Materials development and its contribution to our society evolution

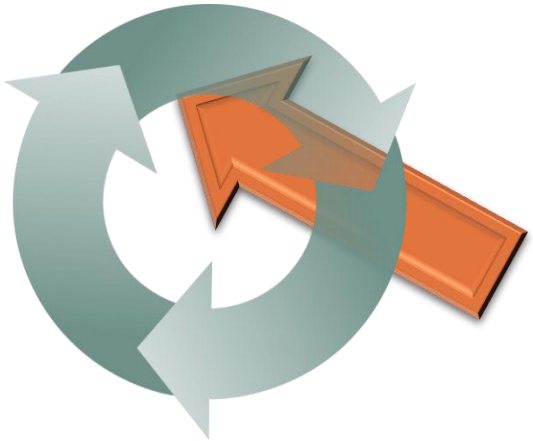
How do we form our beliefs?


Contextualizing

Why is it done in this way?

Knowledge
Understanding the information

Information
Analyzed Data



Data
Texts, photos, arts, culture, etc.

I do what I believe

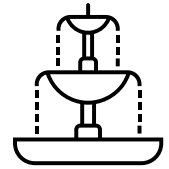
I believe what I know

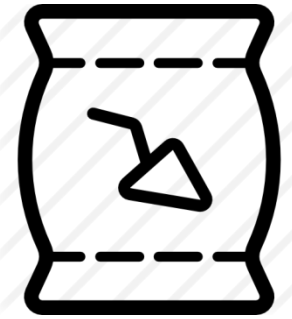
Knowledge
Is the base

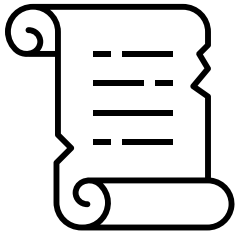
Evolution

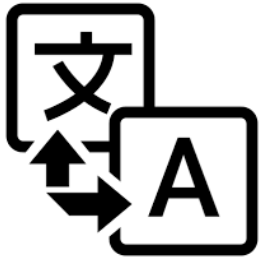
Society→Blood, language, costumes
Final phase→State and social stratification

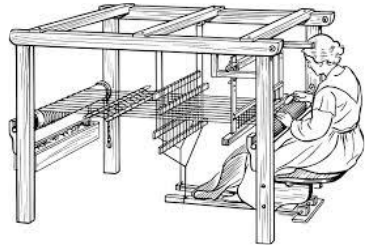
Old Age
Middle Age



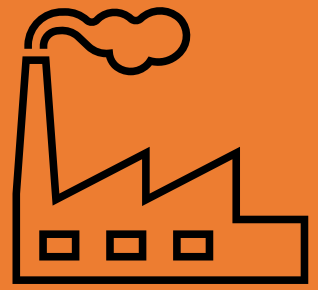
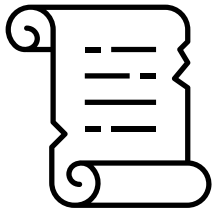
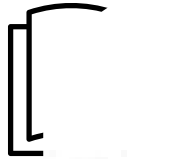
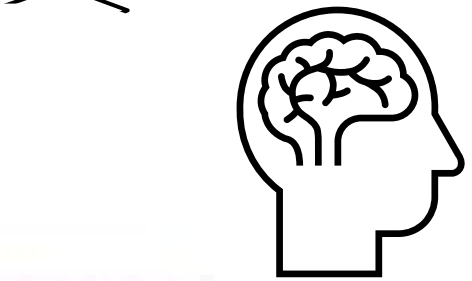
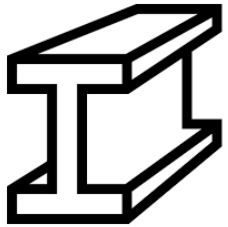


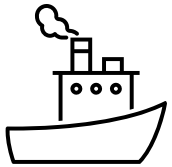






Modern Age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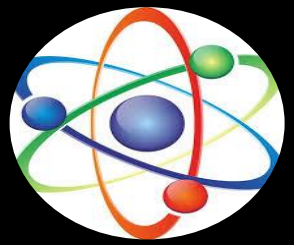
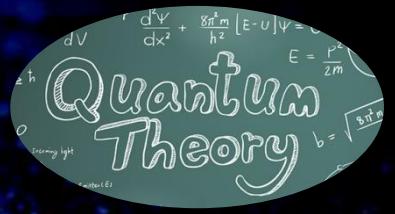
Contempory Age

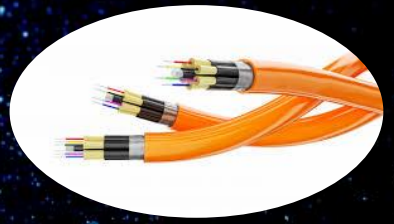
- Atom theory



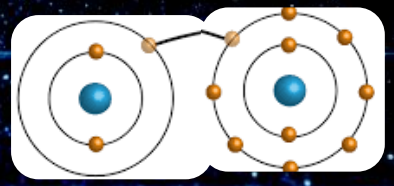
- Quantum physics



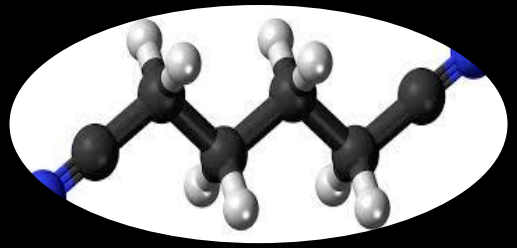
- Instruments



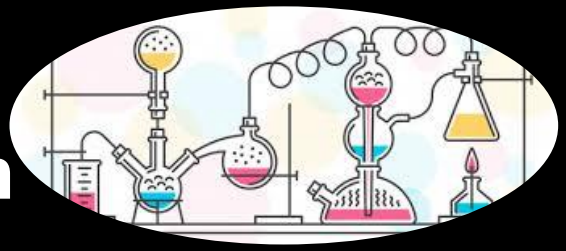
- Chemical bond



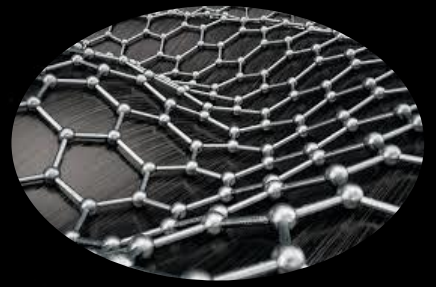
- Molecule



- Chemical reaction



- New materials



*In*dependence

Energetic Revolution

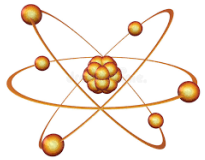
Information Revolution

Electricity Revolution

Automotive Revolution

Industrial Revolution

Feedstock



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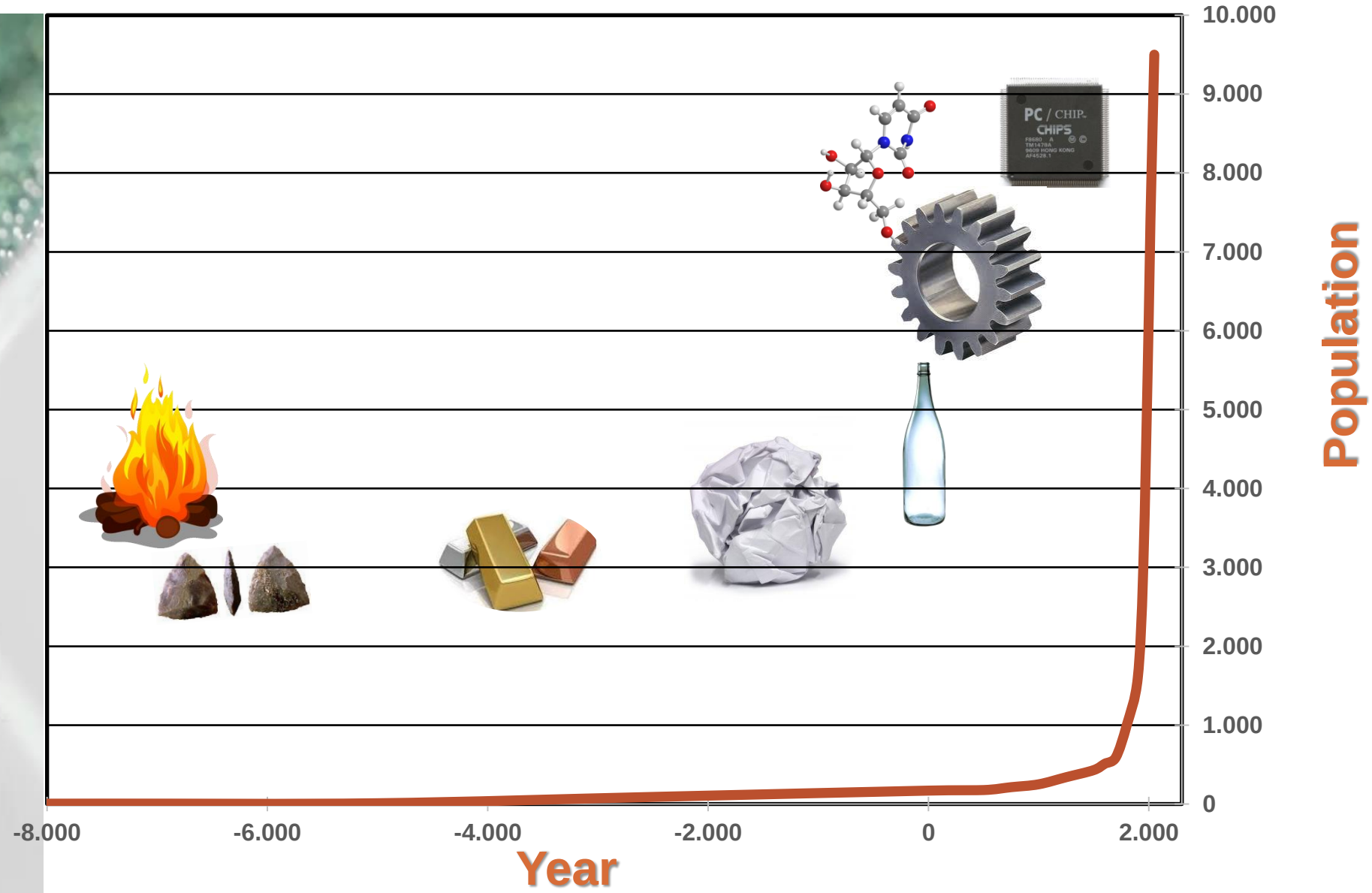
Materials

Quality of life

Population Growth


10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0
Population
-8.000
-6.000
-4.000
-2.000
0
2.000
Year
PC / CHIP CHIPS

- Efficient Production: Concentration x distribution
- Connection and transportation mandatory
- Ways: Hydro, iron, roads, tube, cables, infovia
- Packaging

Requirements

- Protection – Product & environment
- No contamination
- **Resistant**
- Light
- Available and cost

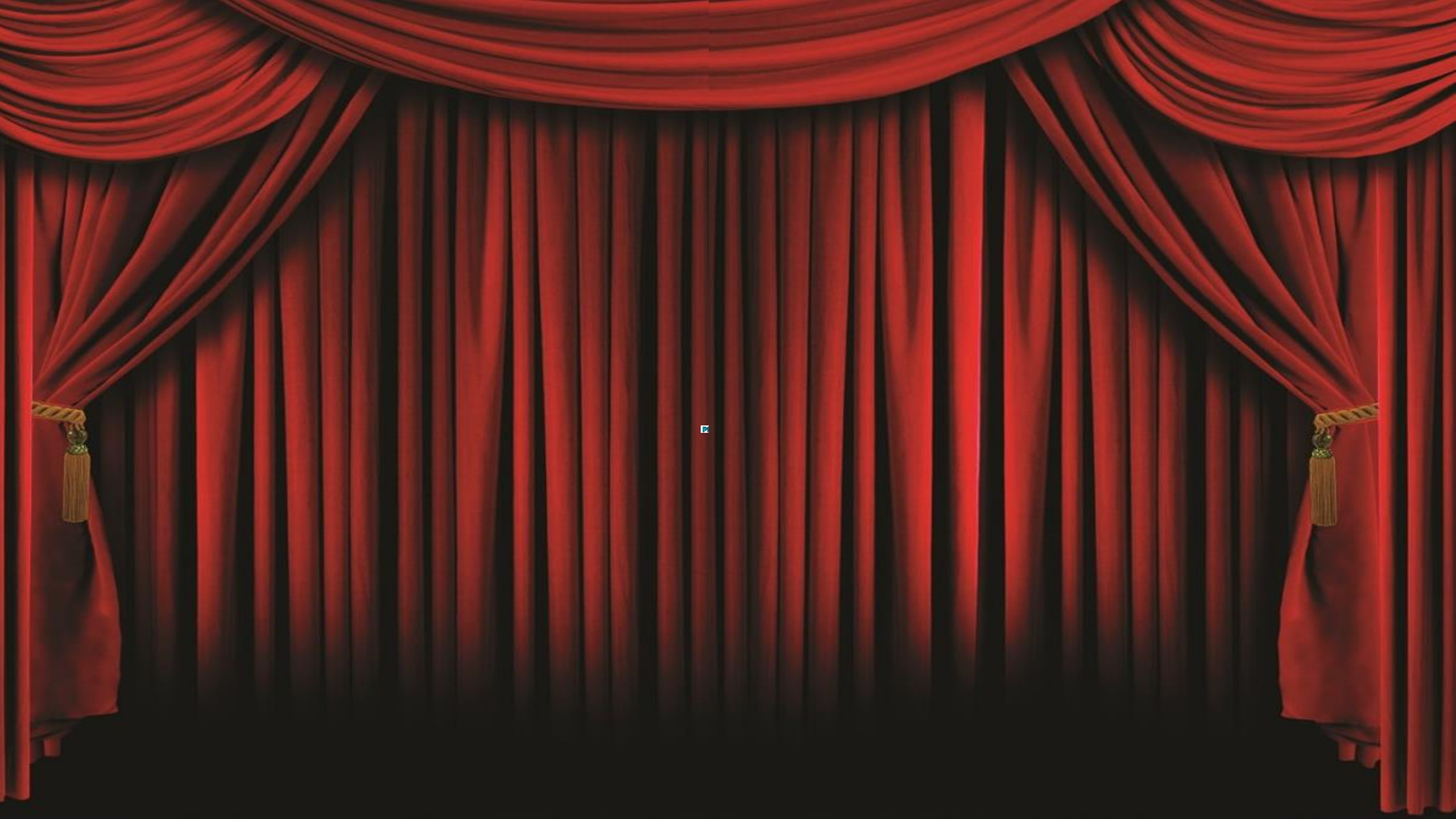
Plastic

- Inert
- Light
- Resistant
- Available and cheap

Reusable

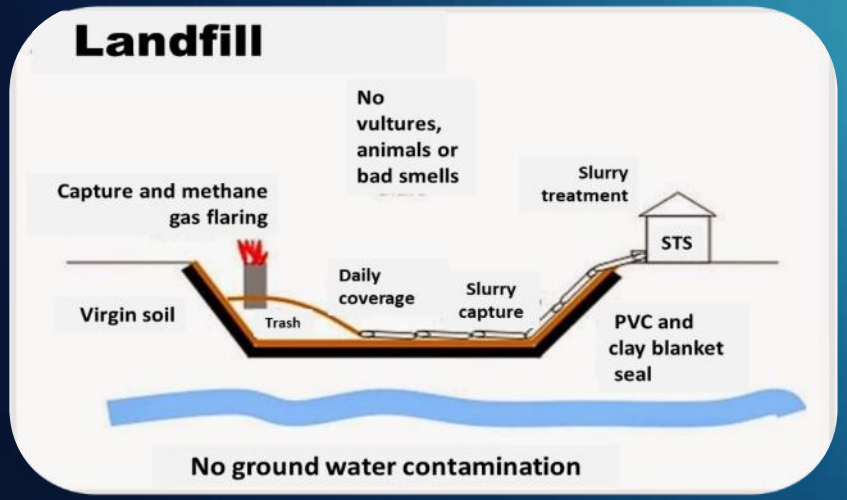

Transport


Protection



PE→PVC→PE→CA→PVC/PE

RL→TB→CR→PVCT→PV



PE/PVC GEOMEMBRANE→TB

GUTTER→TB→CISTERN→TB

HEALTH


Ferti Coat

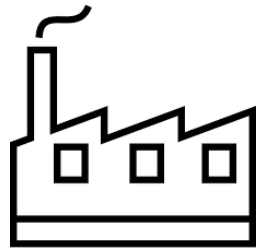

TILT
TILT

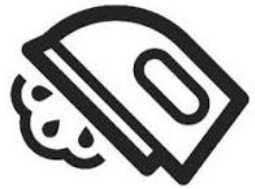

Stara
Stara

DESIGN DE REÚSO

1ª

2ª

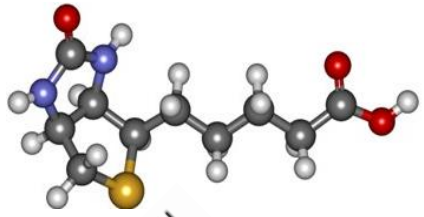


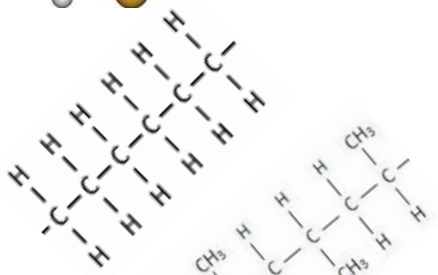


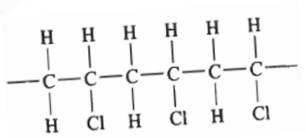

Evolution!

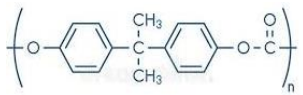
1nd Generation

Chemistry and Material Science









2nd Generation

Chemical Engineering

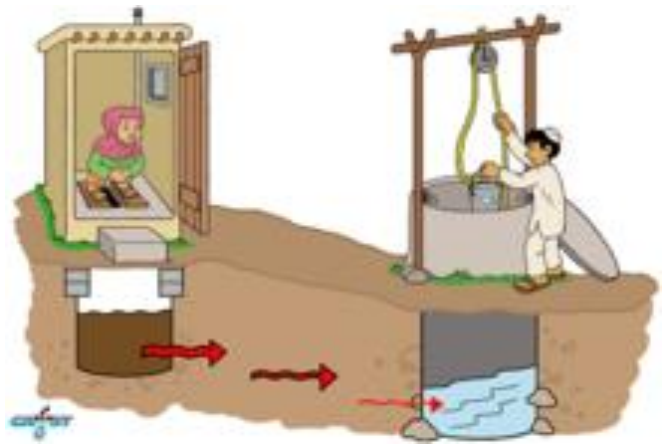
3rd Generation

Materials Engineering

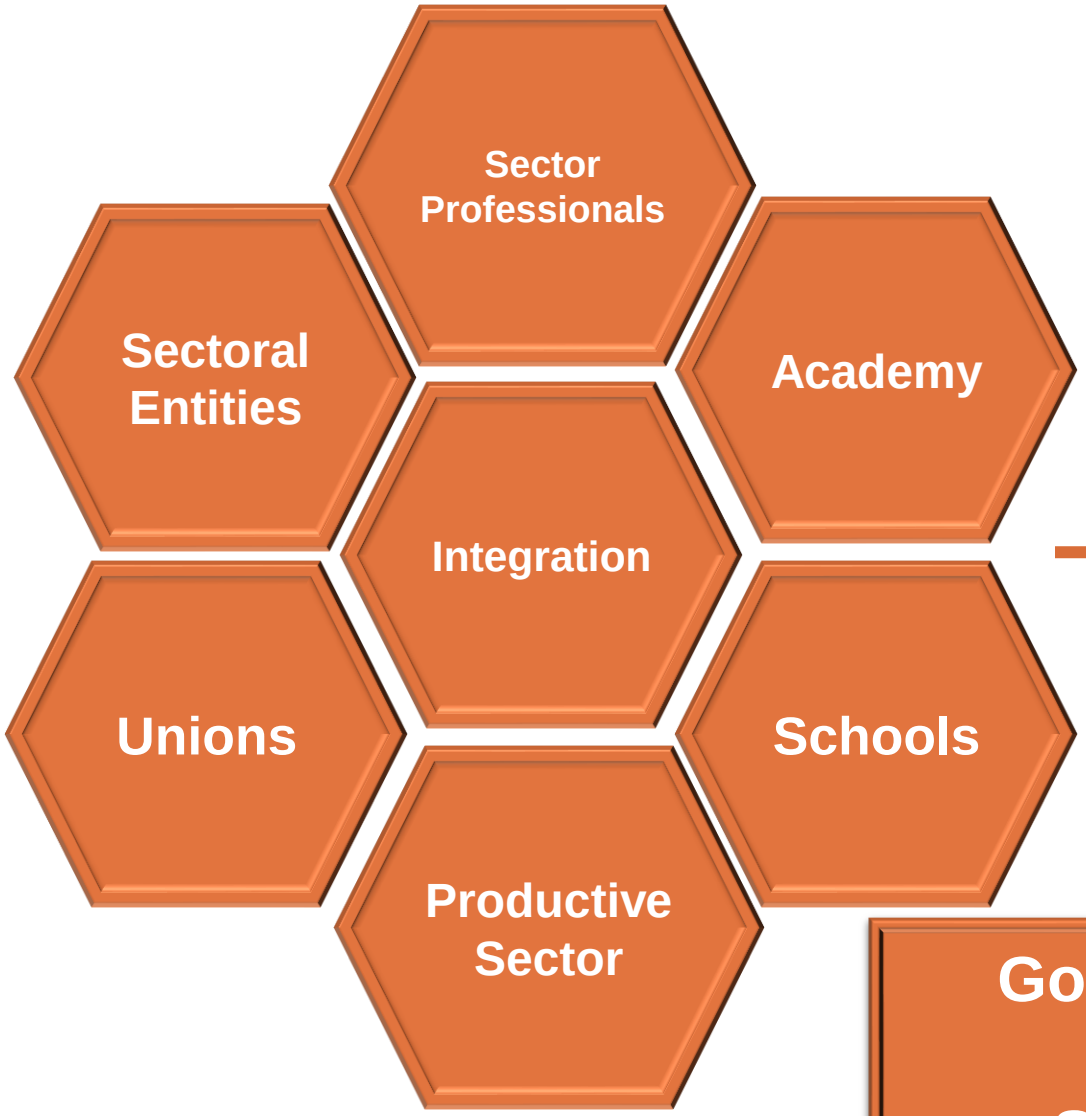
4th Generation

Sustainability Engineering

Has it happened before?




13
Beliefs!



Goverment
&
Society

1 Multipling Resources

2 Enhances communication

3 Education
&
Changes in Beliefs

Challenges

- Education and engajament
- Tecnology and Investiment
- Recycling x Biodegradable
- Raw materials and renewable energy

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plasticXperience

Promovendo conhecimentos
sobre o estudo dos plásticos

Thank You

Tradução John Sevante
jsevante@gmail.com

Fotos e filmes: fonte powerpoint