

NHPS Physics CURRICULUM OVERVIEW

ACADEMIC/CONCEPTUAL PHYSICS

Physics is the most basic of sciences. It is the study of the physical world, the interrelationship between matter and energy. Topics included in the study of Physics include the theoretical and experimental study of motion and forces, friction and momentum, fluid dynamics, thermodynamics and heat, wave motion, sound, light and optics, electromagnetism and modern physics. An integral part of the course is extensive laboratory experiments with a variety of equipment, from simple to highly technological. Students are expected to mathematically analyze physical phenomena and apply the laws of physics. Students will work with scientific concepts by analyzing data, solving problems, group work and discussion and extensive applications of math and writing.

Throughout the course students work in cooperatively to investigate physical phenomena, collect and analyze data and draw conclusions. Students also apply physics to real world situations, and use their experiences to make decisions. All students who plan any type of scientific, medical or engineering career should complete a high school physics course.

Honors students are expected to complete extensive projects, be independently motivated, and have high-level math ability.

Prerequisites:

C or better in Algebra I, completion of Geometry
completion or concurrent enrollment in Chemistry

(Honors)

B or better in Algebra I, completion of Algebra II.

C or better in Chemistry

Science Department recommendation

(see www.richtherrn.net/physics)

Beginning Curriculum Map		Subject: PHYSICS	Grade: 11-12 :
	August/September	October	
Essential Questions	How do we analyze moving objects? What makes a good observation, measurement and experiment in physics?	Should I speed up or slow down at a yellow light? How can physics be used to analyze motion and traffic?	
Content	-Properties and measurement -Graphing -Graphing of motion -Distance and Velocity	-One Dimensional Acceleration (Kinematics) - Relative Motion	
Objectives	-use measuring devices and senses to observe and record physical properties of matter -Develop an understanding of the measurements and units used in physics -Design and conduct a good physics experiment. -Use distance time and velocity time graphs to analyze moving objects -Be able to explain speed (velocity), time, and acceleration.	-continue using math, measurement, observation and experimentation skills to analyze moving objects. -use computer assisted technology to analyze moving objects. -develop the relationships between the variables involved in moving objects. -use algebraic equations to solve simple one dimensional motion word problems. -use physics to make predictions about accelerated objects. -use research skills and algebra to apply knowledge of accelerated motion to a real life situation. -determine what factors affect the acceleration due to gravity.	
Instructional Strategies/ Activities	-gyroscope investigation -science sleuth day at the races -moving on down car lab (open ended) -stump the teacher, design own unit activities -graphing motion lab with graphing calculators. -graphing motion activities	-Interactive Physics with accelerated motion -Rolling Down ramp lab with “Where Will They Collide?” and “Half The Trip” components. - Determination of g gravity lab. (open ended) - word problem group activities -Yellow Light Project -Long Term Traffic Study	
Assessment Types	-moving on down car lab (schoolwide rubric) -group lab activities -essay on speed in life (schoolwide rubric) -quizzes and tests	-labs, including g lab (schoolwide rubric) -word problems -Yellow Light Project -essay on traffic (schoolwide rubric) -test	
Science Inquiry Skills	ALL (numeracy, experimentation, measurement, communication, society)	ALL (numeracy, experimentation, measurement, communication, society)	
Interdisciplinary Connections	MATH	MATH SOCIAL STUDIES	

Beginning Curriculum Map		Subject: PHYSICS	Grade: 11-12
	November	December	
Essential Questions	Why is all motion relative? How can we analyze two dimensional motion? How can I use physics to shoot a dart gun at my teacher?	What makes things move? What are the fundamental forces? How do Newton's Laws predict the behavior of moving objects? How do other forces (air resistance/friction) affect moving objects? (dynamics)	
Content	-Relative Motion -Special Relativity -Vectors -Projectile Motion	-Forces -Newton's Laws -Air Resistance/Friction	
Objectives	<ol style="list-style-type: none"> 1. continue using math, measurement, observation and experimentation skills to analyze moving objects. 2. use computer assisted technology to analyze moving objects. 3. use the concepts of relative motion. 4. be able to explain the consequences of special relativity for moving objects. 5. use vectors to analyze 2 dimensional motion. 6. determine the results of projectile motion using x and y sets of kinematic equations. 	<ol style="list-style-type: none"> 1. continue using math, measurement, observation and experimentation skills to analyze moving objects. 2. use computer assisted technology to analyze moving objects. 3. explain the fundamental forces in the universe. 4. use Newton's Laws to explain the relationship between force, mass and acceleration. 5. be able to predict the results of air resistance (terminal velocity) 6. find out what factors affect friction 7. use physics to analyze Santa Claus 	
Instructional Strategies/ Activities	-Relative Motion on Interactive Physics -Special Relativity Movies and Readings. -Vector Mapping Lab and Class Races. -Projectile Lab (Ball off a Table), using 2D. -Dart Gun Lab "The Firing Squad" -vector movie -Three sets of word problems and group sheets	-movie/reading on fundamental field forces. -Newton's Laws Investigation -Terminal Velocity Lab (interactive physics and real (coffee filters/balloons)). -Determination of Friction Lab -Three sets of word problems and group sheets. -Physics of Santa activity	
Assessment Types	-Group Labs (Vector, relative, Projectile) -Individual Lab "Firing Squad" (schoolwide rubric) -Homework checks	-Homework and group class work. -Group Labs -Individual Labs (Friction) (schoolwide rubric) -Quiz	

	quiz and test	
Science Inquiry Skills	ALL (numeracy, experimentation, measurement, communication, society)	ALL (numeracy, experimentation, measurement, communication, society)
Interdisciplinary Connections	MATH	MATH

Beginning Curriculum Map		Subject: PHYSICS	Grade: 11-12
	January	February	
Essential Questions	How can physics be used to analyze traffic collisions?	How much energy does my life use in a week? Should we use simple machines? How are mechanical energy transformations analyzed and how do they affect your life?	
Content	Forces (continued) Conservation of Momentum Collisions	-Energy -Work and Mechanical Advantage -Simple and Complex Machines -Mechanical Energy	
Objectives	<ol style="list-style-type: none"> 1. continue using math, measurement, observation and experimentation skills to analyze moving objects. 2. use computer assisted technology to analyze moving objects. 3. determine all the forces and properties, including momentum, on a moving object. 4. use the principle of conservation of momentum in elastic and inelastic collisions. 5. determine all the factors involved in common collisions, and use physics to evaluate. 	<ol style="list-style-type: none"> 1. describe how energy is transformed and conserved in everyday life and technology. 2. explain the use of machines to gain mechanical advantage and in assisting society. 3. analyze the transformations of mechanical energy (kinetic, gravitational and elastic) in moving objects. 4. relate the different types of energy and how they are measured. 	
Instructional Strategies/ Activities	<ul style="list-style-type: none"> -conservation of momentum lab. -pool game activity -collision of cars activity -police/traffic investigation -videodisc science sleuth traffic accident 	<ul style="list-style-type: none"> -energy transformations in society discussion, video and activity. -simple and complex machines lab -word problems on mechanical energy and work. -science sleuths collapsing bleachers, moving monuments. -energy of bouncing ball lab, energy of elastic ball lab -Energy in Life Project -Rube Goldberg competition and videos 	
Assessment Types	<ul style="list-style-type: none"> -one set of word problems -traffic study (pt 2) -group labs -test 	<ul style="list-style-type: none"> - group labs -two sets of word problems -use of complex machines in society essay (schoolwide rubric) 	

		-test
Science Inquiry Skills	ALL (numeracy, experimentation, measurement, communication, society)	ALL (numeracy, experimentation, measurement, communication, society)
Interdisciplinary Connections	MATH SOCIAL STUDIES	MATH TECH ED SOCIAL STUDIES ART

Beginning Curriculum Map	Subject: PHYSICS	Grade: 11-12
	March	April
Essential Questions	How much energy does my life use in one week? How are energy transformations analyzed and how do they affect your life? How do we get and use electricity? How do we get and use heat?	How is fluid pressure like energy? How can we use physics to make things fly? How do we analyze simple harmonic oscillators and wave motion, and how can they be useful?
Content	-Energy transformations (cont) -Electricity, electric generation, circuits -Heat and thermodynamics	-Pressure and density -Bernoulli's Principle and flight -Simple harmonic oscillators -Wave Motion
Objectives	1. analyze energy transformations in electricity and heat. 2. explain basic concepts of power, current, voltage, resistance in electrical circuits and relate it to mechanical energy. 3. describe the energy transformations needed to generate electricity for our devices. 4. analyze series and parallel circuits. 5. explain the concepts of heat transfer 6. relate the laws of thermodynamics and work	1. explain the units and measurements of pressure and density. 2. describe how Bernoulli's Principle is a restatement of the conservation of energy. 3. use fluid pressure principles to analyze flight ----- 4. describe and analyze the behavior of simple harmonic oscillator systems, such as pendulums and springs. 5. describe the property of waves
Instructional Strategies/ Activities	-electrical investigations online -science sleuth energy mystery house -electric generator/motor demo/lab -electric circuit lab -Energy to take a shower activity -Energy in Life Project -Heat and Work Lab (specific heat) -Newton's Law of Cooling Lab -science sleuth burning barn	-pressure investigation with water and bottles. -pressure word problems and conceptual questions. -videos and notes on flight. -paper airplane contest. -lab with pendulum and spring -wave motion problems. -wave tank labs.
Assessment Types	-essay on energy use in life (school-wide rubric)	-group labs -word problem sets

	<ul style="list-style-type: none"> -group labs (electric, heat) -Individual lab: Heat Cooling (School-wide rubric) -Conceptual question sets (three) on heat -electric word problems -Energy in Life Project, and discussion/forum -Test 	<ul style="list-style-type: none"> -individual lab (school-wide rubric) -test
Science Inquiry Skills	ALL (numeracy, experimentation, measurement, communication, society)	ALL (numeracy, experimentation, measurement, communication, society)
Interdisciplinary Connections	MATH HEALTH SOCIAL STUDIES	MATH TECH ED

Beginning Curriculum Map		Subject: PHYSICS	Grade: 11-12
	May	June	
Essential Questions	How can we build better rides at an amusement park? How are all types of waves related? How do sound waves make music?	What causes us to see the things we do?	
Content	-Circular Motion -Sound Waves -Music	-Light production -color -reflection and refraction -polarization	
Objectives	<ol style="list-style-type: none"> 1. relate motion, waves and circular motion with frequency, period and wavelength. 2. use principles of physics in designing and analyzing amusement park rides. 3. explain the cause of different sounds. 4. describe and predict music 	<ol style="list-style-type: none"> 1. explain how light is produced and perceived 2. describe applications of color addition and subtraction 3. use the principles of reflection and refraction to analyze light. 	
Instructional Strategies/ Activities	-circular motion investigation -design roller coaster lab -Lake Compounce Amusement Park Field trip -circular motion word problems -sound wave notes -computer analysis of sound activity. -resonance sound lab -musical instrument study --science sleuths noises in school	-Light notes -Color/Spectra Lab -Dark Suckers -Mirror/Lenses Lab -Group Laser Challenge - science sleuth fogged filters	
Assessment Types	-group labs -design process worksheets -word problem and classwork checks -quiz (circular)	-group labs -conceptual question sheets -essay on application of light and sound waves (school-wide rubric) -Test	
Science Inquiry Skills	ALL (numeracy, experimentation, measurement, communication, society)	ALL (numeracy, experimentation, measurement, communication, society)	
Interdisciplinary Connections	MATH MUSIC	MATH ART	

PHYSICS CURRICULUM TEMPLATE

Essential Questions: How do we analyze moving objects?

What makes a good observation, measurement and experiment in physics?

OBJECTIVES	CORRESPONDING CT FRAMEWORKS	RECOMMENDED INSTRUCTIONAL STRATEGIES	ASSESSMENT TOOL	TIMELINES	RESOURCES
<p>1. use measuring devices and senses to observe and record physical properties of matter</p> <p>2. Develop an understanding of the measurements and units used in physics</p> <p>3. Design and conduct a good physics experiment.</p> <p>4. Use distance time and velocity time graphs to analyze moving objects</p> <p>5. Be able to explain speed (velocity), time, and acceleration.</p>		<p>1. gyroscope investigation</p> <p>2. science sleuth day at the races</p> <p>3. moving on down car lab (open ended)</p> <p>4. stump the teacher, design own unit activities</p> <p>1. graphing motion lab with graphing calculators.</p> <p>2. graphing motion activities</p>	<p>moving on down car lab (school-wide rubric)</p> <p>-group lab activities</p> <p>-essay on speed in life (school-wide rubric)</p> <p>-quizzes and tests</p>	<p>2 weeks</p> <p>2 weeks</p>	<p>lab equipment</p> <p>videodisc</p> <p>computers</p> <p>labpros</p> <p>measuring tools</p> <p>teacher made labs and sheets</p> <p>lab equipment</p> <p>videodisc</p> <p>computers</p> <p>labpros</p> <p>measuring tools</p> <p>teacher made labs and sheets</p>

PHYSICS CURRICULUM

Essential Questions: Should I speed up or slow down at a yellow light?
How can physics be used to analyze motion and traffic

OBJECTIVES	CORRESPONDING CT FRAMEWORKS	RECOMMENDED INSTRUCTIONAL STRATEGIES	ASSESSMENT TOOL	TIMELINES	RESOURCES
<p>1. continue using math, measurement, observation and experimentation skills to analyze moving objects.</p> <p>2. use computer assisted technology to analyze moving objects.</p> <p>3. develop the relationships between the variables involved in moving objects.</p> <p>4. use algebraic equations to solve simple one dimensional motion word problems.</p> <p>5. use physics to make predictions about accelerated objects.</p> <p>6. use research skills and algebra to apply knowledge of accelerated motion to a real life situation.</p> <p>7. determine what factors affect the acceleration due to gravity</p>		<p>-Interactive Physics with accelerated motion</p> <p>-Rolling Down ramp lab with “Where Will They Collide?” and “Half The Trip” components.</p> <p>- Determination of g gravity lab. (open ended)</p> <p>- word problem group activities</p> <p>-Yellow Light Project</p> <p>-Long Term Traffic Study</p>	<p>labs, including g lab (school-wide rubric)</p> <p>-word problems</p> <p>-Yellow Light Project</p> <p>-essay on traffic (school-wide rubric)</p> <p>-test</p>	4 weeks	<p>lab equipment</p> <p>videodisc</p> <p>computers</p> <p>labpros</p> <p>measuring tools</p> <p>teacher made labs and sheets</p>

PHYSICS CURRICULUM

Essential Questions: Why is all motion relative?

How can we analyze two dimensional motion?

OBJECTIVES	CORRESPONDING CT FRAMEWORKS	RECOMMENDED INSTRUCTIONAL STRATEGIES	ASSESSMENT TOOL	TIMELINES	RESOURCES
<p>1. continue using math, measurement, observation and experimentation skills to analyze moving objects.</p> <p>2. use computer assisted technology to analyze moving objects.</p> <p>3. use the concepts of relative motion.</p> <p>4. be able to explain the consequences of special relativity for moving objects.</p> <p>5. use vectors to analyze 2 dimensional motion.</p> <p>6. determine the results of projectile motion using x and y sets of kinematic equations.</p>		<p>Relative Motion on Interactive Physics</p> <p>-Special Relativity Movies and Readings.</p> <p>-Vector Mapping Lab and Class Races.</p> <p>-Projectile Lab (Ball off a Table), using 2D.</p> <p>-Dart Gun Lab “The Firing Squad”</p> <p>-vector movie</p> <p>-Three sets of word problems and group sheets</p>	<p>-Group Labs (Vector, relative, Projectile)</p> <p>-Individual Lab “Firing Squad” (schoolwide rubric)</p> <p>-Homework checks quiz and test</p>	<p>4 weeks</p>	<p>lab equipment</p> <p>videodisc</p> <p>computers</p> <p>labpros</p> <p>measuring tools</p> <p>teacher made labs and sheets</p>

PHYSICS CURRICULUM

OBJECTIVES	CORRESPONDING CT FRAMEWORKS	RECOMMENDED INSTRUCTIONAL STRATEGIES	ASSESSMENT TOOL	TIMELINES	RESOURCES
<p>1. continue using math, measurement, observation and experimentation skills to analyze moving objects.</p> <p>2. use computer assisted technology to analyze moving objects.</p> <p>3. explain the fundamental forces in the universe.</p> <p>4. use Newton’s Laws to explain the relationship between force, mass and acceleration.</p> <p>5. be able to predict the results of air resistance (terminal velocity)</p> <p>6. find out what factors affect friction</p> <p>7. use physics to analyze Santa Claus</p>		<p>-movie/reading on fundamental field forces.</p> <p>-Newton’s Laws Investigation</p> <p>-Terminal Velocity Lab (interactive physics and real (coffee filters/balloons)).</p> <p>-Determination of Friction Lab</p> <p>-Three sets of word problems and group sheets.</p> <p>-Physics of Santa activity</p>	<p>-Homework and group class work.</p> <p>-Group Labs</p> <p>-Individual Labs (Friction) (schoolwide rubric)</p> <p>-Quiz</p>	<p>3 weeks</p>	<p>lab equipment</p> <p>videodisc</p> <p>computers</p> <p>labpros</p> <p>measuring tools</p> <p>teacher made labs and sheets</p>

PHYSICS CURRICULUM

Essential Question: How can physics be used to analyze traffic collisions?

OBJECTIVES	CORRESPONDING CT FRAMEWORKS	RECOMMENDED INSTRUCTIONAL STRATEGIES	ASSESSMENT TOOL	TIMELINES	RESOURCES
<p>1. continue using math, measurement, observation and experimentation skills to analyze moving objects.</p> <p>2. use computer assisted technology to analyze moving objects.</p> <p>3. determine all the forces and properties, including momentum, on a moving object.</p> <p>4. use the principle of conservation of momentum in elastic and inelastic collisions.</p> <p>5. determine all the factors involved in common collisions, and use physics to evaluate.</p>		<ul style="list-style-type: none"> -conservation of momentum lab. -pool game activity -collision of cars activity -police/traffic investigation -videodisc science sleuth traffic accident 	<ul style="list-style-type: none"> -one set of word problems -traffic study (pt 2) -group labs -test <p>MIDTERM EXAM: Motion, Forces</p>	3 weeks	<ul style="list-style-type: none"> lab equipment videodisc computers labpros measuring tools teacher made labs and sheets

PHYSICS CURRICULUM

Essential Questions: How much energy does my life use in a week?

Should we use simple machines?

How are mechanical energy transformations analyzed and how do they affect your life?

OBJECTIVES	CORRESPONDING CT FRAMEWORKS	RECOMMENDED INSTRUCTIONAL STRATEGIES	ASSESSMENT TOOL	TIMELINES	RESOURCE
<p>1. describe how energy is transformed and conserved in everyday life and technology.</p> <p>2. explain the use of machines to gain mechanical advantage and in assisting society.</p> <p>3. analyze the transformations of mechanical energy (kinetic, gravitational and elastic) in moving objects.</p> <p>4. relate the different types of energy and how they are measured.</p>		<p>1. energy transformations in society discussion, video and activity.</p> <p>2. simple and complex machines lab</p> <p>3. word problems on mechanical energy and work.</p> <p>4. science sleuths collapsing bleachers, moving monuments.</p> <p>5. energy of bouncing ball lab, energy of elastic ball lab</p> <p>6. Energy in Life Project</p> <p>7. Rube Goldberg competition and videos</p>	<p>- group labs</p> <p>-two sets of word problems</p> <p>-use of complex machines in society essay (school-wide rubric)</p> <p>-test</p>	<p>3 weeks</p>	<p>lab equipment</p> <p>videodisc</p> <p>computers</p> <p>labpros</p> <p>measuring tools</p> <p>teacher made labs and sheets</p>

PHYSICS CURRICULUM

Essential Questions: How much energy does my life use in one week?

How are energy transformations analyzed and how do they affect your life?

How do we get and use electricity?

How do we get and use heat?

OBJECTIVES	CORRESPONDING CT FRAMEWORKS	RECOMMENDED INSTRUCTIONAL STRATEGIES	ASSESSMENT TOOL	TIMELINES	RESOURCES
<p>1. analyze energy transformations in electricity and heat.</p> <p>2. explain basic concepts of power, current, voltage, resistance in electrical circuits and relate it to mechanical energy.</p> <p>3. describe the energy transformations needed to generate electricity for our devices.</p> <p>4. analyze series and parallel circuits.</p> <p>5. explain the concepts of heat transfer</p> <p>6. relate the laws of thermodynamics and work</p>		<p>electrical investigations online</p> <p>-science sleuth energy mystery house</p> <p>-electric generator/motor demo/lab</p> <p>-electric circuit lab</p> <p>-Energy to take a shower activity</p> <p>-Energy in Life Project</p> <p>-Heat and Work Lab (specific heat)</p> <p>-Newtons Law of Cooling Lab</p> <p>-science sleuth burning barn</p>	<p>-essay on energy use in life (schoolwide rubric)</p> <p>-group labs (electric, heat)</p> <p>-Individual lab: Heat Cooling (Schoolwide rubric)</p> <p>-Conceptual question sets (three) on heat</p> <p>-electric word problems</p> <p>-Energy in Life Project, and discussion/forum</p> <p>-Test</p>	4 weeks	<p>lab equipment</p> <p>videodisc</p> <p>computers</p> <p>labpros</p> <p>measuring tools</p> <p>teacher made labs and sheets</p>

PHYSICS CURRICULUM

Essential Questions: How is fluid pressure like energy?
 How can we use physics to make things fly?
 How do we analyze simple harmonic oscillators and wave motion, and how can they be useful?

OBJECTIVES	CORRESPONDING CT FRAMEWORKS	RECOMMENDED INSTRUCTIONAL STRATEGIES	ASSESSMENT TOOL	TIMELINES	RESOURCES
<p>1. explain the units and measurements of pressure and density. 2. describe how Bernoulli's Principle is a restatement of the conservation of energy. 3. use fluid pressure principles to analyze flight</p> <p>-----</p> <p>1. describe and analyze the behavior of simple harmonic oscillator systems, such as pendulums and springs. 2. describe the property of waves</p>		<p>1. pressure investigation with water and bottles. 2. pressure word problems and conceptual questions. 3. videos and notes on flight. 4. paper airplane contest</p> <p>-----</p> <p>1. sho lab with pendulum and spring 2. wave motion problems. 3. wave tank labs.</p>	<p>-group labs -word problem sets -test</p> <p>-word problem sets -test -individual lab (sho) (schoolwide rubric)</p>	<p>2 weeks</p> <p>2 weeks</p>	<p>lab equipment videodisc computers labpros measuring tools teacher made labs and sheets</p>

PHYSICS CURRICULUM

Essential Questions: How can we build better rides at an amusement park?
 How are all types of waves related?
 How do sound waves make music?

OBJECTIVES	CORRESPONDING CT FRAMEWORKS	RECOMMENDED INSTRUCTIONAL STRATEGIES	ASSESSMENT TOOL	TIMELINES	RESOURCES
<p>1. relate sho motion, waves and circular motion with frequency, period and wavelength.</p> <p>2. use principles of physics in designing and analyzing amusement park rides.</p> <p>-----</p> <p>1. explain the cause of different sounds.</p> <p>2. describe and predict music</p>		<p>-circular motion investigation</p> <p>-design roller coaster lab</p> <p>-Lake Compounce Amusement Park Field trip</p> <p>-circular motion word problems</p> <p>-----</p> <p>-sound wave notes</p> <p>-computer analysis of sound activity.</p> <p>-resonance sound lab</p> <p>-musical instrument study</p> <p>--science sleuths noises in school</p>	<p>-group labs</p> <p>-design process worksheets</p> <p>-word problem and classwork checks</p> <p>-quiz (circular)</p> <p>-----</p> <p>-group labs</p> <p>-word problem and classwork checks</p> <p>-quiz (sound)</p>		<p>lab equipment</p> <p>videodisc</p> <p>computers</p> <p>labpros</p> <p>measuring tools</p> <p>teacher made labs and sheets</p>

PHYSICS CURRICULUM

Essential Questions: What causes us to see the things we do?

OBJECTIVES	CORRESPONDING CT FRAMEWORKS	RECOMMENDED INSTRUCTIONAL STRATEGIES	ASSESSMENT TOOL	TIMELINES	RESOURCES
1. explain how light is		<p>-Light notes</p> <p>-Color/Spectra Lab</p>	<p>-group labs</p> <p>-conceptual</p>	2 weeks	lab equipment videodisc

<p>produced and perceived 2. describe applications of color addition and subtraction 3. use the principles of reflection and refraction to analyze light.</p>		<ul style="list-style-type: none"> -DarkSuckers -Mirror/Lenses Lab -Group Laser Challenge - science sleuth fogged filters 	<p>question sheets</p> <ul style="list-style-type: none"> -essay on application of light and sound waves (schoolwide rubric) -Test <p>FINAL EXAM (Energy, Waves)</p>	<p>computers</p> <p>labpros</p> <p>measuring tools</p> <p>teacher made labs and sheets</p>
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