

# CORROSION

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# Corrosion

- \* The deterioration of a metal as a result of slow oxidation
- \* Metal loses electrons, results in rust

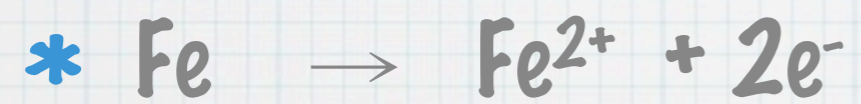
# Corrosion

- \* Corrosion is similar to galvanic cells. The difference is that the anode and the cathode appear on different parts of the same metal surface.

- \* The metal itself is the conducting surface.
- \* The anode is where the metal is more reactive (if the metal has been dented or scratched)
- \* The cathode is anywhere else.

# Example

\* Rusting of iron

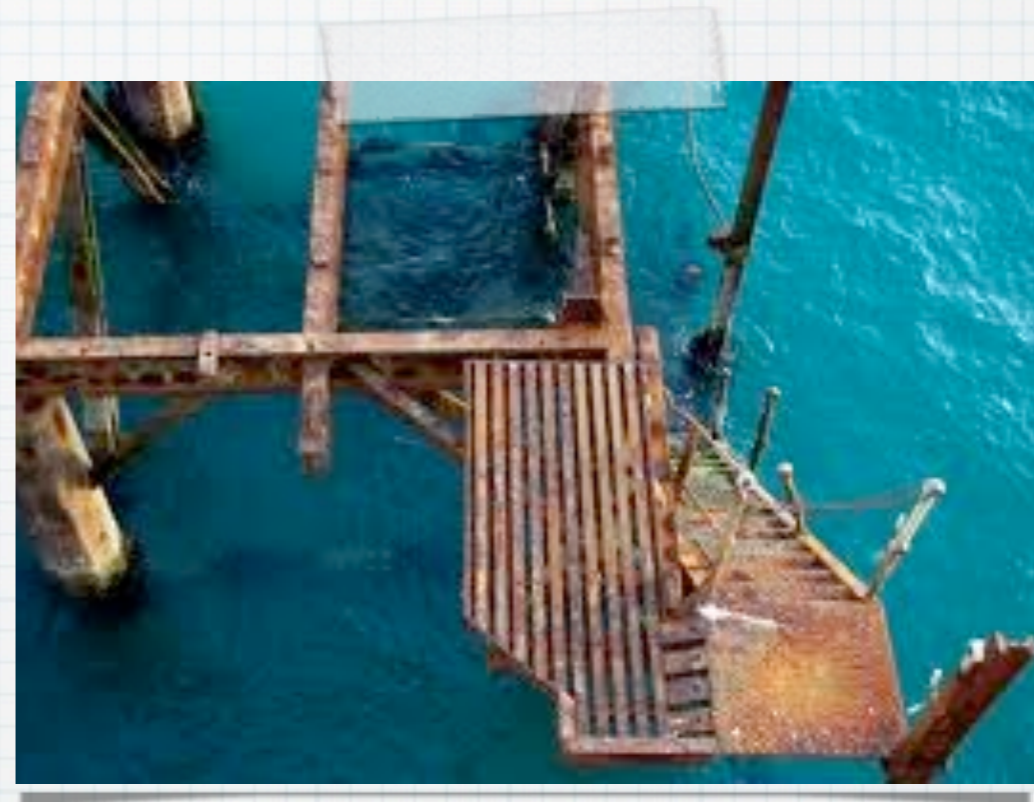


# Corrosion

- \* Corroding metal is a galvanic cell in which one part of the metal is the anode and the other is the cathode

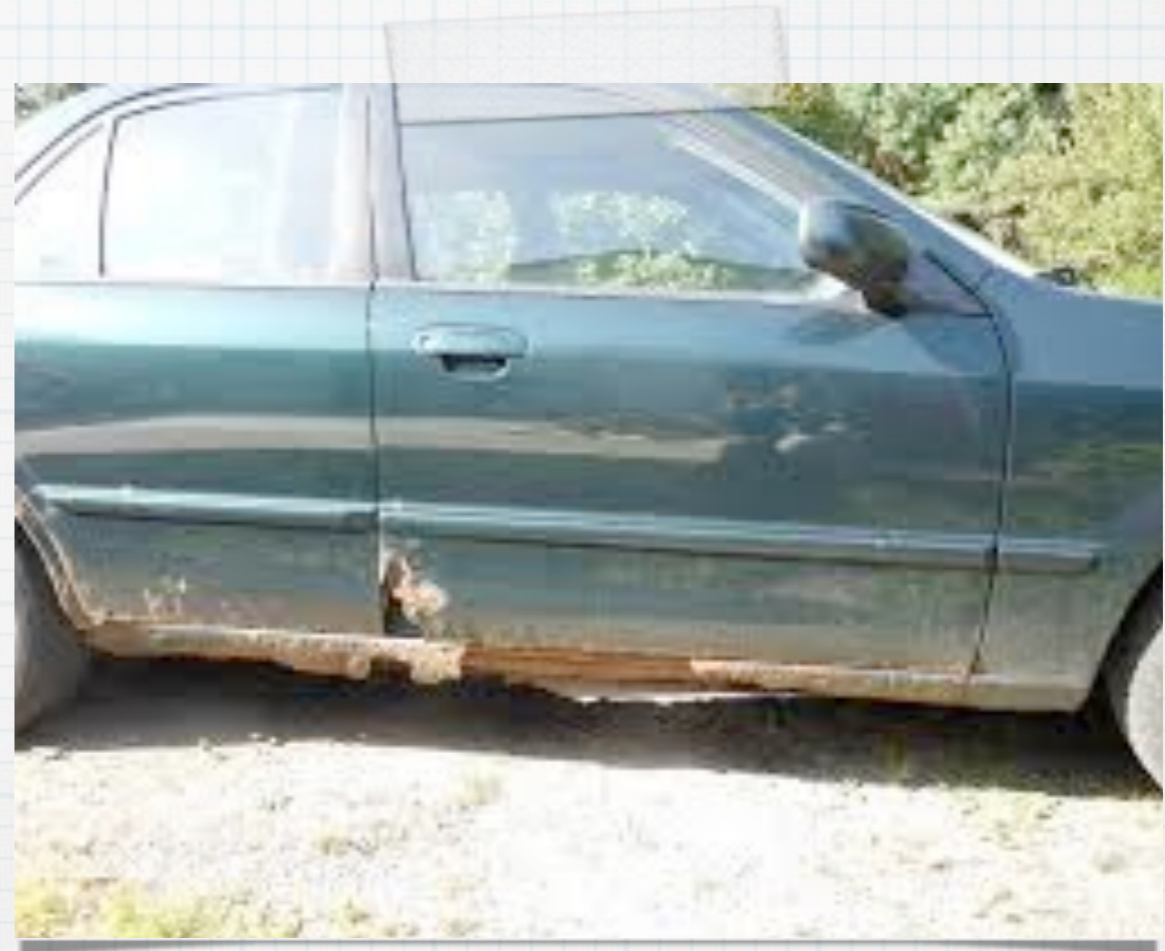
# Factors that Affect the Rate of Corrosion

- \* 1) Moisture
- \* (Corrosion cannot occur without water)



# Factors that Affect the Rate of Corrosion

- \* 2) Electrolytes
- \* (eg salt-improves electrical conductivity)





# Factors that Affect the Rate of Corrosion

- \* 3) Contact with less reactive metal



# Factors that Affect the Rate of Corrosion

- \* 4) Mechanical Stress
- \* Stressed area can become site of corrosion



# Preventing Corrosion

- \* 1) Protective Coatings
- \* Rust inhibiting paints
- \* Galvanizing (eg zinc coating make a tough zinc oxide)



# Preventing Corrosion

- \* 2) Corrosion-resistant metals
- \* Aluminum and chromium-forms tough aluminum oxide or chromium oxide

# Preventing Corrosion

- \* 3) Cathode protection
- \* Forces metal you want to protect to being the cathode
- \* eg: Zinc would become the anode over iron and it will still be protected