

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 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 whole-class *Investigates* rather than small-group *Investigates*. This will save time and require less equipment than the optimal inquiry-based instruction that the curriculum is intended to provide. In order to choose which plan is best for you, please consult the *Implementation Chart* following this guide.

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	<i>Scenario, Your Challenge, Criteria for Success, Scoring Rubric</i> . Poll the class to see if any students have been to a sound and light show at a concert. Ask them to describe the show. You may then share a video from the Internet of a sound and light show.	Look up “career as a sound technician” on the Internet, and find out what a road technician does with a rock group.	1	See Plan A.	
2	Section 1 Discuss <i>What Do You See? What Do You Think?</i> Students complete <i>Investigate</i> . Discuss <i>Physics Talk</i> .	Read <i>Physics Talk</i> and complete <i>Checking Up</i> questions. Complete <i>Inquiring Further #3</i> at home.	2	See Plan A.	
3	Review <i>Checking Up</i> questions, finish <i>Physics Talk</i> . Review <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> . Section 2 Discuss <i>What Do You See?</i> and <i>What Do You Think?</i> Complete <i>Investigate, Part A</i> as a whole-class investigation.	Complete <i>Physics to Go</i> Questions 1-8.	3	See Plan A.	
4	Review <i>Physics to Go</i> from <i>Section 1</i> . Students complete <i>Investigate, Part B</i> .	Read and summarize <i>Physics Talk</i> in your logs and answer <i>Checking Up</i> questions.	4	Review <i>Physics to Go</i> from <i>Section 1</i> . Complete <i>Investigate, Parts B-C</i> as a class demonstration. Complete <i>Part D</i> in pairs from material you prepared beforehand. Review <i>Physics Talk, What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Only requires one coiled spring, one helical spring, one stopwatch, ruler, masking tape and index cards.
5	Review <i>Checking Up</i> questions. Students complete <i>Investigate Parts B and C</i> . Discuss <i>Physics Talk</i> . Review <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 1-13.			

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 Discuss <i>What Do You See?</i> and <i>What Do You Think?</i> Students complete <i>Section 3 Investigate</i> , all steps.	Read <i>Physics Talk</i> and answer <i>Checking Up</i> questions.	5	Review <i>Physics to Go</i> homework. Complete <i>Investigate</i> as a class demonstration. Discuss <i>Physics Talk</i> , <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Requires one meter stick, clamp, four 500-g hooked mass weights, one pulley with mount, pair of safety glasses, styrene-foam cup, pair of scissors and #30 lb fishing line.
7	Review <i>Checking Up</i> questions. Review results of <i>Investigate</i> . Discuss <i>Physics Talk</i> , <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> . Section 4 Discuss <i>What Do You See?</i> and <i>What Do You Think?</i>	Answer <i>Physics to Go</i> Questions 1, 2, 4, 6, and 7. For extra credit, look up Palm Pipes on the Internet and build a set for class.	6	See Plan A.	
8	Review <i>Physics to Go</i> homework from <i>Section 3</i> . Students complete <i>Section 4 Investigate</i> , all steps.	Read the <i>Physics Talk</i> and answer the <i>Checking Up</i> questions. For extra credit, investigate the effect of the water level on the pitch produced by a glass when the rim is rubbed with a wet finger.	7	See Plan A.	
9	Review <i>Checking Up</i> questions. Discuss <i>Physics Talk</i> , <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> . Discuss with students the assignment for the <i>Mini-Challenge</i> .	Answer <i>Physics to Go</i> Questions 1-8. Bring in material to use to assemble your sound device for the <i>Mini-Challenge</i> .	8	See Plan A.	
10	Review <i>Physics to Go</i> questions. Students work in groups on their <i>Mini-Challenge</i> .	Select and practice the music you will play for the <i>Mini-Challenge</i> .	9	<i>Mini-Challenge</i> presentations. Section 5 Discuss <i>What Do You See?</i> and <i>What Do You Think?</i> Complete <i>Investigate</i> as a class demonstration. Discuss <i>Physics Talk</i> .	Only one light source with holder, screen, scissors, and ruler required.
11	<i>Mini-Challenge</i> presentations. Section 5 Discuss <i>What Do You See?</i> and <i>What Do You Think?</i> Students complete <i>Investigate</i> , Steps 1-5.	Read the <i>Physics Talk</i> and answer the <i>Checking Up</i> questions.	10	See Plan A.	
12	Review results of previous day's <i>Investigate</i> . Students complete <i>Investigate</i> , Steps 6-9. Discuss <i>Physics Talk</i> , <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>Physics to Go</i> Questions 1-6.			
13	Review <i>Physics to Go</i> questions. Section 6 Discuss <i>What Do You See?</i> and <i>What Do You Think?</i> Students complete <i>Investigate</i> , all steps.	Read <i>Physics Talk</i> and answer <i>Checking Up</i> questions.			

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
14	Review results of previous day's <i>Investigate</i> . Review <i>Checking Up</i> questions. Discuss <i>Physics Talk</i> . Review <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 1-10.	11	See Plan A.	
15	Review <i>Physics to Go</i> questions. Section 7 Discuss <i>What Do You See?</i> and <i>What Do You Think?</i> Students complete <i>Investigate</i> , Steps 1-12.	Read <i>Physics Talk</i> , and answer <i>Checking Up</i> questions.	12	See Plan A.	
16	Students complete <i>Investigate</i> Steps 13-17. Review <i>Checking Up</i> questions. Discuss <i>Physics Talk</i> . Review <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 1-12. For extra credit, complete a report on Fun House mirrors.	13	See Plan A.	
17	Review <i>Physics to Go</i> from the previous night. Section 8 Discuss <i>What Do You See?</i> and <i>What Do You Think?</i> Students complete <i>Investigate</i> Steps 1-6.	Read <i>Physics Talk</i> , and answer <i>Checking Up</i> questions. Answer <i>Inquiring Further</i> #3 at home.	14	See Plan A.	
18	Students complete <i>Investigate</i> , Steps 7-10. Review <i>Checking Up</i> questions and discuss <i>Physics Talk</i> .	Answer <i>Physics to Go</i> Questions 1, 3, 4, 6, 7, and 12.	15	See Plan A.	
19	Review <i>Physics to Go</i> . Review results of <i>Section 8 Investigate</i> and <i>Physics Talk</i> . Review <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> . Section 9 Discuss <i>What Do You See?</i> and <i>What Do You Think?</i> Students complete <i>Investigate</i> , Steps 1–3.c).	Read <i>Physics Talk</i> and answer <i>Checking Up</i> questions. For extra credit, answer <i>Inquiring Further</i> #2.	16	Review <i>Physics to Go</i> , the results of the <i>Investigate</i> , <i>Physics Talk</i> , <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> . Section 9 Complete <i>Investigate</i> as a class demonstration.	Only one light source, lens set and screen are required as well as a meter stick, lens supports, optical bench, overhead transparencies, batteries and index cards. A larger lens would be preferable to allow students to more easily see images.
20	Students complete <i>Investigate</i> . Review <i>Checking Up</i> questions.	Answer <i>Physics to Go</i> Questions 1-6.			

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
21	Review <i>Physics to Go</i> . Discuss <i>Physics Talk</i> , <i>What Do You Think Now?</i> and <i>Reflecting on the Section and the Challenge</i> . Section 10 Discuss <i>What Do You See?</i> and <i>What Do You Think?</i>	Answer <i>Physics to Go</i> Questions 7-13.	17	See Plan A.	
22	Review <i>Physics to Go</i> . Students complete <i>Investigate</i> . Discuss <i>Physics Talk</i> and <i>Reflecting on the Section and the Challenge</i> .	Answer <i>Physics to Go</i> Questions 1 and 2.	18	Review <i>Physics to Go</i> . Complete <i>Investigate</i> as a class demonstration. Discuss <i>Physics Talk</i> and <i>Reflecting on the Section and the Challenge</i> .	Only one set of colored light sources with holders and cardboard are required.
23	Review <i>Physics Talk</i> . Students start to prepare for the <i>Chapter Challenge</i> .	Work on narration for the <i>Chapter Challenge</i> .	19	See Plan A.	
24	Students finish <i>Chapter Challenge</i> preparation.	Practice <i>Chapter Challenge</i> and finish oral narration segments.	20	See Plan A.	
25	<i>Chapter Challenge</i> presentations. Review for <i>Physics Practice Test</i> .	Study for <i>Physics Practice Test</i> .	21	See Plan A.	
26	<i>Physics Practice Test</i> .	Finish work on <i>Chapter Challenge</i> .	22	See Plan A.	

Implementation Chart

Hopefully, as you become more experienced and comfortable with the curriculum, you will shift to small-group *Investigates*. Accordingly, below is an *Implementation Chart* that suggests a three-year timetable to expand students' 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 of the investigations rather than you having to provide the maximum opportunity for inquiry.

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