

Wright City Science Curriculum

6th Grade

Grade	6th
Unit of Study	Motion and Stability: Forces and Interactions
Length of Unit	4 weeks
Sample Essential Questions	Sample Corresponding Big Ideas
What is a force, and how can it change an object's motion?	A force is a push or pull that can change an object's motion.
How can forces change the movement of an object?	Forces can cause objects to start moving, stop moving, speed up, slow down, or change direction.
What are the different types of forces, and how do they affect objects?	There are different types of forces, including gravity, friction, and applied forces.
How does the net force acting on an object determine its motion?	The net force acting on an object determines how it moves.
How do an object's mass and the forces acting on it together affect its motion?	The motion of an object depends on both the forces acting on it and its mass.

Missouri Learning Standards

Priority Standards

- 6-8.PS2.A.1 Apply physics principles to design a solution that minimizes the force of an object during a collision and develop an evaluation of the solution.
- 6-8.PS2.A.2 Plan and conduct an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

Unit 1 Sequence			
MLS	Topic(s)	Learning Targets	Academic Vocabulary
6-8.PS2.A.2	Forces	I can describe what a force is and explain that forces can cause an object to start moving, stop moving, speed up, slow down, or change direction.	force applied force gravity friction net force motion speed direction acceleration mass
		I can identify different types of forces, such as gravity, friction, and applied forces.	
		I can explain that when multiple forces act on an object, the total (net) force determines how the object moves.	
		I can plan an investigation that tests how the motion of an object changes when different forces or masses are used.	
		I can collect data about the motion (speed, direction, or acceleration) of an object during the investigation.	
		I can use evidence to explain the relationship between force, mass, and changes in motion.	
6-8.PS2.A.1	Interactions and Collisions	I can describe what happens to the motion and forces of objects when they collide.	force motion collision impact momentum energy transfer kinetic energy potential energy friction
		I can explain that a collision involves a transfer of energy between objects.	
		I can identify examples of real-world designs that minimize force (like seatbelts, airbags, bike helmets, and crumple zones).	
		I can use my understanding of motion, energy, and force to design something that reduces impact force during a collision and describe how my design works based on physics concepts (momentum, force, energy transfer, etc).	
		I can build or model a design, test how well it reduces force during a collision, and collect and analyze my data.	
		I can suggest improvements to make the design more effective based on my results and scientific reasoning.	

MLS	Learning Activities	
6-8.PS2.A.2	Types of Forces Notes	Must Do ▾
6-8.PS2.A.2	Forces and Motion Virtual Lab	Must Do ▾
6-8.PS2.A.2	Mass and Speed Marble Run Lab	Must Do ▾
6-8.PS2.A.1	Collision Virtual Lab	Must Do ▾
6-8.PS2.A.1	Research Real-World Designs to Minimize Force	Must Do ▾
6-8.PS2.A.1	Collision Car Crash Lab	Must Do ▾
		Option L... ▾

Assessments		
MLS	Description or Location	Rubric/Location
6-8.PS2.A.2	Forces	Pear Assessment
6-8.PS2.A.1	Interactions and Collisions	Pear Assessment

Additional Resources
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