Given by Lamar AIChE Student Chapter

Lamar University, Beaumont, TX

In Consultation with Tracy J Benson,

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There is the fascination of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves to realization in stone or metal or energy. Then it brings jobs and homes to men. Then it elevates the standards of living and adds to the comforts of life. That is the engineer's high privilege.

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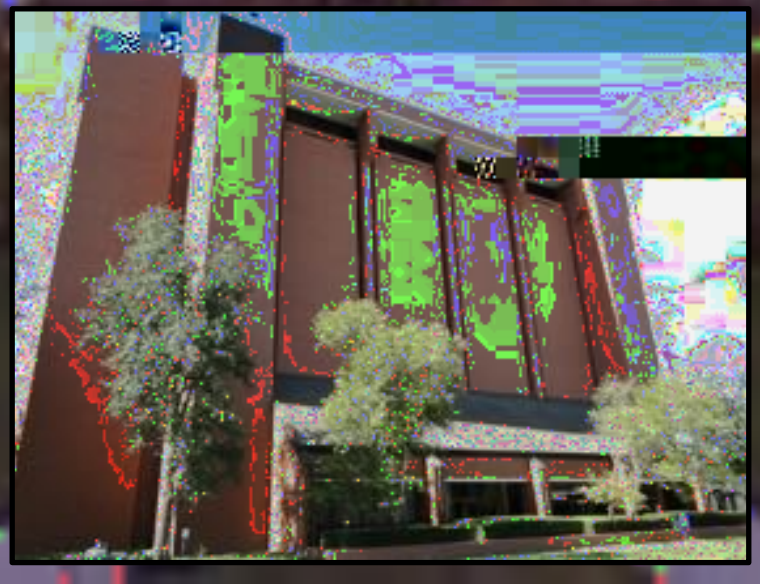
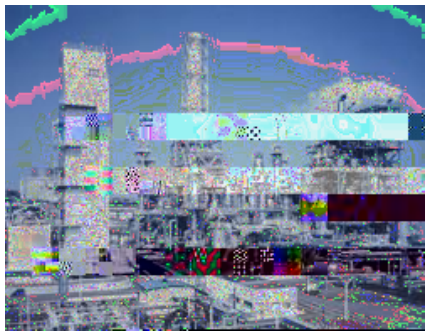


What Do Chemical Engineers DO?

Combine chemistry, math, and physics to:

- **Operate chemical plants**
- **Design chemical processes**
- **Research and Development**
- **HAVE FUN!!!!**



What Do Chemical Engineers Make?

FOOD – cereals, meats, vegetables, frozen foods, canned foods, boxed foods
FUEL – Gasoline, diesel, motor oil, WD40, brake fluid
PLASTICS – garbage bags, Wal-Mart bags, combs, toothbrushes, hair brushes, squirt bottles, clothes baskets, car interiors, boats,
PAPER – notebook, copy, books, cardboard, toilet paper, napkins, diapers
HEALTH CARE – medicines, diagnostic instruments, joint replacements,
Clean water – pumps, filters, chlorine
EVERYDAY ITEMS – pens, pencils, magic markers, tv's, Ipods, cell phones,

Where Do Chemical Engineers work?

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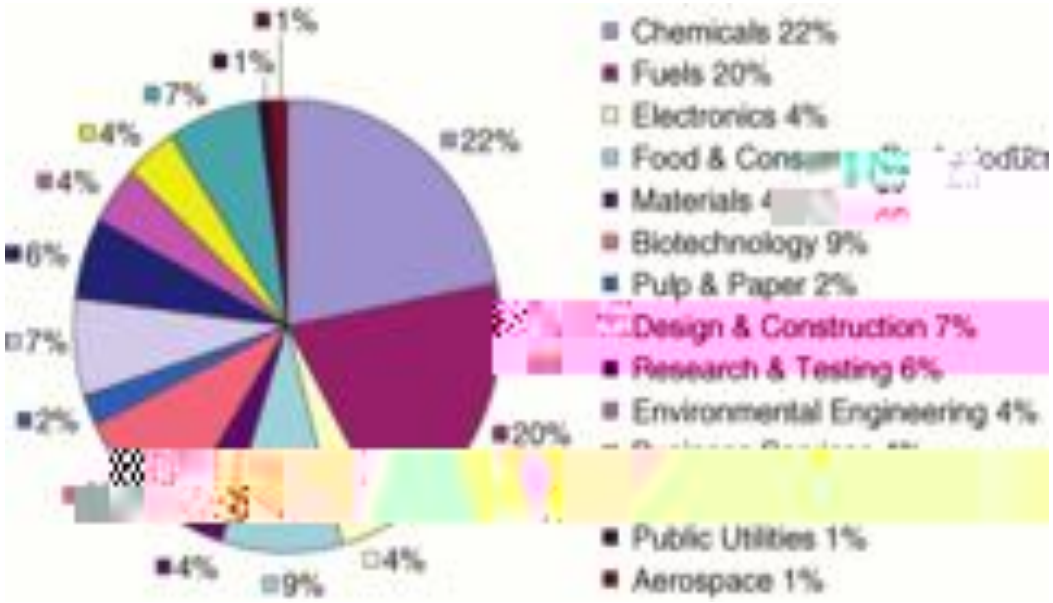

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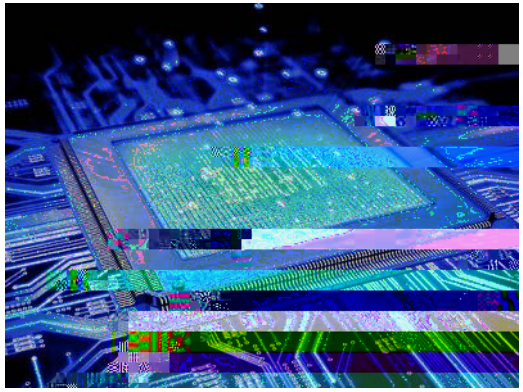

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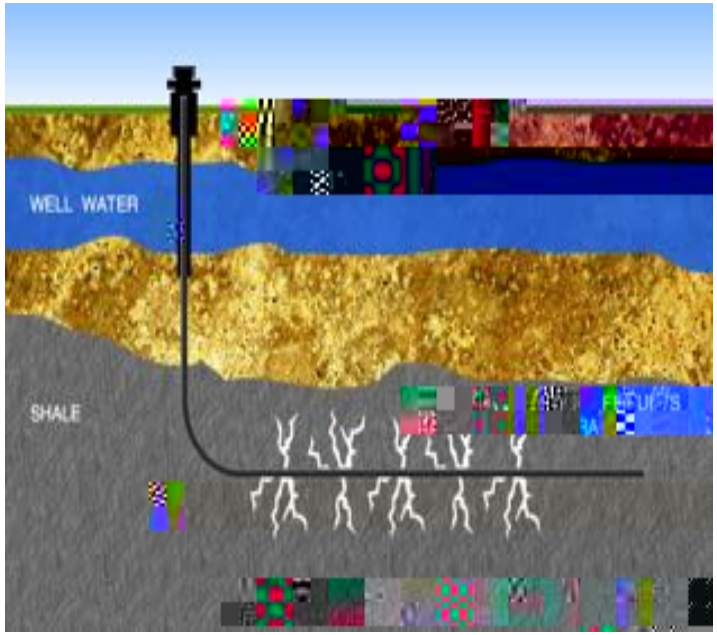

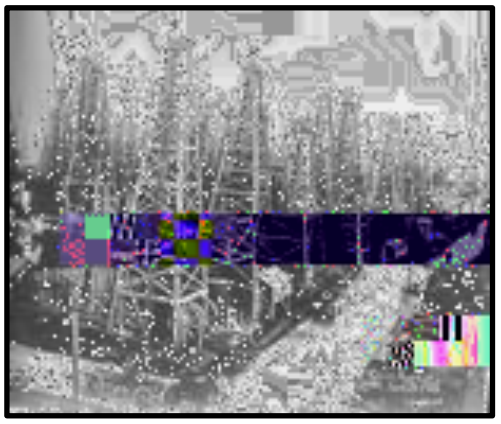

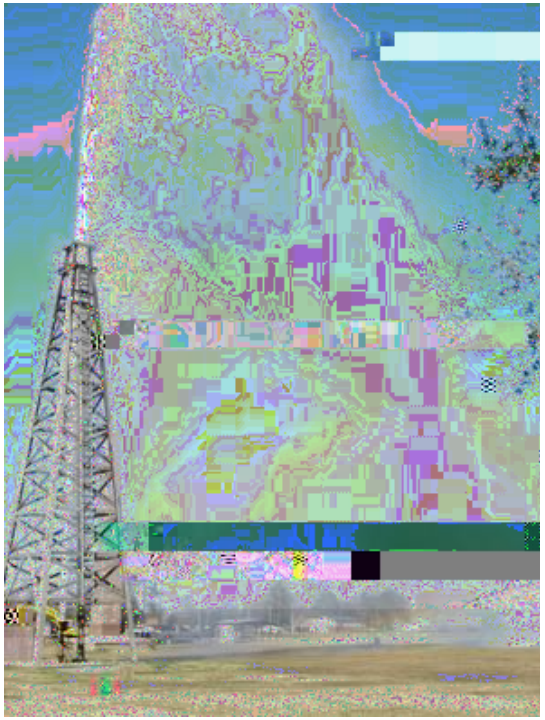

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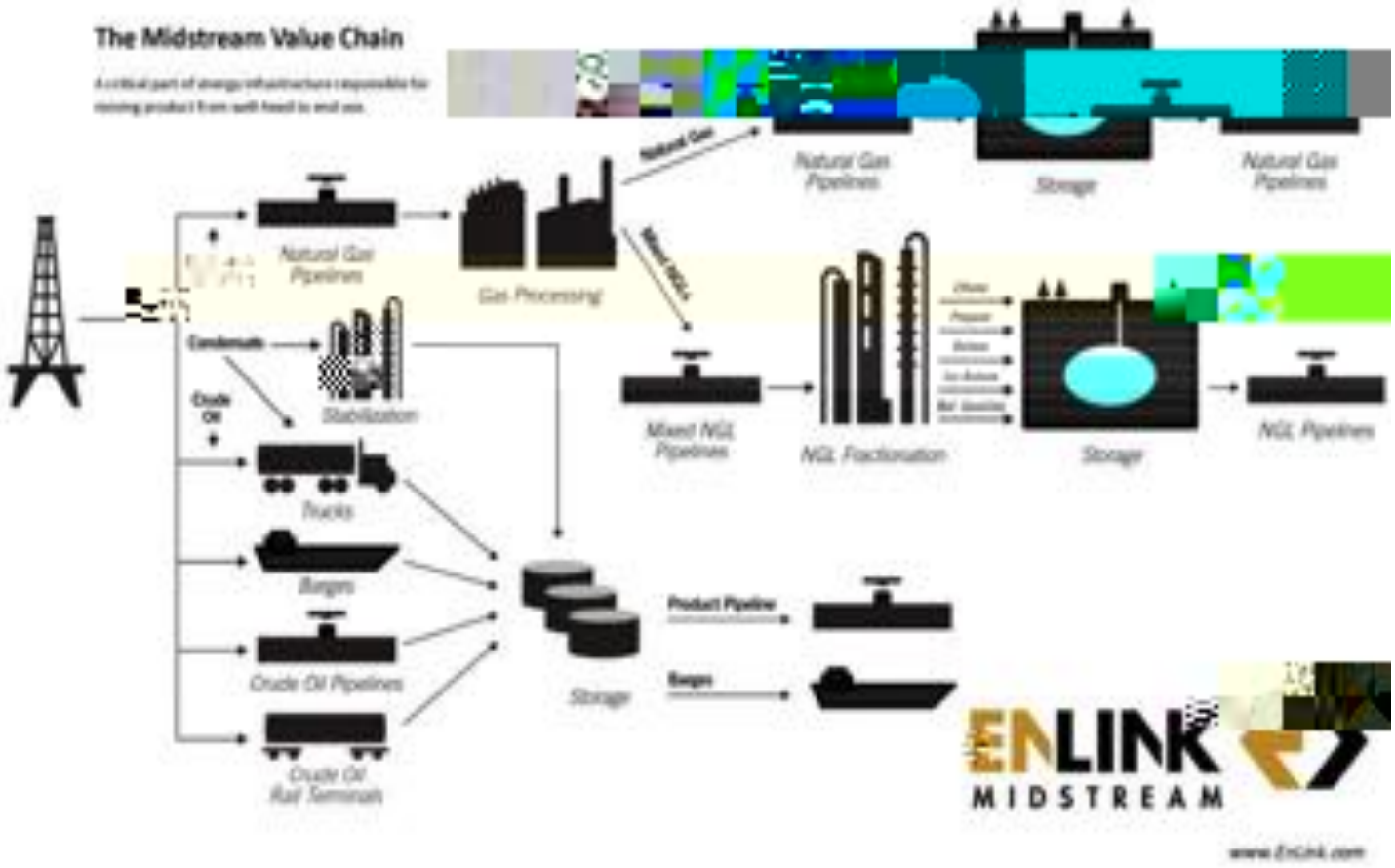
The Midstream Value Chain
Natural Gas Pipelines
Storage
Natural Gas Pipelines
Natural Gas Pipelines
Gas Processing
Condensate
Stabilization
Crude Oil
Mixed NGL Pipelines
NGL Fractionation
Storage
NGL Pipelines
Trucks
Barges
Crude Oil Pipelines
Storage
Product Pipeline
Barges
Crude Oil Rail Terminals
ENLINK MIDSTREAM
www.EnLink.com

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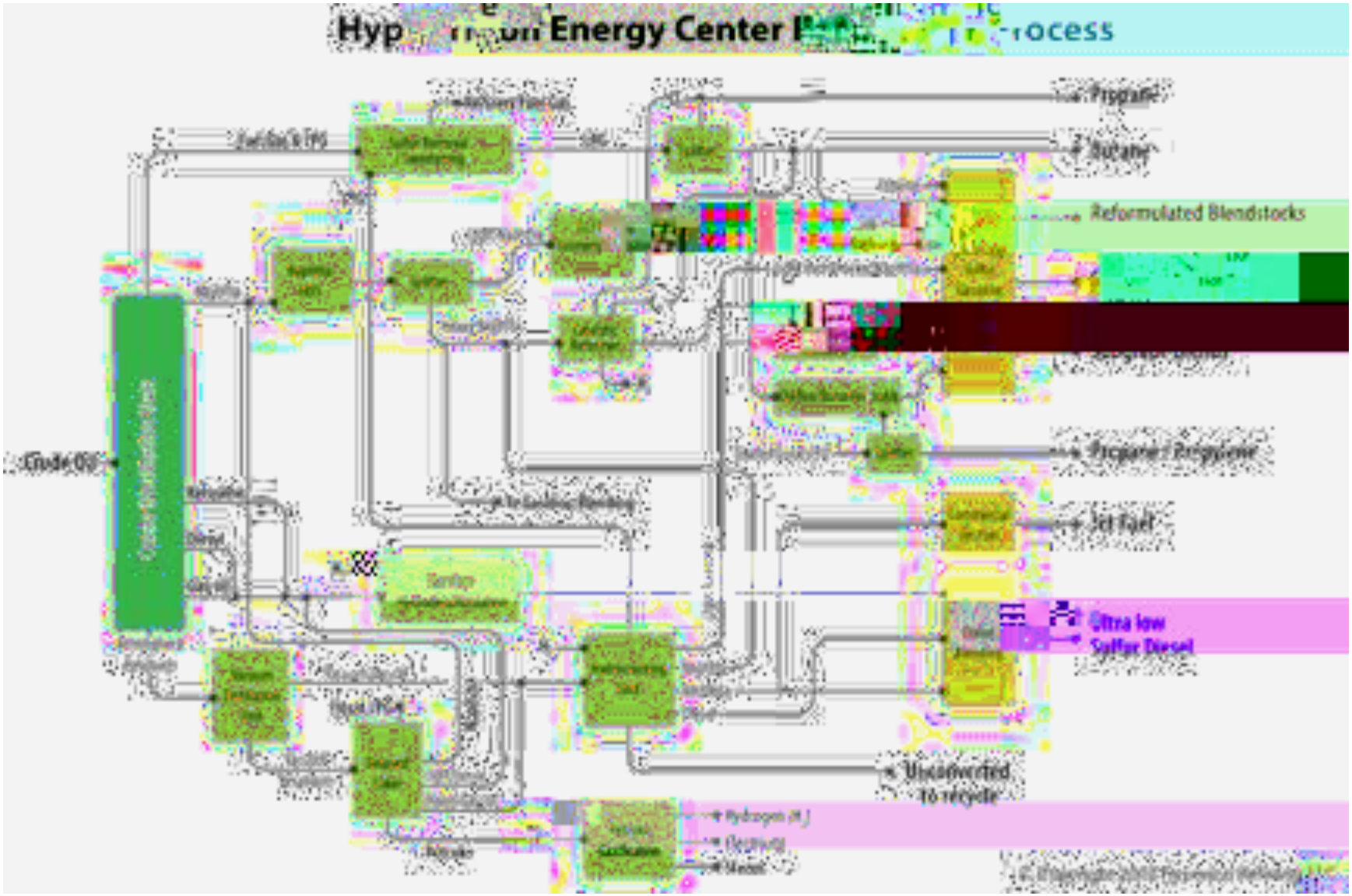
Refining is the processing of crude oil into products such as motor gasoline, kerosene,

REFINERY PROCESSES



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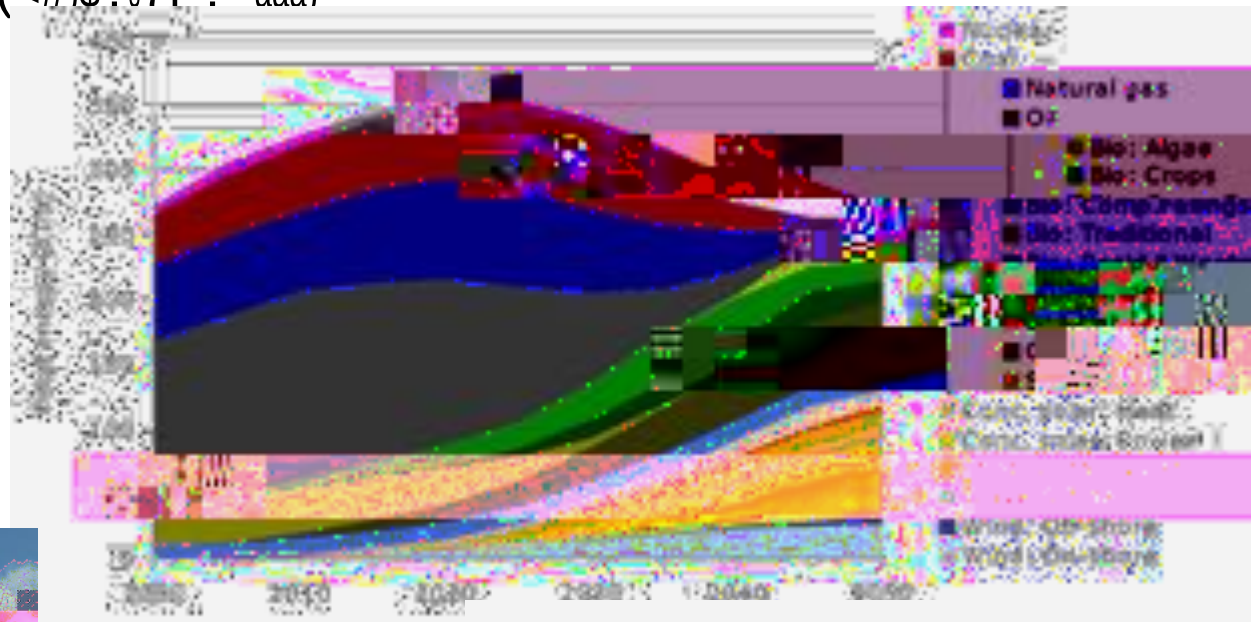
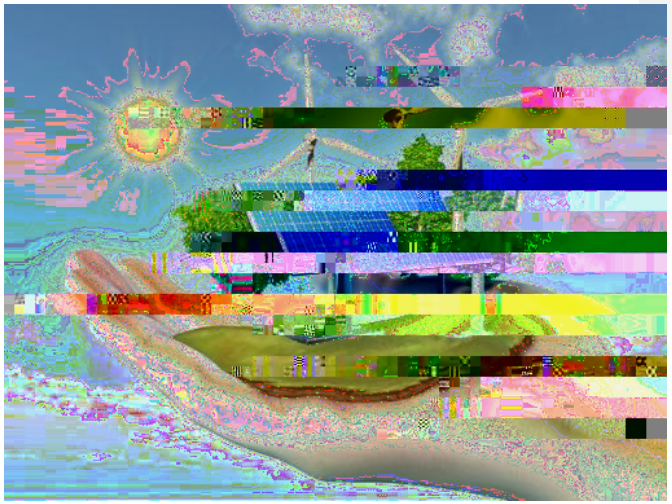
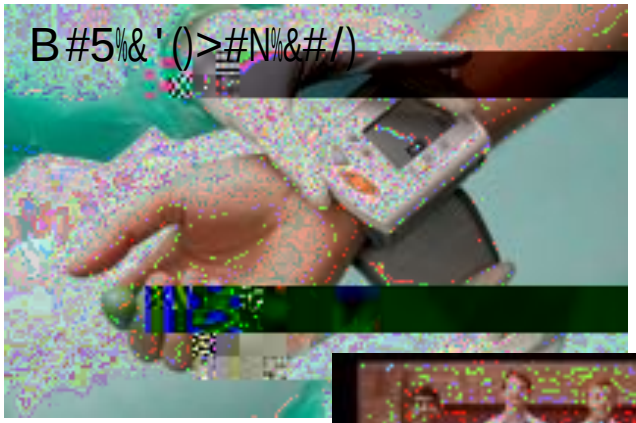




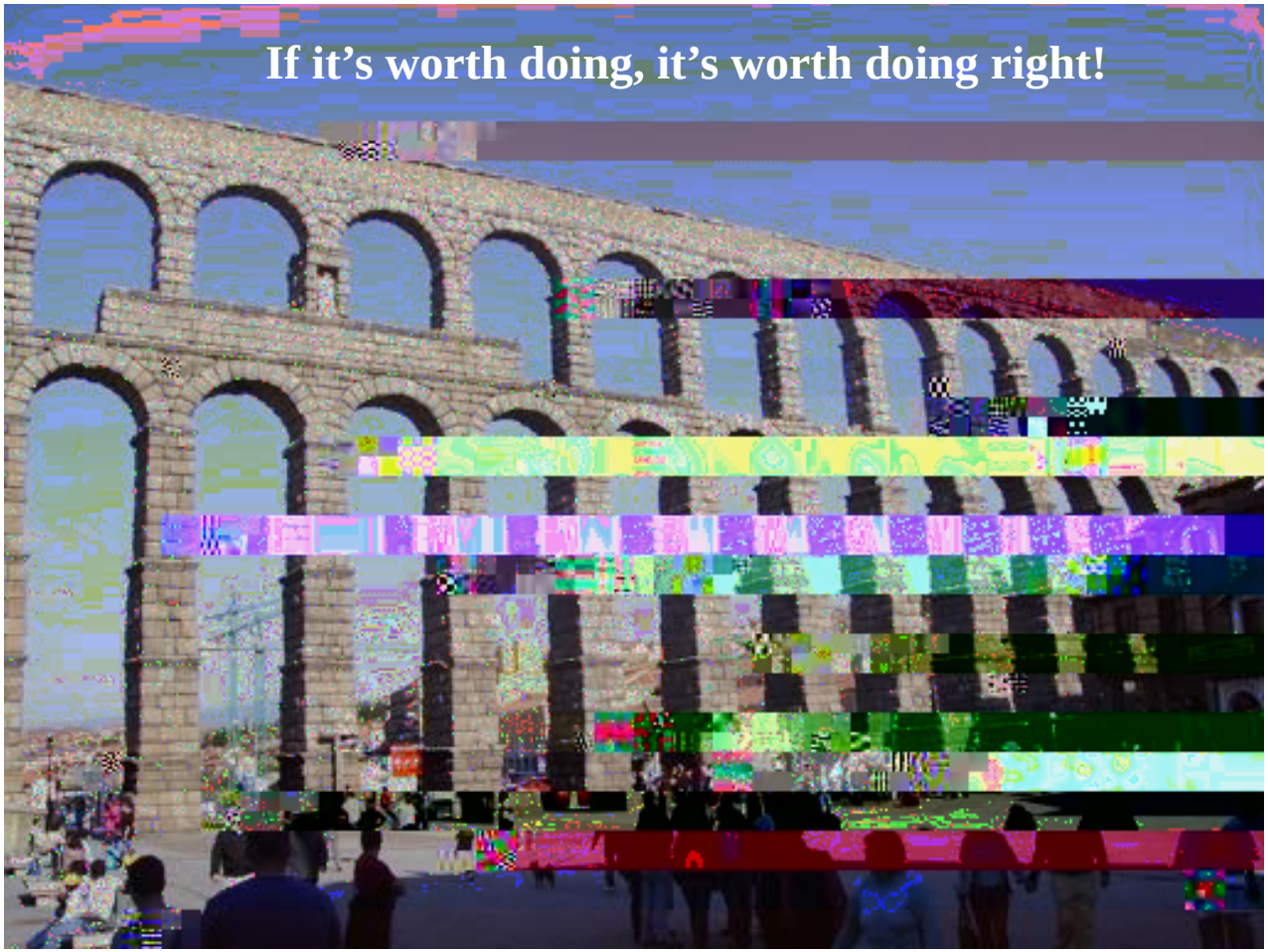
How to Become a Chemical Engineer

- **Engineers are PROBLEM SOLVERS**
- **Solve simple problems and then apply those principles to more complex problems**

Solving Today's Difficult Problems:



What about the Math?



Roman aqueduct in Northern Spain built 2000 years ago
100 ft tall, 2,500 feet long, no mortar

Math Builds Upon Itself

- Elementary school – add, subtract, multiply, divide
- Middle school – equations, word problems
- High school – algebra, geometry
- College – Calculus, differential equations

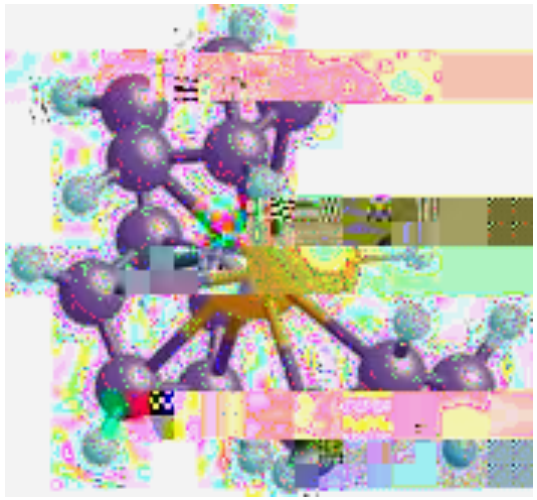
Like learning how to crawl before you can walk, run, jump, or ride a bike.

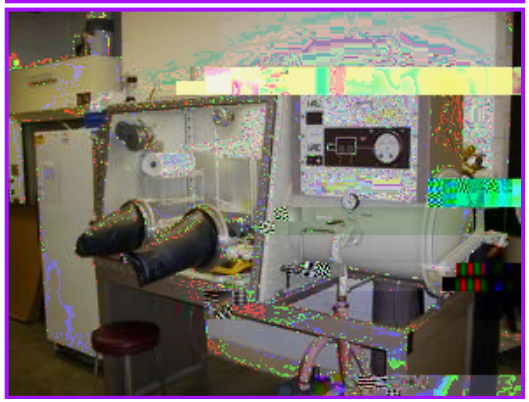
What About the Chemistry?

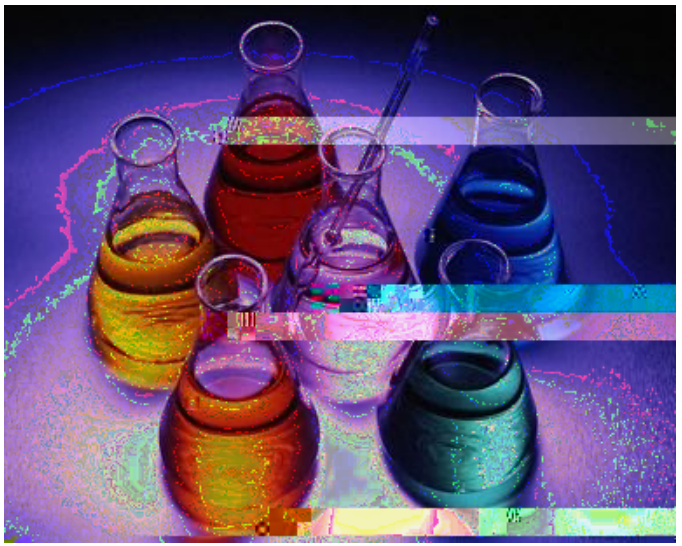
Chemistry is the study of how elements (carbon, hydrogen, oxygen, sulfur…) come together in tiny molecules to make the stuff we use everyday.

It takes energy to transform basic compounds into ones that we can use.

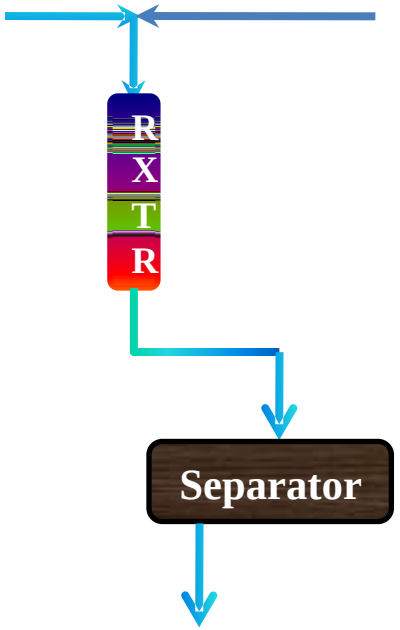
<u>For example</u> – crude oil into gasoline and diesel fuel, trees into paper, soybean oil into ink







What Do We Mean by a Chemical Process??



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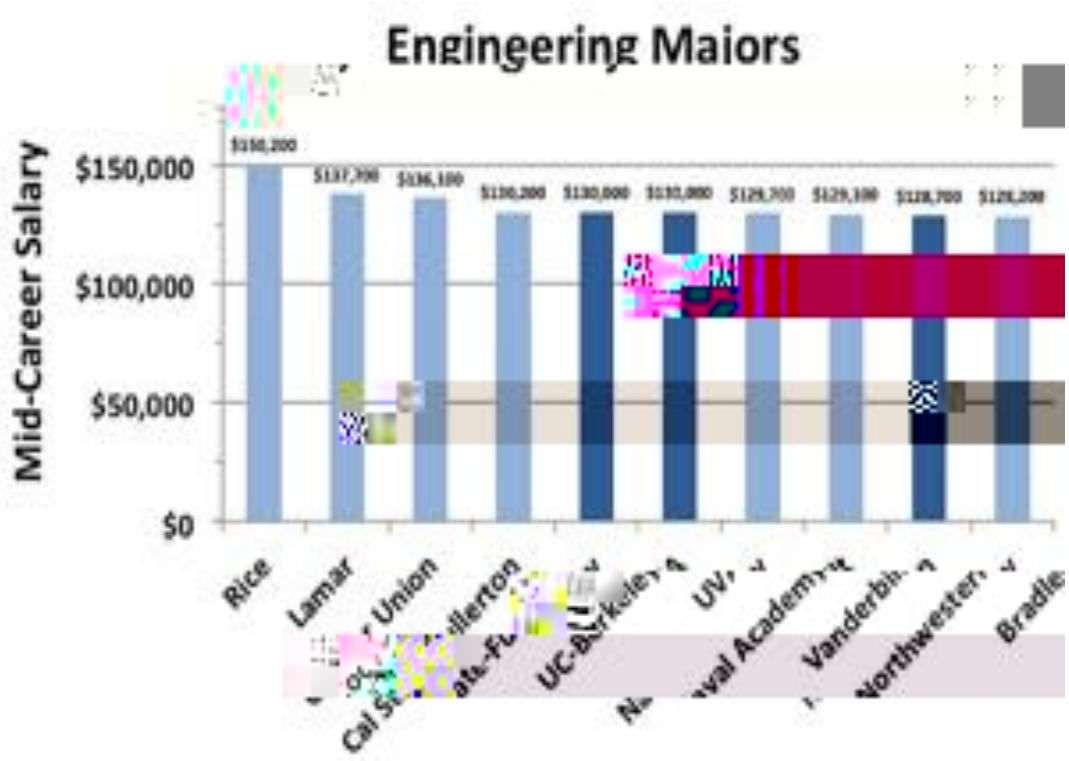

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