

## A BRIEF HISTORY OF PHYSICS, SCIENCE, AND US

- First question: what is physics and why is it called that? Physics comes from Greek “PHUSIS” or “PHUSIKA” meaning nature or natural things. It is the most fundamental of the sciences – it tries to understand everything at as basic and deep a level as we can. Let me tell you why I think that’s worth doing.
- Everyone here and everyone everywhere else was born into a world we knew nothing about, and we’re just doing our best to figure things out as we get by. A lot of the time we get it wrong; but sometimes we get it right. When we get it right, we learn and improve.
- History classes a lot of times are about nations, and kings, and wars. Society does make progress. Over time, we learn to govern ourselves better:
  - A society with laws is better than one where only the strongest can be happy.
  - A democracy is better a dictatorship.
  - Equality is better than slavery.
- Progress is slow because it’s hard for all of us to agree on things like ethics and morality. But there’s another history that’s (roughly) as important, where we’ve made extraordinary improvements: the history of we and the rest of the universe got to where we are.
- COSMOS: A PERSONAL VOYAGE, EPISODE 13, BIG BANG TO THE PRESENT - TOWARD THE MIDDLE/END (AFTER HYPATIA STORY)
- There’s obviously more that could be said but that was made in 1980 and it’s still basically correct. That’s the benefit of science and what sets it apart from other things: there is a right and wrong answer.
- A thousand years from now, we may look back on ourselves and laugh at some of the crazy laws we have on the books today. People do it right now. But we can be very confident that people won’t look back a thousand years from now and laugh at how we used to think things are made of atoms! It’s true now, and will continue to be true.
- That’s a bold claim, but I can make even though I try very hard not to overstate things. I make mistakes but I have good reason to think this isn’t one of them. Still, I can only make this claim because I’m standing on the shoulders of all the generations before me. Virtually every sentence in that video took different people their entire lives to discover.
- Still, if our entire human species somehow forgot all of scientific knowledge, over time we could get it all back if we just remember the methods of science - the philosophy of science.
  - In the long run, how to think is much more important than what to think.
  - All of us are wrong about lots of things, myself included. If you know how to think, carefully and reliably, you might be wrong about something but you can become right. You can change your mind, even if it’s hard to do. If you don’t know how to think, you’ll continue to be wrong and you may only stumble on the truth.
  - Even if you’re presented with the truth, you might not recognize it. This has probably happened to everyone here. I know it’s happened to me.