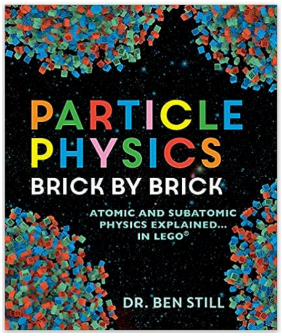
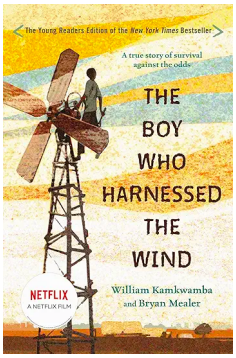
RECOMMENDED READING FOR MIDDLE SCHOOL STUDENTS

SEARCHING FOR: more good books on electromagnetism. Let me know if you have recommendations!

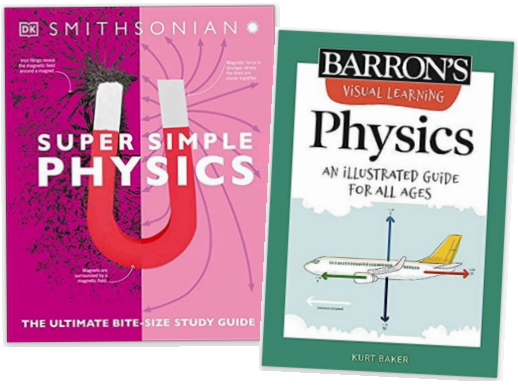


PARTICLE PHYSICS BRICK BY Ben Still. This book is a great fit for anyone interested in quantum physics and the overlapping areas of chemistry and physics.The book delves into some detailed exploration of quantum physics but keeps it accessible and fun by using lego bricks.



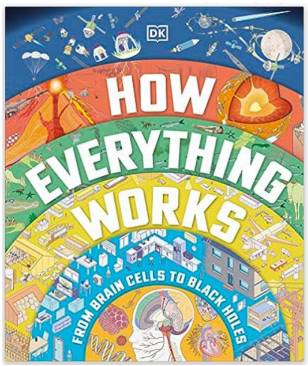
THE BOY WHO HARNESSED THE WIND by William Kamkwamba. The true story of a boy growing up in an improvised village in Malawi. At age 14, he learned about electrical windmills at his school library. By foraging for junk parts he built a windmill-powered pump that saved his village from famine.

While the book focuses more on the human aspect of the story than the physics of windmill design, it's an excellent connection/supplement to any unit on electromagnetism.



For a reference book or further reading, I very much enjoyed both SUPER SIMPLE PHYSICS by DK/Smithsonian and BARRON'S VISUAL LEARNING: PHYSICS FOR ALL AGES by Kurt Baker.

Super Simple Physics is more text-heavy and detailed in what it covers, but also has wonderful pictures, illustrations, and experiments. Physics for all ages is better for a younger audience or reader who prefers illustrations and diagrams to text. It has less detail in each topic but still does a great job of covering the basic concepts of physics in an engaging and interesting way.



HOW EVERYTHING WORKS by DK is an especially great fit for younger siblings who are watching physics and have more elementary level math and reading skills.

Like physics, this book spans an enormous variety of topics. Sections like "the living world" and "your body" are definitely more in line with a biology class, but the other sections have great connections and crossover into classic physics topics.The illustrations are amazing. In addition to each illustration having a fabulous depth of detail and scientific facts, many also have fun "easter eggs" to find in the form of funny situations, similar to the classic "Where's Waldo" illustrations. They are pages that invite you to come back again and again and discover more each time.

Suggested readings / videos for Middle School Level Students

There are lots of great books that could pair with our videos! If you find something that you feel is a great fit, please email me and let me know!

Lesson	Topic	Pages in notes:	Corresponding Reading in Super Simple Physics	Corresponding Crash Course Videos
1	Introduction	5-7	p. 10 The Scientific Method p. 16 Scientific Models	
2	What's the matter?	7-11	pp. 212-214 Particles in Motion	CRASH COURSE CHEMISTRY #1 (NUCLEUS) #5 (ELECTRON) and #3 (FUNDAMENTAL LAWS)
3	Elemental	12-15	pp. 238-239 Elements and the atomic model	CRASH COURSE CHEMISTRY #4 (THE PERIODIC TABLE)
4	Fun Physics Tricks	16-19		
5	No such thing as cold	21-25	pp. 214-215 Particles in Motion p. 218 Internal Energy	CRASH COURSE PHYSICS #20 (TEMPERATURE)
6	Heat transfer	26-29	pp. 42-51 Heat Transfer	CRASH COURSE PHYSICS #22 (HEAT)
7	Clay pot fridge	30-31		
8	Heat capacity & phase changes	32-36	pp. 219-224 Heat Capacity	CRASH COURSE PHYSICS #21 (KINETIC THEORY AND PHASE CHANGE)
9	Laws of thermodynamics	37-40		CRASH COURSE PHYSICS #23 (THERMODYNAMIC LAWS)
10	Make your own ice cream	41-43		
11	THERMODYNAMICS QUIZ SHOW	44-46		
12	Pressure & fluids	48-52	pp. 227-228 Surface Pressure	CRASH COURSE PHYSICS #14 (FLUIDS AT REST)
13	Egg in a Bottle	53-54		
14	Going for a Swim	55-59	p. 229 Pressure in a Liquid	
15	Density & Buoyancy	60-63	p. 230 Floating and Sinking	
16	Boat Float OR Density Column	64-47		
17	Ocean of Air	68-71	Pp. 231-235 Pressure in gasses	CRASH COURSE CHEMISTRY #12 and #13 (THE IDEAL GAS LAW)
18	Fluids in Motion	72-75		CRASH COURSE PHYSICS #15 (FLUIDS IN MOTION)
19	Tricks of air	76-77		
20	Push and shove	78-81		
21	FLUIDS/PRESSURE QUIZ SHOW	82-84		

Suggested readings / videos for Middle School Level Students

Lesson	Topic	Pages in notes:	Corresponding Reading in Super Simple Physics	Corresponding Crash Course Videos
22	Making Waves	84-87	p. 113 Waves pp. 117-118 Wave Equations	CRASH COURSE PHYSICS #16 (SIMPLE HARMONIC MOTION) #17 (TRAVELING WAVES)
23	Good Vibrations	88-91	pp. 114-116 Sound pp. 119-123 Measuring Sound	CRASH COURSE PHYSICS #18 (SOUND)
24	Make Your Own Instrument	92-93		CRASH COURSE PHYSICS #19 (THE PHYSICS OF MUSIC)
25	Resonance and Decibels	94-97	pp. 122-124 Sonar and Interference	
26	Electromagnetic Spectrum	98-101	pp. 127-129 Light pp. 148-149 Electromagnetic Radiation	CRASH COURSE PHYSICS #39 (LIGHT IS WAVES)
27	Tabletop Kaleidoscope	102-103	pp. 130-144 Investigating Light	CRASH COURSE PHYSICS #38 (GEOMETRIC OPTICS)
28	Colors and Sending Signals	104-107	pp. 145-147 Color	CRASH COURSE PHYSICS #40 (SPECTRA INTERFERENCE)
29	Wave Quiz Show	108-109		

Suggested readings / videos for High School Level Students

*Note: **Our course is not a high school physics course**! We've put this together because we had many requests for a list of resources that could help our course serve as a base for more advanced learning.*

There are many textbooks that could be used to "level up" this course for a high school student. In this table, we've listed suggested readings from Conceptual Physics and videos on similar topics from the Crash Course Physics series by Hank Green. Conceptual Physics has some practice problems and the Problem Solving Book by Hewitt has lots of algebra-based physics problems. The Crash Course Physics course is a calculus-based series of fast-paced summary videos.

Lesson	Topic	Pages in notes:	Corresponding Reading in Conceptual Physics, 12th edition	Corresponding Crash Course Videos
1	Introduction	5-7	Chapter 1: About Science	
2	What's the matter?	7-11	11.1 Atomic Hypothesis 11.2 Characteristics of Atoms 11.4 Atomic Structure 11.7 Compounds and Mixtures 11.8 Molecules	CRASH COURSE CHEMISTRY #1 (NUCLEUS) #5 (ELECTRON) and #3 (FUNDAMENTAL LAWS)
3	Elemental	12-15	11. 5 The Periodic Table 11.6 Isotopes	CRASH COURSE CHEMISTRY #4 (THE PERIODIC TABLE)
4	Fun Physics Tricks	16-19		
5	No such thing as cold	21-25	15.1 Temperature 15.2 Heat	CRASH COURSE PHYSICS #20 (TEMPERATURE)
6	Heat transfer	26-29	16.1 Conduction 16.2 Convection 16.3 Radiation	CRASH COURSE PHYSICS #22 (HEAT)
7	Clay pot fridge	30-31		
8	Heat capacity & phase changes	32-36	Chapter 17: Change of Phase	CRASH COURSE PHYSICS #21 (KINETIC THEORY AND PHASE CHANGE)
9	Laws of thermodynamics	37-40	Chapter 18: Thermodynamics	CRASH COURSE PHYSICS #23 (THERMODYNAMIC LAWS)
10	Make your own ice cream	41-43		
11	THERMODYNAMICS QUIZ SHOW	44-46		
12	Pressure & fluids	48-52	13.1 Pressure	CRASH COURSE PHYSICS #14 (FLUIDS AT REST)
13	Egg in a Bottle	53-54		
14	Going for a Swim	55-59	13.2 Pressure in a Liquid	
15	Density & Buoyancy	60-63	13.3 Buoyancy 13.4 Archimedes Principle 13.5 Sink or float 13.6 Floatation	
16	Boat Float OR Density Column	64-47		
17	Ocean of Air	68-71	14.1-14.4 Atmosphere, Atmospheric Pressure, Boyle's Law, and Buoyancy of Air	CRASH COURSE CHEMISTRY #12 and #13 (THE IDEAL GAS LAW)
18	Fluids in Motion	72-75	14.5 Bernoulli's Principle	CRASH COURSE PHYSICS #15 (FLUIDS IN MOTION)
19	Tricks of air	76-77		
20	Push and shove	78-81		
21	FLUIDS/PRESSURE QUIZ SHOW	82-84		

Suggested readings / videos for High School Level Students

Lesson	Topic	Pages in notes:	Corresponding Reading in Conceptual Physics, 12th edition	Corresponding Crash Course Videos
22	Making Waves	84-87	19.1 Good Vibrations 19.2 Wave Description 19.3 Wave Motion	CRASH COURSE PHYSICS #16 (SIMPLE HARMONIC MOTION) #17 (TRAVELING WAVES)
23	Good Vibrations	88-91	20.1 Nature of Sound 20.2 Sound in Air 21.1 Noise and Music 21.2 Pitch	CRASH COURSE PHYSICS #18 (SOUND)
24	Make Your Own Instrument	92-93	20.5 Forced Vibration 21.4 Quality 21.5 Musical Instruments	CRASH COURSE PHYSICS #19 (THE PHYSICS OF MUSIC)
25	Resonance and Decibels	94-97	20.6 Resonance 21.3 Sound Intensity and Loudness	
26	Electromagnetic Spectrum	98-101	26.1 Electromagnetic Waves 26.2 Electromagnetic Wave Velocity 26.3 The Electromagnetic Spectrum	CRASH COURSE PHYSICS #39 (LIGHT IS WAVES)
27	Tabletop Kaleidoscope	102-103		CRASH COURSE PHYSICS #38 (GEOMETRIC OPTICS)
28	Colors and Sending Signals	104-107	21.7 From Analog to Digital 26.6 Seeing Light - The Eye Chapter 27 Color	CRASH COURSE PHYSICS #40 (SPECTRA INTERFERENCE)
29	Wave Quiz Show	108-109		