Mohawk Local Schools Physical Science - SCIENCE

Quarter 1 Curriculum Guide

Guiding Principles of the Scientific Inquiry/Learning Cycle:

Evaluate….Engage…Explore…Explain…Extend…Evaluate

Identify ask valid and testable questions
Research books, other resources to gather known information
Plan and Investigate
Use appropriate mathematics, technology tools to gather, interpret data.
Organize, evaluate, interpret observations, measurements, other data
Use evidence, scientific knowledge to develop explanations
Communicate results with graphs charts, tables

Critical Areas of Focus Being Addressed:

- Forces and Motion
- Scientific Inquiry

Content Statements Addressed and Whether they are Knowledge, Reasoning, Performance Skill, or Product: (DOK1) (DOK2) (DOK3) (DOK4)	Underpinning Targets Corresponding with Standards and Whether they are Knowledge, Reasoning, Performance Skill, or Product: "I can…..", "Students Will Be Able To……."
Motion (DOK 3)	• Explain why two different frames of reference would describe motion differently. (R) • Draw motion diagrams that represent position and

	velocity of an object (known as a vector). (R) • Demonstrate that displacement can be calculated via ($\Delta x = x_f - x_i$) and is not always equal to distance traveled. (PS) • Calculate velocity (through experimentation) using the following formula ($v_{avg} = (x_f - x_i)/(t_f - t_i)$). (R) • Interpret acceleration of an object based on the calculation of velocity for an object at various points. (R) • Understand that acceleration (calculated ($a_{avg} = (v_f - v_i)/(t_f - t_i)$) can be positive or negative. (R) • Identify instantaneous velocity at any given point during a speed exploration activity. (PS) • Create a position vs. time graph based on collected data. (PS) • Interpret acceleration of an object on a position vs. time graph by understanding the slope of the line. (PS)
Forces (DOK 2)	• Demonstrate through laboratory exercise that a Newton is a unit of force that can be measured and represented as $kg \cdot m/s^2$. (R) • Compare the magnitude and direction of forces acting on an object in a force diagram. (R) • Identify the normal force in several situations. (K) • Draw tension as a force that acts in the direction of pull when a cord or spring is in contact with an object. (K) • Show in a diagram that for surfaces sliding relative to each other, the friction force on an object will always point in a direction opposite to the relative motion of that object. (K) • Explain how magnetic and electric fields that are stronger exert a greater force on an object within the field. (R) • Identify that a field exists even if it is not exerting a force on another object. (K)

	• Calculate weight as the gravitational force on an object using Fg = m g. (K)
Dynamics (DOK 2)	• Explain that an object at rest will stay at rest, and an object in motion will remain in motion until unbalanced forces act on that object. (K) • Define force as an interaction between two objects. (K) • Determine if an object will accelerate by examining the magnitude and direction of the forces acting on the object. (R) • Identify interaction force pairs, i.e. The Force of Object A on B, The Force of Object B on A. (K)