

**INTERACTIONS WITH
NATURAL SYSTEMS AND
RESOURCES**

GEOLOGY

INTRODUCTION

- Interactions of matter and energy through geologic processes have led to the **uneven** distributions of **natural resources**. Many of these resources are **nonrenewable** and per capita use can cause positive or negative **consequences**.
- As energy flows through the physical world, **natural disasters** can occur which affect human life. Humans can study **patterns** in natural systems to **anticipate** and forecast future disasters and work to **mitigate** the outcomes.



NATURAL RESOURCES

- Natural resources are substances constructed by nature that help to support life on Earth.
 - List as many natural resources as you can on your paper.
- Each natural resource is made in its unique ways and found in certain places.
 - Where can these natural resources be found?
 - How are they formed?



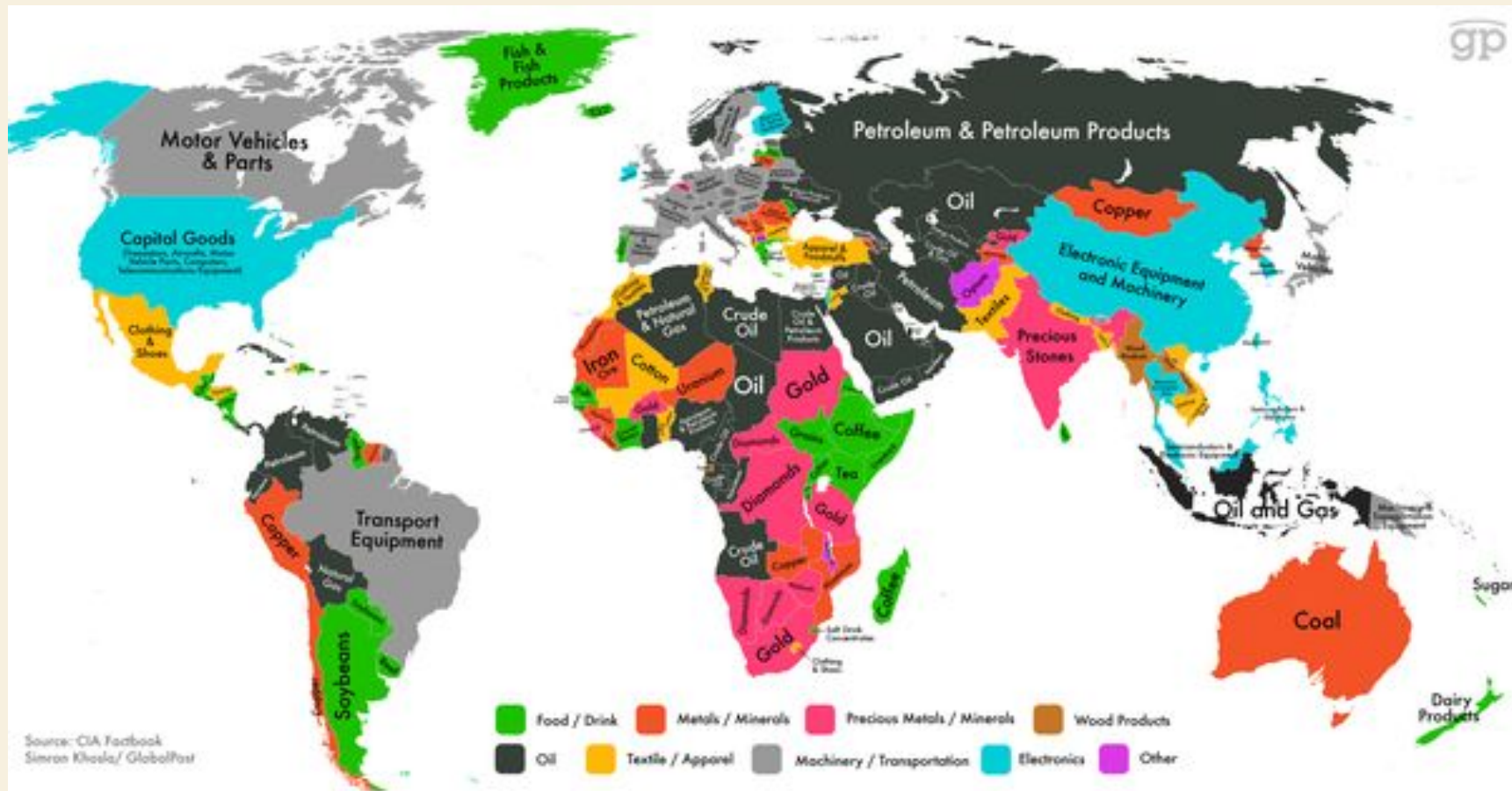
NATURAL RESOURCES

- Metals → volcanic rocks, faults, metamorphic rocks,
- Salts, calcite, gypsum → sedimentary minerals, where water has evaporated
- Fossil Fuels → sedimentary rocks, plants, animals sediments that are buried, compacted, and altered by heat and pressure
- Precious Gems → in all types of rocks, most in igneous and metamorphic
- Building materials → anywhere there is rocks or trees to build with
- Water → groundwater, aquifers, porous rocks, and lakes
- Renewable fuels (geothermal, hydrological) → underground, large bodies of water



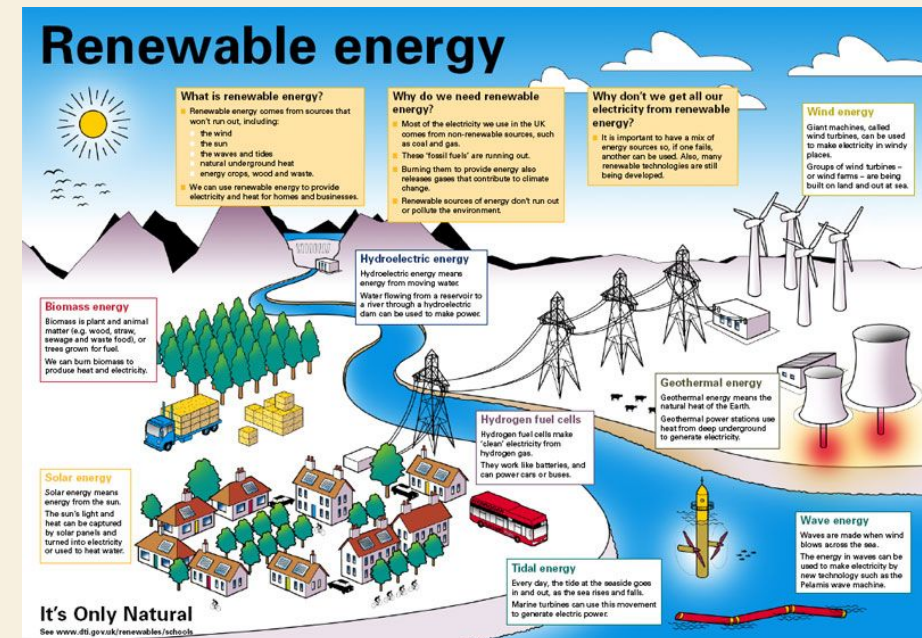
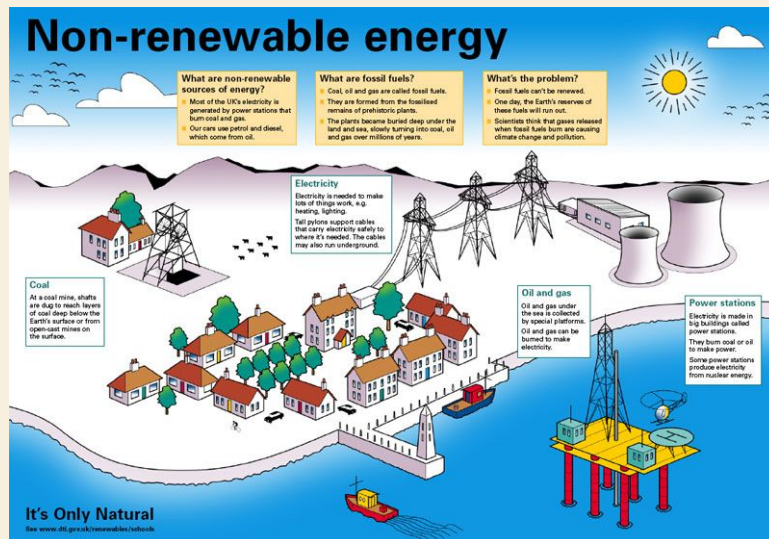
WORLD'S GEOLOGY

- On a worldwide scale these patterns are repeated. Some countries have many resources available to them while others have few.



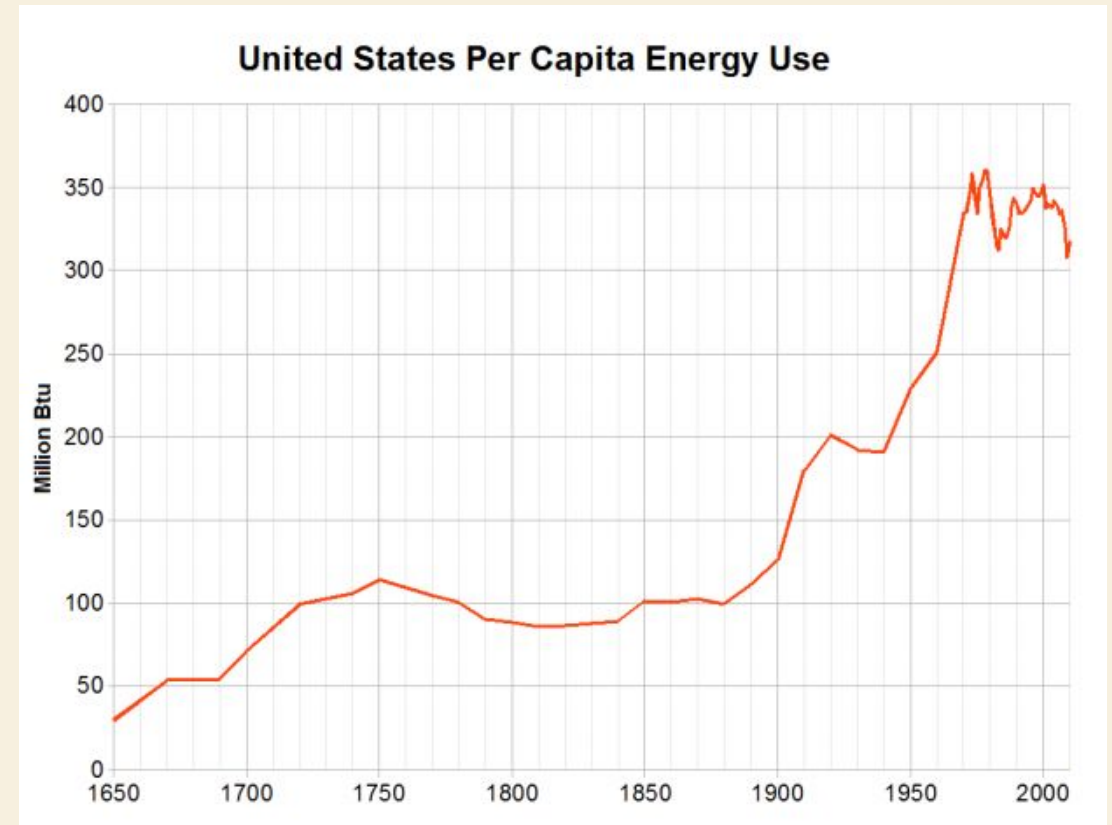
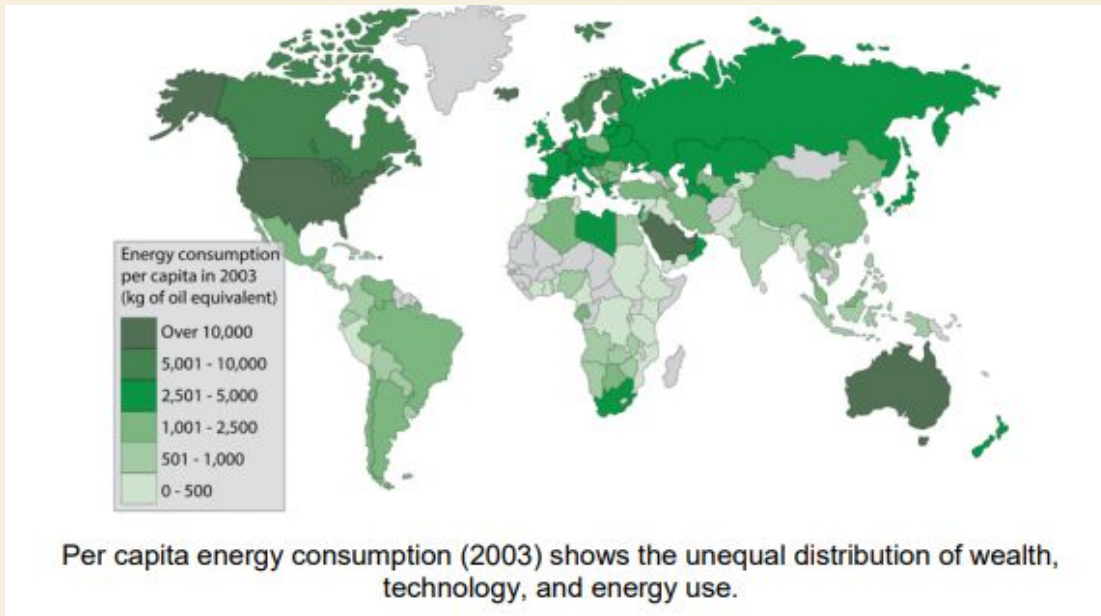
RENEWABLE OR NONRENEWABLE

- What is the difference between a RENEWABLE and NONRENEWABLE resource?
 - Renewable: means the resource can be replenished by natural processes as quickly as humans use them.
 - What natural resources would be considered RENEWABLE? List them on your paper.
 - Sunlight, wind, water, and certain minerals
 - Non Renewable: means there is a fixed amount of this natural resource and can be used up.
 - What natural resources would be considered NONRENEWABLE? List them on your paper.
 - Fossil Fuels and nuclear power, minerals, metals



PER CAPITA USE OF NATURAL RESOURCES

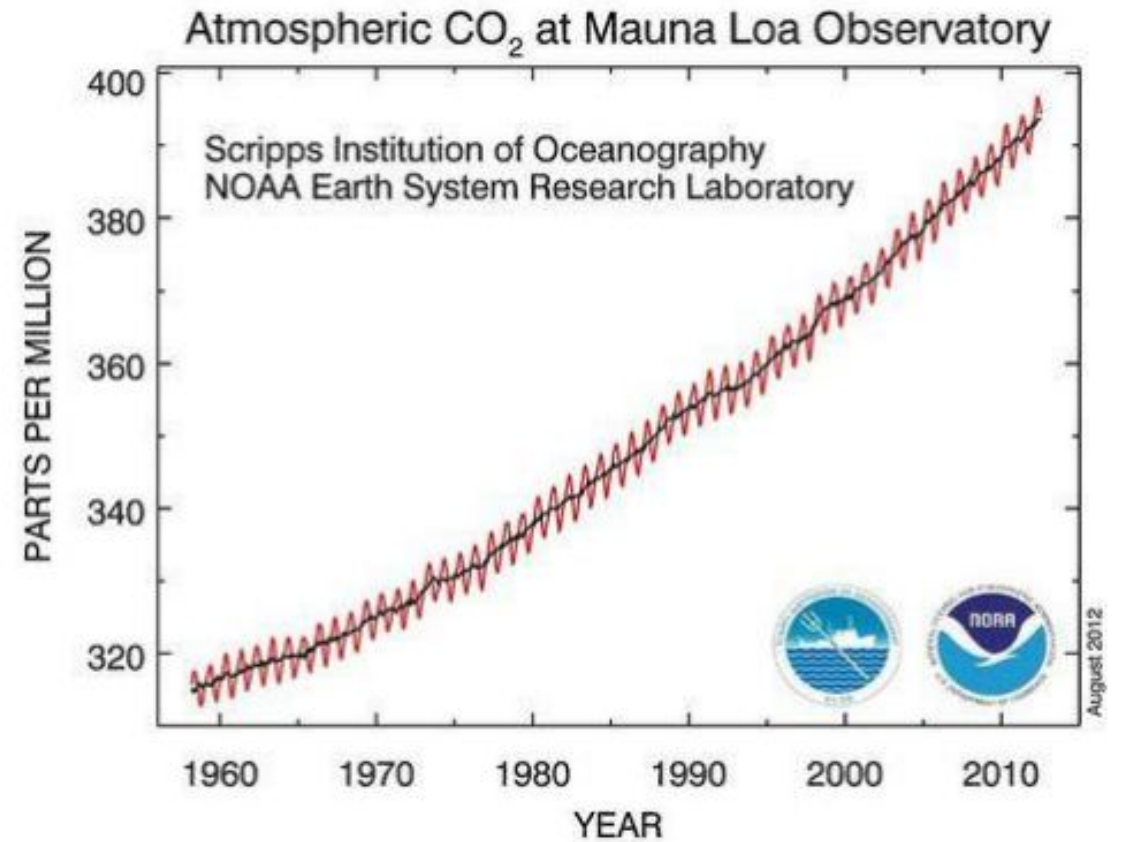
- Analyze the graphs and charts to determine the effect of per capita consumption of natural resources on Earth's systems. Identify the PATTERNS you see among the charts and possible explanation for them.



- What are possible solutions to to slow the use of natural resources? Be Specific, think about the projects we did.

GLOBAL CLIMATE CHANGE

- Global climate change is a long-term change in the earth's climate, especially a change due to an increase in the average atmospheric temperature
- Causes of Climate Change:
 - Burning of fossil fuels
 - Pollution
 - CFC's
 - Releasing green house gases
 - Burning forests
- Effects of Climate Change:
 - Sea Ice melting
 - Oceans warming and rising
 - Increase in size and number of storms (hurricanes, tornados)
 - Acidifications
 - Coastal flooding



NATURAL HAZARDS

- A natural hazard is an event that occurs in nature that has the **potential** to cause harm to **humans** or their **property**.
 - Examples: earthquakes, volcanoes, landslides, rock falls, sinkholes, tornadoes, hurricanes, flooding, avalanches, thunderstorms
- By studying natural hazards we can learn some of the **patterns** associated with them. By knowing these patterns we can use them to possibly **predict** them.
 - What are some patterns used to predict natural hazards?
- What are some solutions and/or technologies used to mitigate the effects of natural hazards?

