

Features and Benefits Brochure

Benefits & Features



Content to Enhance Your Teaching

Each Achieve course comes with a BFW e-book uniquely developed for the course it serves. These e-books include highlighting, note-taking, and search functionality and can be accessed online or downloaded for to multiple devices. Our e-books also prioritize accessibility, offering a read aloud feature, open dyslexic font, and translation into multiple languages if supported on the device.



Adaptive Quizzing for Personalized Learning

Some Achieve courses include LearningCurve, our adaptive quizzing engine with personalized question sets and clear feedback based on each student's correct and incorrect answers. LearningCurve offers an easy way for students to prepare for class by reviewing the e-book and then assessing their understanding of the key concepts.



Targeted Feedback to Build Understanding

The Achieve STEM courses include homework assessments that target specific misconceptions or misunderstandings. These formative assessments offer real-time, answer-specific feedback to help students build understanding of complex concepts.



Resources at Your Virtual Fingertips

A robust repository of teacher and student resources are easily accessible and assignable. Your resources include the TE-book, pacing guides, handouts, graphic organizers, PD videos, and more. Your students will benefit from the flashcards, simulations, videos, and tutorials.



Analytics Reveal Insights on Student Performance

Achieve's Insights and Reporting feature provides powerful but user-friendly analytics at the individual student or whole class level. This elegant dashboard gives you and your administrators a window into student progress so lessons can be specifically tailored to students' needs.



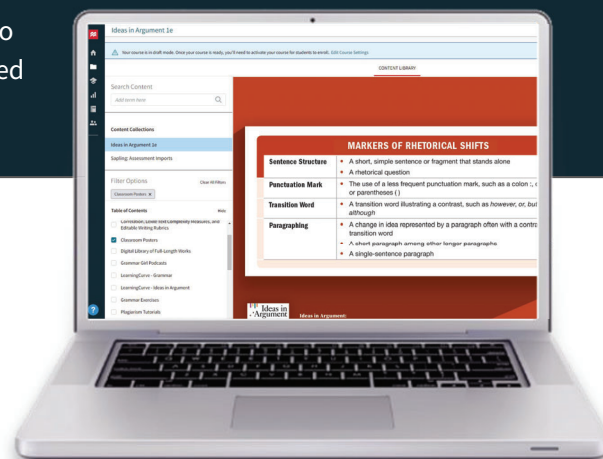
Integration with Your LMS or Rostering System

Your great content and resources + your LMS and rostering systems = a match made in...integration. Achieve integrates with most of the common systems.

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Free with Order Brochure

BFW Achieve Teacher Resources

Free With Purchase of 25 Student Editions

Teacher's Edition

The wrap-around Teacher's Edition is an invaluable resource for new and experienced instructors. In true BFW style, this TE is written by long-time instructors and includes thoughtful instruction for planning, pacing, and differentiating your course, as well as strategies for developing skills and teaching course content.

Teacher's Resource Materials

The Teacher's Resource Materials are designed to help you structure and navigate your course. Materials are referenced at point-of-use in the TE and include:

- Pacing Guides
- Lecture Slides
- Worksheets/Handouts
- Answer Keys/Suggested Responses
- Overview Videos
- Animations
- + More

Macmillan Learning Test Bank

The Macmillan Learning Test Bank is an online assessment system that allows you to create and deliver tests through a secure online test center.

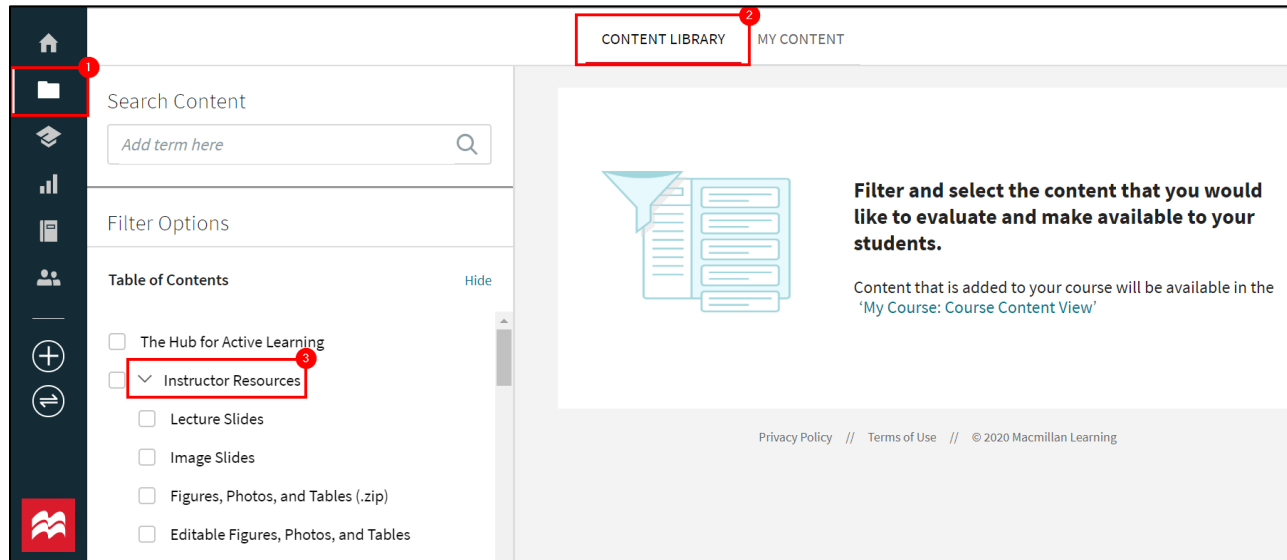
You can:

- Create paper or online tests that you can export to your LMS using your web browser
- Drag and drop questions to create tests
- Create and edit your own questions and edit publisher-created question sets

Some key features include:

- Support for many questions types including true/false, multiple choice, multiple response, matching, numeric response, completion, multi-blank, drag-and-drop, bin sort, short answer, ordering, essay, and Likert scale
- Rich word processing features including support for equations, images, and tables
- Algorithm engine to create dynamic questions
- Support for a wide variety of question metadata including local, state, and national standards
- Support for many standard import and export methods including IMS QTI and XML

Content Collections



Publisher-Provided Content

Use the provided course collection if you want to add publisher-provided content to your course. This collection allows you to search for resources by title, as well as filter by:

- Table of Contents
- Resource Type
- Recommended Use

My Custom Content

Use the My Custom Content Collection if you want to create your own resources and add them to your course. Any time you create a new resource, it will be available here to add into any of your courses, as long as that course uses that type of resource. For example, Writing can currently only be added to English courses.

Here are the types of content you can create. Remember, not all of these are available in all courses:

- Files
- Links (URLs)
- Assessments
- Writing Assignments
- GoReact Video Assignments

Curriculum Scope and Sequence

College Physics for the AP® Physics 1&2 Courses

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
1.1 Scalars and Vectors in One Dimension	1.1.A	1.1.A.1	Chapter 1: Introduction to Physics pgs. 2-29	1 day per chapter section, 6 total for chapter 1	3.5 blocks for chapter 1
		1.1.A.2			
		1.1.A.3 (i,ii)			
	1.1.B	1.1.B.1			
1.2 Displacement, Velocity, and Acceleration	1.2.A	1.2.A.1	Chapter 2: Linear Motion pgs. 32-86	1 day per chapter section, 10 total for chapter 2	5 blocks for chapter 2
		1.2.A.2			
	1.2.B	1.2.B.1			
		1.2.B.2			
		1.2.B.3			
		1.2.B.4			
		1.2.B.5			
Topic 1.3 Representing Motion	1.3.A	1.3.A.1	Chapter 2: Linear Motion pgs. 32-86	1 day per chapter section, 10 total for chapter 2	5 blocks for chapter 2
		1.3.A.2			
		1.3.A.3			
		1.3.A.4 (i-iv)			
Topic 1.4 Reference Frames and Relative Motion	1.4.A	1.4.A.1	Chapter 3: Motion in Two or Three Dimensions pgs. 87-141	1 day per chapter section, 10 total for chapter 3	5 blocks for chapter 3
	1.4.B	1.4.B.1			
		1.4.B.2 (i-ii)			
Topic 1.5 Vectors and Motion in Two Dimensions	1.5.A	1.5.A.1	Chapter 3: Motion in Two or Three Dimensions pgs. 87-141	1 day per chapter section, 10 total for chapter 3	5 blocks for chapter 3
		1.5.A.2			
		1.5.A.3			
	1.5.B	1.5.B.1			
		1.5.B.2			

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
2.1 Systems and Center of Mass	2.1.A	2.1.A.1	Chapter 4: Forces and Motion I: Newton's Laws pgs. 144-194	1 day per chapter section, 14 total for chapter 4	.5 block per chapter section, 7 total for chapter 4
		2.1.A.2			
		2.1.A.3			
		2.1.A.4			
		2.1.A.5			
		2.1.A.6			
	2.1.B	2.1.B.1	Chapter 4: Forces and Motion I: Newton's Laws pgs. 144-194	1 day per chapter section, 14 total for chapter 4	.5 block per chapter section, 7 total for chapter 4
		2.1.B.2			
		2.1.B.3			
2.2 Forces and Free-Body Diagrams	2.2.A	2.2.A.1 (i-ii)			
		2.2.A.2			
	2.2.B	2.2.B.1			
		2.2.B.2			
		2.2.B.3			
		2.2.B.4			
2.3 Newton's Third Law	2.3.A	2.3.A.1	Chapter 4: Forces and Motion I: Newton's Laws pgs. 144-194	1 day per chapter section, 14 total for chapter 4	.5 block per chapter section, 7 total for chapter 4
		2.3.A.2			
		2.3.A.3 (i-iv)			
2.4 Newton's First Law	2.4.A	2.4.A.1	Chapter 4: Forces and Motion I: Newton's Laws pgs. 144-194	1 day per chapter section, 14 total for chapter 4	.5 block per chapter section, 7 total for chapter 4
		2.4.A.2			
		2.4.A.3			

			2.4.A.4						
			2.4.A.5						
2.5 Newton's Second Law					Chapter 7: Conservation of Energy and an Introduction to Energy and Work pgs. 286-333 (Unit 3)	1 day per chapter section, 13 total for chapter 7	.5 block per chapter section 6.5 total for chapter 7		
	2.5.A		2.5.A.1						
			2.5.A.2						
			2.5.A.3						
2.6 Gravitational Force					Chapter 6: Circular Motion and Gravitation pgs. 236-283	1 day per chapter section, 10 total for chapter 6	.5 block per chapter section, 5 total for chapter 6		
	2.6.A		2.6.A.1 (i-iii)						
			2.6.A.2 (i-ii)						
			2.6.A.3						
	2.6.B		2.6.B.1						
			2.6.B.2						
	2.6.C		2.6.C.1						
			2.6.C.2						
			2.6.C.3						
			2.6.C.4						
	2.6.D		2.6.D.1						
			2.6.D.2						
			2.6.D.3						
2.7 Kinetic and Static Friction					Chapter 5: Forces and Motion II: Applications pgs. 195-234	1 day per chapter section, 12 total for chapter 5	.5 block per chapter section, 6 total for chapter 5		
	2.7.A		2.7.A.1 (i-ii)						
			2.7.A.2 (i-ii)						
	2.7.B		2.7.B.1						
			2.7.B.2 (i-ii)						
			2.7.B.3						
2.8 Spring Forces					Chapter 5: Forces and Motion II: Applications pgs. 195-234	1 day per chapter section, 12 total for chapter 5	.5 block per chapter section, 6 total for chapter 5		
	2.8.A		2.8.A.1						

			2.8.A.2					
			2.8.A.3					
2.9 Circular Motion		2.9.A	2.9.A.1 (i-ii)	Chapter 6: Circular Motion and Gravitation pgs. 236-283	1 day per chapter section, 10 total for chapter 6	.5 block per chapter section, 5 total for chapter 6		
			2.9.A.2 (i-iii)					
			2.9.A.3					
			2.9.A.4					
			2.9.A.5 (i-iii)					
		2.9.B	2.9.B.1					

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
3.1 Translational Kinetic Energy	3.1.A	3.1.A.1	Chapter 7: Conservation of Energy and an Introduction to Energy and Work pgs. 286-333	1 day per chapter section, 13 total for chapter 7	.5 block per chapter section 6.5 total for chapter 7
		3.1.A.2			
		3.1.A.3			
3.2 Work	3.2.A	3.2.A.1 (i-v)	Chapter 8: Application of Conservation Principles to Energy, Work, and Power pgs. 334-374	1 day per chapter section, 11 total for chapter 8	.5 block per chapter section, 5.5 total for chapter 8
		3.2.A.2			
		3.2.A.3 (i-ii)			
		3.2.A.4 (i-iii)			
		3.2.A.5			
3.3 Potential Energy	3.3.A	3.3.A.1	Chapter 8: Application of Conservation Principles to Energy, Work, and Power pgs. 334-374	1 day per chapter section, 11 total for chapter 8	.5 block per chapter section, 5.5 total for chapter 8
		3.3.A.2			
		3.3.A.3			
		3.3.A.4 (i-iii)			
		3.3.A.5			
3.4 Conservation of Energy	3.4.A		Chapter 7: Conservation of Energy and an Introduction to Energy and Work pgs. 286-333	1 day per chapter section, 13 total for chapter 7	.5 block per chapter section 6.5 total for chapter 7
		3.4.A.1			
		3.4.A.2			
		3.4.B.1			
		3.4.B.2			
		3.4.B.3			
		3.4.B.4			

	3.4.C	3.4.C.1				
		3.4.C.2				
		3.4.C.3				
3.5 Power			Chapter 8: Application of Conservation Principles to Energy, Work, and Power pgs. 334-374	1 day per chapter section, 11 total for chapter 8	.5 block per chapter section, 5.5 total for chapter 8	
	3.5.A	3.5.A.1				
		3.5.A.2				
		3.5.A.3				
		3.5.A.4				

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
4.1 Linear Momentum	4.1.A	4.1.A.1	Chapter 9: Momentum, Collisions, and the Center of Mass pgs. 380-386	1 day per chapter section, 16 total for chapter 9	.5 block per chapter section, 8 total for chapter 9
		4.1.A.2			
		4.1.A.3 (i-iii)			
	4.2.A	4.2.A.1	Chapter 9: Momentum, Collisions, and the Center of Mass pgs. 387-397	1 day per chapter section, 16 total for chapter 9	.5 block per chapter section, 8 total for chapter 9
4.2 Change in Momentum and Impulse		4.2.A.2			
		4.2.A.3			
		4.2.A.4			
		4.2.A.5			
		4.2.B.1			
	4.2.B	4.2.B.2			
		4.2.B.3			
4.3 Conservation of Linear Motion	4.3.A	4.3.A.1 (i-ii)	Chapter 9: Momentum, Collisions, and the Center of Mass pgs. 387-397	1 day per chapter section, 16 total for chapter 9	.5 block per chapter section, 8 total for chapter 9
		4.3.A.2			
		4.3.A.3 (i-iii)			
	4.3.B	4.3.A.4			
		4.3.B.1			
		4.3.B.2			
		4.3.B.3			
4.4 Elastic and Inelastic Collisions	4.4.A		Chapter 9: Momentum, Collisions, and the Center of Mass pgs. 398-414	1 day per chapter section, 16 total for chapter 9	.5 block per chapter section, 8 total for chapter 9
		4.4.A.1			
		4.4.A.2			
		4.4.A.3			
		4.4.A.4			

					4.4.A.5		
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College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
5.1 Rotational Kinematics	5.1.A	5.1.A.1 (i-iii)	Chapter 10: Rotational Motion I: A New Kind of Motion pgs. 448-458	1 day per chapter section, 10 total for chapter 10	~.5 block per chapter section, 5.5 total for chapter 10
		5.1.A.2			
		5.1.A.3			
		5.1.A.4 (i-ii)			
5.2 Connecting Linear and Rotational Motion	5.2.A	5.2.A.1	Chapter 10: Rotational Motion I: A New Kind of Motion pgs. 470-475	1 day per chapter section, 10 total for chapter 10	~.5 block per chapter section, 5.5 total for chapter 10
		5.2.A.2			
		5.2.A.3			
5.3 Torque	5.3.A	5.3.A.1	Chapter 10: Rotational Motion I: A New Kind of Motion pgs. 476-485	1 day per chapter section, 10 total for chapter 10	~.5 block per chapter section, 5.5 total for chapter 10
		5.3.A.2			
	5.3.B	5.3.B.1 (i-ii)			
		5.3.B.2			
5.4 Rotational Inertia	5.4.A	5.4.A.1	Chapter 10: Rotational Motion I: A New Kind of Motion pgs. 459-469	1 day per chapter section, 10 total for chapter 10	~.5 block per chapter section, 5.5 total for chapter 10
		5.4.A.2			
		5.4.A.3			
	5.4.B	5.4.B.1			
		5.4.B.2			

5.5 Rotational Equilibrium and Newton's First Law in Rotational Form	5.5.A	5.5.A.1 (i-iii) 5.5.A.2	Chapter 10: Rotational Motion I: A New Kind of Motion	1 day per chapter section, 10 total for chapter 10	~.5 block per chapter section, 5.5 total for chapter 10
5.6 Newton's Second Law in Rotational Form	5.6.A	5.6.A.1 5.6.A.2 5.6.A.3	Chapter 10: Rotational Motion I: A New Kind of Motion pgs. 486-496	1 day per chapter section, 10 total for chapter 10	~.5 block per chapter section, 5.5 total for chapter 10

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
6.1 Rotational Kinetic Energy	6.1.A	6.1.A.1 (i-ii)	Chapter 10: Rotational Motion I: A New Kind of Motion pgs. 450-458	1 day per chapter section, 10 total for chapter 10	~.5 block per chapter section, 5.5 total for chapter 10
		6.1.A.2			
		6.1.A.3			
6.2 Torque and Work	6.2.A	6.2.A.1	Chapter 11: Torque and Rotation II: Work, Energy, and Angular Momentum pgs. 506-549	1 day per chapter section, 10 total for chapter 11	.5 block per chapter, 5 total for chapter 11
		6.2.A.2			
		6.2.A.3			
6.3 Angular Momentum and Angular Impulse	6.3.A	6.3.A.1	Chapter 11: Torque and Rotation II: Work, Energy, and Angular Momentum pgs. 519-528	1 day per chapter section, 10 total for chapter 11	.5 block per chapter, 5 total for chapter 11
		6.3.A.2 (i-ii)			
	6.3.B	6.3.B.1			
		6.3.B.2			
		6.3.B.3			
	6.3.C	6.3.C.1			
		6.3.C.2 (i-ii)			
6.4 Conservation of Angular Momentum		6.3.C.3			
		6.3.C.4			
	6.4.A	6.4.A.1	Chapter 11: Torque and Rotation II: Work, Energy, and Angular Momentum pgs. 507-518	1 day per chapter section, 10 total for chapter 11	.5 block per chapter, 5 total for chapter 11
		6.4.A.2 (i-iv)			
	6.4.B	6.4.B.1			
		6.4.B.2			
		6.4.B.3			
6.5 Rolling	6.5.A	6.5.A.1	Chapter 11: Torque and Rotation II: Work, Energy, and Angular Momentum pgs. 529-541	1 day per chapter section, 10 total for chapter 11	.5 block per chapter, 5 total for chapter 11

	6.5.B	6.5.B.1				
		6.5.B.2				
	6.5.C	6.5.C.1				
		6.5.C.2				
6.6 Motion of Orbiting Satellites			Chapter 11: Torque and Rotation II: Work, Energy, and Angular Momentum pgs. 529-541	1 day per chapter section, 10 total for chapter 11	.5 block per chapter, 5 total for chapter 11	
	6.6.A	6.6.A.1				
		6.6.A.2 (i-iii)				
		6.6.A.3 (i-ii)				

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
7.1 Defining Simple Harmonic Motion (SHM)	7.1.A	7.1.A.1	Chapter 12: Oscillations Including Simple Harmonic Motion pgs. 552-601	1 day per chapter section, 9 total for chapter 12	~.5 block per chapter section, 4 total for chapter 12
		7.1.A.2 (i-iii)			
7.2 Frequency and Period of SHM	7.2.A	7.2.A.1 (i-ii)	Chapter 12: Oscillations Including Simple Harmonic Motion pgs. 552-601	1 day per chapter section, 9 total for chapter 12	~.5 block per chapter section, 4 total for chapter 12
7.3 Representing and Analyzing SHM	7.3.A	7.3.A.1 (i-ii)	Chapter 12: Oscillations Including Simple Harmonic Motion pgs. 552-601	1 day per chapter section, 9 total for chapter 12	~.5 block per chapter section, 4 total for chapter 12
		7.3.A.2			
		7.3.A.3			
7.4 Energy of Simple Harmonic Oscillators	7.4.A	7.4.A.1	Chapter 12: Oscillations Including Simple Harmonic Motion pgs. 552-601	1 day per chapter section, 9 total for chapter 12	~.5 block per chapter section, 4 total for chapter 12
		7.4.A.2			
		7.4.A.3			
		7.4.A.4 (i-ii)			

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
8.1 Internal Structure and Density	8.1.A	8.1.A.1	Chapter 13 The Physics of Fluids pgs. 604-610	1 day per chapter section, 9 total for chapter 13	~.5 block per chapter section, 4 total for chapter 13
		8.1.A.2			
		8.1.A.3			
		8.1.A.4			
8.2 Pressure	8.2.A	8.2.A.1	Chapter 13 The Physics of Fluids pgs. 611-629	1 day per chapter section, 9 total for chapter 13	~.5 block per chapter section, 4 total for chapter 13
		8.2.A.2			
		8.2.A.3			
		8.2.B			
8.3 Fluids and Newton's Laws	8.3.A	8.3.A.1	Chapter 13 The Physics of Fluids pgs.639-646	1 day per chapter section, 9 total for chapter 13	~.5 block per chapter section, 4 total for chapter 13
		8.3.A.2			
		8.3.B.1			
		8.3.B.2			
8.4 Fluids and Conservation Laws	8.4.A	8.4.A.1 (i-ii)	Chapter 13 The Physics of Fluids pgs.639-660	1 day per chapter section, 9 total for chapter 13	~.5 block per chapter section, 4 total for chapter 13
		8.4.A.2			
		8.4.B.1			
		8.4.B.2			

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
9.1 Kinetic Theory of Temperature and Pressure	9.1.A	9.1.A.1 (i-iii)	Chapter 14: Kinetic Theory, Ideal Gases, Energy Transfer, and Equilibrium pgs. 682-727	1 day per chapter section, 6 total for ch 14	.5 block per chapter session, 3 total for ch 14
	9.1.B	9.1.B.1 (i-ii)			
	9.2.A	9.2.A.1	Chapter 14: Kinetic Theory, Ideal Gases, Energy Transfer, and Equilibrium pgs. 682-727	1 day per chapter section, 6 total for ch 14	.5 block per chapter session, 3 total for ch 14
		9.2.A.2			
9.2 The Ideal Gas Law		9.2.A.3			
		9.2.A.4			
	9.3.A	9.3.A.1 (i-ii)	Chapter 14: Kinetic Theory, Ideal Gases, Energy Transfer, and Equilibrium pgs. 682-727	1 day per chapter section, 6 total for ch 14	.5 block per chapter session, 3 total for ch 14
		9.3.A.2			
9.3 Thermal Energy Transfer and Equilibrium		9.3.A.3 (i-ii)			
		9.3.A.4			
	9.4.A	9.4.A.1 (i-ii)	Chapter 15: Laws of Thermodynamics pgs. 728-775	1 day per chapter section, 6 total for ch. 15	.5 block per chapter session, 3 total for ch 15
		9.4.A.2			
9.4 The First Laws of Thermodynamics	9.4.B	9.4.B.1 (i-iii)			
		9.4.B.2 (i-ii)			
		9.4.B.3			
	9.5.A	9.5.A.1	Chapter 14: Kinetic Theory, Ideal Gases, Energy Transfer, and Equilibrium pgs. 682-727	1 day per chapter section, 6 total for ch 14	.5 block per chapter session, 3 total for ch 14
9.5 Specific Heat and Thermal Conductivity		9.5.A.2			
	9.5.B	9.5.B.1			
		9.5.B.2			

9.6 Entropy and the Second Law of Thermodynamics	9.6.A	9.6.A.1	Chapter 15: Laws of Thermodynamics pgs. 728-775	1 day per chapter section, 6 total for ch. 15	.5 block per chapter session, 3 total for ch 15
		9.6.A.2 (i-iii)			
		9.6.A.3 (i-ii)			

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
10.1 Electric Charge and Electric Force	10.1.A	10.1.A.1 (i-iv)	Chapter 16: Electric Charge, Force, and Field pgs. 780-813	1 day per chapter section, 5 total for ch. 16	.5 block per chapter session, 2.5 total for ch 16
		10.1.A.2			
		10.1.A.3 (i-ii)			
		10.1.A.4			
	10.1.B	10.1.B.1			
		10.1.B.2			
		10.1.B.3			
	10.1.C	10.1.C.1			
		10.1.C.2			
		10.1.C.3			
10.2 Conservation of Electric Charge and the Process of Charging		10.1.C.4 (i-ii)			
	10.2.A	10.2.A.1 (i-iii)	Chapter 16: Electric Charge, Force, and Field pgs. 787-813	1 day per chapter section, 5 total for ch. 16	.5 block per chapter session, 2.5 total for ch 16
		10.2.A.2 (i-ii)			
		10.2.A.3			
	10.3.A	10.3.A.1	Chapter 16: Electric Charge, Force, and Field pgs. 797-810	1 day per chapter section, 5 total for ch. 16	.5 block per chapter session, 2.5 total for ch 16
10.3 Electric Fields		10.3.A.2 (i-iii)			
		10.3.A.3 (i-iii)			
	10.3.B	10.3.B.1 (i-ii)			
		10.3.B.2			
10.4 Electric Potential Energy			Chapter 17: Electric Potential and Electric Potential Energy pgs. 819-840	1 day per chapter section, 8 total for ch. 17	.5 block per chapter session, 4 total for ch 17
	10.4.A	10.4.A.1			
		10.4.A.2			
		10.4.A.3			

10.5 Electric Potential	10.5.A	10.5.A.1	Chapter 17: Electric Potential and Electric Potential Energy pgs. 829-840	1 day per chapter section, 8 total for ch. 17	.5 block per chapter session, 4 total for ch 17
		10.5.A.2			
		10.5.A.3 (3.i)			
		10.5.A.4			
	10.5.B	10.5.B.1			
		10.5.B.2 (i-iv)			
10.6 Capacitors	10.6.A	10.6.A.1	Chapter 17: Electric Potential and Electric Potential Energy pgs. 841-865	1 day per chapter section, 8 total for ch. 17	.5 block per chapter session, 4 total for ch 17
		10.6.A.2 (i-ii)			
		10.6.A.3 (i-ii)			
		10.6.A.4			
		10.6.A.5			
		10.6.A.6			
10.7 Conservation of Electric Energy	10.7.A	10.7.A.1	Chapter 18: DC Circuits: Electric Charge in Motion pgs. 890-904 (Unit 11)	1 day per chapter section, 6 total for ch. 18	.5 block per chapter session, 3 total for ch 18
		10.7.A.2			

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
11.1 Electric Current	11.1.A	11.1.A.1 (i-i)	Chapter 18: DC Circuits: Electric Charge in Motion pgs. 876-882	1 day per chapter section, 6 total for ch. 18	.5 block per chapter session, 3 total for ch 18
		11.1.A.2 (i-ii)			
11.2 Simple Circuits	11.2.A	11.2.A.1	Chapter 18: DC Circuits: Electric Charge in Motion pgs. 874-929	1 day per chapter section, 6 total for ch. 18	.5 block per chapter session, 3 total for ch 18
		11.2.A.2 (i-iii)			
		11.2.A.3			
		11.2.A.4 (i-ii)			
11.3 Resistance, Resistivity, and Ohm's Law	11.3.A	11.3.A.1	Chapter 18: DC Circuits: Electric Charge in Motion pgs. 883-889	1 day per chapter section, 6 total for ch. 18	.5 block per chapter session, 3 total for ch 18
		11.3.A.2 (i-ii)			
	11.3.B	11.3.B.1 (i-iv)			
11.4 Electric Power	11.4.A	11.4.A.1	Chapter 18: DC Circuits: Electric Charge in Motion pgs. 876-882	1 day per chapter section, 6 total for ch. 18	.5 block per chapter session, 3 total for ch 18
		11.4.A.2			
11.5 Compound Direct Current (DC) Circuits	11.5.A	11.5.A.1 (i-i)	Chapter 18: DC Circuits: Electric Charge in Motion pgs. 874-929	1 day per chapter section, 6 total for ch. 18	.5 block per chapter session, 3 total for ch 18
		11.5.A.2 (i-iii)			
	11.5.B	11.5.B.1 (i-iii)			
		11.5.B.2			
		11.5.B.3			
	11.5.C	11.5.C.1 (i-i)			
		11.5.C.2 (i-ii)			
		11.5.C.3			

11.6 Kirchhoff's Loop Rule	11.6.A	11.6.A.1	Chapter 18: DC Circuits: Electric Charge in Motion pgs. 874-929	1 day per chapter section, 6 total for ch. 18	.5 block per chapter session, 3 total for ch 18
		11.6.A.2			
		11.6.A.3			
		11.6.A.4			
11.7 Kirchhoff's Junction Rule			Chapter 18: DC Circuits: Electric Charge in Motion pgs. 874-929	1 day per chapter section, 6 total for ch. 18	.5 block per chapter session, 3 total for ch 18
	11.7.A	11.7.A.1			
11.8 Resistor-Capacitor (RC) Circuits		11.7.A.2	Chapter 18: DC Circuits: Electric Charge in Motion pgs. 874-929	1 day per chapter section, 6 total for ch. 18	.5 block per chapter session, 3 total for ch 18
	11.8.A	11.8.A.1 (i-iii)			
		11.8.A.2			
	11.8.B	11.8.B.1 (i-iii)			
		11.8.B.2 (i-vii)			

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
12.1 Magnetic Fields	12.1.A	12.1.A.1 (i-ii)	Chapter 19: Magnetism: Forces and Fields pgs. 932-933	1 day per chapter section, 8 total for chapter 19	.5 block per chapter section, 4 total for chapter 19
		12.1.A.2 (i-ii)			
	12.1.B	12.1.B.1 (i-iv)			
		12.1.B.2			
		12.1.B.3 (i-iii)			
		12.1.B.4			
	12.1.C	12.1.C.1			
		12.1.C.2			
		12.1.C.3			
12.2 Magnetism and Moving Charges	12.2.A	12.2.A.1 (i-iii)	Chapter 19: Magnetism: Forces and Fields pgs. 934-944	1 day per chapter section, 8 total for chapter 19	.5 block per chapter section, 4 total for chapter 19
	12.2.B	12.2.B.1			
		12.2.B.2 (i-ii)			
		12.2.B.3			
		12.2.B.4			
12.3 Magnetism and Current-Carrying Wires	12.3.A	12.3.A.1 (i-v)	Chapter 19: Magnetism: Forces and Fields pgs. 945-948	1 day per chapter section, 8 total for chapter 19	.5 block per chapter section, 4 total for chapter 19
	12.3.B	12.3.B.1 (i-ii)			
12.4 Electromagnetic Induction and Faraday's Law	12.4.A	12.4.A.1	Chapter 20: Electromagnetic Induction pgs. 978-1009	1 day per chapter section, 5 total for chapter 20	.5 block per chapter section, 2.5 total for chapter 20
		12.4.A.2 (i-ii)			

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
13.1 Reflection	13.1.A	13.1.A.1 (i-iii)	Chapter 23: Geometric Optics: Ray Properties of Light pgs. 1130-1185	1 day per chapter section, 10 total for chapter 23	.5 block per chapter section, 5 total for chapter 23
	13.1.B	13.1.A.2 13.1.B.1 13.1.B.2 13.1.B.3 13.1.B.4			
13.2 Images Formed by Mirrors	13.2.A	13.2.A.1	Chapter 23: Geometric Optics: Ray Properties of Light pgs. 1130-1159	1 day per chapter section, 10 total for chapter 23	.5 block per chapter section, 5 total for chapter 23
		13.2.A.2 13.2.A.3 13.2.A.4 13.2.A.5 13.2.A.6			
		13.2.A.7 (i-ii)			
		13.2.A.8			
		13.2.A.9 (i-ii)			
13.3 Refraction	13.3.A	13.3.A.1	Chapter 23: Geometric Optics: Ray Properties of Light pgs. 1160-1166	1 day per chapter section, 10 total for chapter 23	.5 block per chapter section, 5 total for chapter 23
		13.3.A.2 13.3.A.3 13.3.A.4 (i-iii) 13.3.A.5 (i-iii)			

13.4 Images Formed by Lenses	13.4.A	13.4.A.1	Chapter 23: Geometric Optics: Ray Properties of Light pgs. 1154-1166	1 day per chapter section, 10 total for chapter 23	.5 block per chapter section, 5 total for chapter 23
		13.4.A.2			
		13.4.A.3			
		13.4.A.4			
		13.4.A.5 (i-ii)			
		13.4.A.6			
		13.4.A.7 (i-ii)			

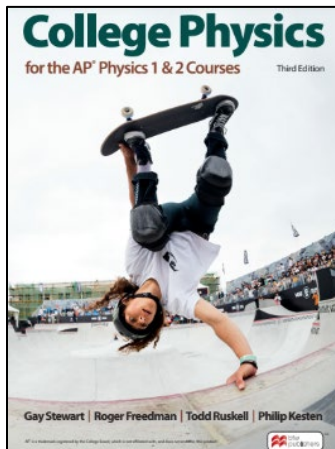
College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
14.1 Properties of Wave Pulses and Waves	14.1.A	14.1.A.1 (i-ii)	Chapter 21: Mechanical Waves and Sound pgs. 1012-1065	1 day per chapter section, 8 total for chapter 21	.5 block per chapter section, 4 total for chapter 21
		14.1.A.2			
		14.1.A.3 (i-iii)			
		14.1.A.4			
		14.1.A.5 (i-ii)			
		14.1.A.6 (i-iii)			
14.2 Periodic Waves	14.2.A	14.2.A.1(i-vi)	Chapter 21: Mechanical Waves and Sound pgs. 1012-1065	1 day per chapter section, 8 total for chapter 21	.5 block per chapter section, 4 total for chapter 21
		14.2.A.2			
		14.2.A.3			
14.3 Boundary Behavior of Waves and Polarization	14.3.A	14.3.A.1 (i-iv)	Chapter 21: Mechanical Waves and Sound pgs. 1012-1065	1 day per chapter section, 8 total for chapter 21	.5 block per chapter section, 4 total for chapter 21
		14.3.A.2 (i-ii)			
14.4 Electromagnetic Waves	14.4.A	14.4.A.1 (i-ii)	Chapter 22: Electromagnetic Waves and Physical Optics pgs. 1068-1075	1 day per chapter section, 10 total for chapter 22	.5 block per chapter section, 5 total for chapter 22
		14.4.A.2			
		14.4.A.3 (i-iii)			
14.5 The Doppler Effect	14.5.A	14.5.A.1	Chapter 21: Mechanical Waves and Sound pgs. 1012-1065	1 day per chapter section, 8 total for chapter 21	.5 block per chapter section, 4 total for chapter 21
		14.5.A.2 (i-iii)			

14.6 Wave Interference and Standing Waves	14.6.A	14.6.A.1 14.6.A.2 14.6.A.3 14.6.A.4 (i-iii) 14.6.B.1 (i-iii) 14.6.B.2 14.6.B.3	Chapter 21: Mechanical Waves and Sound pgs. 1012-1065	1 day per chapter section, 8 total for chapter 21	.5 block per chapter section, 4 total for chapter 21
	14.6.B				
14.7 Diffraction	14.7.A	14.7.A.1 14.7.A.2 14.7.A.3 14.7.A.4 (i-iv) 14.7.A.5 14.7.A.6	Chapter 22: Electromagnetic Waves and Physical Optics pgs. 1109-1122	1 day per chapter section, 10 total for chapter 22	.5 block per chapter section, 5 total for chapter 22
14.8 Double-Slit Interference and Diffraction Gratings	14.8.A	14.8.A.1 (i-vi) 14.8.A.2 14.8.A.3 14.8.A.4 14.8.A.5	Chapter 22: Electromagnetic Waves and Physical Optics pgs. 1104-1122	1 day per chapter section, 10 total for chapter 22	.5 block per chapter section, 5 total for chapter 22
14.9 Thin-Film Interference	14.9.A	14.9.A.1 14.9.A.2 (i-ii) 14.9.A.3	Chapter 22: Electromagnetic Waves and Physical Optics pgs. 1097-1108	1 day per chapter section, 10 total for chapter 22	.5 block per chapter section, 5 total for chapter 22

College Board Course and Exam Description Topic	Learning Objective	Essential Knowledge	Location in Text	Suggested Pacing (Standard Schedule)*days	Suggested Pacing (Block Schedule)*days
15.1 Quantum Theory and Wave-Particle Duality	15.1.A	15.1.A.1 (i-ii)	Chapter 24: Quantum Physics and Atomic Structure pgs.1188-1196	1 day per chapter section, 8 total for chapter 24	.5 block per chapter section, 4 total for chapter 24
		15.1.A.2 (i-ii)			
		15.1.A.3 (i-ii)			
		15.1.A.4 (i-ii)			
		15.1.A.5			
15.2 The Bohr Model of Atomic Structure	15.2.A	15.2.A.1 (i-iv)	Chapter 24: Quantum Physics and Atomic Structure pgs.1220-1231	1 day per chapter section, 8 total for chapter 24	.5 block per chapter section, 4 total for chapter 24
		15.2.A.2 (i-iii)			
		15.2.A.3 (i-ii)			
15.3 Emission and Absorption Spectra	15.3.A	15.3.A.1	Chapter 24: Quantum Physics and Atomic Structure pgs.1197-1203	1 day per chapter section, 8 total for chapter 24	.5 block per chapter section, 4 total for chapter 24
		15.3.A.2 (i-iii)			
		15.3.A.3			
		15.3.A.4 (i-iii)			
		15.3.A.5			
15.4 Blackbody Radiation	15.4.A	15.4.A.1	Chapter 24: Quantum Physics and Atomic Structure pgs.1197-1203	1 day per chapter section, 8 total for chapter 24	.5 block per chapter section, 4 total for chapter 24
		15.4.A.2			
		15.4.A.3 (i-iii)			

15.5 The Photoelectric Effect	15.5.A	15.5.A.1	Chapter 24: Quantum Physics and Atomic Structure pgs.1197-1203	1 day per chapter section, 8 total for chapter 24	.5 block per chapter section, 4 total for chapter 24
		15.5.A.2 (i-ii)			
		15.5.A.3 (i-iii)			
15.6 Compton Scattering	15.6.A	15.6.A.1	Chapter 24: Quantum Physics and Atomic Structure pgs. 1204-1208	1 day per chapter section, 8 total for chapter 24	.5 block per chapter section, 4 total for chapter 24
		15.6.A.2 (i-ii)			
		15.6.A.3			
15.7 Fission, Fusion, and Nuclear Decay	15.7.A	15.7.A.1	Chapter 25: Nuclear Physics pgs. 1245-1285	1 day per chapter section, 6 total for chapter 25	.5 block per chapter section, 3 total for chapter 25
		15.7.A.2			
		15.7.A.3			
		15.7.A.4			
		15.7.A.5			
		15.7.A.6			
		15.7.A.7			
		15.7.A.8			
15.8 Types of Radioactive Decay	15.7.B	15.7.B.1 (i-iii)			
		15.7.B.2			
		15.7.B.3			
	15.8.A	15.8.A.1 (i-iv)	Chapter 25: Nuclear Physics pgs. 1245-1285	1 day per chapter section, 6 total for chapter 25	.5 block per chapter section, 3 total for chapter 25
		15.8.A.2 (i-v)			
		15.8.A.3			

MCCRS and AP Standards Correlations



**AP® Physics 1 and AP® Physics 2 2024-2025 Course and Exam Description(s)
(CED) Alignment to**

College Physics for the AP® Physics 1 & 2 Courses, 3e

by Stewart | Freedman | Ruskell | Kesten

****If you are an adopter please see your teacher's resources and annotated AP® Physics 1 Teacher's Edition for further CED support and alignment tools. *** For any questions or additional support please visit bfwpub.com/Stewart3e or contact your local BFW Representative bfwpub.com/FindMyRep.*

AP® Physics 1

(AP® Physics 2 starts on page 8)

Chapter 1

Unlike the “content” chapters, this introductory one does not deal directly with specific knowledge of physics. It does, however, deal with fundamental skills that prepare students to understand the nature of physics. It rehearses essential skills that apply to the Science Practices identified in the published AP® Course Description. The foundation for the successful application of those practices is formed in this chapter.

Chapter 2

Big Ideas 1 and 3 from the AP[®] Physics 1 Curriculum Framework cover the ideas discussed in Chapter 2. Unlike the broad statements of the Big Ideas, the treatment here is limited to the motion itself without regard to the forces or interactions that might be causing them. Those interactions are left to future chapters.

Unit 1: Chapter 2 Linear Motion

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 2
1.1: Scalars & Vectors in One Dimension	1.1.A: 1, 2, 3 (i, ii)	2-2
	1.1.B: 1	2-2
1.2: Average and Instantaneous Motion	1.2.A: 1, 2	2-1, 2-2
	1.2.B: 1, 2, 3, 4	2-1, 2-2, 2-3
	1.2.C: 1	2-3
1.3: Representing Motion	1.3.A: 1, 2, 3, 4 (i, ii, iii, iv)	2-1, 2-2, 2-3, 2-4, 2-5, 2-6
1.4: Reference Frames & Relative Motion	1.4.A: 1	2-1, 2-2

Chapter 3

Big Ideas 1 and 3 from the AP[®] Physics 1 Curriculum Framework cover the ideas discussed in this chapter. Unlike the broad statements of the Big Ideas, the treatment here is limited to the motion itself without regard to the forces or interactions that might be causing them. Those interactions are left to future chapters.

Unit 1: Chapter 3 Motion in Two or Three Dimensions

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 3
1.1: Scalars & Vectors in One Dimension	1.1.A: 1, 2, 3 (i, ii)	3-1, 3-2
	1.1.B: 1	3-2
1.2: Average and Instantaneous Motion	1.2.A: 1, 2	3-2, 3-4
	1.2.B: 1, 2, 3, 4	3-4
	1.2.C: 1	3-4
1.3: Representing Motion	1.2.A: 1, 2, 3, 4 (i, ii, iii, iv)	3-3, 3-4, 3-5, 3-6
1.4: Reference Frames & Relative Motion	1.4.A: 1	3-4, 3-5
1.5: Vectors and Motion in Two Dimensions	1.5.A: 1, 2, 3	3-2, 3-3, 3-4
	1.5.B: 1, 2	3-4, 3-5, 3-6

Chapter 4

Big Ideas 1, 2, and 3 from the AP[®] Physics 1 Curriculum Framework cover the ideas discussed in this chapter. Unlike the broad statements of the Big Ideas, the treatment here is limited to the motion itself without regard to the forces or interactions that might be causing them. Those interactions are left to future chapters.

Unit 2: Chapter 4 Forces and Motion I: Newton's Laws

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 4
2.1: Systems and Center of Mass	2.1.A: 2	4-1, 4-2, 4-4, 4-5
	2.1.B: 1, 2, 3	4-4, 4-6
2.2: Forces and Free-Body Diagrams	2.2.A: 1 (i, ii), 2	4-2, 4-5
	2.2.B: 1, 2, 3, 4	4-2, 4-3, 4-4, 4-5, 4-6
2.3: Newton's Third Law	2.3.A: 1, 2, 3 (i, ii, iii)	4-5, 4-6
2.4: Newton's First Law	2.4.A: 1, 2, 3	4-2, 4-3

Chapter 5

Big Ideas 1, 2, and 3 from the AP[®] Physics 1 Curriculum Framework are all addressed in the material of this chapter.

Unit 2: Chapter 5 Forces and Motion II: Applications

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter
2.1: Systems and Center of Mass	2.1.A: 2	5-1, 5-3, 5-4
	2.1.B: 3	5-4
2.2: Forces and Free-Body Diagrams	2.2.A: 1 (i), 2	5-1, 5-2, 5-3
	2.2.B: 1, 2, 3, 4	5-1, 5-2, 5-3, 5-4, 5-5, 5-6
2.3: Newton's Third Law	2.3.A: 1, 2, 3 (i, ii, iii)	5-4, 5-5, 5-6
2.4: Newton's First Law	2.4.A: 1, 2, 3	5-5
2.5: Newton's Second Law	2.5.A: 1, 2, 3	5-3, 5-4, 5-5, 5-6
2.7: Kinetic and Static Friction	2.7.A: 1 (i, ii), 2 (i, ii)	5-1, 5-3, 5-4
	2.7.B: 1, 2 (i, ii)	5-1, 5-2, 5-4
2.8: Spring Forces	2.8.A: 1, 2, 3	5-6

Chapter 6

Big Ideas 1, 2, and 3 from the AP[®] Physics 1 Curriculum Framework cover the ideas discussed in this chapter.

Unit 2: Chapter 6 Circular Motion and Gravitation

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter
2.1: Systems and Center of Mass	2.1.A: 2	6-4, 6-5
	2.1.B: 2, 3	6-4, 6-6
2.6: Gravitational Force	2.6.A: 1 (i, ii, iii), 2 (i, ii), 3	6-1, 6-3, 6-4
	2.6.B: 2	6-4
	2.6.C: 1, 2, 3	6-2, 6-6
2.10: Circular Motion	2.10.A: 1 (i, ii), 2 (i, ii, iii), 3, 4, 5 (i, ii, iii)	6-2, 6-5
	2.10.B: 1	6-5

Chapter 7

Big Ideas 1, 2, 3, and 4 from the AP Physics 2 Curriculum Framework cover the ideas discussed in this chapter.

Unit 3: Chapter 7 Conservation of Energy and an Introduction to Energy and Work

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter
3.1: Translational Kinetic Energy	3.1.A	7-3
	3.1.B	7-1, 7-3
	3.1.C	7-3
3.2: Work	3.2.A: 1 (i, ii, iii, iv, v), 2, 3 (i, ii), 4 (i, ii), 5	7-2, 7-3, 7-5, 7-6

Chapter 8

Big Ideas 1, 2, 3, and 4 from the AP Physics 2 Curriculum Framework are all addressed in the material of chapter.

Unit 3: Chapter 8 Application of Conservation Principles to Energy, Work, and Power

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter
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3.3: Potential Energy	3.3.A: 1, 2, 3, 4 (i, ii, iii), 5	8-1, 8-3, 8-5
3.4: Conservation of Energy	3.4.A: 1, 2	8-2
	3.4.B: 1, 2, 3, 4	8-1, 8-2, 8-3
	3.4.C: 1, 2, 3	8-1, 8-2, 8-3
3.5: Power	3.5.A: 1, 2, 3, 4	8-4

Chapter 9

All of the Big Ideas from the AP[®] Physics 1 Curriculum Framework are implemented in the discussions of this chapter. Here the broad statements of the Big Ideas are treated in terms of the linear momentum of objects and systems and their interactions.

Unit 4: Chapter 9 Momentum, Collisions, and the Center of Mass

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter
4.1: Linear Momentum	4.1.A: 1, 2, 3 (i, ii, iii)	9-1, 9-2
4.2: Change in Momentum and Impulse	4.2.A: 1, 2, 3, 4	9-6
	4.2.B: 1, 2, 3	9-6, 9-7
4.3: Conservation of Linear Momentum	4.3.A: 1, 2, 3 (i, ii, iii), 4	9-3, 9-5
	4.3.B: 1, 2, 3	9-3, 9-7
4.4: Elastic and Inelastic Collisions	4.4.A: 1, 2, 3, 4	9-4, 9-5, 9-7

Chapter 10

Big Ideas 1, 2, and 3 from the AP[®] Physics 1 Curriculum Framework are addressed in the material of this chapter. Unlike the broad statements of the Big Ideas, the treatment here is limited to the motion itself without regard to the forces or interactions that might be causing it. Those interactions are left to future chapters.

Units 5, 6: Chapter 10 Rotational Motion I: A New Kind of Motion

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter
5.1: Rotational Kinematics	5.1.A: 1 (i, ii, iii), 2, 3, 4 (i, ii), 5	10-1, 10-2, 10-4
5.2: Connecting Linear and Rotational Motion	5.2.A: 1, 2, 3	10-2, 10-3, 10-4
5.3: Torque	5.3.A: 1, 2	10-5
	5.3.B: 1 (i, ii), 2	10-5

5.4: Rotational Inertia	5.4.A: 1, 2, 3	10-3
5.5: Rotational Equilibrium and Newton's First Law in Rotational Form	5.5.A: 1 (i, ii), 2	10-5
5.6: Newton's Second Law in Rotational Form	5.6.A: 1, 2, 3	10-5, 10-6
6.1: Rotational Kinetic Energy	6.1.A: 1 (i, ii), 2, 3	10-1, 10-2, 10-3

Chapter 11

Big Ideas 1, 2, 3, and 4 from the AP[®] Physics 1 Curriculum Framework are addressed in the material of this chapter.

Unit 6: Chapter 11 Torque and Rotation II: Work, Energy, and Angular Momentum

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter
6.1: Rotational Kinetic Energy	6.1.A: 1 (i, ii), 2, 3	<i>See Chapter 10, Sections 10-1, 10-2, 10-3</i>
6.2: Torque and Work	6.2.A: 1, 2, 3	11-2, 11-3
6.3: Angular Momentum and Angular Impulse	6.3.A: 1, 2 (i, ii)	11-1, 11-3
	6.3.B: 1, 2, 3	11-2, 11-3
	6.3.C: 1, 2 (i, ii)	11-3
6.4: Conservation of Angular Momentum	6.4.A: 1, 2 (i, ii, iii, iv)	11-3
	6.4.B: 1, 2, 3	11-3
6.5: Rolling	6.5.A: 1	11-2
	6.5.B: 1, 2	11-2
	6.5.C: 1, 2	11-2
6.6: Motion of Orbiting Satellites	6.6A: 1, 2 (i, ii, iii), 3 (i, ii)	11-4 (<i>See Chapter 8, Section 8-5</i>)

Chapter 12

Big Ideas 1, 2, 3, and 4 from the AP[®] Physics 1 Curriculum Framework are addressed in the material of this chapter.

Unit 7: Chapter 12 Simple Harmonic Motion

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter
7.1: Defining Simple Harmonic Motion (SHM)	7.1.A: 1, 2 (i, ii)	12-1, 12-2, 12-4
7.2: Frequency and Period of SHM	7.2.A: 1 (i, ii)	12-2, 12-4, 12-6
7.3: Representing and Analyzing SHM	7.3.A: 1 (i, ii), 2, 3	12-4
7.4: Energy of Simple Harmonic Oscillators	7.4.A: 1, 2, 3, 4 (i, ii)	12-5

Chapter 13

Big Ideas 1, 2, 3, and 4 from the AP[®] Physics 1 Curriculum Framework are addressed in the material of this chapter.

Unit 8: Chapter 13 Fluids

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter
8.1: Internal Structure and Density	8.1.A: 1, 2, 3, 4	Case Study, 13-1, 13-2, 13-8, 13-9
8.2: Pressure	8.2.A: 1, 2, 3	13-3, 13-6
	8.2.B: 1, 2, 3	13-4
8.3: Fluids and Newton's Laws	8.3.A: 1, 2	13-6
	8.3.B: 1, 2, 3	13-7
8.4: Fluids and Conservation Laws	8.4.A: 1 (i, ii), 2	13-8
	8.4.B: 1, 2, 3	13-9

AP[®] Physics 2
Chapter 14

Big Ideas 1, 3, and 4 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 9 Chapter 14 Thermodynamics: Kinetic Theory, Ideal Gas Law

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 14
9.1 Kinetic Theory of Temperature and Pressure	9.1.A: 1 (i, ii,iii)	13-3, 14-3
	9.1.B: 1 (i, ii)	14-2, 14-3
9.2 The Ideal Gas Law	9.2.A: 1, 2, 3, 4	14-2, 14-3
9.3 Thermal Energy Transfer and Equilibrium	9.3.A: 1 (i, ii), 2, 3, 4 (i, ii)	14-1, 14-4, 14-5, 14-6
9.4 The First Law of Thermodynamics	9.4.A: 1 (i, ii), 2	14-4
9.5 Specific Heat and Thermal Conductivity	9.5.A: 1, 2	14-4
	9.5.B: 1, 2	14-6

Chapter 15

Big Ideas 1, 2, 3, and 4 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 9 Chapter 15 Thermodynamics: Laws of Thermodynamics

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 15
9.4 The First Law of Thermodynamics	9.4.A: 1 (i, ii), 2	15-2
	9.4.B: 1 (i, ii, iii), 2, 3 (i, ii), 3	15-1, 15-2, 15-3
9.5 Specific Heat and Thermal Conductivity	9.5.A: 1, 2	15-4
9.6 Entropy and the Second Law of Thermodynamics	9.6.A: 1, 2 (i, ii, iii), 3 i, ii, iii)	15-5, 15-6

Chapter 16

Big Ideas 1, 3, and 4 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 10 Chapter 16 Electric Charge, Force, and Field

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 16
10.1 Electric Charge and Electric Force	10.1.A: 1 (i, ii, iii, iv), 2, 3 (i, ii), 4	16-1, 16-2, 16-4
	10.1.B: 1, 2, 3	16-4
	10.1.C: 1, 2, 3, 4 (i, ii)	16-3, 16-5
10.2 Conservation of Electric Charge and the Process of Charging	10.2.A: 1 (i, ii), 2 (i, ii), 3	16-2, 16-3, 16-5
10.3 Electric Fields	10.3.A: 1, 2 (i, ii, iii), 3 (i, ii, iii)	16-5
	10.3.B: 1 (i, ii), 2	16-3, 16-5

Chapter 17

Big Ideas 1, 2, 3, and 4 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 10 Chapter 17 Electric Potential and Electric Potential Energy

Unit 11 Chapter 17 RC Circuits

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 17
10.1 Electric Charge and Electric Force	10.1.C: 2	17-8
10.4 Electric Potential Energy	10.4.A: 1, 2, 3	17-2
10.5 Electric Potential	10.5.A: 1, 2, 3 (i), 4	17-3
	10.5.B: 1, 2 (i, ii, iii, iv)	17-3, 17-4
10.6 Capacitors	10.6.A: 1, 2 (i, ii), 3 (i, ii), 4, 5, 6	17-5, 17-6, 17-8
10.7 Conservation of Electric Energy	10.7.A: 1, 2	17-3
11.5 Compound DC Circuits	11.5.B: 1	17-1
11.8 Resistors-Capacitor (RC) Circuits	11.8.A: 1 (i, ii, iii), 2	17-7

Chapter 18

Big Ideas 1, 3, and 4 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 11 Chapter 18 Electric Circuits

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 18
11.1 Electric Current	11.1.A: 1 (i, ii), 2 (i, ii)	18-1, 18-2, 18-4
11.2 Simple Circuits	11.2.A: 1, 2 (i, ii), 3, 4 (i, ii)	18-1, 18-2, 18-4
11.3 Resistance, Resistivity, and Ohm's Law	11.3.A: 1, 2 (i, ii)	18-3
	11.3.B: 1 (i, ii, iii)	18-3
11.4 Electric Power	11.4.A: 1, 2	18-5
11.5 Compound Direct Current (DC) Circuits	11.5.A: 1 (i, ii), 2 (i, ii, iii)	18-4
	11.5.B: 1 (i, ii, iii), 2, 3	18-2, 18-4
	11.5.C: 1 (i, ii), 2 (i, ii), 3	18-4
11.6 Kirchhoff's Loop Rule	11.6.A: 1, 2, 3, 4	18-4
11.7 Kirchhoff's Junction Rule	11.7.A: 1, 2	18-4
11.8 Resistor-Capacitor (RC) Circuits	11.8.B: 1 (i, ii, iii), 2 (i, ii, iii, iv, v, vi, vii)	18-6

Chapter 19

Big Ideas 2 and 3 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 12 Chapter 19 Magnetic Forces and Fields

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 19
12.1 Magnetic Fields	12.1.A: 1 (i, ii), 2 (i, ii)	19-2
	12.1.B: 1 (i, ii, iii), 2, 3, (i, ii, iii), 4	19-2, 19-7
	12.1.C: 1, 2, 3	19-7
12.2 Magnetism and Moving Charges	12.2.A: 1 (i, ii)	19-2
	12.2.B: 1, 2 (i, ii), 3, 4	19-3, 19-4
12.3 Magnetism and Current-Carrying Wires	12.3.A: 1 (i, ii, iii, iv, v)	19-5, 19-7, 19-8
	12.3.B: 1 (i, ii)	19-5

Chapter 20

Big Ideas 2 and 3 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 12 Chapter 20 Electromagnetic Induction

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 20
12.4 Electromagnetic Induction and Faraday's Law	12.4.A: 1, 2 (i, ii), 3, 4 (i, ii)	20-2, 20-3

Chapter 21

Big Ideas 1 and 2 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 14 Chapter 21 Waves, Sound, and Physical Optics

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 21
14.1 Properties of Wave Pulses and Waves	14.1.A: 1 (i, ii), 3 (i, ii, iii), 4, 5 (i, ii), 6 (i, ii, iii)	21-1, 21-2, 21-3
14.2 Periodic Waves	14.2.A: 1 (i, ii, iii, iv, v), 2, 3	21-3
14.3 Boundary Behavior of Waves and Polarization	14.3.A: 1(i, ii, iii, iv), 2 (i, ii)	21-4
14.5 The Doppler Effect	14.5.A: 1, 2 (i, ii, iii)	21-8
14.6 Wave Interference and Standing Waves	14.6.A: 1, 2, 3, 4 (i, ii, iii), 5, 6 (i, ii)	21-4, 21-7
	14.6.B: 1 (i, ii, iii), 2, 3	21-5, 21-6

Chapter 22

Big Idea 2 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 13 Chapter 22 Geometric Optics
Unit 14 Chapter 22 Electromagnetic Radiation

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 22
13.1 Reflection	13.1.A: 1 (i, ii), 2	22-3
	13.1.B: 1, 2, 3, 4	22-3
13.3 Refraction	13.3.A: 1, 2, 3, 4 (i, ii, iii), 5 (i, ii, iii)	22-3, 22-4
14.1 Properties of Wave Pulses and Waves	14.1.A.2	22-2
14.3 Boundary Behavior of Waves and Polarization	14.3.A: 3 (i, ii)	22-6
14.4 Electromagnetic Waves	14.4.A: 1, 2, 3 (i, ii, iii)	22-1, 22-2
14.7 Diffraction	14.7.A: 1, 2, 3, 4, 5, 6	22-8, 22-9
14.8 Double-Slit Interference and Diffraction Gratings	14.8.A: 1 (i, ii, iii), 2, 3, 4, 5	22-8, 22-9
14.9 Thin-Film Interference	14.9.A: 1, 2 (i, ii), 3, 4 (i, ii), 5 (i, ii, iii)	22-7

Chapter 23

Big Idea 2 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 13 Chapter 23 Geometric Optics

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 23
13.2 Images Formed by Mirrors	13.2.A: 1, 2, 3, 4, 5, 6, 7 (i, ii), 8, 9	23-2, 23-3, 23-4, 23-5, 23-6
13.4 Images Formed by Lenses	13.4.A: 1, 2, 3, 4, 5 (i, ii), 6, 7	23-7, 23-8

Chapter 24

Big Ideas 1, 2, and 4 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 15 Chapter 24 Modern Physics: Quantum Physics

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 24
15.1 Quantum Theory and Wave-Particle Duality	15.1.A: 1 (i, ii), 2 (i, ii), 3 (i, ii), 4 (i, ii), 5, 6	24-1, 24-2, 24-3, 24-4, 24-5
15.2 The Bohr Model of Atomic Structure	15.2.A: 1 (i, ii, iii), 2 (i, ii, iii), 3 (i, ii)	24-6, 24-7
15.3 Emission and Absorption Spectra	15.3.A: 1, 2 (i, ii), 3, 4 (i, ii), 5	24-6
15.4 Blackbody Radiation	15.4.A: 1, 2, 3 (i, ii, iii)	24-3
15.5 The Photoelectric Effect	15.5.A: 1, 2 (i, ii), 3 (i, ii)	24-3
15.6 Compton Scattering	15.6.A: 1, 2 (i, ii), 3	24-4

Chapter 25

Big Ideas 3 and 4 from the AP Physics 2 Curriculum Framework are all addressed in the material of this chapter.

Unit 15 Chapter 25 Modern Physics: Nuclear Decay

Topic	Learning Objective: Essential Knowledge	Coverage in Chapter 25
15.7 Fission, Fusion, and Nuclear Decay	15.7.A: 1, 2, 3, 4, 5, 6, 7, 8	25-1, 25-2, 25-4, 25-5
	15.7.B: 1 (i, ii, iii), 2, 3	25-6
15.8 Types of Radioactive Decay	15.8.A: 1 (i, ii, iii, iv), 2 (i, ii, iii, iv, v), 3	25-6

Technology Supporting Document

Technology Supporting Document

1.1. i. Thin Common Cartridge 1.3 – IEDTECH Global Standards

We are not certified for Thin Common Cartridge (TCC) 1.3, as it is not an ideal delivery mechanism for our course materials. Users do not access content via Thin Common Cartridge. Instead, we deploy content via APIs and are certified for LTI 1.3 (Advantage), which includes content deployment and deep linking via IMS LTI standards.

1.2. ii. School rostering

We provide automated rostering for schools through multiple methods, including auto-provisioned user accounts and courses via Learning Tools Interoperability (LTI) connection with Learning Object Repository (LOR) and/or Learning Management System (LMS), automated import using OneRoster CSV and Secure FTP, as well as integration with Clever and ClassLink. We are certified for OneRoster.CSV and LTI Advantage Complete, and support rostering for students and teachers through OneRoster CSV, Clever, and ClassLink. Integration is also available with Google Classroom, Canvas, Schoology, D2L, Blackboard, and Moodle. Roster data is required for system operation.

1.3. iii. PDF and/or ePUB format

Our materials are available in both PDF and EPUB formats. PDF versions are accessible and can be provided at no additional cost, while e-books are produced in EPUB3 format with comprehensive accessibility features. All eBooks are certified by NIMAC.

1.4. iv. Alternative text (image), captions and subtitles (videos), read-alouds, and other accessibility functions

We provide alternative text for all images in our e-books, slides, and other resources, with both short and long descriptions depending on image complexity. All videos include closed captioning and, since 2019, audio descriptions. Subtitles are also available. Our eBooks feature a read-aloud (text-to-speech) function, and students can personalize background color, font size, and type. Accessibility features include compatibility with assistive technologies such as screen readers, keyboard navigation, and navigation methods like page and heading navigation. Transcripts for videos are available upon request.

1.5. v. 508 compliant platform

Yes, our platform is 508-compliant to the extent indicated in our Voluntary Product Accessibility Templates (VPATs), which we are happy to provide upon request. Accessibility is measured using guidelines set forth by Section 508 and the World Wide Web Consortium (W3C). We have mapped our solutions to the WCAG 2.1 standard at Level AA compliance and are regularly audited by third-party accessibility experts. We are committed to continually improving accessibility to meet user needs and expectations.

1.6. vi. Privacy-data security specifications

We comply with SOC 2 Type II and base our Information Security program on ISO/IEC 27001/02, ISO 27017, and NIST 800-37 frameworks. Our environment is cloud-based, and we implement security best practices, including a DMZ and Web Application Firewalls. We maintain strong administrative, technical, and physical safeguards to protect systems and data, including personally identifiable information, against unlawful or unauthorized destruction, loss, alteration, access, disclosure, or use. Data transferred to us, including registration information, quiz results, grades, and assessments, is encrypted in transit using TLS encryption. Sensitive data stored locally or at rest is encrypted using AES-256 encryption. We enforce a policy of 'Least Privilege' for staff access to customer personal and sensitive data, with access granted only to the minimum number of individuals required to support and maintain system functionality, and access is revoked upon termination. We routinely run vulnerability scans covering OWASP Top 10 and SANS Top 25 and integrate these into our development process.

For more information, please see our Privacy Notice:

<https://www.bfwpub.com/high-school/us/legal/privacy-notice>

1.7. vii. Browser and OS support

We support the following browsers and operating systems:

Browsers

- Chrome: 126.0.6478.126 plus two previous versions
- Firefox: 127.0.2 plus two previous versions
- Safari: 17.5 plus two previous versions
- Edge: 126.0.2592.87 plus two previous versions

Operating Systems

- Compatible with ChromeOS, Windows (including Windows 11), and MacOS
- The platform is device agnostic and may be used on PC, Mac, Chromebook, and mobile devices using supported browsers

No plugins are required, and the platform supports HTML5 web standards across all browsers.

Implementation Guide

Implementation Training plan

At Bedford, Freeman and Worth, we have built our reputation on producing the highest quality materials for AP® courses and a variety of electives, and are proud to offer resources for a range of high school courses. With BFW, you will find what you need for class today including classroom tools that work; extensive resources for teachers; media that adds value to your classes; and the support that you need – when you need it. Our groundbreaking digital content (and books) are based on changes in education, in student populations and on accepted best practices for the classroom.

Our mission is to support the people teaching in the increasingly complex environment of high school education. We aspire to be a community that connects teachers with other teachers, scholars, authors, and editors, as well as with a library of resources for teaching and learning. Our online High School Teaching Community provides free access to premium content including course tours, professional development, webinars on demand, valuable teaching resources, and curriculum and state-focused sub-communities.

We follow a critical path method (CPM) of project management for the length of the contract term with all implementation and maintenance steps well-documented and reviewed prior to completion. All milestones receive a sign-off and are communicated to all project owners promptly. Our goal is to thoroughly transfer knowledge through a well-tested and standardized onboarding model designed specifically for the high school market. Implementation and ongoing support are managed by a dedicated team that includes product, sales, finance and client support team members. We use a combination of Salesforce, Desk, Service Cloud, and Google Suite to manage our projects.

Our BFW High School support portal provides 24/7 help to teachers, parents and students via a Knowledge Base (searchable by role, products, topic and features) as well as real-time email and phone support options. These support options are included at no additional cost for the length of your commitment.

Through our professional development series, we offer a variety of professional development opportunities for teachers to increase classroom success, be fully prepared, and have the training needed to increase their teaching effectiveness. Upon award, we would create a custom professional development plan based on your district and teachers' needs that covers our entire resource program for your classroom, onboarding and implementation training, and professional development workshops as needed.

Upon receipt of purchase order, we guarantee to ship within five business days and to deliver within ten business days upon receipt of purchase order for in-stock print items. Shipping is calculated at 5% of the total purchase order.

For more information, please visit

<https://go.bfwpub.com/BFW-Achieve-Implementation-Site.html>.

We have also provided a sample implementation timeline with this submission.

Please see the following page for details.



BFW Implementation Plan for Spring 2025

This implementation plan is based on an anticipated vendor selection in May 2025 for a Fall 2025 implementation. Dates are approximate and will be adjusted based on selection/ purchase date. BFW will also work to customize any implementation period or tasks required. All implementation costs are included in the adoption fee so there would be no additional associated costs (excepting some PD courses; please refer to our PD brochure for further details).

✓	Activity / Task / Milestone	District	BFW	Start Date	Additional Information	Scope
Initial Rollout						
	Vendor selection/purchase order issuance.	District	BFW Contract & Sales Teams	May 2025	TBD by District.	1 occurrence
	BFW will set up an initial onboarding meeting to ascertain project needs including training and integration; and finalize timeline and corresponding plan.	District	Account Manager	May 2025	Remote meeting anticipated (1 hour).	1 occurrence
	BFW will work on Achieve integration.	District	BFW Customer Experience Team	June 2025	Approximate total hours required (8 hours).	1 week
	Training for District central office (as required).	District Staff	BFW Customer Experience Team	June 2025	Remote meeting anticipated (1 hour).	1 occurrence
	Delivery of materials	N/A	BFW Warehouse	June 2025	For teachers and students.	1 occurrence
	Begin BFW Courseware Training and BFW Course Tours (gratis, self-scheduled by teachers/staff); and synchronous BFW Implementation Training (as required).	District Teachers/Staff	BFW Customer Experience Team	June 2025 - August 2025	Our implementation training and onboarding provides teachers with an overview of how to use and implement digital technology in the classroom as well as an overview of teacher and student resources. It does not include any in-depth discipline content coverage. Please refer to the provided PD brochure for further information. Hours required - TBD based on number of teachers.	3 months

Post Rollout						
Deadline: Ongoing						
	Assessment meeting to determine areas of success and improvement prior to Spring term start.	District	Account Manager	November 2025	Remote meeting anticipated (1 hour).	1 occurrence
	BFW will schedule any further professional development or follow-up training.	District Teachers/Staff	BFW Customer Experience Team	January 2026	Hours required - TBD based on number of teachers.	1 month

	BFW will monitor progress throughout Year 2-6 implementation.	District	Account Manager & BFW Customer Experience Team	Ongoing	Remote meeting anticipated (1 hour).	Ongoing
	BFW will schedule annual meetings with stakeholders to review progress to date, share product updates, and plan implementation for the subsequent years.	District	Account Manager	Ongoing	Spring and Fall Terms - Remote meeting anticipated (1 hour).	Ongoing

Video Presentation

Video Presentation

You can find a full video presentation overview of our AP and on-level Science texts at the following link:

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Print edition ISBN: 9781319409289

***College Physics for the AP® Physics
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