



# Our Beautiful World

Ch.17 – The Environment



# Our Topics of Study

1. Environmental Problems and Issues
2. Resource Management

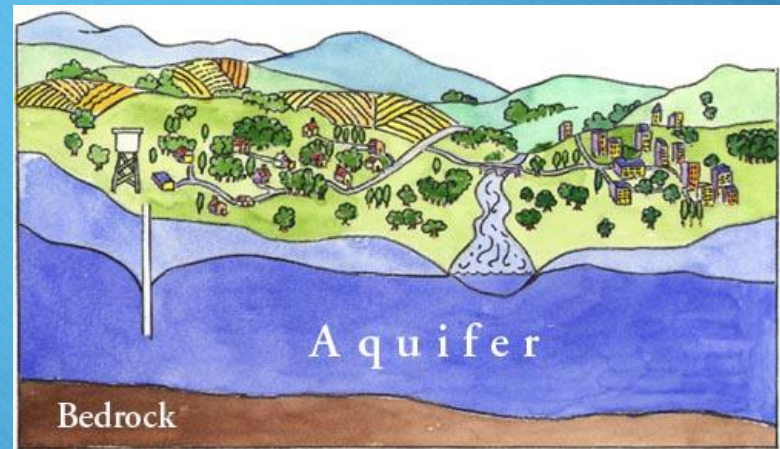
# Topic 1 – Shortage of Water

- All of the water on earth circulates through the water cycle, and takes on different forms.
- Most of the water is salt water, and most of the rest is locked up in glaciers and ice sheets



# Groundwater Problems

- In fact most of our fresh water is locked underground in **AQUIFERS**
- Problems:
  - Can be hard to access
  - Can get polluted
  - Can become depleted from overuse



# Ogallala Aquifer - USA

- One of the largest aquifers in the world, but is depleting quickly from agriculture (greatest user of freshwater!)
- Aquifer is also heavily used for golf courses



# Sinkholes – Result of overusing aquifers...



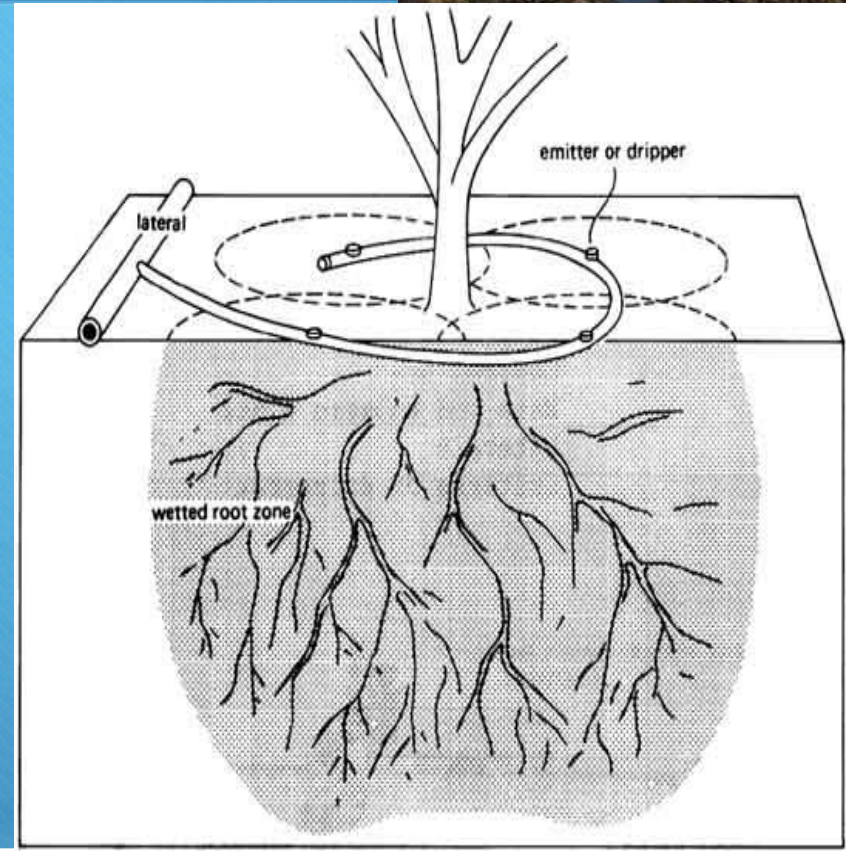




- **Lakes, Rivers & Coastal Waters**
  - **Disposal for sewage & agricultural + industrial waste**
  - **Tanker accidents**
  - **Municipal waste water=human waste, detergents & solvents**
  - **Farmers = herbicides & pesticides**
  - **Industry=oil refinery, pulp mill & chemical factory waste**

# Solutions!

- Current technology can = sustainable water management
  - Micro-dams
  - More efficient rainwater harvesting
  - Reclaimed/recycled water
  - De-salinated seawater
  - Low energy sprinkler systems
  - Drip irrigation directing water to roots
  - High efficiency/low flow toilets
  - Taxes or user rates to encourage water conservation

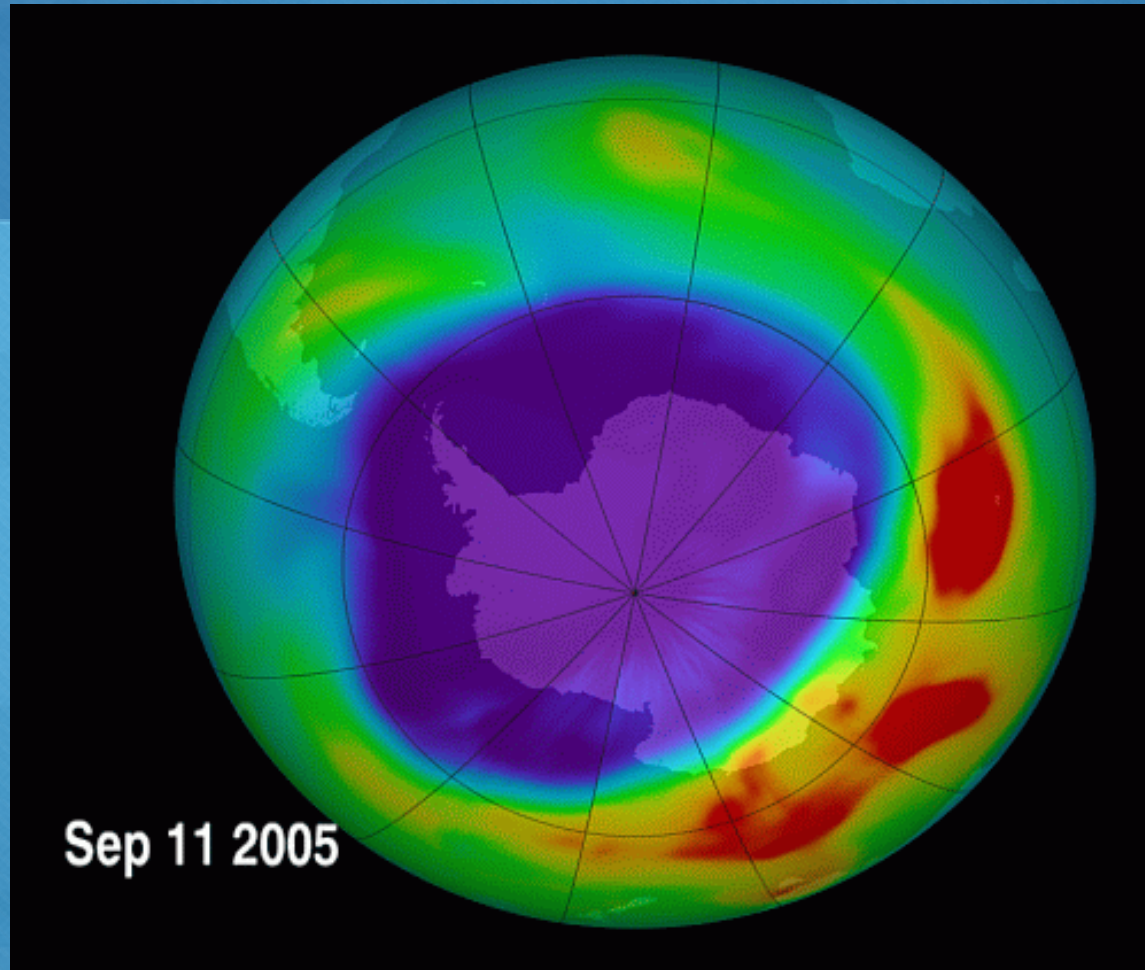




# Issue #2: Ozone Layer

- The ozone layer is in our upper atmosphere, and it absorbs harmful UV rays from the sun.
- UV rays cause skin cancers, eye problems, kills crops and plants, and can harm animals
- The hole in the ozone layer is caused by too many CFC's – chloroflourocarbons – in the atmosphere

# Hole sits over Antarctica and New Zealand





# Surprise!

The hole in the ozone layer is shrinking...

- Believe it or not, there are success stories that relate to environmental problems
- The Montreal Protocol (signed in Canada!) encouraged countries to put a ban on CFC's – fridges, air conditioners, aerosol cans
- Since the ban, countries have been cooperating – global success! With time... hopefully the ozone layer will heal.

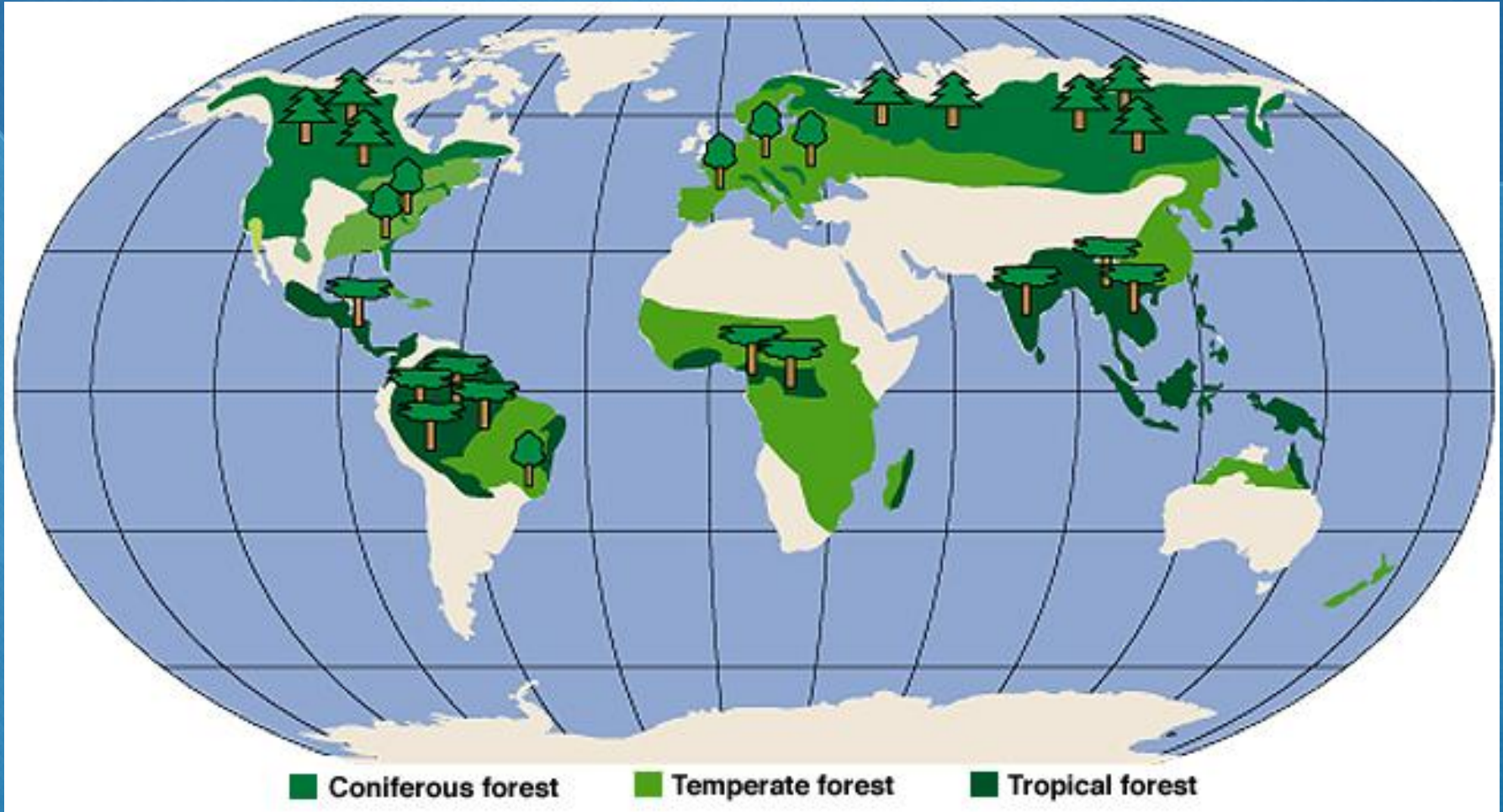


# Issue #3 - Deforestation

- To “deforest” means to cut down trees – “reforestation” is the act of planting trees to replace the ones cut down.
- The Amazon Rainforest has been under great attack as the land has been cleared for cattle grazing, and settlement of humans



Sadly all of the world's forests are under attack...

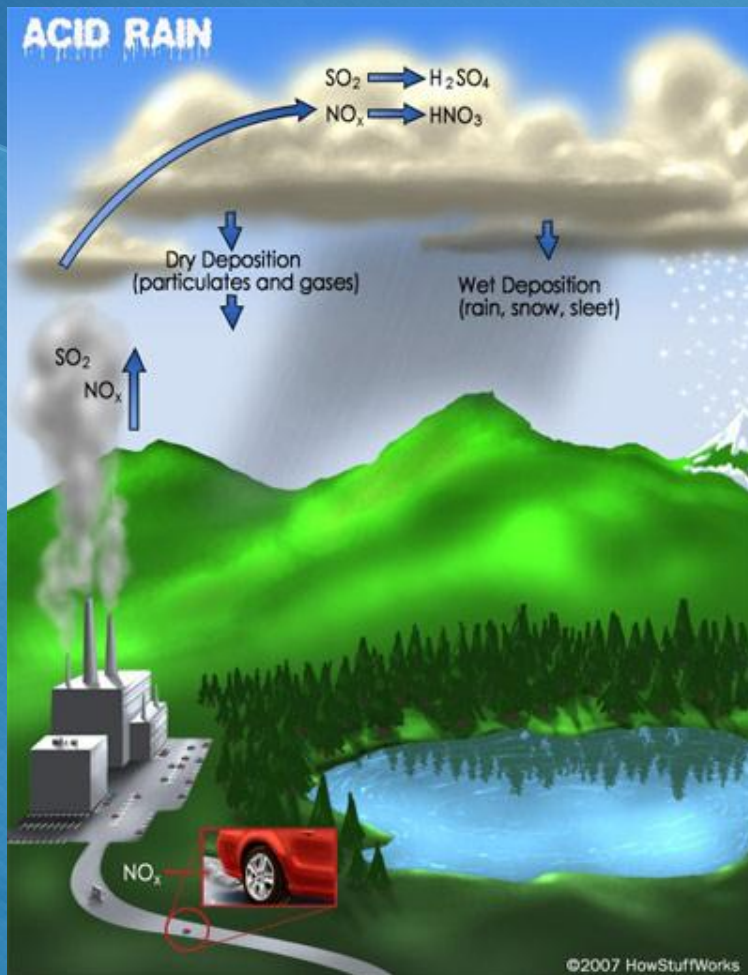


# Sustainability is the Answer

- Forestry is going to take place – the question is whether or not we will manage our forests so that they will last for generations to come



# Issue #4 – Acid Rain



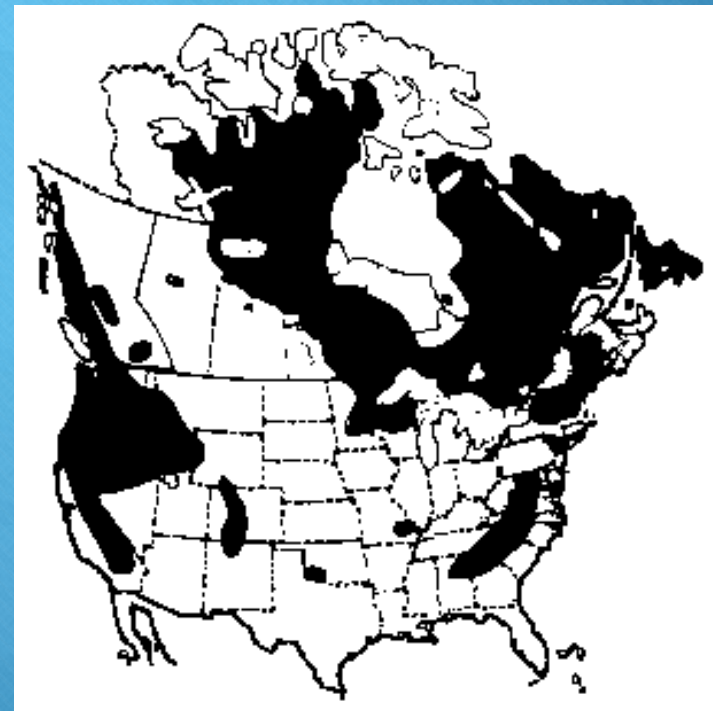
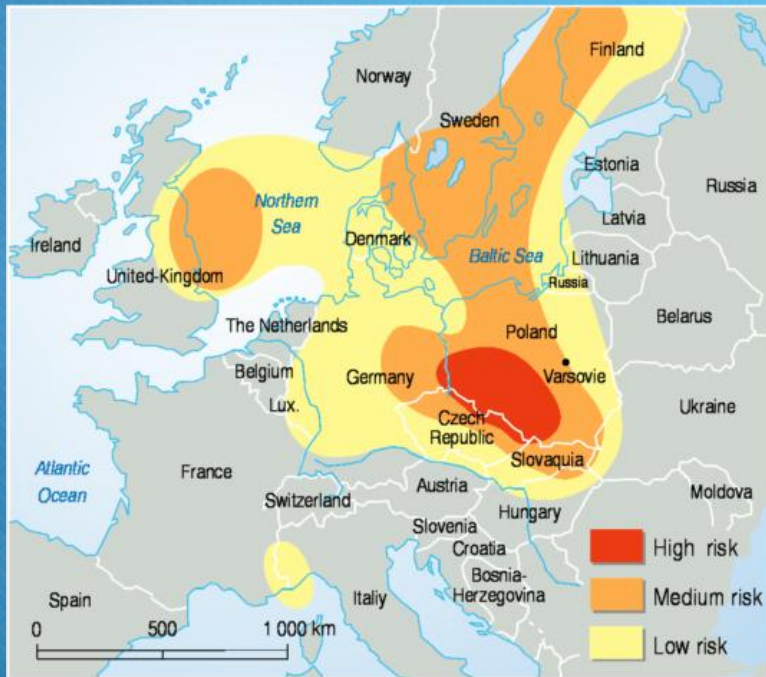
- Acid Rain is caused by emissions from cars – but mostly factories
- The gasses like sulphur oxide and nitric oxide mix with rain and fall as “poison rain”

# Effects of Acid Rain



- Forests, plants, and lakes become highly ACIDIC – high PH reading
- Building become destroyed
- Water becomes toxic

# Which areas are affected by Acid Rain?





# Issue #5: Oil

- We consume oil at a massive rate, and we will run out of it in our lifetime.
- We have moved towards off-shore drilling – very risky but lucrative oil extraction
- Unfortunately, when there are spills, they are very difficult to deal with







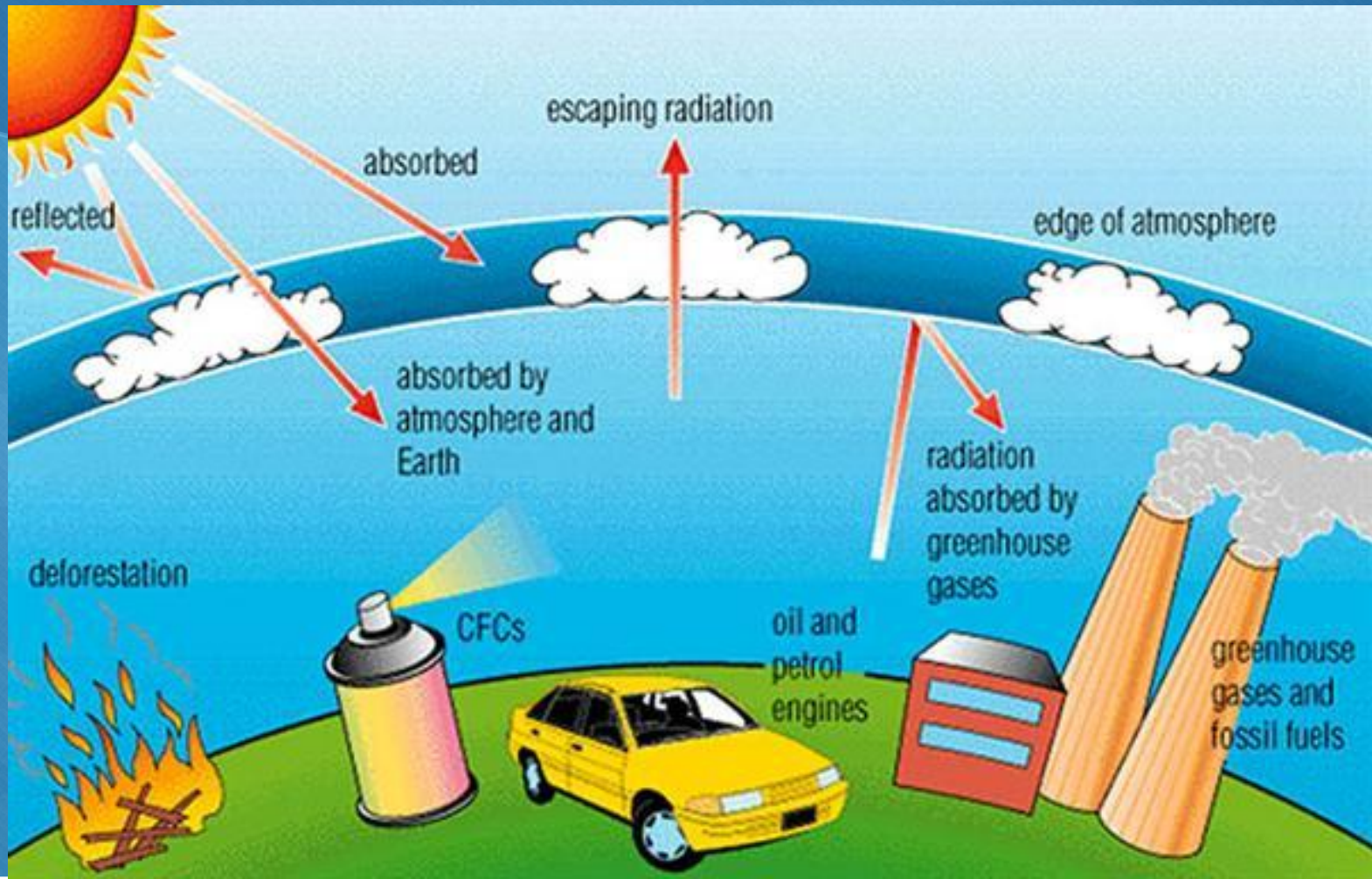
# Gulf of Mexico- Fragile



- BP is losing 480 million dollars in oil every day from the spill
- They are not expecting to have solved the spill before the end of August
- They are being investigated for criminal charges

# Issue #5: Climate Change

*It starts with the Greenhouse effect*





# Climate Change is natural...

- However, the rate of increase in temperature is increasing at a rate we haven't seen before.
- Our rate of overall increase in temperature tends to correlate with the amount of CO<sub>2</sub> – greenhouse gasses in our atmosphere
- They increase the strength of the greenhouse effect



# Human Causes

- ◊ Examine the handout...
- ◊ KEY ACTIONS:
  - ◊ Cars
  - ◊ Factory Emissions - this is the BIG ONE
  - ◊ Deforestation of “the lungs of the earth”



# Physical Effects of Warming

- Melting ice caps – which adds freshwater to ocean decreasing its salinity – affects ocean currents
- Melting permafrost – storage basin for massive amounts of CO<sub>2</sub> – tipping point
- “Weird Weather” – increasing numbers of storms, floods, hurricanes, tornadoes
- Shifts in Climate Zones and Vegetation Patterns

# Devastating Effects



# “Drunk Trees”







# Effects of Warming on Humans

- Displaced peoples – currently 25 million environmental refugees
- Destruction of property, infrastructure
- Increased poverty, and competition for resources
- Increased drought – more pressure on fresh water
- Increased famine – crops do not grow



**Flooding in India - 2008**

