

BASELINE CURRICULUM

Education can be a totally personal thing; it does not always have to be a communal one. There are equally as many advantages for self-educating as there are for educating yourself communally (through schools). Your preference should not determine your fate – and it no longer does.

A degree is a certification of aptitude (by a credible source) that you are qualified for employment in the field of X. The degree is *not* the credibility; it's a promise (from an institution) of credibility. In the actual practice of X, the degree is not what's important – the aptitude is. **There is no degree of aptitude offered in any school or university that cannot be achieved through self-education from free and/or commercial means.** What you lack in resources you must make up for in creativity, but there is absolutely nothing (in terms of vocational aptitude) that school and universities have to offer that the world around you doesn't have (medical fields excluded). **The Upward Curricula are a collection of the most credible free and commercially available online resources for any (and eventually: every) particular career.** The Baseline Curriculum is a primer for other Upward Curricula, as well as an Educational Browser for people looking to learn a little extra something.

Knowledge is what lies below. Knowledge is “book-learning”. The more prodigious you are in your knowledge, the more fluid you will be in the experiences that await you.

Knowledge is bliss. With a conceptual understanding of the surrounding universe, you'll have the aptitude to begin self-education in your ideal career – if you have not yet achieved it; and the creativity to innovate in all directions – if you have.

The purpose of this curriculum is to be an index of educational resources that are free or commercially available through online means. Select whatever is most interesting to you; discard what doesn't tickle your fancy. Organize the order of your own education according to what's cool to *you*.

SUGGESTIONS

- Substitute the audiobooks and podcasts in place of music...Not all the time, just here-and-there.
- Listen to Audiobooks at x3 speed. *If you have difficulty accustoming to this pace: **(1)** Try x3 speed with familiar material, first. Knowing the content will aid in training your brain to handle the increased pace. **(2)** If all else fails, gradually work your way up to that speed. Starting at 1, then x1.5, then x2, etc.
 - Learning to comprehend new information at x3 speed increases your reflexes (slightly) and your brain's processing capacity (considerably). You will be able to complete and retain content at a third of the rate it normally takes. This does not happen overnight. Over years of adjusting to such speeds, your ability to comprehend content at normal speed will increase substantially. A pretty valuable trait.
- Listen to YouTube videos (and other formats) at x1.5 or x2 speeds. For the reasons above, and it saves time.
- “Google it”. It's a cliché for a reason. The search engine is the most useful resource on the entire Internet. There are plenty of them. Use one or use many, but search for information on things you wish to understand.
- Cross-reference anything that raises an eyebrow. Pause and search the meaning of material you don't understand – **remember that your access to the material below is unlimited. You don't need to move at any other pace than your own.**
- Rewind a lot (since you have the luxury to).
- Listen to everything twice (for retention's sake). Meaning: when you get to the end, start it over again (maybe at x2 speed?).
 - **Repetition, practicality, fun, and genuine interest all greatly aid in retention.**

EDUCATIONAL YOUTUBE CHANNELS

The list covers various styles of education, content, and performance. Find the style(s) and content you prefer the most.

(All channels available at www.youtube.com)

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| • Crash Course | • Periodic Videos | • FermiLab |
| • Kurzgesagt | • Testube News | • Explorium |
| • MinutePhysics | • Seeker Network | • Today I Found Out |
| • SciShow | • TED-Ed | • Gross Science |
| • Braincraft | • Applied Science | • NASA |
| • It's Okay To Be Smart | • The Brain Scoop | • Wendover Productions |
| • Veritasium | • Vsauce | • Iken Edu |
| • AsapScience | • Joe Scott | • Amoeba Sisters |
| • Smarter Every Day | • Vi Hart | • Tested |
| • Life Noggin | • Numberphile | • The Backyard Scientist |
| • CGP | • Physics Girl | • Real Engineering |
| • Brightstorm | • Nottingham Science | • Jefferson Lab |
| • Khan Academy | • Sixty Symbols | • PBS Space Time |
| • Sketchy Micro | • Computerphile | • Deep Look |
| • MinuteEarth | • Tech Quickie | • Brave Wilderness |
| • Bozeman Science | • European Space Agency | • World Science Festival |

AUDIOBOOKS

(All Audiobooks below available at www.audible.com)

- **A Short History of Nearly Everything** (Bill Bryson)
- **The Joy of Science** (Robert Hazen)
- **The Nature of Matter** (David W. Ball)
- **History of the United States, 2nd Edition** (Allen Guelzo, Gary Gallagher, Patrick Allitt)
- **Biology and Human Behavior: The Neurological Origins of Individuality** (Robert Sapolsky)
- **Redefining Reality: The Intellectual Implications of Modern Science** (Steven Gimbel)
- **Law School for Everyone** (Molly Bishop Shadel JD, Joseph L. Hoffman JD, Edward K. Cheng JD, Peter J. Smith JD)
- **Biology: The Science of Life** (Stephen Nowicki)
- **Medical School for Everyone: Emergency Medicine** (Roy Benaroch)
- **The Science of Energy** (Michael E. Wysession)

TEXTBOOKS

(All Textbooks available at www.amazon.com)

- **Careers: The Graphic Guide to Finding the Perfect Job For You** (DK Publishing)
- **The Trachtenberg Speed System of Basic Mathematics** (Jakow Trachtenberg)
- **Chemistry: A Molecular Approach** (Nivaldo J. Tro)
- **The Ultimate Visual Dictionary** (DK Publishing)
- **Universe** (DK Publishing)
- **The Human Body Book** (Alice Roberts)

PODCASTS

- **A History of the World in 100 Objects**
- **TED Talks**
- **Infinite Thinking Machine**
- **ESL (English as a Second Language)**
- **Smart People Podcasts**
- **Radio Lab**
- **How Stuff Works**
- **Stuff You Should Know**
- **How To Do Everything**
- **Skeptics Guide To The Universe**
- **Hardcore History**
- **Ask An Astronomer**
- **Ecogeeks: Untamed Science Video Podcast**
- **Killer Innovations**
- **Big Picture Science**
- **Everything Einstein**
- **Science Magazine**

WEBSITE LINKS

PHET INTERACTIVE SIMULATIONS – Free interactive math and science simulations. Phet.colorado.edu

SIMBUCKET – Over 50 free simulations for teaching and learning science. www.simbucket.com/welcome-to-simbucket

OPEN CULTURE – 1,110+ free online courses from leading universities. <http://www.openculture.com/freeonlinecourses>

MOLECULAR WORKBENCH – Visual interactive simulations for teaching and learning science. mw.concord.org/modeler

ESSENTIAL ANATOMY – (\$) Interactive 3D atlas of the human body. applications.3D4medical.com/essential_anatomy_3/

PHYSICS DATABASE – Free online books (printable pdfs). <http://physicsdatabase.com/free-stuff/>

NCBI – An enormous database of biomedical articles and information. www.ncbi.nlm.nih.gov

ARXIV – Open access to over 1 million e-prints in Physics, Mathematics, Sciences, Quantitative Finance, and Statistics. arxiv.org

WILEY ONLINE LIBRARY – An online library. onlinelibrary.wiley.com

WIKIPEDIA – Free online encyclopedia. www.wikipedia.com

BRILLIANT.ORG – (\$) Various online activities and games promoting the education of a subject/topic. www.brilliant.org

ONLINE LABS – Comprehensive listing of online lab simulations, experiments, and free educational software. Onlinelabs.in

FRONTIERS – Open access publisher and hub for scientific journals, articles, and research data. Home.frontiers.org

VISUALIZATION

Here is a list of visualization techniques that can be employed when listening to audio-only.

- **Timelines** – Was a time period just referenced in your ear? You know what a timeline looks like? Do one in your head that represents the info being presented. Include visuals at each point to help anchor your understanding of Time and Event.
- **2D Branch Diagrams** – Ever see a family tree diagram? Food pyramid? Venn diagram? Tournament bracket? When you notice that a subject is branching into subsequent entities, create a branch diagram in your head to follow along. Keep in mind that you don't have to follow any visual or configuration rules in your own head. Go crazy.
- **Geography (zooming)** – Know how to use your fingers to zoom in on your phone map? When geography is mentioned, visualize: a zoom from Earth orbit, a zoom to the continent in question, a zoom to the referenced place in question.
- **Drawing** – Drawing an object's form (and identifying its parts) will help you understand its function and purpose – even if you're unskilled at sketching. If you're embarrassed of your work: keep it for private. Interactivity significantly aids retention.

All of the initial content released by The Upward Education is subject to updates and additional resources. Send suggestions to TheUpwardEducation@gmail.com

For free access to career-specific curricula visit:
www.theupwardeducation.com/curriculumlibrary