

AAPT/PTRA TEACHING ABOUT ONE-DIMENSIONAL WAVES TEACHER RESOURCE

TABLE OF CONTENTS

INTRODUCTION:

| | |
|-------------------------------------------------------------------------------|---------|
| Table of Contents | Page 02 |
| Introductory Notes on <i>Teaching about One-Dimensional Waves</i> | Page 03 |
| | |
| Activity #1: <i>Human Wave</i> | Page 06 |
| Human Wave (Teacher Notes)..... | Page 07 |
| Physics Cinema Classics..... | Page 08 |
| | |
| Activity #2: <i>Simple Oscillations</i> | Page 10 |
| Simple Oscillations (Teacher Notes) | Page 11 |
| | |
| Activity #3: <i>Wave at Me</i> | Page 13 |
| Wave at Me (Teacher Notes) | Page 14 |
| Physics Cinema Classics..... | Page 16 |
| | |
| Activity #4: <i>Pace Yourself</i> | Page 17 |
| Pace Yourself (Teacher Notes)..... | Page 20 |
| | |
| Activity #5 <i>Effect of Amplitude and Media on Speed</i> | Page 23 |
| Effect of Amplitude and Media on Speed (Teacher Notes)..... | Page 26 |
| Physics Cinema Classics..... | Page 28 |
| | |
| Activity #6: <i>Using a Wave Simulation to Determine a Relationship</i> | Page 31 |
| Using a Wave Simulation to Determine a Relationship (Teacher Notes) | Page 33 |
| Physics Cinema Classics..... | Page 34 |
| | |
| Activity #7 <i>Reflection and Interference of Pulses</i> | Page 36 |
| Reflection and Interference of Pulses (Teacher Notes)..... | Page 39 |
| Physics Cinema Classics..... | Page 41 |
| | |
| Activity #8: <i>My Waves Are Faster Than Your Waves!</i> | Page 45 |
| My Waves Are Faster Than Your Waves! (Teacher Notes)..... | Page 48 |
| Physics Cinema Classics..... | Page 49 |
| | |
| Activity #9: <i>Standing Wave Demonstrator</i> | Page 52 |
| Standing Wave Demonstrator (Teacher Notes) | Page 54 |
| | |
| Activity #10: <i>Standing Waves</i> | Page 57 |
| Standing Waves (Teacher Notes) | Page 59 |
| | |
| Activity #11: <i>Review - Slinky™ Waves</i> | Page 62 |
| Review - Slinky™ Waves (Teacher Notes) [To be Added] | Page 66 |
| | |
| Activity #12 Speed versus Tension & Density of Medium | Page 70 |
| Speed versus Tension & Density of Medium (Teacher Notes) | Page 72 |
| | |
| Activity #13 <i>Tacoma Bridge</i> [To be Added] | Page 75 |
| Tacoma Bridge (Teacher Notes) [To be Added] | Page |
| | |
| Activity #14 <i>Earthquake Waves</i> | Page 85 |
| Earthquake Waves (Teacher Notes) [To be Added] | Page |
| | |
| Activity #15: <i>A Wave Song</i> | Page 95 |
| Equipment List | Page 96 |