

1	Introductory Remarks and Concept of the Book	1
	Frederik Dilling and Simon F. Kraus	
2	Historical Relations of Mathematics and Physics—an Overview and Implications for Teaching	7
	Frederik Dilling and Simon F. Kraus	
3	Educational Use of Ludwig’s Methodology Using the Example of the Lens Equation.	25
	Jochen Geppert	
4	Equations as a Tool for Hypothesis Formulation in Physics.	57
	Jochen Geppert	
5	Comparison: Numbers, Quantities and Units	79
	Daniela Götze and Philipp Raack	
6	Lesson Plan: Measuring Length	91
	Nguyen Phuong Chi	
7	Comparison: Equations in Mathematics and Physics Education.	97
	Sascha Hohmann and Felicitas Pielsticker	
8	Lesson Plan: Trigonometric Equations.	117
	Vu Dinh Phuong	
9	Comparison: Functions in Mathematics and Physics Education. . .	129
	Frederik Dilling and Simon F. Kraus	

10 Lesson Plan: Quadratic Functions—Graphs and Applications	151
Chu Cam Tho	
11 Lesson Plan: Projectile Motion	161
Tuong Duy Hai	
12 Lesson Plan: The Dependence of Resistance on Temperature	173
Tran Ngoc Chat	
13 Lesson Plan: Simple Harmonic Oscillation	183
Nguyen Van Bien	
14 Comparison: Vectors in Mathematics and Physics Education	193
Frederik Dilling	
15 Lesson Plan: Combining Forces	203
Nguyen Van Bien	
16 Lesson Plan: Basic Concepts Related to Vectors	217
Le Tuan Anh	
17 Comparison: Differential Calculus Through Applications	227
Gero Stoffels, Ingo Witzke and Kathrin Holten	
18 Lesson Plan: Differential Calculus Through Applications	243
Chu Cam Tho	
19 Lesson Plan: Capacitor Charge and Discharge Process. Capacitor Energy	257
Tran Ngoc Chat	
20 Comparison: Stochastics with a Focus on Probability Theory	277
Gero Stoffels and Sascha Hohmann	
21 Lesson Plan: Probabilities and Statistics	299
Nguyen Phuong Chi	
22 Comparison: Light Rays and the Intercept Theorem in Mathematics and Physics Education	307
Frederik Dilling and Ina Stricker	
23 Lesson Plan: Straight Lines and Conic Sections	331
Le Tuan Anh	