

**Huntsville City Schools**  
**Pacing Guide 2017 - 2018**  
**Course Science Grade 8**  
**First Nine Weeks**

**Vocabulary**

<b>Using Scientific Inquiry: Part 1</b>	Science, observing, quantitative observation, qualitative observation, classifying, observing, classifying, inferring, predicting, analyzing, skepticism, data, empirical evidence, objective reasoning, subjective reasoning, pseudoscience, scientific inquiry, hypothesis, independent variable, dependent variable, controlled experiment, bias, repeated trial, replication, scientific explanation, scientific literacy, evidence, opinion
<b>Chapter 1 Introduction to Matter</b>	Matter, chemistry, substance, physical property, chemical property, element, atom, chemical bond, molecule, compound, chemical formula, mixture, weight, mass, International System of Units, volume, density, physical change, chemical change, law of conservation of mass, temperature, thermal energy, endothermic change, exothermic change, chemical energy
<b>Chapter 2 Solids, Liquids, and Gases</b>	Solid, crystalline solid, amorphous solid, liquid, fluid, surface tension, viscosity, gas, pressure, melting, melting point, freezing, vaporization, evaporation, boiling, boiling point condensation, sublimation, Charles's Law, directly proportional, Boyle's Law, inversely proportional, inversely proportional
<b>Chapter 3 Atoms and Bonding</b>	Valence electron, electron dot diagram, chemical bond, ion, polyatomic ion, ionic

	bond, ionic compound, chemical formula, subscript, crystal, covalent bond, molecule, double bond, triple bond, molecular compound, nonpolar bond, polar bond, metallic bond, alloy
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# Pacing Guide 2017 - 2018

## Course Science Grade 8

### First Nine Weeks

### Matter and Its Interactions

Standard	Resources	Approximate Pacing Number of Days (41)
<p><b>Pre-Learning Concepts and Review:</b></p> <ul style="list-style-type: none"><li>• Students can conduct a Scientific Investigation.</li><li>• Students are able to create a graph using a table created with data collected by the student with independent and dependent variable represented.</li><li>• Students are familiar with lab equipment and understand the safety procedures while in the science lab.</li></ul>	<p><b>Pearson Realize : Using Scientific Inquiry Part 1 (found at the end of the Teacher’s Edition)</b></p> <p><b>Laying the Foundation:</b></p> <ul style="list-style-type: none"><li>• Graphing Skills</li><li>• Scientific Method (Come Fly with Me/Penny Lab)</li><li>• Whirligig Lollapalooza</li></ul> <p><b>Other:</b> The Gummy Bear Lab <a href="http://sciecnspot.net/Media/mmaniabearlab.pdf">http://sciecnspot.net/Media/mmaniabearlab.pdf</a></p> <p><b>**Time permitting**</b></p> <p><b>Teacher Free Online Safety Course by Flinn Science:</b> <a href="http://labsafety.flinnsci.com/Home.asp">http://labsafety.flinnsci.com/Home.asp</a> <a href="#">X</a></p> <p><b>Student/Parent Lab Safety Contract by Flinn Science:</b> <a href="https://www.flinnsci.com/globalassets/flinn-scientific/all-free-">https://www.flinnsci.com/globalassets/flinn-scientific/all-free-</a></p>	<p><b>7</b></p>

**1. Analyze patterns within the periodic table to construct models(e.g., molecular-level models, including drawings; computer representations) that illustrate the structure, composition, and characteristics of atoms and molecules.**

[pdfs/dc10642.pdf?v=09f3ed619f3a4841bec5103e8e13abf6](https://www.pearson.com/realize/v/09f3ed619f3a4841bec5103e8e13abf6)

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**Pearson Realize: Chapter 1-Introduction to Matter (lessons 1-4)**

**PhET Simulations:**

<http://phet.colorado.edu/>

- Build an Atom
- Collisions
- States of Matter

**AMSTI:**

**Exploring the Properties of Matter**

**AMSTI:**

- Experimenting with Mixtures, Elements, and Compounds

**Laying the Foundation:**

- Chromatography of Drink Mixes (Separating Dyes)
- What is the Liquid? Determining the density and analyzing data.

**TYLER DEWITT: Basic Atomic Structure**

<https://youtu.be/h6LPAwAmnCQ?list=PLtknM3zF70GyDsdKcwXJvaKKyDthFjHd6>

**PhET Simulation:**

<http://phet.colorado.edu/>

**Build an Atom**

**The Science Spot: Chemistry – Matter, Atoms, & More**

<http://www.sciencespot.net/Pages/kdzchem.html>

	<p><b>Volume and Measurement Review</b>  <a href="http://www.commoncoresheets.com">http://www.commoncoresheets.com</a></p>	
<p><b>4. Design and conduct an experiment to determine changes in particle motion, temperature, and state of a pure substance when thermal energy is added to or removed from a system.</b></p> <p><b>2. Plan and carry out investigations to generate evidence supporting the claim that one pure substance can be distinguished from another based on characteristic properties.</b></p> <p><b>3. Construct explanations based on evidence from investigations to differentiate among compounds, mixtures, and solutions.</b></p> <p><b>a. Collect and analyze information to illustrate how synthetic materials (e.g., medicine, food additives, alternative fuels, plastics) are derived from natural resources and how they impact society.</b></p>	<p><b>Pearson Realize:</b>  <b>Chapter 2-Solids, Liquids, and Gases (lesson 1-3)</b></p> <p><b>Pearson Realize:</b>  <b>Chapter 3- Atoms and Bonding (Lessons 1-4)</b></p> <p><b>MIDDLE SCHOOL CHEMISTRY:</b>  <a href="http://www.middleschoolchemistry.com">www.middleschoolchemistry.com</a></p> <ul style="list-style-type: none"> <li>• Chapter 4: Periodic Table &amp; Bonding</li> </ul> <p><b>PHET:</b>  <a href="http://phet.colorado.edu/">http://phet.colorado.edu/</a></p> <ul style="list-style-type: none"> <li>• Build a Molecule</li> </ul> <p><b>LTF/NMSI(National Math +Science Initiative):</b>  <a href="#">A+College Ready</a></p> <ul style="list-style-type: none"> <li>• <b>Canister Conundrum</b> (must have LTF login)</li> <li>• <b>What's That Liquid?</b> (must have LTF login)</li> <li>• <b>Why do They Call It A Periodic Table?</b></li> <li>• <b>Electron Configuration and Orbital Notation</b></li> <li>• <b>It's in the Cards Laying the Foundation</b></li> <li>• <b>States of Matter</b></li> </ul> <p><b>PBS Learning:</b></p> <ul style="list-style-type: none"> <li>• <b>Water Density</b></li> </ul> <p><b>MIDDLE SCHOOL CHEMISTRY:</b></p>	<p><b>7</b></p> <p><b>10</b></p>

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

- Chapter 2: Changes of State
- Chapter 3: Density

PHET: <http://phet.colorado.edu/>

- Density

**Huntsville City Schools**  
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**Course Science Grade 8**  
**Second Nine Weeks**

**Vocabulary**

<b>Chapter 4 Chemical Reactions</b>	Physical change, chemical change, reactant, product, precipitate, exothermic reaction, endothermic reaction, chemical equation, law of conservation of mass, open system closed system, coefficient, synthesis, decomposition, replacement, activation energy, concentration, catalyst, enzyme, inhibitor
<b>Chapter 5 Acids, Bases, and Solutions</b>	Solution, solvent solute, colloid, suspension, dilute solution, concentrated solution, solubility, saturated solution, acid, corrosive, indicator, base, hydrogen ion, hydroxide ion, pH scale, neutralization, salt

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**Course Science Grade 8**  
**Second Nine Weeks**

Standard	Resources	Approximate Pacing Number of Days (43)
<p><b>5. Observe and analyze characteristic properties of substances (e.g., odor, density, solubility, flammability, melting point, boiling point) before and after the substances combine to determine if a chemical reaction has occurred.</b></p> <p><b>6. Create a model, diagram, or digital simulation to describe conservation of mass in a chemical reaction and explain the resulting differences between products and reactants.</b></p> <p><b>7. Design, construct, and test a device (e.g., glow stick, hand warmer, hot or cold pack, thermal wrap) that either releases or absorbs thermal energy by chemical reactions( e.g., dissolving ammonium chloride or calcium chloride in water) and modify the device as needed based on criteria (e.g., amount/concentration, time,</b></p>	<p><b>Pearson Realize:</b>            Chapter 4 – Chemical Reactions Lesson 1  <b>MIDDLE SCHOOL CHEMISTRY:</b>  <a href="http://www.middleschoolchemistry.com">www.middleschoolchemistry.com</a></p> <ul style="list-style-type: none"> <li>• Chapter 6 Chemical Change</li> </ul> <p><b>NMSI(National Math +Science Initiative):</b>  <a href="#">A+College Ready</a></p> <ul style="list-style-type: none"> <li>• Types of Chemical Reactions</li> <li>• Where’s the Heat</li> <li>• Evaporation and Condensation</li> <li>• Investigating energy during a phase Change.</li> </ul> <p><b>PHET:</b>  <a href="http://phet.colorado.edu/">http://phet.colorado.edu/</a>            Reactions and Rates</p> <p><b>Pearson Realize:</b>            Chapter 4 – Chemical Reactions</p>	<p><b>43</b></p>



temperature).\*

(Lesson 2-3)  
Chapter 5 Acids, Bases and Solutions  
Lessons (1-4)

**INQUIRY IN ACTION:**

[http://www.inquiryinaction.org/chemistryreview/chemical\\_change/](http://www.inquiryinaction.org/chemistryreview/chemical_change/)

**STEVE SPANGLER SCIENCE:**

<http://www.stevespanglerscience.com/lab/experiments/magnetic-slime/>

**TYLER DEWITT: Intro to Balancing Equations**

<https://youtu.be/yA3TZJ2em6g>

Chapter 4-Chemical Reactions (Lesson 1)

**NMSI(National Math +Science Initiative):**

[A+College Ready](#)

**HOT DOG!**

**STEVE SPANGLER SCIENCE:**

<http://www.stevespanglerscience.com/lab/experiments/home-made-hand-warmer/>

**Huntsville City Schools**  
**Pacing Guide 2017 - 2018**  
**Course Science Grade 8**  
**Third Nine Weeks**

**Vocabulary**

<b>Chapter 7 Energy</b>	Energy, kinetic energy, potential energy, gravitational potential energy, elastic potential energy, mechanical energy, nuclear energy, thermal energy, thermal energy, electrical energy, electromagnetic energy, chemical energy, energy transformation, law of conservation of energy
<b>Chapter 8 Thermal Heat and Energy</b>	Temperature, Fahrenheit scale, Celsius scale, Kelvin scale, absolute zero, heat, convection, convection current, radiation, conduction, conductor, insulator, specific heat, thermal expansion
<b>Chapter 9 Characteristics of Waves</b>	Wave, energy, medium, mechanical wave, vibration, transverse wave, crest, trough, longitudinal wave, compression, rarefaction, amplitude, wavelength, frequency, hertz, reflection, refraction, diffraction, interference, constructive interference, destructive interference, standing wave, node, antinode, resonance
<b>Chapter 10 Electromagnetic Waves</b>	Electromagnetic wave, electromagnetic radiation, polarized light, photoelectric effect, photon, electromagnetic spectrum, radio waves, microwaves, radar, infrared rays, thermogram, visible light, ultraviolet rays, X-rays, gamma rays, amplitude modulation, frequency modulation
<b>Chapter 11 Magnetism and Electromagnetism</b>	Magnet, magnetism, magnetic pole, magnetic force,

	magnetic field, magnetic field lines, compass, magnetic declination, electromagnetism, solenoid, electromagnet, galvanometer, electric motor, electromagnetic induction, direct current, alternating current, generator, transformer
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**Third Nine Weeks**

Standard	Resources	Approximate Pacing Number of Days (54)
<p><b>13. Create and analyze graphical displays of data to illustrate the relationships of kinetic energy to the mass and speed of an object (e.g., riding a bicycle at different speeds, hitting a table tennis ball versus a golf ball, rolling similar toy cars with different masses down an incline).</b></p> <p><b>14. Use models to construct an explanation of how a system of object may contain varying types and amounts of potential energy (e.g., observing the movement of a roller coaster cart at various inclines, changing the tension in a rubber band, varying the number of batteries connected in a series, observing a balloon with static electrical charge being brought closer to a classmate's hair).</b></p>	<p><b>Pearson Realize:</b>  <b>Chapter 7 Energy</b>  <b>Chapter 8 Thermal Energy and Heat</b></p> <p><b>LTF/NMSI (National Math +Science Initiative):</b>  <a href="#">A+College Ready</a></p> <ul style="list-style-type: none"> <li>• <b>SPEED</b></li> <li>• <b>CHANGING MOTION</b></li> <li>• <b>VELOCITY VS. TIME</b></li> </ul> <p><b>PHET:</b>  <a href="http://phet.colorado.edu/">http://phet.colorado.edu/</a></p> <ul style="list-style-type: none"> <li>• <b>MOVING MAN</b></li> </ul> <p><b>PHET:</b>  <a href="http://phet.colorado.edu/">http://phet.colorado.edu/</a></p> <ul style="list-style-type: none"> <li>• <b>SKATE PARK</b></li> </ul> <p><b>LTF/NMSI: (Nationa Math + Science Initiative)</b>  <a href="#">A+College Ready</a></p>	<p style="text-align: center;"><b>12</b></p>

<p><b>15. Analyze and interpret data from experiments to determine how various factors affect energy transfer as measured by temperature (e.g., comparing final water temperatures after different masses of ice melt in the same volume of water with the same initial temperature, observing the temperature change of samples of different materials with the same mass and the same material with different masses when adding a specific amount of energy).</b></p> <p><b>16. Apply the law of conservation of energy to develop arguments, supporting the claim that when the kinetic energy of an object changes, energy is transferred to or from the object (e.g., bowling ball hitting pins, brakes being applied to a car).</b></p>	<ul style="list-style-type: none"> <li>● <b>RAMPED UP</b></li> </ul> <p><b>*Carousel Skate Center(STEM lessons) please contact-Ron Parmley (256) 534-8589 to schedule a lesson/field trip. LTF/NMSI (National Math +Science Initiative):</b>  <a href="#">A+College Ready</a></p> <ul style="list-style-type: none"> <li>● <b>The Melt Down</b></li> </ul> <p><b>PBS LEARNING:</b></p> <ul style="list-style-type: none"> <li>● <b>From Waste to Energy</b></li> </ul> <p><b>PHET:</b>  <a href="http://phet.colorado.edu/">http://phet.colorado.edu/</a>  <b>Force and Motion</b></p>	
<p><b>17. Create and manipulate a model of a simple wave to predict and describe the relationships between wave properties (e.g., frequency, amplitude, wavelength) and energy. Analyze and interpret data to illustrate an electromagnetic spectrum. Ch. 9</b></p>	<p><b>Pearson Realize:</b>  <b>Chapter 9 Characteristics of waves Lesson 1-2</b></p> <p><b>AMSTI: ELECTRICITY, WAVES AND INFORMATION TRANSFER (EWIT)</b></p> <p><b>SMALL LAB:</b></p> <ul style="list-style-type: none"> <li>● <b>Oscillating Spring</b></li> </ul> <p><b>PHET:</b>  <a href="http://phet.colorado.edu/">http://phet.colorado.edu/</a>  ● <b>WAVE ON A STRING</b></p>	

	<ul style="list-style-type: none"> <li>• <b>WAVE INTERFERENCE</b></li> </ul> <p><b>LTF/NMSI (National Math +Science Initiative):</b>  <a href="#">A+College Ready</a></p> <ul style="list-style-type: none"> <li>• <b>CATCH THE WAVE</b></li> <li>• <b>STANDING WAVES</b></li> </ul> <p><b>PBS LEARNING:</b></p> <ul style="list-style-type: none"> <li>• <b>ASPIRE LAB: WHAT IS A WAVE</b></li> </ul>	
<p><b>18. Use models to demonstrate how light and sound waves differ in how they are absorbed, reflected, and transmitted through different types of media.</b>  <b>Ch.9</b></p>	<p><b>Chapter 9 Characteristics of waves (lesson 3)</b></p> <p><b>SMALL LAB:</b></p> <ul style="list-style-type: none"> <li>• <b>ColorMixer</b></li> <li>• <b>LightAndMirrors</b></li> </ul> <p><b>LTF/NMSI(National Math +Science Initiative):</b>  <a href="#">A+College Ready</a></p> <ul style="list-style-type: none"> <li>• <b>SOUND</b></li> <li>• <b>MIRROR MIRROR ON THE WALL</b></li> </ul> <p><b>PBS LEARNING:</b></p> <ul style="list-style-type: none"> <li>• <b>LIGHT WAVES BEHAVIOR(SIM):</b></li> </ul>	<b>11</b>
<p><b>19. Integrate qualitative information to explain that common communication devices(e.g., cellular telephones, radios , remote controls, Wi-Fi components, global positioning systems (GPS), wireless technology components) use electromagnetic waves to encode and transmit information.</b></p> <p><b>11. Plan and carry out investigations to evaluate how various factors (e.g., electric force produced between two</b></p>	<p><b>Chapter 10 Electromagnetic Waves (all lessons)</b>  <b>Chapter 11 Magnetism and Electromagnetism (all lessons)</b></p> <p><b>HOW STUFF WORKS:</b>  <b>CELL PHONES:</b>  <a href="http://electronics.howstuffworks.com/cell-phone1.htm">http://electronics.howstuffworks.com/cell-phone1.htm</a></p> <p><b>GPS VS. COMPASS:</b>  <a href="http://adventure.howstuffworks.com/outdoor-activities/hiking/compass-or-">http://adventure.howstuffworks.com/outdoor-activities/hiking/compass-or-</a></p>	<b>15</b>

charged objects at various positions; magnetic force produced by an electromagnet with varying number of wire turns, varying number or size of dry cells, and varying size of iron core) affect the strength of electric and magnetic forces.

12. Construct an argument from evidence explaining that fields exist between objects exerting forces on each other (e.g., interactions of magnets, electrically tides) even when the objects are not in contact.

[gps3.htm](#)

PHET:

<http://phet.colorado.edu/>

- RADIO WAVES AND ELECTROMAGNETIC FIELDS
- MAGNETS AND FORCES

LTF/NMSI (National Math +Science Initiative):

[A+College Ready](#)

- ELECTROMAGNETISM
- WHAT IN THE WORLD
- MAGNETIC FIELDS AND FORCES

PBS LEARNING:

- HOW IS A RADIO WAVE EMITTED

HOW STUFF WORKS: TAPE RECORDERS

- <http://electronics.howstuffworks.com/gadgets/audio-music/cassette.htm>
- <http://science.howstuffworks.com/electromagnet.htm>

LTF/NMSI (National Math +Science Initiative):

- ELECTROMAGNETISM

PHET:

- MAGNETS AND ELECTROMAGNETS

**AMSTI: EWIT (Energy Waves and Information Transfer) –**

### **Third Nine Weeks Kit**

#### **SUPER MAGNET ACTIVITIES:**

- <http://amasci.com/amateur/neodymium.html>

#### **DISCOVERY EDUCATION:**

<http://www.discoveryeducation.com/teachers/free-lesson-plans/magnetism.cfm>

#### **HONORS:**

[http://cse.ssl.berkeley.edu/SegwayEd/lessons/exploring\\_magnetism/magnetism\\_and\\_electromagnetism/mag\\_electromag.pdf](http://cse.ssl.berkeley.edu/SegwayEd/lessons/exploring_magnetism/magnetism_and_electromagnetism/mag_electromag.pdf)

#### **PBS LEARNING:**

<http://www.pbslearningmedia.org/resource/psu06-nano.sci.text.lpmotorhs/turning-electricity-and-magnetism-into-mechanical-work-with-a-simple-motorhs/>

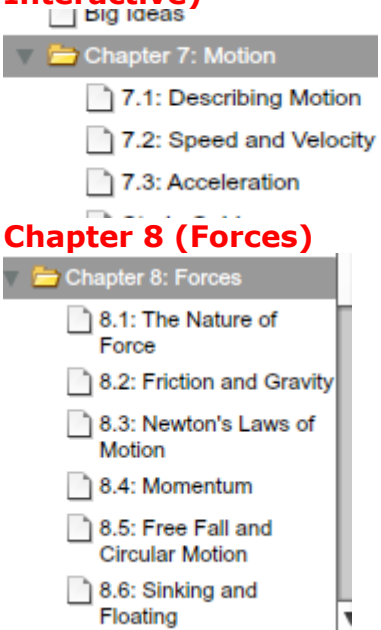


**Huntsville City Schools**  
**Pacing Guide 2017 - 2018**  
**Course Science Grade 8**  
**Fourth Nine Weeks**

**Vocabulary:**

<b>Chapter 6 Forces – Chapter 8 (Pearson Interactive)</b>	Force, newton, net force, friction, sliding friction, static friction rolling friction, gravity, mass, weight, inertia, momentum, law of conservation of momentum, free fall, satellite, centripetal force
<b>Chapter 7 Motion (Pearson Interactive)</b>	Newton’s Three Laws of Motion, Action, Reaction, Inertia, Acceleration, Momentum, Friction, Motion, Reference Point, Distance, Speed, Average Speed, Instantaneous Speed, Velocity, Slope,, Acceleration, Gravity, Weight, Mass, Law of Conservation of Momentum, Net Force
<b>Chapter 9 Work and Machines (Pearson Interactive)</b>	Energy, Work ,Joule, Power, Watt, Force, Mechanical Advantage, Simple Machines, Incline, Planes, Wedge, Screw, Lever, Fulcrum, Pulley, Wheel and Axle, Input force, Output force, Compound Machines, Efficiency

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**Fourth Nine Weeks**

Standard	Resources	Approximate Pacing Number of Days (39)
<p><b>8. Use Newton’s first law to demonstrate and explain that an object is either at rest or moves at a constant velocity unless acted upon by an external force (e.g., model car on a table remaining at rest until pushed). Ch. 6 Pearson Realize Ch. 9 Pearson Interactive</b></p> <p><b>9. Use Newton’s second law to demonstrate and explain how changes in an object’s motion depend on the sum of the external forces on the object and the mass of the object (e.g., billiard balls moving when hit with cue stick).</b></p>	<p><b>Pearson Interactive: Chapter 7 (Motion) Old Book (Pearson Interactive)</b></p>  <p>The screenshot shows a navigation menu with a search bar labeled 'Big Ideas'. Under 'Chapter 7: Motion', there are three items: '7.1: Describing Motion', '7.2: Speed and Velocity', and '7.3: Acceleration'. Under 'Chapter 8: Forces', there are six items: '8.1: The Nature of Force', '8.2: Friction and Gravity', '8.3: Newton's Laws of Motion', '8.4: Momentum', '8.5: Free Fall and Circular Motion', and '8.6: Sinking and Floating'.</p>	<p><b>15</b></p>

**10. Use Newton's third law to design a model to demonstrate and explain the resulting motion of two colliding objects (e.g., two cars bumping into each other, a hammer hitting a nail.)\***

**AMSTI – Experimenting with Forces and Motion**

**PhET Simulation:  
Graphing Lines**

**LTF/NMSI(National Math +Science Initiative) :**

- **Graphing Skills**
- **Scientific Method**
- **Whirligig Lollapalooza**
- **A Picture is Worth 1000 Words**
  - **The Force to Be Reckoned With**

**PBS LEARNING:**

- **Teachable Moments: Newton's First Law**

**SMALL LAB: Constant Velocity and Constant Acceleration**

<p><b>Ch. 6 Pearson Realize</b> <b>Ch. 8 Pearson Interactive</b></p>	<p><b>PhET Simulation(s):</b></p> <ul style="list-style-type: none"> <li>• Forces and Motion (Basics)</li> </ul> <p><b>*HONORS:</b></p> <p><b>PhET Simulation (s)</b></p> <ul style="list-style-type: none"> <li>• The Moving Man</li> <li>• Position vs Time Graphs</li> <li>• Velocity vs Time Graphs</li> </ul> <p><b>AMSTI:</b> <b>Experimenting with Forces and Motion <b>Fourth Nine Weeks Kit</b></b></p> <p><b>PBS LEARNING:</b></p> <ul style="list-style-type: none"> <li>• Riding with the Wind</li> </ul> <p><b>THE PHYSICS CLASSROOM:</b> <a href="http://www.physicsclassroom.com/Physics-Interactives/Newtons-Laws/Rocket-Sledder/Rocket-Sledder-Interactive">http://www.physicsclassroom.com/Physics-Interactives/Newtons-Laws/Rocket-Sledder/Rocket-Sledder-Interactive</a></p>	<p><b>15</b></p>
<p><b>Ch. 6 Pearson Realize</b> <b>Ch. 8 Pearson Interactive</b></p>	<p><b>PBS LEARNING:</b></p> <ul style="list-style-type: none"> <li>• NEWTON'S THIRD LAW: DESIGN SQUAD</li> <li>• NEWTON'S THIRD LAW: ACTION AND REACTION.</li> </ul> <p><b>NEWTON'S THIRD LAW:</b> <a href="http://simulations.ck12.org/NThirdLaw/">http://simulations.ck12.org/NThirdLaw/</a></p> <p><b>Carousel Skate Center(STEM lessons) please contact-Ron Parmley (256) 5348589 to schedule a lesson/field trip.</b></p> <p><b>Chapter 9 Pearson Interactive – Work and Machines</b> <b>Rube Goldberg Project</b></p>	<p><b>9</b></p>



**Huntsville City Schools**  
**Pacing Guide 2016 - 2017**  
**Course Science Grade 8**  
**Alabama Course of Study**  
**Technology Education**

**Technology Operations and Concepts:**

Students will:

1. Appraise technology systems to determine software and hardware compatibility.
2. Publish digital products that communicate curriculum concepts. Examples: Web pages, videos, podcasts, multimedia presentations.
3. Explain how network systems are connected and used. Examples: file sharing, collaborating, wireless networking.
4. Determine basic troubleshooting strategies to correct common hardware and software problems.  
Examples: checking connections, restarting equipment, creating a backup copy of digital data
  - Describing the importance of antivirus and security software
5. Use basic features of word processing, spreadsheets, databases, and presentation software.  
Examples: word processing—reports, letters, brochures spreadsheets—discovering patterns, tracking spending, creating budgets databases—contact list of addresses and telephone numbers presentation software—slideshow
6. Select specific digital tools for completing curriculum-related tasks.  
Examples: spreadsheet for budgets, word processing software for essays, probes for data collection

7. Demonstrate correct keyboarding techniques. Digital Citizenship

## **Digital Citizenship**

8. Identify safe uses of social networking and electronic communication.

- Recognizing dangers of online predators
- Protecting personal information online

9. Practice responsible and legal use of technology systems and digital content.

Examples: avoiding plagiarism; complying with acceptable-use policies, copyright laws, and fair use standards; recognizing secure Web sites.

- Identifying examples of computer crime and related penalties Examples: computer crime—phishing, spoofing, virus and worm dissemination, cyberbullying penalties—fines, incarceration
- Citing sources of digital content 14 Alabama Course of Study: Technology Education Alabama Course of Study: Technology Education 15.

10. Describe advances in technology and effects of each on the workplace and society.

Examples: agriculture, manufacturing, medicine, warfare, transportation, communication, education  
Research and Information Fluency

## **Research and Information Fluency**

11. Use digital tools and strategies to locate, collect, organize, evaluate, and synthesize information.

Examples: locating—Boolean searches, graphic organizers, spreadsheets, databases collecting—probeware, graphing calculators organizing—graphic organizers, spreadsheets evaluating—reviewing publication dates, determining credibility synthesizing—word processing software, concept-mapping software.

## **Communication and Collaboration**

12. Use digital tools to communicate and collaborate at all levels from interpersonal to global.

Examples: instant messages, e-mail, blogs, wikis, collaborative authoring tools, online learning communities.

- Demonstrating digital file transfer  
Examples: attaching, uploading, downloading

## **Critical Thinking, Problem Solving, and Decision Making**

13. Use digital tools to formulate solutions to authentic problems

Examples: electronic graphing tools, probes, spreadsheets

## **Creativity and innovation**

14. Use digital tools to generate new ideas, products, or processes.

Examples: ideas—predictions, trends  
products—animation, video  
processes--simulations