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 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 better 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 *Investigates*)	Homework (for Plan A and Plan B)	Day	Plan B (combination of whole-class and small-group *Investigates*)	Plan B Equipment Reduction
1	*Scenario*, *Your Challenge*, *Criteria for Success*, Scoring Rubric, keeping a log.	Read the material on *Engineering Design Cycle* and give three reasons why you think engineers follow this process.	1	**See Plan A.**	
2	***Section 1*** Discuss *What Do You See?* and *What Do You Think?;* students complete *Investigate*.	Read and summarize the *Physics Talk* in your *Active Physics* log, answer *Checking Up* questions.	2	**See Plan A.**	
3	Review *Investigate*, summarize results, discuss *Physics Talk*, review *Checking Up*, *What Do You Think Now?*, and *Reflecting on the Section and the Challenge*, answer *Physics to Go* Question 3 and discuss with class; students should answer the question in their log.	Answer *Physics to Go* Questions 4-7. Answer the *Preparing for the Chapter Challenge* in your *Active Physics* log.	3	**See Plan A.**	
4	Review *Physics to Go*. Students discuss answers to *Preparing for the Chapter Challenge* in their groups. ***Section 2*** *What Do You See?*, *What Do You Think?;* students complete *Investigate* Steps 1-7.	Read *Physics Talk*. Answer the *Checking Up* questions.	4	**See Plan A.**	
5	Review and summarize the *Investigate*; students complete *Investigate* Steps 8 and 9. Discuss *Physics Talk*, SI system, review *Checking Up* questions.	Answer *Physics to Go* Questions 1, 3-8 and record the *Preparing for the Chapter Challenge* in your log.	5	**See Plan A.**	

Day	Plan A (small-group *Investigates*)	Homework (for Plan A and Plan B)	Day	Plan B (combination of whole-class and small-group *Investigates*)	Plan B Equipment Reduction
6	Review *Physics to Go*, discuss *What Do You Think Now?*, *Reflecting on the Section and the Challenge*. **Section 3** *What Do You See?*, *What Do You Think?*; students complete *Investigate* Steps 1-3.	Read *Physics Talk*. Copy Sample Problems 1 and 2 into your *Active Physics* log.	6	**See Plan A.**	
7	Students complete *Investigate* Steps 4-8.	Read *Physics Talk* and answer the *Checking Up* questions.	7	Complete *Investigate* Steps 4-8 as a teacher-led demonstration. Discuss *Physics Talk* with examples and practice problems for students.	Requires only one computer setup, motion detector, and interface.
8	Discuss *Physics Talk* with examples and practice problems for students.	Answer *Physics to Go* Questions 1-2, 4-7.			
9	Review *Physics to Go*, discuss *Physics Talk*, *What Do You Think Now?*, and *Reflecting on the Section and the Challenge*.	Answer *Physics to Go* Questions 3, 8-12.	8	**See Plan A.**	
10	Discuss *Physics to Go*. **Section 4** Discuss *What Do You See?*, *What Do You Think?;* students complete *Investigate* Steps 1-7.	Read *Physics Talk* and answer *Checking Up* Questions 1-3, answer *Physics to Go* Questions 1-6.	9	Discuss *Physics to Go*. **Section 4** Discuss *What Do You See?*, *What Do You Think?;* Complete *Investigate* all steps as a teacher-led demonstration. Discuss *Physics Talk*, *What Do You Think Now?* and *Reflecting on the Section and the Challenge*.	Requires only one computer setup, with motion detector and interface, one dynamics cart, ringstand, crossarm, one ramp right-angle holder, and index cards.
11	Review *Physics to Go* and *Checking Up Questions* 1-3. Work with students as they complete *Investigate* Steps 8-12. Discuss *Physics Talk*, *What Do You Think Now?* and *Reflecting on the Section and the Challenge*.	Read *Physics Talk*. Copy graphs on page 64 into your *Active Physics* log, answer *Checking Up* Questions 4-5, and *Physics to Go* Questions 9-12, 15.			
12	Review *Physics to Go*, *Checking Up* Questions 4-5. Review *Preparing for the Chapter Challenge*. **Section 5** Discuss *What Do You See?* and *What Do You Think?;* students complete *Investigate* Steps 1-4.	Read *Physics Talk* and summarize in your log. Answer *Checking Up* questions.	10	Review *Physics to Go*, and *Checking Up* Questions 4-5. Review *Preparing for the Chapter Challenge*. **Section 5** Discuss *What Do You See?* and *What Do You Think?;* complete *Investigate* Steps 1-4 as a teacher-led demonstration.	Requires only one dynamics cart, one ramp, one velocimeter, ringstand, crossarm, right-angle clamp, ruler, meterstick, scissors, index cards, extension clamp, and file folder.

Pacing Guide *(continued)*

Day	Plan A (small-group *Investigates*)	Homework (for Plan A and Plan B)	Day	Plan B (combination of whole-class and small-group *Investigates*)	Plan B Equipment Reduction
13	Students complete *Investigate* Steps 5-8, *What Do You Think Now?* and *Reflecting on the Section and the Challenge.*	Read *Physics Talk*, answer *Physics to Go* Questions 2-4, 8, 10, 11.	11	**See Plan A.**	
14	Discuss *Physics Talk*, review *Physics to Go* and *Preparing for the Chapter Challenge*. Students start preparation for the *Mini-Challenge*.	Read about the *Mini-Challenge*. Choose areas to be addressed in the *Mini-Challenge* and discuss with the group.	12	**See Plan A.**	
15	Students start preparing for the *Mini-Challenge*, discuss with their groups who will complete each part and what will be in the challenge.	Write out response to *Mini-Challenge*.	13	**See Plan A.**	
16	*Mini-Challenge* presentations.	Using the school library or Internet sources, find out how a yellow light works, and record your responses in your *Active Physics* log.	14	**See Plan A.**	
17	***Section 6*** Discuss *What Do You See?*, *What Do You Think?;* students complete *Investigate* Part A.	Read *Physics Talk* and answer *Physics to Go* Questions 1-4, 6.	15	***Section 6*** Discuss *What Do You See?*, *What Do You Think?;* complete *Investigate* Parts A and B as a teacher-led demonstration. Discuss *Physics Talk*, review *Physics to Go* homework and *What Do You Think Now?*	Only requires one dynamics cart, computer interface and probes to measure the force and velocity.
18	Do *Investigate* Part B as a teacher-led demonstration. Discuss *Physics Talk* and review *Physics to Go* homework. Discuss *What Do You Think Now?*	Read *Physics Talk*. Answer *Checking Up* questions and *Physics to Go* Question 5.			
19	Review *Physics to Go* and *Checking Up* questions. Ask students what they might write for *Preparing for the Chapter Challenge*. ***Section 7*** Discuss *What Do You See?*, *What Do You Think?;* students complete *Investigate* Steps 1-10.	Read *Physics Talk* and answer *Checking Up* questions.	16	Review *Physics to Go* and *Checking Up* questions. Ask students what they might write for *Preparing for the Chapter Challenge*. ***Section 7*** Discuss *What Do You See?*, *What Do You Think?;* Students complete *Investigate* Steps 1-3 and teacher completes Steps 4-10 as a demonstration.	Requires only one turntable, one cork accelerometer, sandpaper, masking tape, and wood piece.
20	Review *Investigate* Steps 1-10. Students complete *Investigate* Steps 11-13. Discuss *Physics Talk*, *What Do You Think Now?*, students complete *Preparing for the Chapter Challenge*.	Answer *Physics to Go* Questions 1, 3, 4, 7, 9, 10, 11.	17	**See Plan A.**	

Day	Plan A (small-group *Investigates*)	Homework (for Plan A and Plan B)	Day	Plan B (combination of whole-class and small-group *Investigates*)	Plan B Equipment Reduction
21	Review *Physics to Go*. Start preparation for *Chapter Challenge*.	Prepare for *Chapter Challenge*.	18	**See Plan A.**	
22	Continue preparing for *Chapter Challenge*.	Prepare for *Chapter Challenge*.	19	**See Plan A.**	
23	Facilitate *Chapter Challenge* presentations.	Study for *Physics Practice Test*.	20	**See Plan A.**	
24	*Physics Practice Test.*		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, below 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.

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

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