

Pacing Guide

The *Pacing Guide* below is designed so that you have the option to complete the first eight chapters of *Active Physics* during the school year. The *Plan A Pacing Guide* allows the students to complete all the *Investigates*. If you are a new teacher, or unfamiliar with the program, you may have difficulty adhering to *Pacing Guide A*. *Pacing Guide B* suggests places where either time or equipment may be saved if

it becomes necessary to complete the chapter in the allotted time. To reach this goal, many of the investigations are teacher-led demonstrations rather than student-centered inquiry investigations. This will save time and require less equipment than the optimal inquiry-based instruction that the curriculum is intended to provide.

Note: Each “day” assumes a 45-minute class period, or one half of a 90-minute block.

Day	Plan A (small-group <i>Investigates</i>)	Homework (for Plan A and Plan B)	Day	Plan B (combination of whole-class and small-group <i>Investigates</i>)	Plan B Equipment Reduction
1	Discuss <i>Scenario</i> , <i>Chapter Challenge</i> , <i>Chapter Overview</i> , <i>Scoring Rubric</i> . Select a short video on roller coasters from a Web site to show to the class.	Look up roller-coaster design on the Internet or in your school library and list at least two roller coasters mentioned.	1	See Plan A.	
2	Section 1 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Students do <i>Investigate</i> , Part A and the teacher does Part B as a class demonstration.	Read <i>Physics Talk</i> , and do <i>Checking Up</i> questions.	2	Section 1 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Teacher does <i>Investigate</i> as a class demonstration. Discuss <i>Physics Talk</i> .	Only requires one velocimeter, $\frac{3}{4}$ in. steel ball, ring stand, track, hardware for track, C-clamp, right-angle holder, crossarm, AA batteries, meter stick, rotating chair, and blindfold
3	Review <i>Checking Up</i> questions. Students do <i>Investigate</i> , Parts C and D. Discuss the <i>Physics Talk</i> .	Answer <i>Physics to Go</i> Questions 3-8, and 10.			
4	Review <i>Physics to Go</i> . Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> . Section 2 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Students do <i>Investigate</i> , Part A.	Read and summarize <i>Physics Talk</i> in their logs. Answer <i>Checking Up</i> questions.	3	Go over <i>Physics to Go</i> . Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> . Section 2 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Teacher does <i>Investigate</i> as a class demonstration. Go over <i>Physics Talk</i> . Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Only requires one velocimeter, $\frac{3}{4}$ in. steel ball, track, hardware for track, c-clamp, ring stand, right-angle holder, crossarm, AA batteries, meter stick, 100-g hanging mass, string, and scissors
5	Do <i>Investigate</i> Part B. Discuss <i>Physics Talk</i> with numerical examples. Go over <i>Checking Up</i> questions. Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 1, 4-5, 8-10.			

Day	Plan A (small-group <i>Investigates</i>)	Homework (for Plan A and Plan B)	Day	Plan B (combination of whole-class and small-group <i>Investigates</i>)	Plan B Equipment Reduction
6	Review <i>Physics to Go</i> homework. Section 3 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Students do <i>Investigate</i> all steps.	Read <i>Physics Talk</i> and do <i>Checking Up</i> questions.	4	See Plan A.	
7	Review <i>Checking Up</i> questions. Review results of <i>Investigate</i> . Discuss <i>Physics Talk</i> . Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 1-2, 4-5, 8, 10, and 12.	5	See Plan A.	
8	Review the <i>Physics to Go</i> , homework. Section 4 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Students do <i>Investigate</i> all steps.	Read <i>Physics Talk</i> and do <i>Checking Up</i> questions.	6	See Plan A.	
9	Review <i>Checking Up</i> questions. Discuss <i>Physics Talk</i> . Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> . Section 5 Do <i>What Do You See?</i> and <i>What Do You Think?</i>	Answer <i>Physics to Go</i> Questions 1, 2, 4, 5, 7 and 8.	7	See Plan A.	
10	Review <i>Physics to Go</i> from previous day. Students do <i>Investigate</i> , Parts A and B.	Read <i>Physics Talk</i> and do <i>Checking Up</i> questions.	8	Review <i>Physics to Go</i> from previous day. Section 5 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Teacher does <i>Investigate</i> as a class demonstration. Discuss <i>Physics Talk</i> with numerical examples. Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Only requires one spring, ring stand, right-angle holder, crossarm, one mass hanger with slotted masses, one meter stick, a set of Hooke's law springs, masking tape, and index cards
11	Review <i>Checking Up</i> questions. Review results of previous days <i>Investigate</i> . Students do <i>Investigate</i> , Part C. Discuss <i>Physics Talk</i> with numerical examples. Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 1, 3, and 5-8.			
12	Discuss previous day's <i>Physics to Go</i> . Students prepare for the <i>Mini-Challenge</i> .	Prepare your designs for the <i>Mini-Challenge</i> .	9	See Plan A.	
13	Students finish <i>Mini-Challenge</i> preparations. <i>Mini-Challenge</i> presentations.	Record any changes you would make in your challenge presentation after seeing the presentations of other groups.	10	See Plan A.	
14	Section 6 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Students do <i>Investigate</i> , all parts.	Read <i>Physics Talk</i> and answer <i>Checking Up</i> questions.	11	See Plan A.	

Pacing Guide *(continued)*

Day	Plan A (small-group <i>Investigates</i>)	Homework (for Plan A and Plan B)	Day	Plan B (combination of whole-class and small-group <i>Investigates</i>)	Plan B Equipment Reduction
15	Review <i>Checking Up</i> questions. Review previous day's <i>Investigate</i> . Discuss <i>Physics Talk</i> with numerical examples. Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 2-3, 5, 7-8, and 10.	12	See Plan A.	
16	Section 7 Students do <i>Investigate</i> all parts.	Read <i>Section 7, Physics Talk</i> and answer <i>Checking Up</i> questions.	13	See Plan A.	
17	Review previous night's <i>Checking Up</i> questions. Review the <i>Investigate</i> including student diagrams. Discuss <i>Physics Talk</i> with numerical examples. Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 1-3, 6, 8, 10, and 14.	14	See Plan A.	
18	Review the <i>Physics to Go</i> from previous night. Section 8 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Students do the <i>Investigate</i> .	Read <i>Physics Talk</i> and answer <i>Checking Up</i> questions.	15	Review the <i>Physics to Go</i> from previous night. Section 8 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Teacher does <i>Investigate</i> as a class demonstration. Discuss <i>Physics Talk</i> with numerical examples. Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Only requires one ring stand, crossarm, right-angle holder, slotted weight set, spring scale, halls cart, meter stick, masking tape and ramp
19	Review <i>Checking Up</i> questions. Review previous day's <i>Investigate</i> . Discuss <i>Physics Talk</i> with numerical examples. Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 1-6.			
20	Review the previous night's <i>Physics to Go</i> . Section 9 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Students do <i>Investigate, Part A</i> .	Read <i>Physics Talk</i> and answer <i>Checking Up</i> questions.	16	Review <i>Checking Up</i> questions. Section 9 Teacher does <i>Investigate</i> as a class discussion. Discuss <i>Physics Talk</i> . Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Only requires one set of sticky notes and one piece of candy or penny
21	Review <i>Checking Up</i> questions. Students do <i>Investigate, Part B</i> . Discuss <i>Physics Talk</i> . Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 3-7.			

Day	Plan A (small-group <i>Investigates</i>)	Homework (for Plan A and Plan B)	Day	Plan B (combination of whole-class and small-group <i>Investigates</i>)	Plan B Equipment Reduction
22	Review <i>Physics to Go</i> questions from previous night. Section 10 Do <i>What Do You See?</i> and <i>What Do You Think?</i> Students do <i>Investigate</i> . Do <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Read <i>Physics Talk</i> and answer <i>Checking Up</i> questions.	17	See Plan A.	
23	Review the <i>Checking Up</i> questions. Discuss <i>Physics Talk</i> . Go over selected <i>Physics to Go</i> questions with students to start preparing for the <i>Chapter Challenge</i> .	Begin work on the <i>Chapter Challenge</i> .	18	See Plan A.	
24	Students work in their groups on the <i>Chapter Challenge</i> .	Finish work on <i>Chapter Challenge</i> .	19	See Plan A.	
25	<i>Chapter Challenge</i> presentations.	Study for <i>Physics Practice Test</i> .	20	See Plan A.	
26	<i>Physics Practice Test</i>		21	See Plan A.	

Implementation Chart

Hopefully, as you become more experienced and comfortable with the curriculum, you will shift to more small-group *Investigates*. Accordingly, at the conclusion of the guide is an *Implementation Chart* that suggests a three-year timetable to expand the student's role in the chapter by having them do more of the *Investigates*. Although this will require a slightly greater expenditure of time and more equipment, the benefits to the student will be manifest. Eventually, your goal should be to have the students complete almost all the investigations, rather than you having to provide the maximum opportunity for inquiry.

	1	2	3	4	5	6	7	8	9	10
Year 1	Whole class	Whole class	Small group	Small group	Whole class	Small group	Small group	Whole class	Whole class	Small group
Year 2	Small group	Whole class	Small group	Small group	Whole class	Small group	Small group	Small group	Whole class	Small group
Year 3	Small group	Small group	Small group	Small group	Small group	Small group	Small group	Small group	Small group	Small group