Expert Group Review

For your review, make sure that you accomplish the following

- Answer the questions within your review section
- If you have calculations, provide at least five sample problems
- If you have calculations, provide the relevance of their units and describe any derived units and how they relate to the equation and the desired quantity.
- Define all key vocabulary terms from your section
- Include at least 2 relevant visuals with your final presentation (your presentation medium does NOT count as one)
- Prepare your information for presentation in either PowerPoint or another tangible resource for your classmates (worksheet, graphic organizer, etc)
- Your presentation should fit within a 7-15 minute time frame

- 10.1- Measuring Motion
  - Your Review needs to explain the following:
    - What is the relationship between motion and a frame of reference?
    - How are speed, distance, and time related?
    - What is the difference between speed and velocity?
    - How to calculate speed, time, distance, and velocity
    - Analyze the motion of two objects in terms of distance and time graphically

- 10.2- Acceleration
  - Your Review needs to explain the following:
    - What is acceleration?
    - How are velocity and acceleration related?
    - How is circular motion continuous acceleration even when speed is kept constant?
    - How to calculate acceleration related to the change in velocity
    - How to graph acceleration on a velocity-time graph
    - Identify the forces acting on a falling object and their effect on acceleration

- 10.3- Motion and Force
  - Your review needs to explain the following:
    - How do unbalanced forces effect the motion of an object?
    - Compare and contrast static and kinetic friction
    - Describe the differences and provide examples of harmful and helpful friction
    - Identify ways in which friction could be reduced or increased
    - Identify and describe the forces acting on an object using a force diagram

        - Determine the effect (magnitude and direction) of the sum of the forces acting on an object

- 11.1- Laws of Motion
    - Your review needs to explain the following:
        - Identify Newton's laws
        - Relate Newton's 1st law to important real-life applications
        - Explain how to calculate Force
        - Explain how to calculate mass
        - Explain how to calculate acceleration
        - Use Newton's second law to explain Force, mass and acceleration

- 11.2-Gravity
    - Your review needs to explain the following:
        - How does gravitational force become stronger as mass increases and weaker as distance increases?
        - Explain and describe the concept of free-fall acceleration near earth's surface. How is it that mass is independent of acceleration?
        - Demonstrate mathematically how free-fall acceleration is related to weight
        - Explain how to calculate weight under varying circumstances (i.e.- on earth vs. on the moon)
        - Describe the two components of orbital motion

- 11.3- Newton's Third Law
    - Your review needs to explain the following:
        - Explain Newton's third law
        - Show and explain force pairs (action/reaction)
        - Explain the concept of momentum
        - Explain the conservation of momentum
        - Demonstrate how all moving objects have momentum

- 12.1- Work, Power, and Machines
    - Your review needs to explain the following:
        - Define Work and power
        - Explain how to calculate the work done on an object
        - Explain how to calculate the rate at which work can be done on an object
        - Use the concept of MA to explain how machines make doing work easier
        - Explain how to calculate the mechanical advantage of various machines (ramps, pulleys, etc)

- 12.2- Simple Machines
  - Your review needs to explain the following:
    - Name and describe the six different types of simple machines
    - Discuss the mechanical advantage to using different types of simple machines
    - Recognize simple machines within compound machines

- 12.3- What is Energy?
  - Your review needs to explain the following:
    - What is the relationship between energy and work?
    - How to mathematically demonstrate the relationship between energy and work
    - Define potential and kinetic energy
    - How to calculate KE and GPE
    - Using a scenario, explain the difference between PE and KE in the same system
    - What is the relationship between KE and mass and velocity?
    - How is GPE related to height and weight?
    - What is the difference between mechanical and nonmechanical energy and provide examples of each
    - How does work affect KE and PE?

- 12.4- Conservation of Energy
  - Your review needs to explain the following:
    - Identify and describe transformations of energy
    - What is the law of conservation of energy?
    - Describe the transfer of energy that occurs as energy changes from kinetic to potential within a system
    - Describe the different ways to store various types of energy (MO GLEp9)
    - Where does the energy go when it seems to 'disappear'?
    - What is efficiency?
    - How can we calculate efficiency?

- 13.2- Energy Transfer
  - Your review needs to explain the following:
    - What is the difference between thermal energy and heat?
    - What is the relationship between thermal energy and heat?
    - What are conductors and insulators?
    - What makes conductors and insulators effective?
    - Define and distinguish between Conduction, Convection, and Radiation

- Electromagnetic Spectrum
    - Your review needs to explain the following:
        - What are the different parts of the electromagnetic spectrum?
        - Identify the information that the electromagnetic spectrum provides about the stars and the universe (e.g.- temperature, age of stars, motion of celestial bodies)
        - Describe the effect of different frequencies of electromagnetic waves on the Earth and living organisms
        - For an extra challenge- explain how the electromagnetic spectrum also provides us with information regarding the location of black holes

Expert Group Review Grading Rubric

Expectation	Always	Sometimes	Rarely	Never
Answer the questions within your review section	25	15	10	0
At least five sample problems provided	20	15	10	0
Units and Derived units explained	15	10	5	0
All vocabulary terms defined	10	5	2	0
Two relevant visuals included	10	5		0
Presentation prepared	10			0
Time requirements- min. 7 minutes	10			0

Total:_____/100

Comments: