

### 3<sup>rd</sup> QUARTER SYLLABUS

<b>TITLE OF COURSE:</b> <b>8<sup>th</sup> Grade Physical Science</b>	<b>GRADE LEVEL/ DURATION OF COURSE:</b> <b>8<sup>th</sup> Grade/ Full Year</b>	<b>TEACHER NAME &amp; E-MAIL:</b>  <b>Kristin Page-Botelho</b> <b><a href="mailto:kpage@asa.edu.py">kpage@asa.edu.py</a></b>	
<b>STANDARDS:</b>	<b>ESSENTIAL QUESTIONS:</b>	<b>LEARNING OBJECTIVES:</b>	
<p>Understand fundamental forces, their forms, and their effects on motion.</p> <p>Explain interactions between force and matter and the relationships among force, mass, and motion.</p> <p>Understand energy, its transformation, and interactions with matter</p> <p>Explain the physical processes involved in the transfer, change, and conservation of energy.</p>	<p><b>How do scientists organize our knowledge of the universe?</b></p> <p><b>How do scientists use evidence, models, and explanations to communicate about discoveries?</b></p> <p><b>How do scientists measure change?</b></p> <p><b>What forces cause change?</b></p> <p><b>What is the relationship between structure and function in objects, organisms, and systems?</b></p> <p><b>How do scientists explore, observe, ask questions, collect data, and find patterns?</b></p>	<p><i>Vocabulary</i></p> <ul style="list-style-type: none"> <li>• Work</li> <li>• Joule</li> <li>• Power</li> <li>• Mechanical advantage</li> <li>• Mechanical efficiency</li> <li>• Screw</li> <li>• Simple machine</li> <li>• Compound machine</li> <li>• Motion</li> <li>• Speed</li> </ul>	<ul style="list-style-type: none"> <li>• Velocity</li> <li>• Acceleration</li> <li>• Force</li> <li>• Newton</li> <li>• Net force</li> <li>• Friction</li> <li>• Gravity</li> <li>• Terminal velocity</li> <li>• Free fall</li> <li>• Projectile motion</li> <li>• Inertia</li> <li>• Momentum</li> </ul>
		<p><b>Skills</b></p> <ul style="list-style-type: none"> <li>▪ <i>Recognize and describe the motion of an object based on its mass and the force exerted on it.</i></li> <li>▪ <i>Solve problems involving distance, time, and average speed.</i></li> <li>▪ <i>Explain that changes in velocity may be due to changes in speed, direction, or both.</i></li> <li>▪ <i>Interpret graphs of position versus time and graphs of speed versus time for motion in a single direction.</i></li> <li>▪ <i>Demonstrate that force has both direction and magnitude.</i></li> <li>▪ <i>Describe balanced and unbalanced forces and the effect these forces have when acting on an object.</i></li> <li>▪ <i>Explain why friction occurs and give examples of the two types of friction.</i></li> <li>▪ <i>Explain the Law of Universal Gravitation. chemical equations.</i></li> <li>▪ <i>Describe and apply Newton 's Laws of Motion:</i> <ol style="list-style-type: none"> <li>1. <i>Objects in motion will continue in motion and objects at rest will remain at rest unless acted upon by an unbalanced force (inertia).</i></li> <li>2. <i>The acceleration of an object depends on the mass of the object and the amount of force applied. (F=ma)</i></li> <li>3. <i>When one object exerts a force on a second object, the second object exerts an equal and opposite force on the first.</i></li> </ol> </li> <li>▪ <i>Determine when work is being done on an object and calculate the amount of work done.</i></li> <li>▪ <i>Explain the difference between work and power</i></li> <li>▪ <i>Identify and use simple machines and describe how they change effort required to do the same amount of work without a machine.</i></li> <li>▪ <i>Construct and analyze simple machines (levers, pulleys, and inclined planes) to analyze forces and distances (i.e., work).</i></li> </ul>	



## ASSESSMENTS:

Student Grades will be determined by the following:

- 40% Tests/Quizzes
- 20% Labs/Hands-on Activities/Projects
- 20% Class work
- 10% Participation
- 10% Homework

**Tests/Quizzes** – Students can expect approximately 1 quiz every other week and a comprehensive test at the end of each chapter.

**Labs/Hands-on Activities/Projects** – Students can expect to participate in 1 hands-on activity or lab about every other week as well as several projects throughout the quarter. Students will be provided and instructed about grading rubrics for all projects prior to starting the project.

**Class work** – Students will complete daily warm-ups or science news responses, which will be collected weekly. Students will also complete a variety of in-class assignments on a regular basis.

**Participation** – Students can earn 2 participation points per day. If students are participating positively in class, contributing to class discussions, asking thoughtful questions about topics being taught, working cooperatively with classmates during labs and group-work, and not causing disruption to the learning environment they will earn their participation points.

**Homework** – Students will be given a variety of homework assignments throughout the quarter. It is expected that all assignments be completed individually. Instruction for all assignments has occurred before assignments are given and therefore assignments are a way of reinforcing concepts taught in class.

## RESOURCES:

*Science and Technology: Physical Science.* Holt, Rinehart, and Winston, 2006.

<http://go.hrw.com>

[www.mrspage.com](http://www.mrspage.com)

## TEACHER AVAILABILITY FOR EXTRA HELP AND MEETING WITH STUDENTS:

I will always be available **Mondays and Thursdays** from **3:30-4:15 p.m.** in room **H-11.**