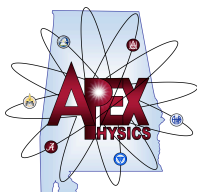


**Alliance For Physics Excellence (APEX)  
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**Sunday July 12, 2015**

5:00 - 5:15 PM	<input type="checkbox"/> Welcome <input type="checkbox"/> Introductions <input type="checkbox"/> Announcements	Dr. Barbara Cady Alabama A & M University Announcements/Housekeeping	AAMU Ernest L. Knight Center - VIP Room
5:15 - 5:30 PM	<input type="checkbox"/> Welcome	Dr. Mohan Aggarwal, Chairperson, AAMU Department of Physics, Chemistry and Mathematics	
5:30 - 6:00 PM	Buffet Dinner		
6:00 - 7:00 PM	<input type="checkbox"/> Kinematics & Momentum Pre Content Assessment <input type="checkbox"/> Participants should bring a calculator	Eric Banilower and/or Keith Esch Horizon Research, Inc.	
7:00 – 7:15 PM	<input type="checkbox"/> Create a Universe Discuss (Space, Matter, & Time)	PTRAs, Dan O'Halloran and Tommi Holsenbeck	
7:15 – 7:45 PM	<input type="checkbox"/> Quantity vs. Interval (TPT – Page 22), Significant Digits (Write, Read & Calculate Measured Values– Page 23), Atlantic & Pacific Rule (Page 24). Activity #1, <i>Significant Times</i> , Page 18	PTRAs, Dan O'Halloran and Tommi Holsenbeck	
7:45 – 8:15 PM	<input type="checkbox"/> Sprinter and Jogger, Elicitation Questions	Jim Minstrell	



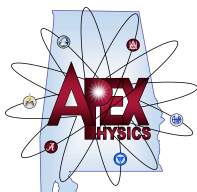
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Date	Topic	Activity	Time	Resource
Monday, 7/13/2015	Period vs. Length of Pendulum Appropriate For Discussion Page 28	Pass out AAPT/PTRA Teaching about Kinematic Activity #3, <i>Pendulums on Parade</i> , Page 32	8:00 - 8:30 AM	PTRA Teaching About Kinematics
	Position, Distance & Displacement Coordinate Systems, Page 49	Activity #5, <i>Traveling Washer 1D</i> , Page 40	8:30 - 9:00 AM	PTRA Teaching About Kinematics
	Position vs. Time Graph using Motion Sensor	Activity #7, <i>Position vs. Time (Discuss)</i> , Page 51	9:00 - 9:15 AM	PTRA Teaching About Kinematics
	Types of Graphs (Linear, "Overachiever", "Underachiever", "Poetic"). Linearization of Data. Do this discussion before doing Activity #9		9:15 - 9:25 AM	
	Graphing Techniques Page 69 (EXCEL, Logger Pro, TI-84) Speed & Introduction to the 4-Step Analysis Process, Page 72	Activity #9, <i>Measurement of Speed on a Smooth and Level Surface</i> , Page 64. Note footnote on page 65 for the 5% rule.	9:25 - 10:20 AM	PTRA Teaching About Kinematics
	Turnpike Story page 73 Average & Instantaneous Speed (Using Photogate)	Activity #10, <i>Comparing Average Speed and Final Speed</i> , Page 75	10:20 - 11:20 AM	PTRA Teaching About Kinematics
	Circular Speed If finished, participants can work on Activity #13 Page 89 (Suggested Extensions).	Activity #11, <i>Comparing Linear and Circular Speed</i> , Page 80.	11:20 AM - Noon	PTRA Teaching About Kinematics
	Lunch Break (Lunch on your own)		Noon - 1:00 PM	
	Constant Speed (Vibration Timer). Area as Displacement	Activity #12, <i>Constant Speed using a Vibration Timer</i> , Page 84. Refer to Activity 4 page 35	1:00 - 2:00 PM	PTRA Teaching About Kinematics
	Inclined Plane. Discuss Diagram Page 99	Activity #16, <i>Comparing Average &amp; Final Speed on Inclined Plane</i> , Page 99	2:00 – 3:00 PM	PTRA Teaching About Kinematics
	Velocity vs. Time Graph using Motion Sensor	Activity #17, <i>Velocity vs. Time</i> , Page 106, Discuss Only	3:00 - 3:15 PM	PTRA Teaching About Kinematics
	Introduction to Vectors ( $V_f - V_i$ ), ( $V_f + V_i$ ), Instantaneous Speed and Velocity Do before Activity #19		3:15 – 3:30 PM	Questions 1 – 6 Pages 108 - 109
	Circular Motion Activity #19, <i>Comparing of Speed &amp; Velocity for Uniform Circular Motion</i> , Page 116. Compare Results using whiteboards. Pass out Ranking Task Books Complete APEX Daily Evaluation Form.		3:45 - 5:00 PM	PTRA Teaching About Kinematics

Suggested Extensions and/or Journal entries:

- Ranking Task(s) Velocity #1 (Velocity) and #8 (Displacement)
- Do Activities #13 (Constant Speed Problem, Page 89) and #15 (Worksheet – Constant Speed, Page 97) in PTRA Teaching about Kinematics.



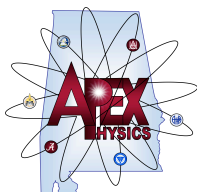
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Date	Topic	Activity	Time	Resource
Tuesday, 7/14/2015	Questions and Comments about Suggested Extensions		8:00 – 8:15 AM	
	Building Expertise in Teaching Physics	Teacher Classroom Action Research as a Necessary Tool for Change -- PTI & PTR Activities	8:15 – 10:00 AM	Dennis Sunal
	Circular Motion	Activity #20, <i>Flying in Circles – Speed</i> (Show apparatus hanging from ceiling, but Discuss Only), Page 120	10:00 – 10:10 AM	PTRA Teaching About Kinematics
	Graphs for Position, Velocity & Acceleration versus time	Start Activity #23, <i>Moving Man Simulation</i> , Page 136. If finished, start Activity #22 Page 130 (Suggested Extensions).	10:10 – 11:30	PTRA Teaching About Kinematics
	Constant Acceleration & Free Fall	<b>Introduction</b> to Activity #24, <i>Relationships between Velocity and Time of Falling and Distance Fallen</i> , Page 141	11:30 PM - Noon	PTRA Teaching About Kinematics
	Lunch Break (Lunch on your own)		Noon - 1:00 PM	
	Constant Acceleration & Free Fall	<b>Complete</b> Activity #24, <i>Relationships between Velocity and Time of Falling and Distance Fallen</i> , Page 141	1:00 – 2:00 PM	PTRA Teaching About Kinematics
	Constant Acceleration Percent difference & Percent error, Page 153	Activity #25, <i>Relationships between Distance Fallen and Time of Falling</i> , Page 149.	2:00 – 3:00	PTRA Teaching About Kinematics
	Constant Acceleration	Activity #27 <i>Freely Falling Object IV, Free Fall Simulation.</i> – Discuss Only, Page 158	3:00 – 3:30 PM	PTRA Teaching About Kinematics
	Acceleration on Inclined Plane	Activity #31, <i>Acceleration on an Inclined Plane</i> , Page 184 If finished, start Activity #29 Page 178 (Suggested Extensions).	3:30 – 4:45 PM	PTRA Teaching About Kinematics
	Formative Assessment	Introduction to Diagnoser. Complete APEX Daily Evaluation Form.	4:45 PM – 5:30 PM	Jim Minstrell

Suggested Extensions and/or Journal entries:

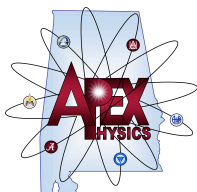
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| <ul style="list-style-type: none"> <li>• Ranking Task(s) #9 (Change of Velocity), #10 (Average Speed) &amp; #12 (Average Velocity)</li> <li>• Do Questions #2 from AP Physics B 2006 Examination</li> <li>• Do Activity #22 (Worksheet - Motion with Constant Speed, Page 130)</li> </ul> | <ul style="list-style-type: none"> <li>• #29 (Worksheet – Straight line Equation and Graph, Page 178) and</li> <li>• #35 (Worksheet – Graph Hopscotching, Page 201) from Teaching about Kinematics</li> </ul> |
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Date	Topic	Activity	Time	Resource
Wednesday, 7/15/2015	Questions and Comments about Suggested Extensions		8:00 – 8:15 AM	
	Why attend to student thinking?	Discussion	8:15-10:45 AM	J Minstrell
	Typical Stopping Problem	Stopping Problem solved two ways one with acceleration value given and one without acceleration value given.	10:45 – 11:05 PM	$a > 0$ & $v > 0$ thus speeding up, etc.
	Acceleration with Liquid Level Speed-up, Slow-down, Circular, and Simple Harmonic.	Activities #38 Page 212 (Demo); #40 Page 226 (Demo); & #41, Page 230 (Demo) <i>Using a Liquid Level Accelerometer</i> . Mention homemade Accelerometer on Page 248.	11:05– 11:50 AM	PTRA Teaching About Kinematics
	Reaction Time (Activity #32) Drop Dollar Bill, Discuss, Page 189)	<b>Introduction:</b> Activity #33, <i>Comparing Hand &amp; Foot Reaction Time</i> , Page 191.	11:50 – Noon	PTRA Teaching About Kinematics
	Lunch Break (Lunch on your won)		Noon – 1:00PM	
	Reaction Time (Activity #32 Drop Dollar Bill, Discuss, Page 189)	<b>Finish:</b> Activity #33, <i>Comparing Hand &amp; Foot Reaction Time</i> , Page 191.	1:00 – 1:30 PM	PTRA Teaching About Kinematics
	Review.	Review Relationships, Equations & Graph Shapes. Participants make up problem and then switch with another participant to solve.	1:30 – 2:00 PM	
	Activity #46	Activity #46, <i>An Acceleration Song</i> (First Movement!), Page 263	2:00 – 2:15 PM	PTRA Teaching About Kinematics
	Review & Naïve Ideas (If time)	Page 284 – <i>Naïve Ideas</i> (Each Participant pick one and assign an activity we have done that address the idea.) and Pages 285 – 286	2:15 – 2:30 PM	PTRA Teaching About Kinematics
	Newton's Third Law	Activity #1, <i>Impulse - Newton's Third Law</i> , Page 9 Introduce a force, generically, as a push or pull and as a simultaneous interaction between objects. More next week. Use force probe/sensors or spring type force meters.	2:30 – 3:15 PM	PTRA Momentum Supplement
	Impulse & Momentum	Define area of a force time graph and define momentum and ask how to measure them. What equipment could be used? (Force Probe, Dynamics Cart & Motion Probe)	3:15– 3:45 PM	PTRA Momentum Supplement
	Impulse: Area under a Force versus Time Graph with PASCO probes	Activity #2, <i>Impulse Area Under a Force Versus Time Graph</i> , Page 21	3:45 – 5:15 PM	PTRA Momentum Supplement
	Dinner Break – Order Pizza and have dinner in		5:15 – 6:00 PM	
	Formative Assessment	Using Diagnoser. Complete APEX Daily Evaluation Form.	6:00 PM – 7:00 PM	J Minstrell



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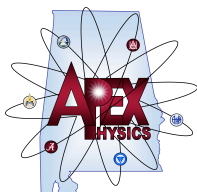
Date	Topic	Activity	Time	Resource
Thursday, 7/16/2015	Questions and Comments about Suggested Extensions		8:00 – 8:15 AM	
	Wiki/ Blog Univ. AL	Sharing Session	8:15 – 9:15 AM	Marius Schamschula
	Impulse - Momentum Using Recording Timer	Activity #3, <i>Impulse - Momentum Using Recording Timer</i> , Page 27 (Odd Tables do constant force and mass. Even Tables, constant force and time) Share data.	9:15 10:15 AM	PTRA Momentum Supplement
	Impulse - Momentum in 1-D Simulation	Activity #4A or #4B, <i>Impulse - Momentum in 1-D Simulation</i> , Page 33 or 37 Discuss as alternative to activity #3. Questions #4 to #10 on Page 34.	10:15 – 11:00 AM	PTRA Momentum Supplement
	Impulse	Activity #5, <i>Impulse Worksheet I</i> , Page 49	11:00- 11:30 PM	PTRA Momentum Supplement
	Impulse & Momentum	Song: <i>Momentum</i> , Page 106	11:30 – 11:40 AM	PTRA Momentum Supplement
	Conservation of Momentum	<b>Begin:</b> Activity #6, <i>Momentum Conservation Using PASCO Probes</i> , Page 51	11:40 - Noon	PTRA Momentum Supplement
	Lunch Break (Lunch on your own)		Noon - 1:00 PM	
	Conservation of Momentum	<b>Finish:</b> Activity #6, <i>Momentum Conservation Using PASCO Probes</i> , Page 51	1:00 - 2:40 PM	PTRA Momentum Supplement
	Momentum Simulation	Activity #7, <i>Momentum Simulation by Fendt</i> Page 57	2:40 – 4:00 PM	PTRA Momentum Supplement
	Impulse Practice Problems	Activity #8, <i>Impulse Practice Problems</i> Page 67	4:00– 4:45 PM	PTRA Momentum Supplement
	Action Research Using Diagnoser	Planning for Data Collection Complete APEX Daily Evaluation Form.	4:45 – 5:45 PM	J Minstrell

If time, do Activity *Impulsive Behavior* from Momentum Supplement also ASIM's *Horizontal Circular Motion*

Suggested Extensions & Journal entries:

- Ranking Task(s) #81 (Impulse) & #82 (Momentum)
- Do Questions #1 from AP Physics B 2008 Form B Examination

- Activity #11, Worksheet #3: *Impulse & Momentum*

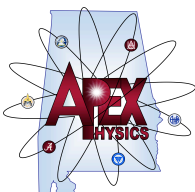


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Date	Topic	Activity	Time	Resource
Friday, 6/17/2015	Questions and Comments about Suggested Extensions		8:00 - 8:15 AM	
	Conservation of Momentum	Activity #9, <i>Momentum Worksheet II</i> , Page 71	8:15 – 8:45 PM	PTRA Momentum Supplement
	Impulse & Momentum	Activity #12, <i>Impulse and Momentum Worksheet III</i> , Page 85 (Skip Problem #14 on Page 86).	8:45 – 9:30 PM	PTRA Momentum Supplement
	Conservation of Momentum in 2-D	Activity #11: <i>Momentum in 2 - Dimensions</i> , Page 77 and If time do problem #14 on Page 86	9:30 – 11:00 AM	PTRA Momentum Supplement
	Review	Activity #14, <i>Momentum Review Worksheet IV</i> , Page 75.	11:00 – Noon	PTRA Momentum Supplement
	Lunch Break	Lunch Provided. (Participants can start Post Content Assessment on Kinematics & Momentum as soon as everyone is done with lunch.)	Noon – 1:00 PM	
	Post Institute Assessment	Complete APEX Survey. Post Institute Content Assessment on Kinematics & Momentum	1:00 – 2:00 PM	Eric Banilower and/or Keith Esch Horizon Research, Inc.
	Pre Institute Assessment	Option to go home at 2:00 PM and return for NSL & Energy Pre Content Assessment on Sunday evening at 7:00 PM or stay and take the Pre Content Assessment on NSL and Energy today after completing the Post Institute Content Assessment on Kinematics and Momentum	2:00 – 3:00 PM	Eric Banilower and/or Keith Esch Horizon Research, Inc.





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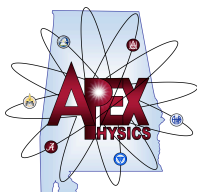


APEX 2014 Physics Teachers Institute (PTI) Schedule  
 June 23 – 27, 2014

Date	Topic	Activity	Time	Resource
Monday, June 23, 2015 (8.7 hours)	Questions and Comments about Suggested Extensions		8:00 – 8:15 AM	
	Force (e.g., Applied, Gravitational, Normal, Tension, etc.)	<i>Force Template; Types of Forces; How do you know a Force is there? What does force act on? Use Smart Board (Page 10)</i>	8:15 - 9:15 AM	PTRA Force Supplement
	Eliciting Student Thinking in Forces	Anticipating Student Ideas	9:15-10:15 AM	Jim Minstrell
	Gravitation Force & Gravitation Field Strength	Activity #1, <i>Weight &amp; Mass Why multiple by “g”?</i>	10:15 – 11:00 AM	PTRA Force Supplement, Page 15
	Vectors	<b>Start</b> Activity #2, <i>Forces as Vectors</i> , Page 25	11:00 – Noon	PTRA Force Supplement
	Lunch Break	Lunch Break on your own	Noon – 1:00 PM	
	Vectors	<b>Finish</b> Activity #2, <i>Forces as Vectors</i> , Page 25	1:00 – 1:30 PM	PTRA Force Supplement
	Vectors Notes	Activities #2 Notes on Vectors Page 31	1:30 – 1:40 PM	PTRA Force Supplement
	Vector	Vector Song on page 83	1:40-1:50 PM	
	Free Body Diagrams	Activity #3a, 3c, <i>Free-Body Diagrams</i> , Page 35 (Set up 3e) TPT Free-Body Diagrams Revisited	1:50 – 2:30 PM	PTRA Force Supplement
	Vector Components	Activity #4, <i>Using Vector Analysis to Determine an Unknown Force</i> , Page 51. Do components by trig and scale drawing	2:30 – 3:30 PM	PTRA Force Supplement
	Vectors	Activity 7A, 7B, (Stop & Whiteboard) and 7C, & 7D (Whiteboard) Page 75	3:30 – 4:30 PM	PTRA Force Supplement
	Forces Song	Forces #16 Page 145	4:30 – 4:40 PM	PTRA Force Supplement
	Action Research Using Diagnoser	Planning for Data Collection Complete APEX daily Feedback form.	4:40–5:40 PM	Jim Minstrell

Suggested Extensions & Journal entries:

- Ranking Task(s) #2 (Acceleration) & #3 (Velocity)
- Do Activity #37 (Worksheet- Going up and Coming Down, Page 208) & #45 (Worksheet – Graph with Direction, Page 259) and #49 (Constant Acceleration – Whiteboard Problem, Page 276) from Teaching about Kinematics
- Do Questions #1 from AP Physics B 2000 Examination, Skip Part (e)



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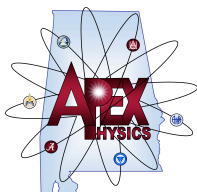


Date	Topic	Activity	Time	Resource
Tuesday, 6/24/2015 (8.5 hours)	Questions and Comments about Suggested Extensions		8:00 – 8:15 AM	
	Newton's Second Law	Activity #8, <i>Acceleration versus Force</i> using "Force 1D", Page 85	8:15 – 9:50 AM	PTRA Force Supplement
	Elevator Problem	Elevator Problem Page 87	9:50 – 10:15 AM	PTRA Force Supplement
	Flipped Classroom	Gravity, Page 113 & Kepler Power Point Presentation Page 108.	10:15 – 10:50 AM	PTRA Force Supplement
	Newton's Second Law	<b>Begin:</b> Activity #9, <i>Relationship between Mass &amp; Acceleration for a Constant Accelerating Force</i> , Page 93	10:50 – Noon	PTRA Force Supplement
	Lunch Break	Lunch on your own	Noon – 1:00 PM	
	Making a Video	Video Making Practice	1:00 PM – 2:00 PM	Marius Schamschula
	Newton's Second Law	Activity #9, <i>Relationship between Mass &amp; Acceleration for a Constant Accelerating Force</i> , Page 76	2:00 – 2:25 PM	PTRA Force Supplement
	Force	<b>Finish:</b> Activity #8, <i>What Connects Motion &amp; Force</i> , Page 41	2:25 – 3:15 PM	PTRA Teaching About Newton's Second Law
	Intro to Newton's Second Law	Activity #9, <i>Acceleration-Force &amp; Velocity-Force Graphs</i> , Page 44	3:15 – 4:05 PM	PTRA Teaching About Newton's Second Law
	Song	Song about Newton's Second Law, "The most Famous Equation of All" page 110		
	Monitoring Changes in Student Thinking	Diagnoser for Data Collection Complete APEX daily Feedback Form.	4:35 PM – 5:35 PM	Jim Minstrell

Suggested Extensions & Journal entries:

- Ranking Task(s) #19 (Acceleration) & #20 (Net Force)
- Do Question #1 from AP Physics B 2006 Form B Examination

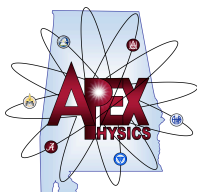




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Date	Topic	Activity	Time	Resource
Wednesday, 6/25/2015 (8.1 hours)	Questions and Comments about Suggested Extensions		8:00 – 8:15 AM	
	Forces Song	Activity #15, Page 111	8:15 – 8:25 AM	PTRA Force Supplement
	Intro to Newton's Second Law	Activity #10, <i>Additional Acceleration vs. Force</i> Page 107 Problems in Activity #8 and #10 look the same but are different. Finish from Tuesday.	8:25 – 8:55 AM	PTRA Force Supplement
	Intro to Newton's Second Law	Breaking Problem, Page 81 and Page 115 Activity #11	8:55 – 9:15 AM	PTRA Force Supplement
	Constant Net Force	Activity #10, <i>Motion with Constant Force</i> , Page 47	9:15 - 9:40 AM	PTRA Teaching About Newton's Second Law
	Constant Net Force	Fan cart blowing opposite direction of velocity. Tilted track with cart pushed up inclined plane. Motion sensor at bottom.	9:40 – 10:05 AM	PTRA Teaching About Newton's Second Law
	Centripetal Force	Activity #13, <i>Flying in Circles</i> , Page 119	10:05 – 11:05 AM	PTRA Force Supplement
	Centripetal Force	Activity #15, <i>Uniform Circular Motion</i> , Page 131 Discuss Activity	11:05 – 11:30 AM	PTRA Force Supplement
	Rotational Motion	<b>Begin:</b> Activity #9A <i>Comparison of Linear Speed and Angular Speed</i> .	11:30 AM - Noon	PTRA Kinematics Supplement
	Lunch Break	Lunch on your own	Noon - 1:00 PM	
	Rotational Motion	<b>Finish:</b> Activity #9A <i>Comparison of Linear Speed and Angular Speed</i> .	1:00 – 1:30PM	PTRA Kinematics Supplement
	Work & Energy Chart	Activity #1 <i>Work done by a Constant Force</i> , Page 15 & Energy Chart on Page 10 in PTR A Energy Supplement	1:30 – 2:25 PM	PTRA Energy Supplement
	Work and Gravitation Potential Energy & Energy Chart	Activity #1, <i>Designing a Roller Coaster</i> , Page 17 & Energy Chart on Page 10 in PTR A Energy Supplement Questions for Activity 1, Page 75 in PTR A Energy Supplement	2:25 – 3:55 PM	PTRA Teaching about Energy and PTR A Energy Supplement
	Kinetic Energy & Energy Chart	Activity #2, <i>What happens as Roller Coaster rolls down hill?</i> , Page 22 & Energy Chart on Page 11 in PTR A Energy Supplement Questions for Activity 2, Page 77 in PTR A Energy Supplement Complete APEX daily Feedback form.	3:55 – 5:10 PM	PTRA Teaching about Energy, and PTR A Energy Supplement

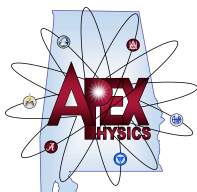


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Suggested Extensions & Journal entries:

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| <ul style="list-style-type: none"><li>• Ranking Task(s) #57 (Stopping Force) &amp; #59 Work and Change in Velocity)</li><li>• Do Questions #1 from AP Physics B 2010 Form B Examination</li></ul> | <ul style="list-style-type: none"><li>• Observe a Twu's YouTube video and comment on use in a "Flipped Classroom" See <a href="https://sites.google.com/site/twuphysicslessons/">https://sites.google.com/site/twuphysicslessons/</a></li></ul> |
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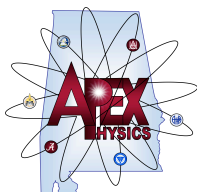
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Date	Topic	Activity	Time	Resource
Thursday, 6/26/2015 ( 8 Hours)	Questions and Comments about Suggested Extensions		8:00 - 8:15 AM	
	Hooke's Law & Potential Energy for Spring & Energy Chart	Activity #3e, <i>Dependence of Elastic Energy on Position</i> , Page 58 & Chart on Page 12 in PTR A Energy Supplement Questions for Activity 3, Page 79 in PTR A Energy Supplement	8:15 – 9:45 AM	PTRA Teaching about Energy, and PTR A Energy Supplement
	Thermal Energy & Energy Chart (Blank on Page 13)	Activity #4c (PASCO) and/or #4d (Go Temp.) <i>Conversion of Gravitational Potential Energy to Thermal Energy</i> , Page 72 or 78 Questions (1, 2, & 8) for Activity 4-7, Page 44 in PTR A Energy Supplement – OMIT	10:15 – Noon PM	PTRA Teaching about Energy, and PTR A Energy Supplement
	Analysis or Making a Video	Video Making/Analysis Practice	9:45 – 10:45 AM	Marius Schamschula
	Power	Activity #5, <i>Power of a Student</i> . Discuss, Page 79 Questions (5, 6) for Activity 4-7, Page 81 in PTR A Energy Supplement	10:45 – 11:45 AM	PTRA Teaching about Energy, and PTR A Energy Supplement
	Lunch Break	Lunch on your own	11:45 - 12:45 PM	
	Electrical Energy	Activity #6a, <i>Converting Electrical to Thermal Energy</i> , Page 91 Questions (3, 4) for Activity 4-7, Page 81 in PTR A Energy Supplement Chart need to add PE Electric. Chart on Page 12 in PTR A Energy Supplement	12:45 – 2:45 PM	PTRA Teaching about Energy, and PTR A Energy Supplement
	Chemical Energy	Activity #7, <i>Energy from Chemical Fuels</i> , Page 97 Question (7) for Activity 4-7, Page 81 in PTR A Energy Supplement	2:45 – 4:10 PM	PTRA Teaching about Energy, and PTR A Energy Supplement
	Kinetic Energy	Activity #4, <i>Kinetic Energy - Simulation</i> , Page 35. Collect data for Activity #4. Complete APEX daily Feedback form.	4:10 – 5:00 PM	PTRA Energy Supplement

Suggested Extensions & Journal entries:

- Ranking Task(s) #65 (Potential Energy) & #68 (Work)
- Do Questions #1 from AP Physics B 2010 Examination



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**Alabama A & M University**  
**July 20 – 24, 2015**



Date	Topic	Activity	Time	Resource
Friday, 6/27/2015 ( 5 Hours)	Questions and Comments about Suggested Extensions		8:00 – 8:15	
	Light Energy	Activity #10, <i>Energy Levels in Atomic Systems</i> , <i>Describe</i> Page 142	8:15 - 9:30 AM	PTRA Teaching about Energy
	Simple Machine	Set up a pulley system. See example on front desk Activity #3, <i>Efficiency of Pulley System</i> , Page 23	9:30 – 10:55 AM	PTRA Energy Supplement
	Song	Joules, Page 52	10:55 – 11:00 AM	PTRA Energy Supplement
	Work & Energy	Activity #5, <i>Penguin - Work &amp; Energy</i> , Page 43	11:00 AM – Noon	PTRA Energy Supplement
	Work	Erging in the Classroom, Page 51	Noon – 12:10 PM	PTRA Energy Supplement
	Lunch Provided		12:10 - 1:00 PM	
	Institute Assessment on Energy and Dynamics	Post institute Survey and Post Institute Content Energy and Dynamics Assessment	1:00 – 2:00 PM	PTRA Leaders

Suggested Extensions & Journal entries:

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| <ul style="list-style-type: none"> <li>Ranking Task(s) #65 (Potential Energy) &amp; #68 (Work)</li> </ul> |  | <ul style="list-style-type: none"> <li>Do Questions #1 from AP Physics B 2010 Examination</li> </ul> |
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