based Conclusions	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.12 Use Proper Measurement	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.13 Calculations, Accurate | Precise Data	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B. Biology: Sustainable Ecosystems																													
B1.1 Human Impact on Ecosystems														X			X											X	
B2.1 Bioaccumulation, Biosphere, Diversity, Ecosystem, Equilibrium, Sustainability														X			X											X	
B2.4 Investigate Human Impact on Water																	X											X	
B2.5 Invasive Species Ecosystem Impact														X															
C. Chemistry: Atoms, Elements																													
C2.1 Boiling Point, Mixtures, Particle Theory, Pure Substances, Viscosity											X						X												X
D. Earth + Space Science																													
D1.2 Costs, Hazards, Benefits Space Tech																	X					X							
E. Physics: Electricity Characteristics																													
E1.1 Analyze Electrical Efficiency Device					X				X																				
E1.2 Renewable|NonRenewable Electricity					X				X										X									X	
E2.1 Amperes, Battery, Current, Fuse, Kilowatt Hours, Load, Ohms, Potential Difference, Resistance, Switch, Volts					X				X																				
E2.7 Relationships between Current, Potential Difference, Resistance					X																								
E3.1 Identify Electrical Quantities					X																								
E3.2 Conductors, Insulators, Static					X																								
E3.7 Ammeters, Voltmeters, Multimeters					X														X										
E3.8 Factors (Wire Length, Material, Cross-Section) Influence Resistance in Circuit					X																								

	Air Racer	Bean Sorter	Bridges + Structures	Build a Boat	Catch the Bug	Crazy Contraptions	Direct Drive Wind Turbine	Electromagnetic Crane	Electric Racer	Flag Waver	Fluid Power Lab	Geared Wind Turbine	Gears & Pulleys Tinker Set	Genetics Lab	Advanced Hydraulic Arm	Hydraulic Claw	Hydroponics	Judo-Bot	Mini Wind Turbine	Mousetrap Vehicle	Projectile Launcher	Advanced Rubber Band Racer	Sail Car	Sumo-Bot	Super Spring Scale	Super Wiggle Bot	Wind Lift	Wind Pump	Yeast Mobile

Grade 10																													
A. Scientfic Investigation Skills																													
A1.1 Formulate Hypotheses, Predictions	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.2 Use Appropriate Instruments/Materials (cylinders, ball + spring, pH paper)	X			X	X		X	X	X		X	X	X		X	X	X	X	X	X				X	X			X	X
A1.5 Conduct Inquiries, Control Variables, Adapt Procedures, Use Equipment Safely, Accurately, Collect Data, Observations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.6 Gather, Record Data, Graphs, Tables	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X
A1.8 Qualitative/Quantitative Data	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.10 Draw Inquiry Based Conclusions	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.12 Use Proper Measurement	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.13 Calculations, Accurate | Precise Data	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C. Chemistry: Chemical Reactions																													
C2.1 Compounds, Product, Reactant																													X
C2.5 Identify Evidence of Chemical Change																	X												X
C2.6 pH: Basic, Acidic, Neutral																	X												
C3.3 Indicators of Chemical Change																	X												X
C3.7 pH Scale and Uses																	X												
D. Climate Change																													
D1.1 Analyze Effects of Climate Change														X															
D2.2 Design, Build Greenhouse Model																	X												
D3.3 Natural | Anthropogenic Greenhouse																	X												
D3.6 Greenhouse Gases (CO_2, Methane)																	X												

Grade 11: Physics

	Air Racer	Bean Sorter	Bridges + Structures	Build a Boat	Catch the Bug	Crazy Contraptions	Direct Drive Wind Turbine	Electromagnetic Crane	Electric Racer	Flag Waver	Fluid Power Lab	Geared Wind Turbine	Gears & Pulleys Tinker Set	Genetics Lab	Advanced Hydraulic Arm	Hydraulic Claw	Hydroponics	Judo-Bot	Mini Wind Turbine	Mousetrap Vehicle	Projectile Launcher	Advanced Rubber Band Racer	Sail Car	Sumo-Bot	Super Spring Scale	Super Wiggle Bot	Wind Lift	Wind Pump	Yeast Mobile
B. Kinematics																													
B1.1 Analyze Kinematics' Technology	X								X											X	X	X	X		X	X			X
B2.1 Time, Distance, Position, Displacement, Speed, Velocity, Acceleration	X			X		X			X										X	X	X	X	X		X	X			X
B2.2 Position-Time, Velocity-Time, Acceleration-Time Graphs of Motion									X												X	X							
B2.3 Velocity Equations	X								X												X	X							X
B2.4 Uniform + Non-Uniform Linear Motion	X			X		X			X											X		X	X						
B2.5 Distance, Position, Displacement	X			X					X											X		X	X						X
B2.6 Motion of Objects in One Direction, Vector Diagrams, Acceleration Equations	X			X					X											X	X	X	X						X
B2.7 Uniform + Non-Uniform Linear Motion in 1-2 Directions with Graphs/Algebra	X								X											X	X	X	X						X
B2.8 Kinematic Equations: Projectile Motion																					X								
B2.9 Analyze Projectile Motion of an Object in Quantitative | Qualitative Terms																					X								
B3.1 Constant, Instantaneous, Average, Speed, Velocity, Acceleration	X			X		X			X											X	X	X	X		X	X			X
B3.2 Scalar + Vector Quantities	X			X					X											X	X	X	X						X
B3.3 Projectile Motion in Vert | Horiz Planes																					X								
C. Forces																													
C1.1 Analyze Tech w/ Newton's Laws	X								X											X		X	X			X		X	X
C1.2 Impact of the Principles of Force	X		X	X	X	X	X		X				X		X	X				X		X	X			X	X	X	X
C2.1 Mass, Time, Speed, Velocity, Acceleration, Friction, Gravity, Normal Force, Free-Body Diagrams	X								X											X		X	X						X
C2.2 Explore How Newton's Laws, Forces Act on An Object w/ Net Force | Acceleration	X			X		X	X		X				X							X		X	X						X
C2.3 Relationship Between Acceleration of Object and Net Force/Mass	X			X					X											X		X	X						X
C2.4 Acceleration + Force of Gravity, Friction, Coefficient of Friction, Static | Kinetic Friction *(sled, ramp vehicle)*	X								X											X		X	X						X
C2.5 Forces Acting on Object in 1 Dimension	X								X											X		X	X						X
C2.6 Gravity, Objects in Free Fall	X								X											X	X	X	X				X		X
C3.1 Friction, Gravity, Normal Force	X		X	X		X			X				X							X	X	X	X				X	X	X
C3.3 Newton's Three Laws of Motion	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X
C3.4 Relationships Between Mass, Gravity Field Strength, Force of Gravity	X		X	X	X	X	X		X				X		X	X		X		X	X	X	X			X	X	X	X
D. Energy + Society																													
D2.1 Mechnical Energy, Gravitational Potential Energy, Kinetic Energy, Work, Power, Fission, Fusion, Heat, Heat Capacity, Temperature, Latent Heat	X	X		X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X
D2.2 Work, Force, Displacement Problems																													
D2.3 Law of Conservation of Energy: Work, Thermal Energy + Transfer (Heat)																													
D2.4 Transformations Potential + Kinetic Energy (Falling Ball, Ramp, Pendulum)						X				X												X			X		X		
D2.5 Relationship Power, Energy, Time																													
D2.7 Input Energy, Useful Output Energy, Efficiency *(nuclear, wind, solar, thermal)*							X	X	X		X	X			X	X			X								X	X	X
D2.8 Conservation of Mass + Energy																													
D3.1 Describe Energy Transfers | Transformations																													
D3.2 Interrelationships Energy, Work, Power																													
D3.3 Thermal Energy, Kinetic, Gravity, Potential, Heat, Specific Heat Capacity, Specifc Latent Heat, Power, Efficiency																													
D3.5 Conditions Required for Work																													
E. Waves + Sound																													
E1.1 Properties of Mechanical Waves																										X			
E2.1 Longitudinal Wave, Transverse Wave, Frequency, Period, Cycle, Amplitude, Phase, Wavelength, Velocity																										X			
E2.3 Determine Speed of Waves																										X			
E2.4 Relationship Between Wavelength, Frequency, Speed																										X			
E3.1 Longitudinal vs Transverse Waves																										X			
F. Electricty + Magnetism																													
F1.1 Impact of Electrogmagnetic Tech					X			X																					
F2.1 Direct | Alternating Current, Conventional, Electron Flow, Electrical Potential Difference, Electrical Resistance, Power, Energy, Step-Up Transformer					X			X																					
F2.2 Series, Parallel Circuits + Ohm's Law					X																								
F2.3 Design + Build Mixed Circuits					X																								
F2.6 Solve Problems Energy, Current, Power, Transformer Coils								X																					
F2.7 Lenz's Law Electromagnetic Induction								X																					
F2.8 Construct Electromagnetic Device								X																					
F3.2 Right-Hand Rule of Magnetic Fields								X																					
F3.4 Ohm, Kirchhoff, Oersted, Faraday Laws								X																					
F3.6 Explain Operation of Electric Motor								X																					
F3.7 AC and DC Current					X			X																					

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Grade 11: Biology																													
A. Scientfic Investigation Skills																													
A1.1 Formulate Hypotheses, Predictions	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.2 Use Appropriate Instruments/Materials (cylinders, ball + spring, pH paper)	X			X	X		X	X	X		X	X	X		X	X	X	X	X	X				X	X			X	X
A1.5 Conduct Inquiries, Control Variables, Adapt Procedures, Use Equipment Safely, Accurately, Collect Data, Observations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.6 Gather, Record Data, Graphs, Tables	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X
A1.8 Qualitative/Quantitative Data	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.10 Draw Inquiry Based Conclusions	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.12 Use Proper Measurement	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A1.13 Calculations, Accurate | Precise Data	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B. Diversity of Living Things																													
B1.1 Human Risks | Benefits to Ecosystems														X			X												
B1.2 Climate Change + Diversity														X															
B2.1 Genetic Diversity, Species Diversity, Structural Diversity, Binomial Nomenclature, Morphology														X			X												
B3.5 Biodiversity in Ecosystems														X															
C. Evolution																													
C1.1 Artifical/Selective Breeding Tech														X			X												
C1.2 Impact of Environmental Change on Natural Selection/Adaptation of Vulnerable Species														X															
C2.1 Extinction, Natural Selection, Phylogeny, Speciation, Niche, Mutation, Mimicry, Adaptation, Survival of the Fittest														X															
C2.2 Key Factors in Evolution (genetic mutations, selective pressures, environmental stresses)														X															
C3.1 Evolution - Change Over Time														X															
C3.2 How Organisms Adapt to Environment														X															
C3.3 Concept of Speciation														X															
C3.4 Evolutionary Mechanisms (Natural | Artificial selection,Genetic Variation, Genetic Drift, Biotechnology, Darwin's Finches)														X															
D. Genetic Processes																													
D1.1 Social/Ethical Impacts Gene Research														X															
D2.1 Haploid, Diploid, Spindle, Synapsis, Gamete, Zygote, Heterozygous, Homozygous, Allele, Plasmid, Trisomy, Non-Disjunction, Somatic Cell														X															
D2.3 Use Punnett Square Method														X															
D2.4 Punnett Square Crosses | Probability														X															
D3.2 DNA, Genes, Chromosomes, Alleles, Heredity, Mendelian Laws of Inheritance														X			X												
F. Plants: Growth, Function																													
F2.1 Meosphyll, Palisade, Aerenchyma, Epidermal Tissue, Stomata, Root Hair, Pistil, Stamen, Venation, Auxin, Gibberellin																	X												
F2.2 Design | Conduct Experiment of Factors That Affect Plant Growth (light, nutrients, temperature, water rate/percolation)																	X												
F2.3 Biological Diagrams of Plants																	X												
F2.4 Techniques of Plant Propagation																	X												
F3.1 Plant Tissue Structure, Transpiration																	X												
F3.3 Natural | Artifical Plant Propagation																	X												
F3.4 Factors Affecting Plant Growth																	X												
F3.5 Role of Plants in Biodiversity														X			X												

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Grade 11: Environmental Science																													
B. Scientific Solutions to Environmental Challenges																													
B1.1 Analyze an Environmental Challenge							X	X	X			X		X			X									X	X	
B2.1 Fact, Interference, Paradigm, Objectivity, Causality																													
B2.2 Plan | Conduct Experiment to Address Environmental Problem																													
B3.4 Explain How Environmental Challenges Lead to Advances in Science | Tech																													
B3.5 Human Activities that Create Environmental Problems | Solutions (H2O Conservation, Renewable, Recycling)							X	X	X			X		X			X										X	
D. Sustainable Agriculture																													
D1.1 Evaluate Variety Agricultural Practices																	X									X	X		
D2.1 Crop Rotation, Companion Planting, Organic Product, Humus, Compost, Mulch, Silviculture, Naturalization																	X										X		
D2.3 Investigate Plant Nutrients (Nitrogen, Phosphorous, Potassium, pH)																	X												
D2.6 Design Sustainable Planting Project																	X												
D3.2 Basic Needs for Plant Growth (growing medium, light, moisture, nutrients)																	X												
D3.6 Sustainable Water Management																	X											X	
E. Reducing | Managing Waste																													
E1.1 Analyze Waste Managament Practices								X								X	X									X	X	
E2.4 Plan | Conduct Waste Audit in School								X								X	X									X	X	
E3.1 Describe Categories of Waste								X								X	X										X	
E3.4 Explain Common Waste Collection | Storage Technologies | Strategies								X								X	X									X	X	
F. Conservation of Energy																													
F1.1 Propose environmentally friendly solution to reduce non-renewable energy consumption (hybrid cars, solar panels)		X					X	X	X							X			X				X			X	X	
F2.1 Renewable| Non-Renewable Resource		X					X	X	X							X			X				X			X	X	X
F2.4 Design | Construct Working Model of a Device that Uses Alternative Source (wind generator, solar-powered car, fan boat)	X			X			X	X	X			X							X				X			X	X	X
F3.3 Renewable | Non-Renewable Energy Principles + Impact on Environment	X			X			X	X	X							X			X				X			X	X	X