



# First Principles Thinking & HCA

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# What is First Principles Thinking?

- Aristotle defined a first principle as “the first basis from which a thing is known”
- Boil things down to their fundamental truths and reason up from there
- Popular in physics and philosophy - continue reasoning downwards until you get to the most basic truths, then build back up from there



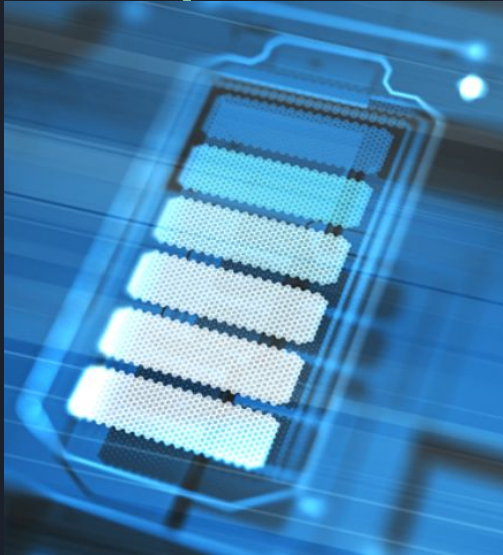
For we do not think that we know a thing until we are acquainted with its primary conditions or first principles, and have carried our analysis as far as its simplest elements.



Don't just follow the trend. You may have heard me say that it's good to think in terms of the physics approach of first principles. Which is, rather than reasoning by analogy, you boil things down to the most fundamental truths you can imagine and you reason up from there.

— *Elon Musk* —

# First Principles Example - Cost of Battery Power



Historical:  
\$600 / KWHr



Break down into raw  
materials:

- Cobalt
- Nickel
- Aluminium
- Carbon
- Steel can



Combined Cost:  
\$80/KWHr

First Principles Thinking shows how drastically a situation can be improved

# First Principles Example - SpaceX Rockets



Market Rocket Cost: \$8M



Raw Material Cost: ~\$240,000



SpaceX Improvement:  
\$800,000

# First Principles Examples

What's the difference between a chef and a cook?



What's the difference between a coach and a play stealer?



# How BlueDragon Applied First Principles Thinking to Existing Methodologies for RCA

