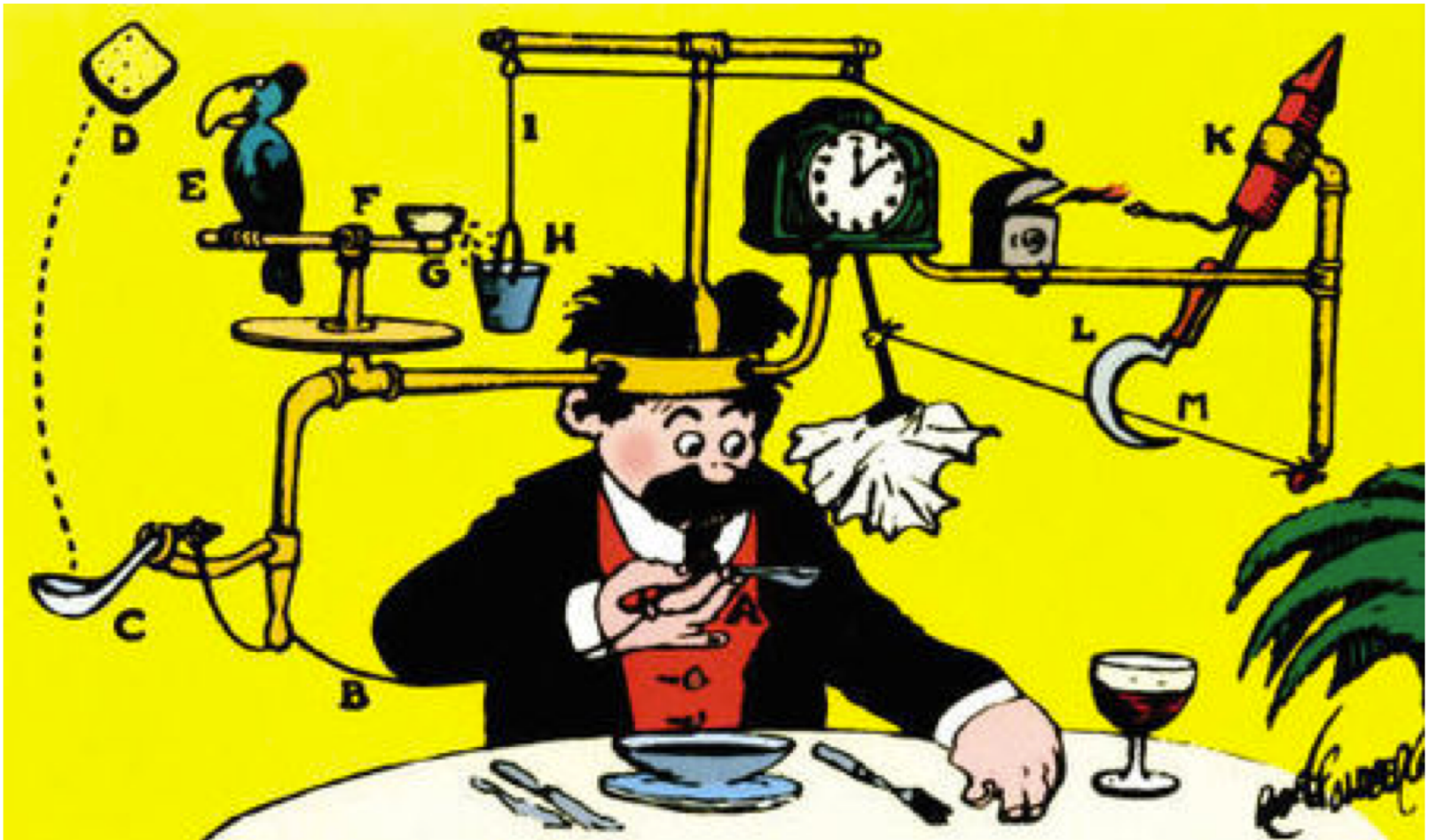


# ACTION-REACTION ENGINEERING DESIGN

# “RUBE GOLDBERG” MACHINE



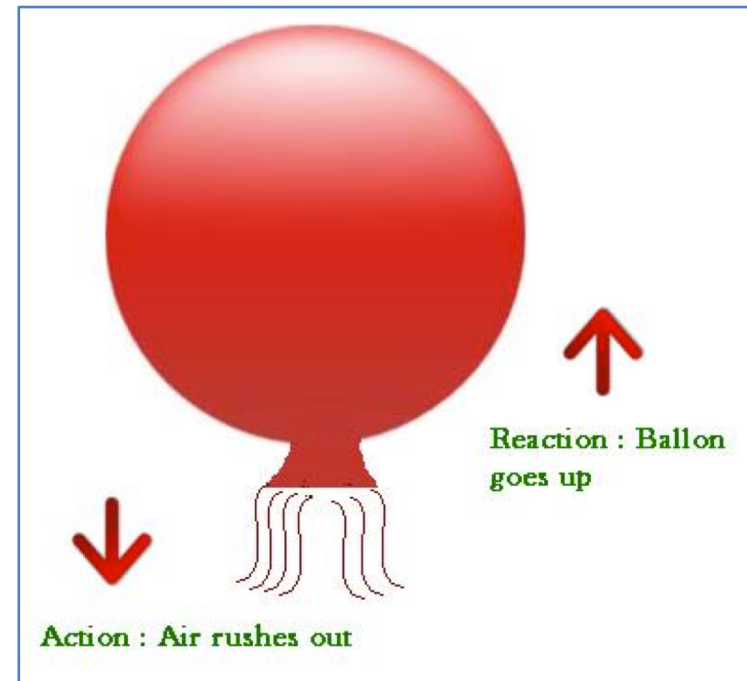


# ACTION $\rightarrow$ $\leftarrow$ REACTION

## NEWTON'S 3<sup>RD</sup> LAW OF MOTION



[www.theveryspringandroot.com](http://www.theveryspringandroot.com)



[www.physicstutorvista.com](http://www.physicstutorvista.com)

# WHAT MAKES IT WORK?



[www.aloha-hawaii.com](http://www.aloha-hawaii.com)



[www.allonrobots.com](http://www.allonrobots.com)



[www.powersolindia.com](http://www.powersolindia.com)



[www.o.aolcdn.com](http://www.o.aolcdn.com)

# ENERGY TRANSFER

ENERGY **CANNOT** BE CREATED OR DESTROYED...

IT CAN ONLY BE CHANGED  
FROM ONE FORM TO ANOTHER.

# FORMS OF ENERGY

[www.zackdowney.deviantart.com](http://www.zackdowney.deviantart.com)



**Gravitational  
Potential**

[www.explainthatstuff.com](http://www.explainthatstuff.com)



**Electric Potential**

[www.duracell.com](http://www.duracell.com)



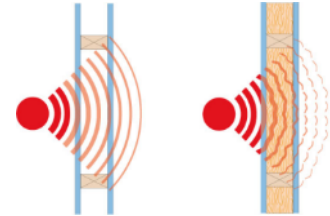
**Chemical Potential**

[www.wikimattawanschools.org](http://www.wikimattawanschools.org)



**Elastic Potential**

[www.electrical-engineering-asif.blogspot.com](http://www.electrical-engineering-asif.blogspot.com)



**Sound**

[www.scienceblogs.com](http://www.scienceblogs.com)



**Kinetic**

[www.powerlisting.com](http://www.powerlisting.com)



**Thermal/Heat**

# THE 6 SIMPLE MACHINES

MAKING OUR LIVES EASIER





# THE 6 SIMPLE MACHINES

## IN EVERYDAY LIFE



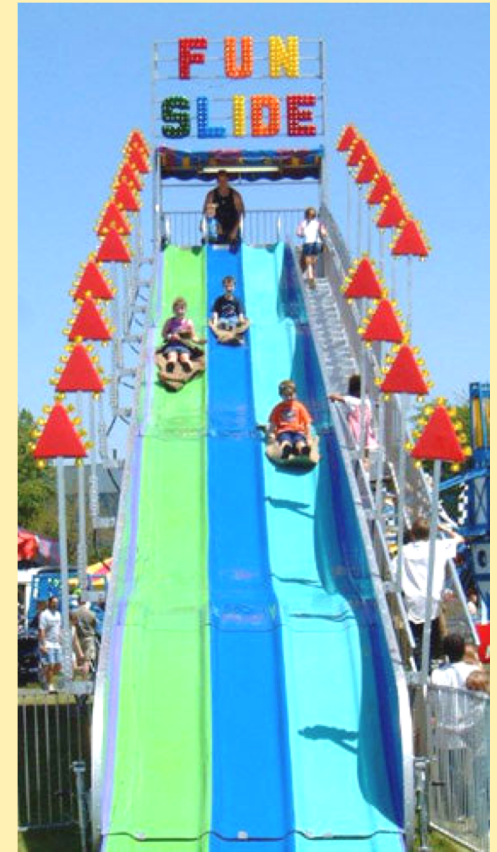
[www.teacher.scholastic.com](http://www.teacher.scholastic.com)



[www.rampsurface.com](http://www.rampsurface.com)



[Centerforactivedesign.org](http://Centerforactivedesign.org)



[Ekfernandezshows.com](http://Ekfernandezshows.com)



# THE 6 SIMPLE MACHINES

## IN EVERYDAY LIFE



[www.teacher.scholastic.com](http://www.teacher.scholastic.com)



[Tvdsb.ca](http://Tvdsb.ca)



[www.ck12.org](http://www.ck12.org)



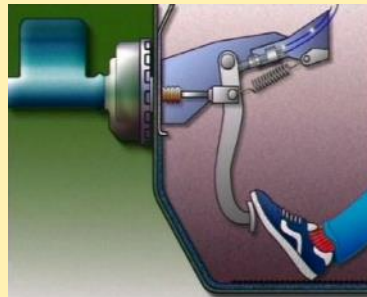
[Simplehomed.blogspot.com](http://Simplehomed.blogspot.com)

# THE 6 SIMPLE MACHINES

## IN EVERYDAY LIFE



[www.teacher.scholastic.com](http://www.teacher.scholastic.com)



[www.cdtextbook.com](http://www.cdtextbook.com)



[Cedarworks.com](http://Cedarworks.com)



[Leve.rs](http://Leve.rs)

# THE 6 SIMPLE MACHINES

## IN EVERYDAY LIFE



[www.teacher.scholastic.com](http://www.teacher.scholastic.com)



[www.beaconlearningcenter.com](http://www.beaconlearningcenter.com)



[www.ed101.bu.edu](http://www.ed101.bu.edu)



[Solpass.org](http://Solpass.org)



[Idahoptv.org](http://Idahoptv.org)

# THE 6 SIMPLE MACHINES

IN EVERYDAY LIFE



[www.teacher.scholastic.com](http://www.teacher.scholastic.com)



[Sportspagereplay.com](http://Sportspagereplay.com)



[Rckny.com](http://Rckny.com)

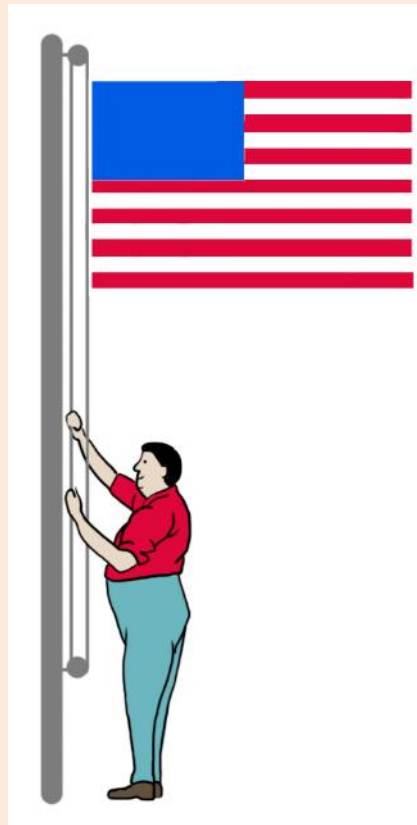
# THE 6 SIMPLE MACHINES

## IN EVERYDAY LIFE



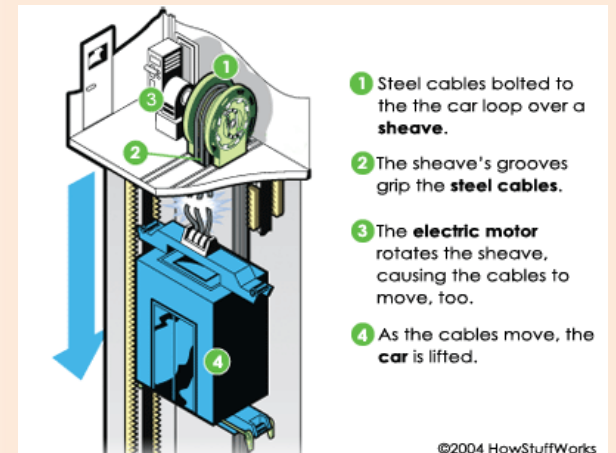
[www.teacher.scholastic.com](http://www.teacher.scholastic.com)

### Flag Poles



[www.ck12.org](http://www.ck12.org)

### Elevators



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### Window Blinds



[Home.howstuffworks.com](http://Home.howstuffworks.com)

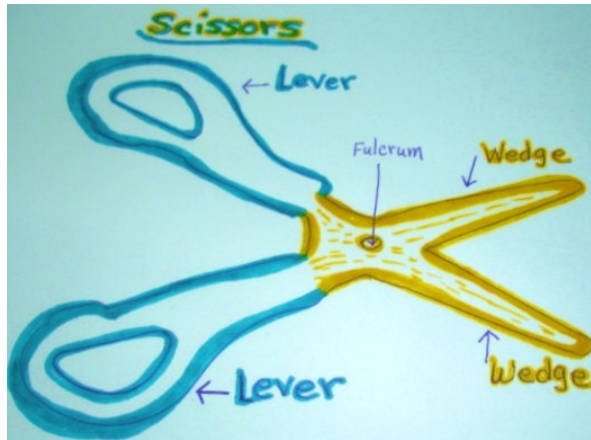


[www.forms-surfaces.com](http://www.forms-surfaces.com)

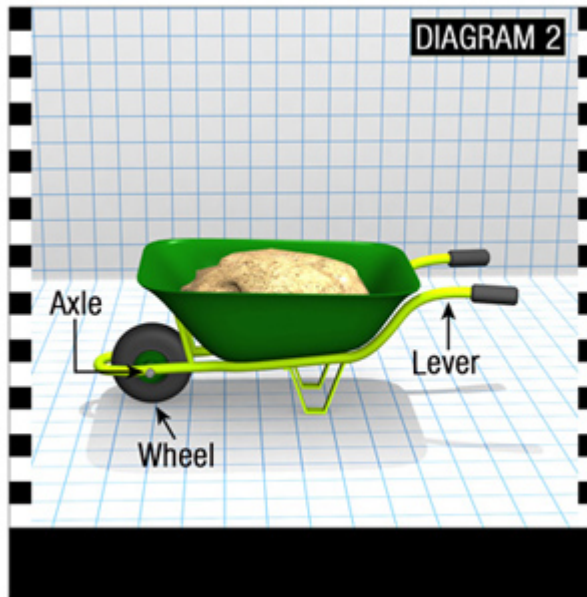


# COMPOUND MACHINES

A TOOL WITH 2 OR MORE SIMPLE MACHINES



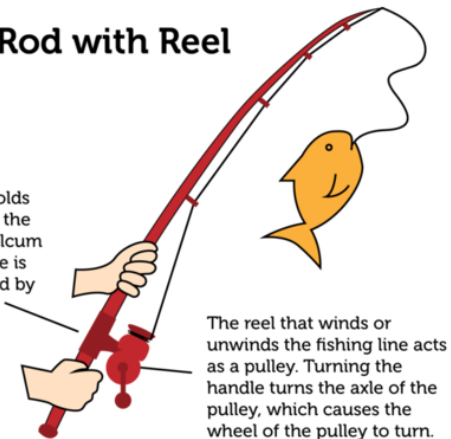
[learningideasgradesk-8.blogspot.com](http://learningideasgradesk-8.blogspot.com)



[www.engquest.org.au](http://www.engquest.org.au)

## Fishing Rod with Reel

The hand that holds the rod closer to the end forms the fulcrum of the level. Force is applied to the rod by the other hand.



[www.ck12.org](http://www.ck12.org)



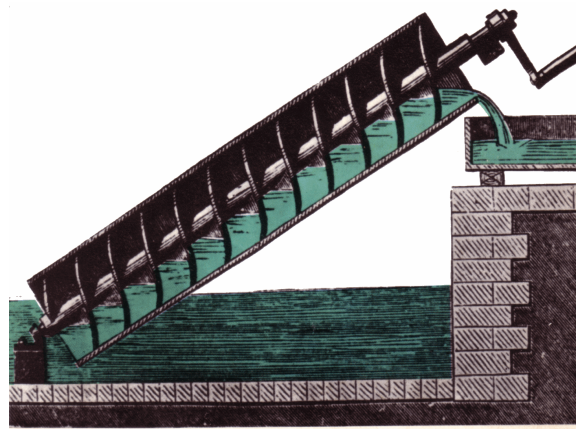
# Ancient Civilizations

## Inventors of the Simple Machines



**Egyptian Inclined Plane**

<https://www.wikia.com>



**Archimedes' Water Screw**

[Oliversalt.wordpress.com](http://Oliversalt.wordpress.com)



**Hunting Tools (wedges) from long ago**

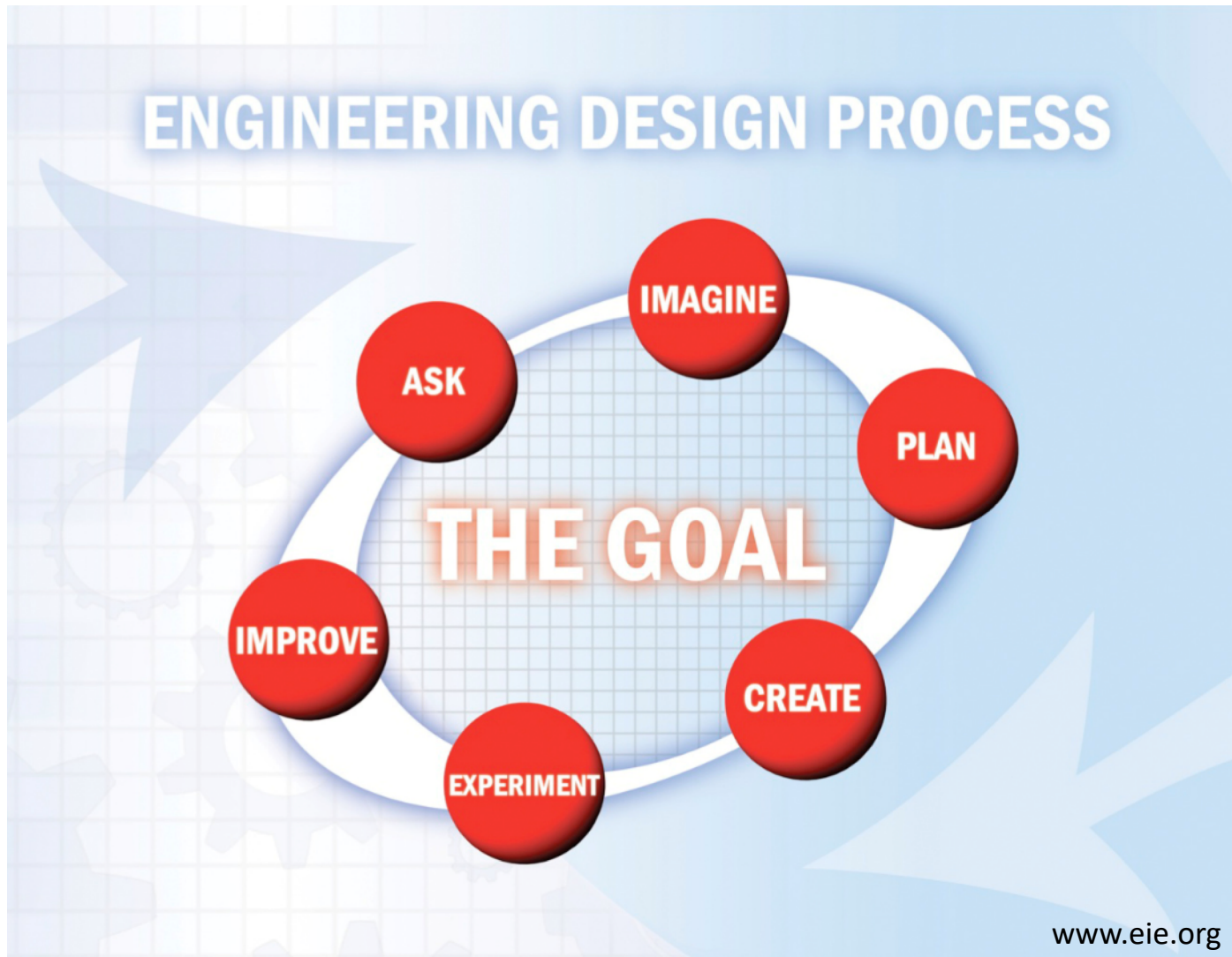
[Newsroom.unl.edu](http://Newsroom.unl.edu)



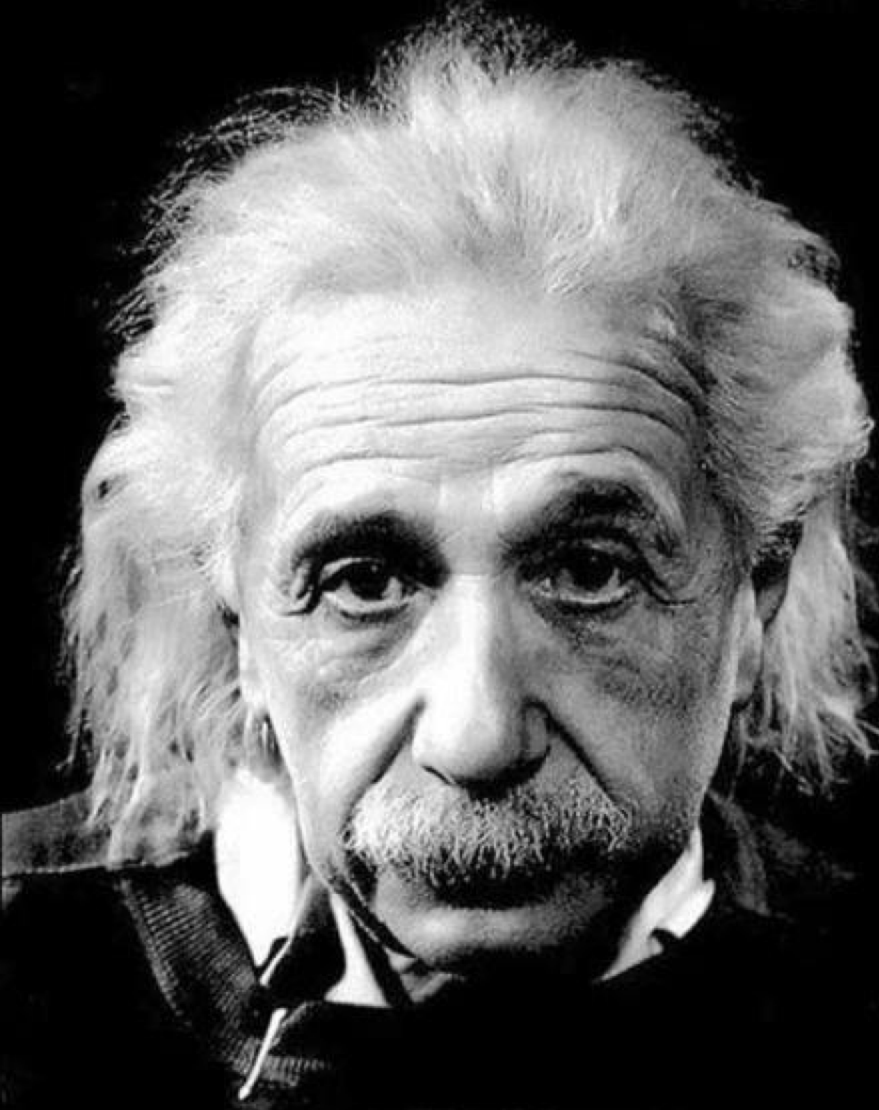
**Sumerian Wheel**

[www.jenkinsancienthistory.weebly.com](http://www.jenkinsancienthistory.weebly.com)

# ENGINEERING DESIGN PROCESS



LEARN FROM PROBLEMS & FIX THEM!



**ANYONE WHO  
HAS NEVER MADE  
A MISTAKE HAS  
NEVER TRIED  
ANYTHING NEW.**

**Albert Einstein**





<https://www.youtube.com/watch?v=nfYJfHTkimk#t=226>

**NOW IT'S YOUR TURN!**