# Jeopardy

**Choose a category.**
**You will be given the answer.**
**You must give the correct question.**

**Click to begin.**

Choose a point value.

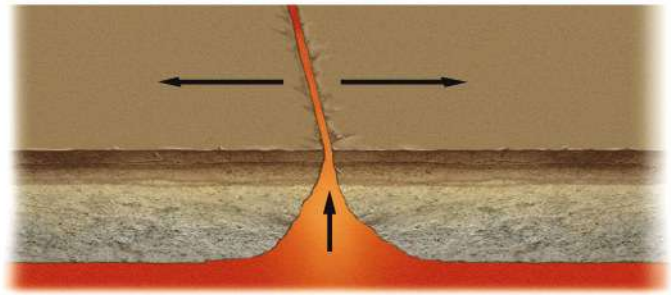
Choose a point value.

Click here for
Final Jeopardy

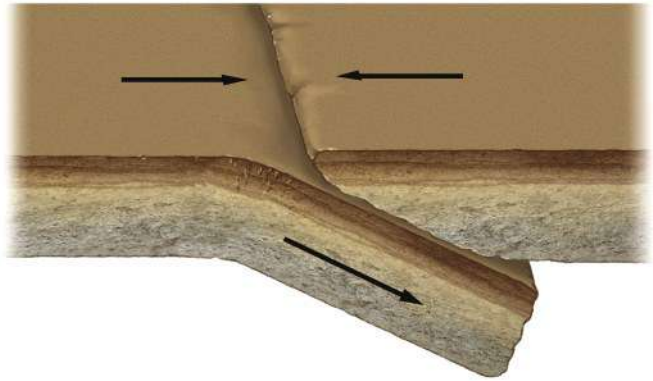
| Plate Boundaries | Global Environmental Indicators | Faults & Waves | Know your Earth | Gettin' Dirty | Surprise! |
|---|---|---|---|---|---|
| 10 Point | 10 Point | 10 Point | 10 Point | 10 Point | 10 Point |
| 20 Points | 20 Points | 20 Points | 20 Points | 20 Points | 20 Points |
| 30 Points | 30 Points | 30 Points | 30 Points | 30 Points | 30 Points |
| 40 Points | 40 Points | 40 Points | 40 Points | 40 Points | 40 Points |
| 50 Points | 50 Points | 50 Points | 50 Points | 50 Points | 50 Points |

# The San Andreas fault is an example of this type of boundary.

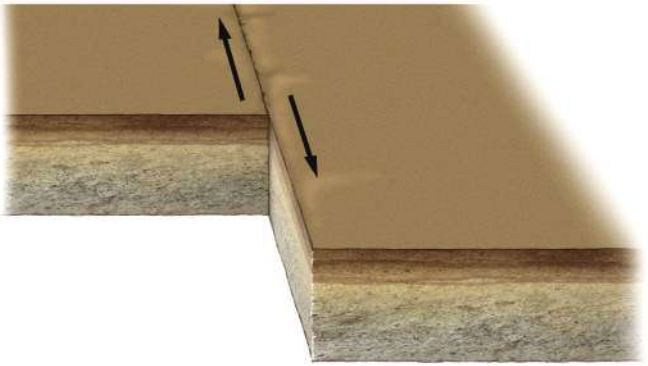

**Figure 8.10**
*Environmental Science*



(a) Divergent plate boundary



(b) Convergent plate boundary



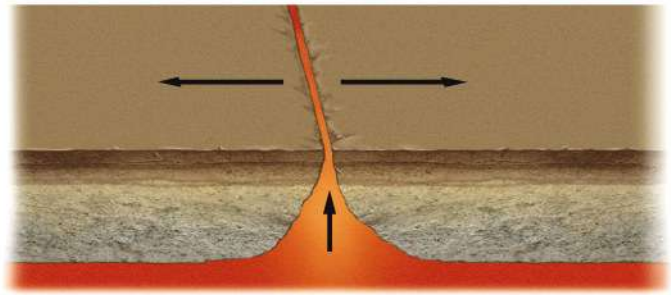
(c) Transform fault boundary

**Figure 8.8**
***Environmental Science***


# What is transform fault boundary?

**80% of volcanoes occur at this type of boundary**

# What is convergent boundary – Ring of Fire?



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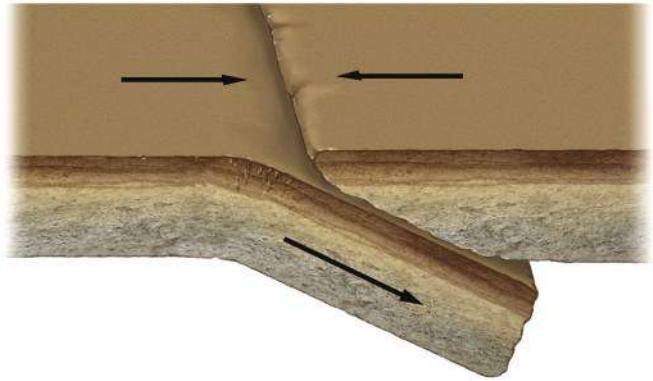
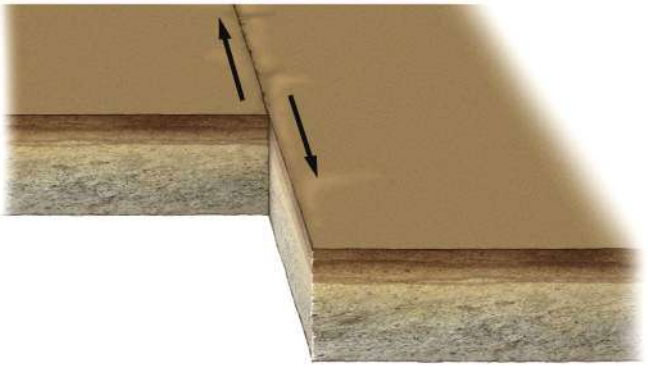


(b) Convergent plate boundary



(c) Transform fault boundary

**Figure 8.8**
*Environmental Science*

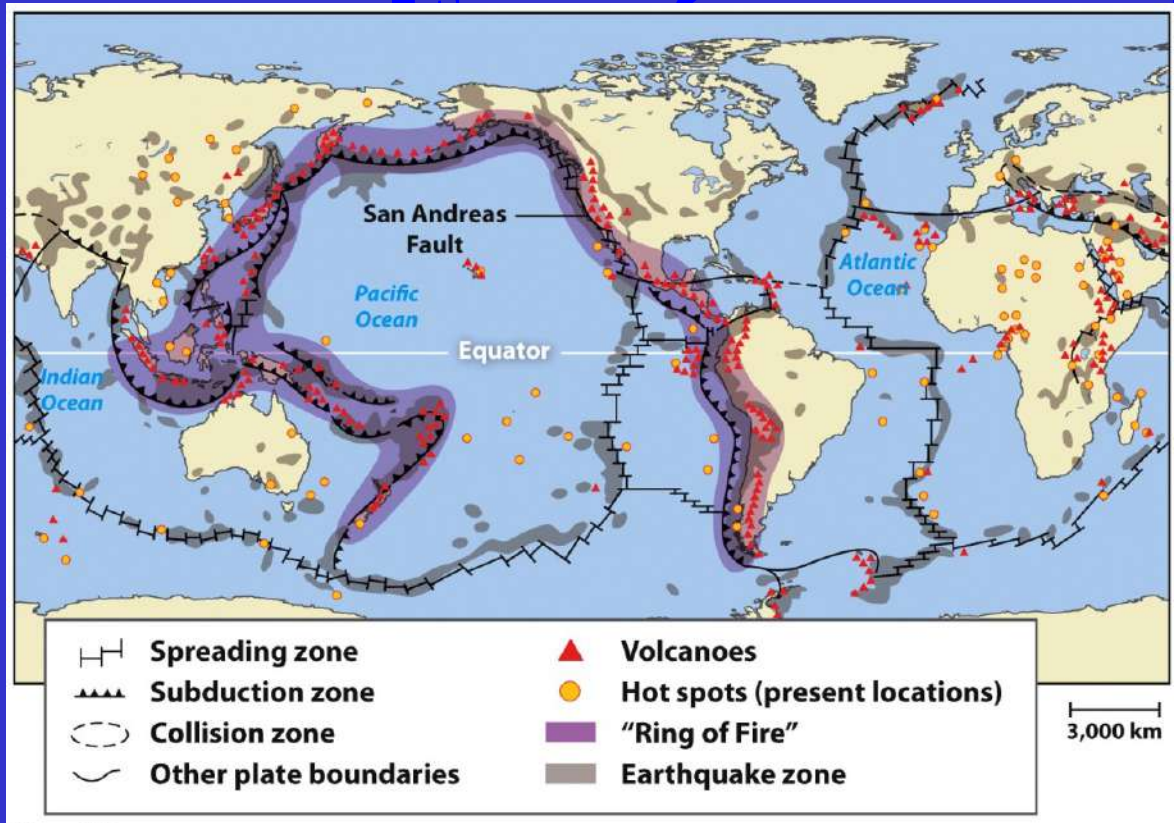
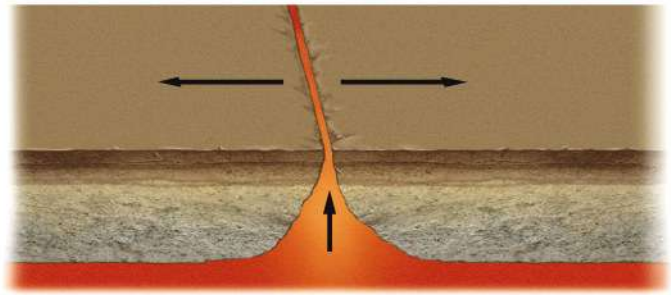




**Figure 8.11**
*Environmental Science*

**New crust forms at mid-ocean ridges along this type of boundary.**



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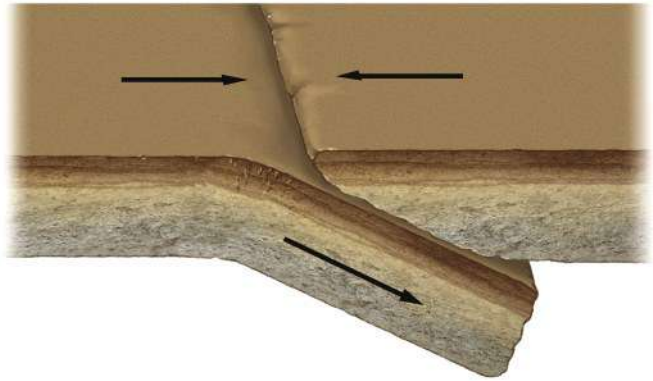
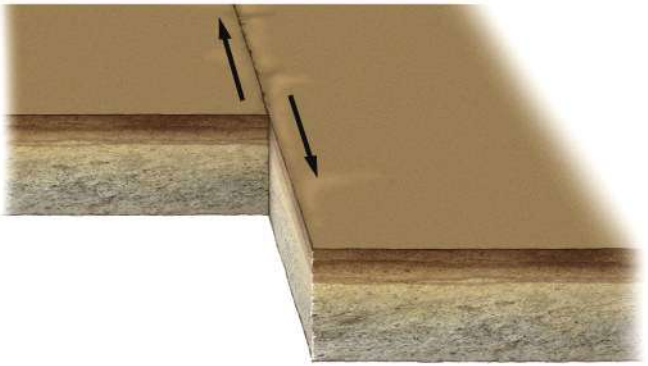


(b) Convergent plate boundary



(c) Transform fault boundary

**Figure 8.8**
***Environmental Science***


# What is divergent boundary – Marianas Trench?

**Subduction between ocean plates creates these two features.**

# What are trenches Marianas and volcanic islands - Hawaii?

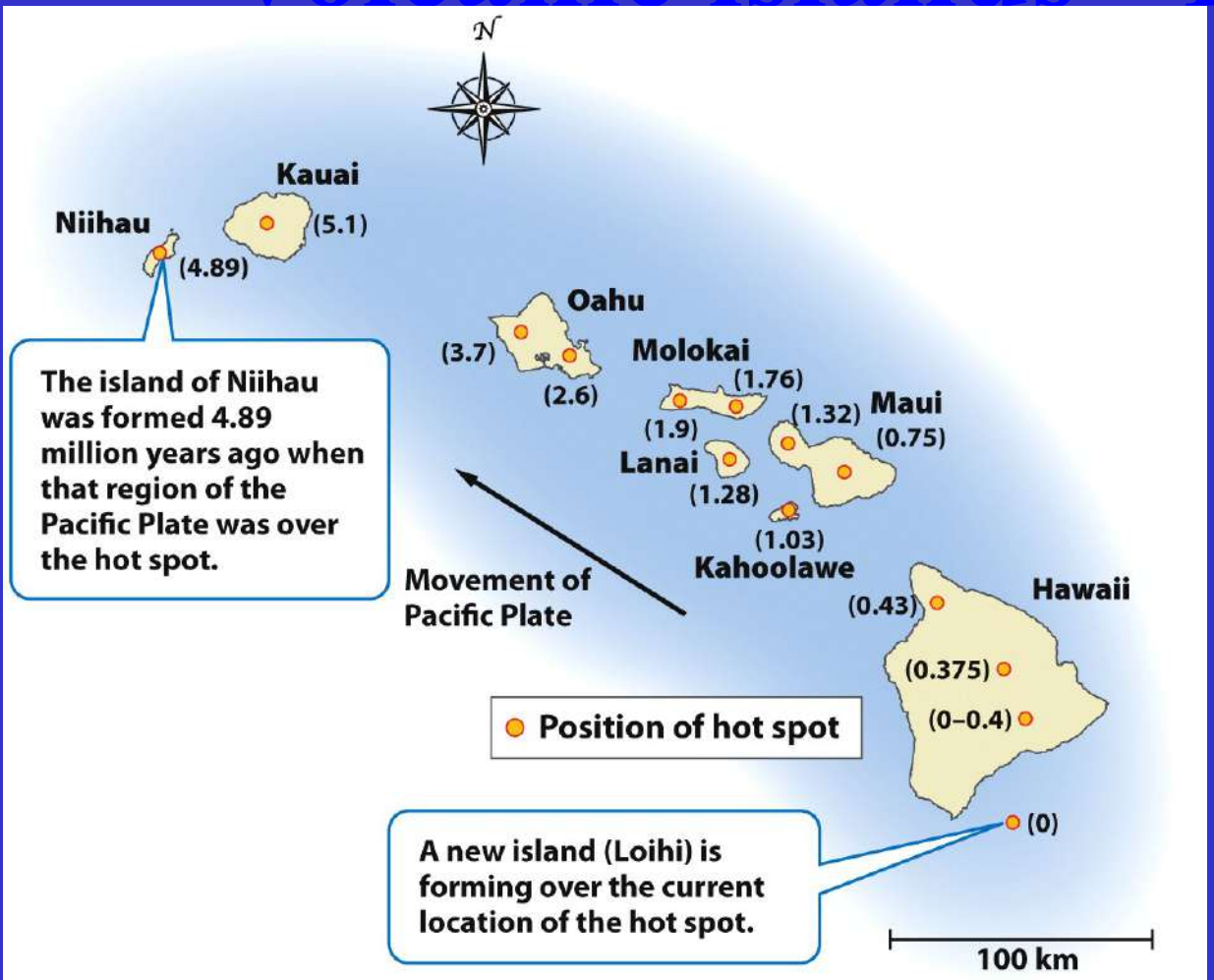


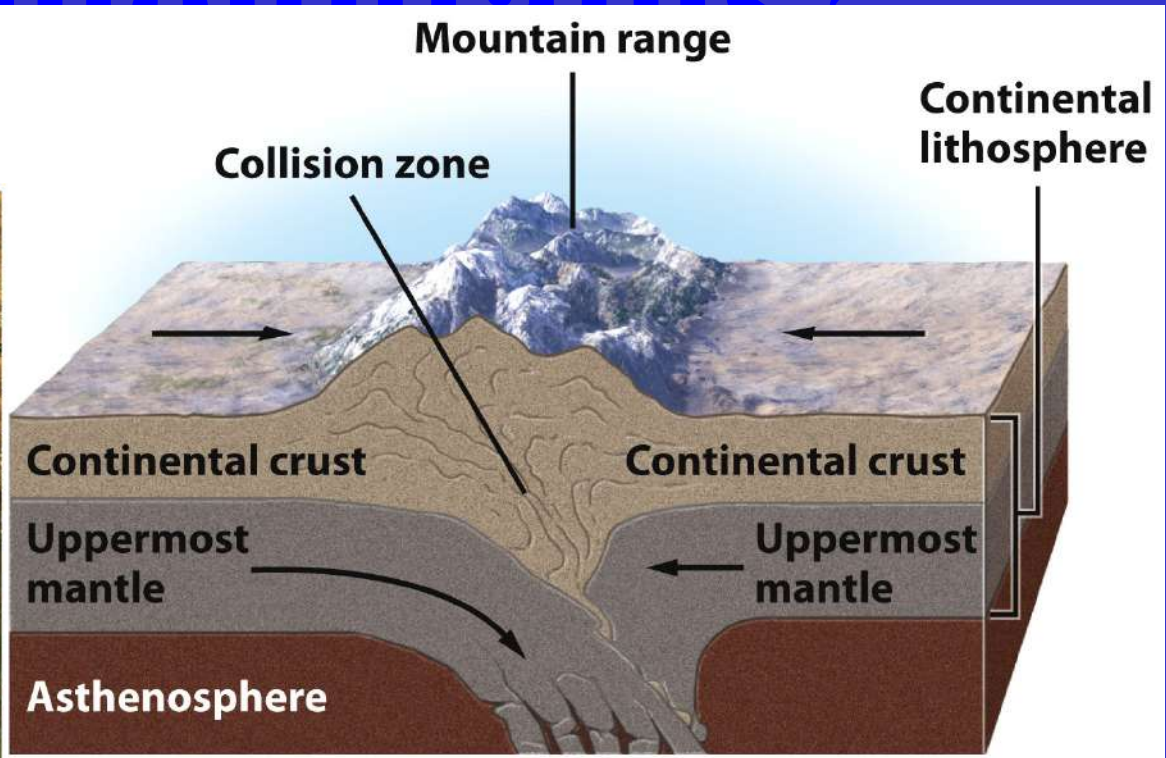

**Figure 8.7**
*Environmental Science*

**If 2 continental plates diverge this forms, but if they converge you see these.**

# What are rift valleys and mountains?

The Himalayas from space

Figure 8.9b
*Environmental Science*


Formation of the Himalayas

Figure 8.9a
*Environmental Science*

**This Environmental indicator states that there are large numbers of extinctions and the rate is increasing.**

# What is Biological Diversity?

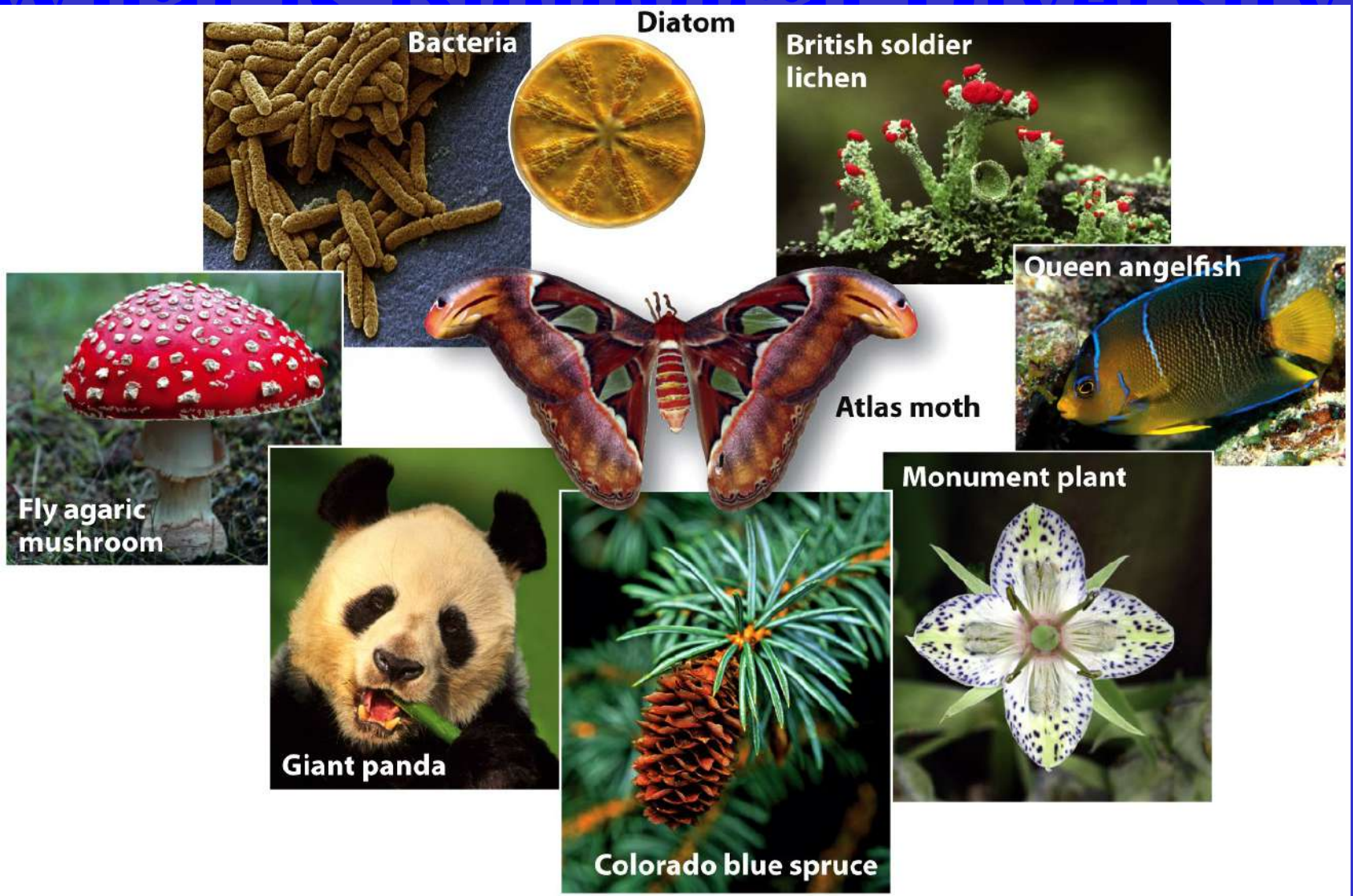



**Figure 1.4**
***Environmental Science***

# Give an example of a Negative Feedback Loop and a Positive Feedback Loop

Chapter 2 Opener
*Environmental Science*

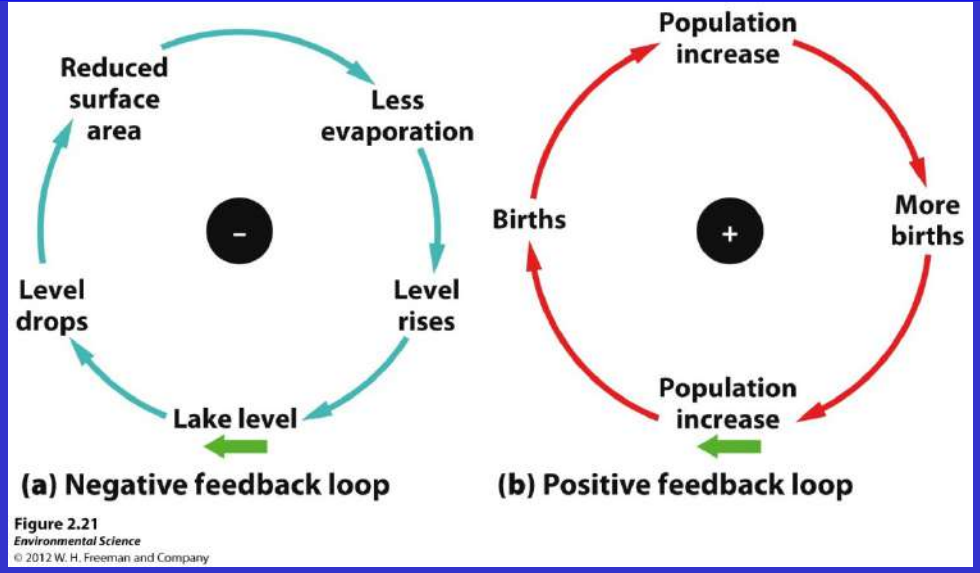
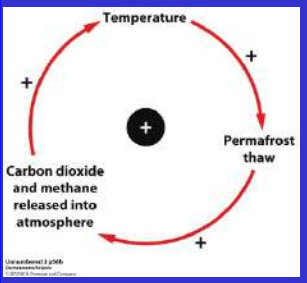




**Figure 2.21**
*Environmental Science*


**Negative Feedback Loop – responds to change by returning to its original state, water levels at Mono lake is an example ?**




**Positive Feedback Loop – growth of the human population, we grow more food to feed more people and they have more children, which in turn need more food.**

**These are the five key global environmental indicators.**

# Biological Diversity, Food Production, Average global surface temperature & CO2 Concentrations, Human Population, Resource Depletion?

**TABLE 1.2 Five key global environmental indicators**

| Indicator | Recent trend | Outlook for future | Overall impact on environmental quality |
|---|---|---|---|
| Biological diversity | Large number of extinctions, extinction rate increasing | Extinctions will continue | Negative |
| Food production | Per capita production possibly | Unclear leveling off | May affect the number of people Earth can support |
| Average global surface temperature and $CO_2$ concentrations | $CO_2$ concentrations and temperatures increasing | Probably will continue to increase, at least in the short term | Effects are uncertain and varied, but probably detrimental |
| Human population | Still increasing, but growth rate slowing | Population leveling off Resource consumption rates are also a factor | Negative |
| Resource depletion | Many resources are being depleted at rapid rates. But human ingenuity frequently develops "new" resources, and efficiency of resource use is increasing in many cases | Unknown | Increased use of most resources has negative effects |

**Table 1.2**
***Environmental Science***

**These are the two major sources of anthropogenic $CO_2$ & this is the result.**

# Combustion of fossil fuels & net loss of forests & other habitats that would take up $CO_2$?

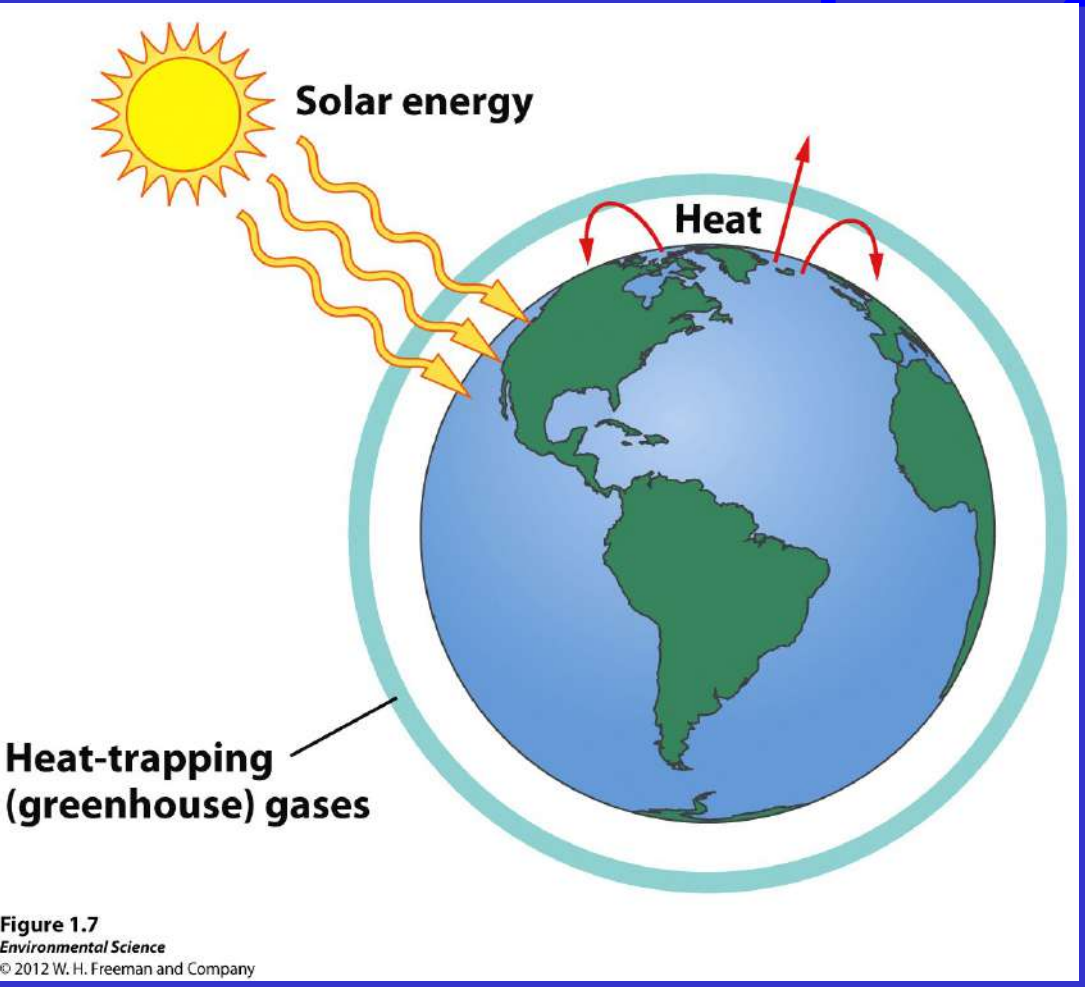



Figure 1.7
*Environmental Science*


**Greenhouse Gases leading to Global warming, and then Global Climate change.**

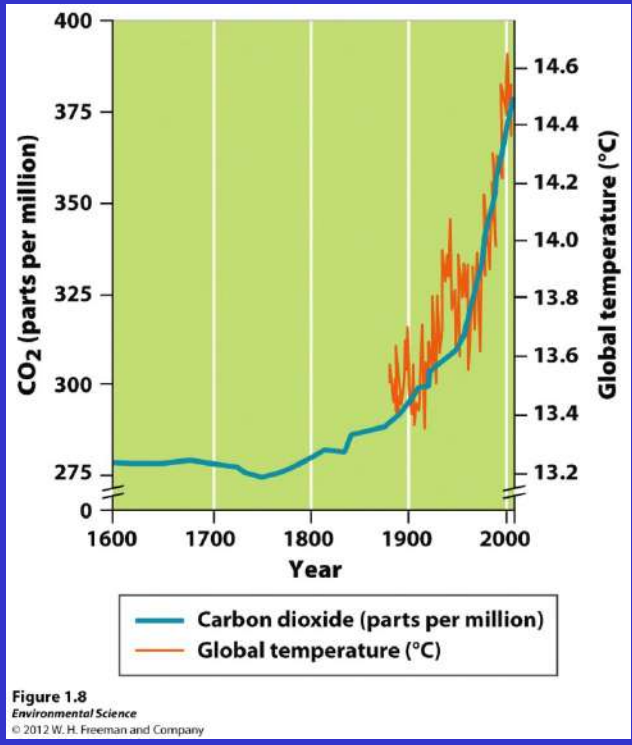



Figure 1.8
*Environmental Science*

**How can a person's sustainability with respect to resources be measured?**

# Ecological Footprint, how we grow our food, where and how we build, how we use water, what conservation techniques do we use?


**Figure 1.15**
*Environmental Science*

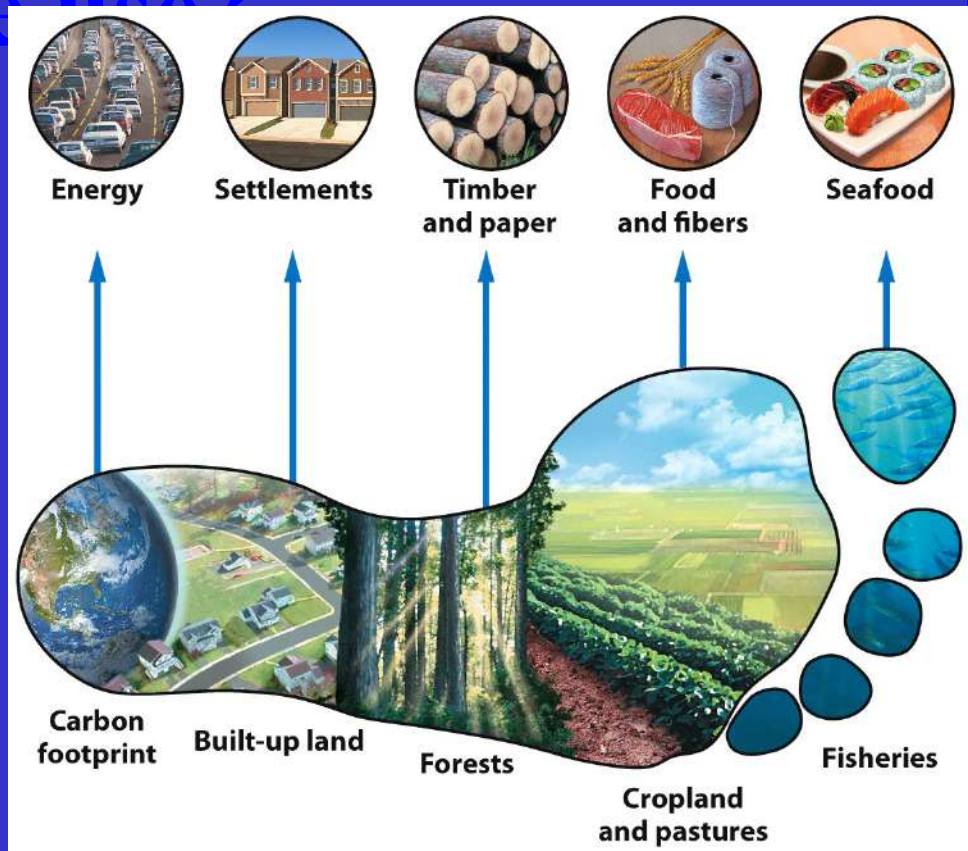




**Figure 1.14**
*Environmental Science*

**Earthquakes occur along these cracks in the earth's surface.**

# What are faults, San And


**Figure 8.10**
*Environmental Science*

**These are the five atmospheric layers and characteristics of each.**

**What is Troposphere, closest to Earth and gets cooler as altitude increases,**

**Stratosphere 2nd layer up and increases in temperature to 60 km, contains the good Ozone, Mesosphere is the third layer and gets cooler again100 km,**

**Thermosphere gets incredibly warm and extends to 600km,**

**Then the last layer is the Exosphere?**

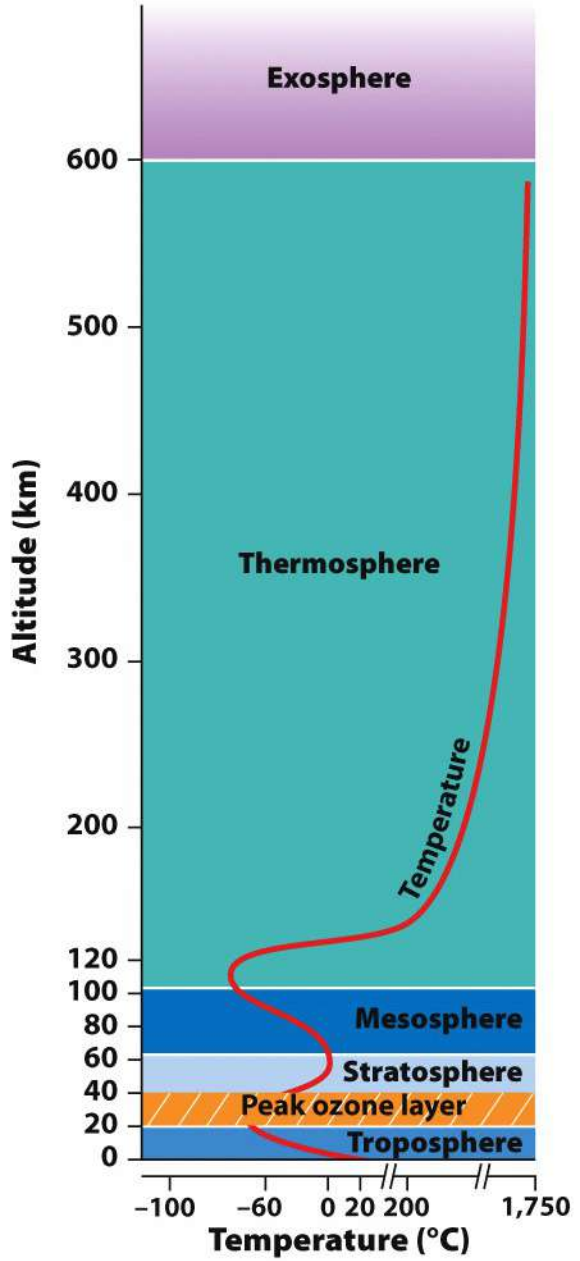



**Figure 4.1**
*Environmental Science*

**Explain Albedo and give an example of a location with a high albedo.**

# What sunlight reflected from a surface, a white surface, such as a glacier 80- 95%?

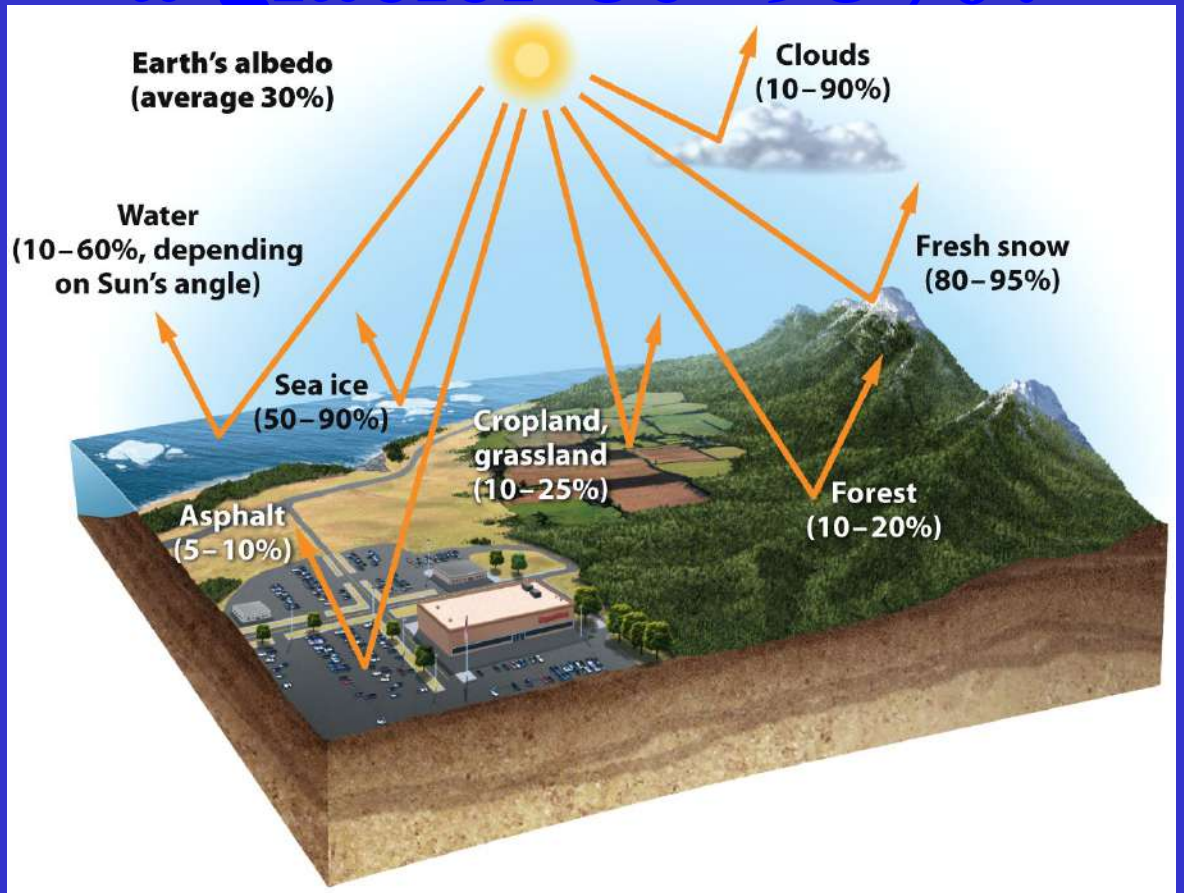



**Figure 4.4**
*Environmental Science*

# Explain the Coriolis Effect.

# What is the Earth's Rotation, and the deflection of an object's path?

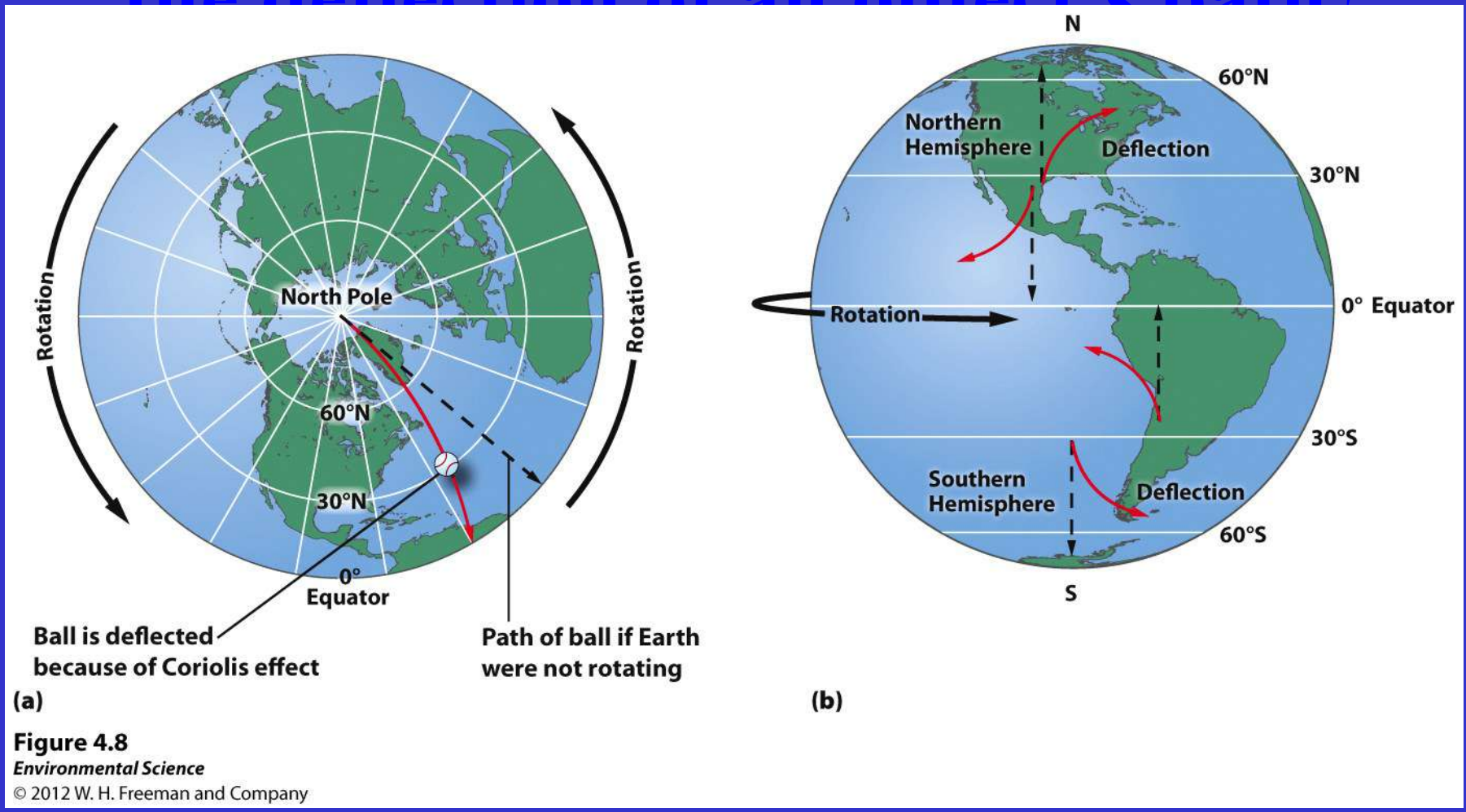



**Figure 4.8**
***Environmental Science***

# Explain the Convection Current – Hadley Cell.

# What are latitudes 0 – 30 degrees N & S of the equator that predict climate patterns: temperature and precipitation?

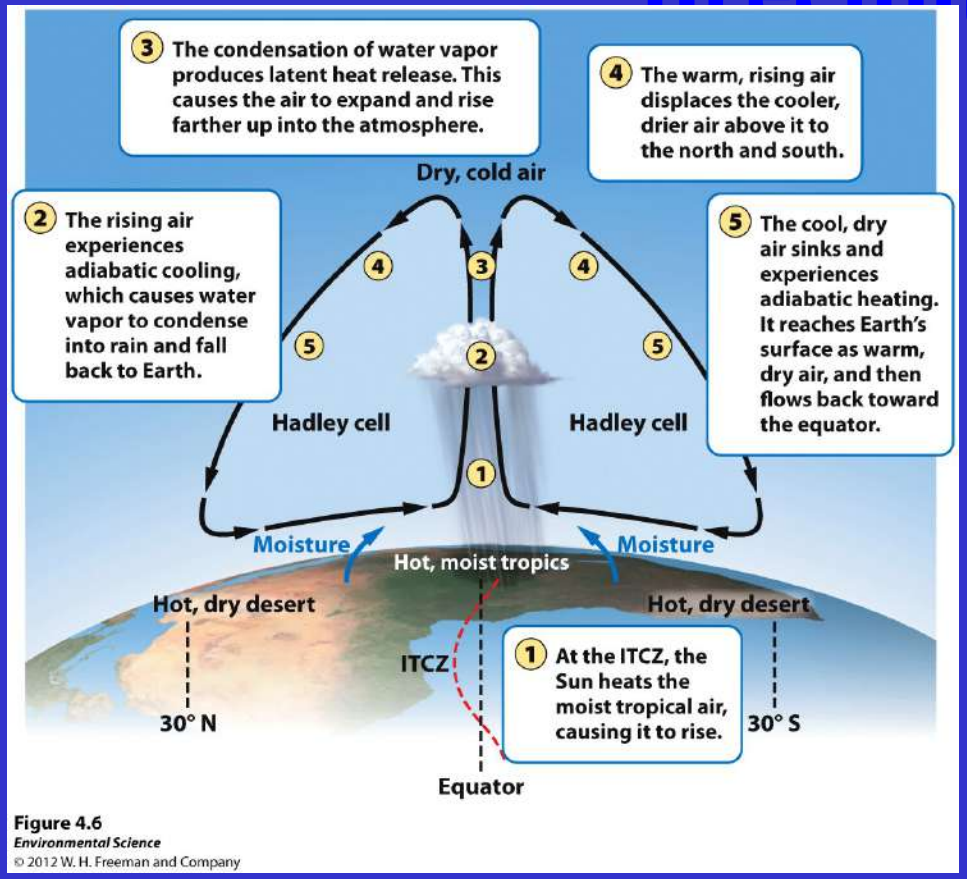



Figure 4.6
*Environmental Science*

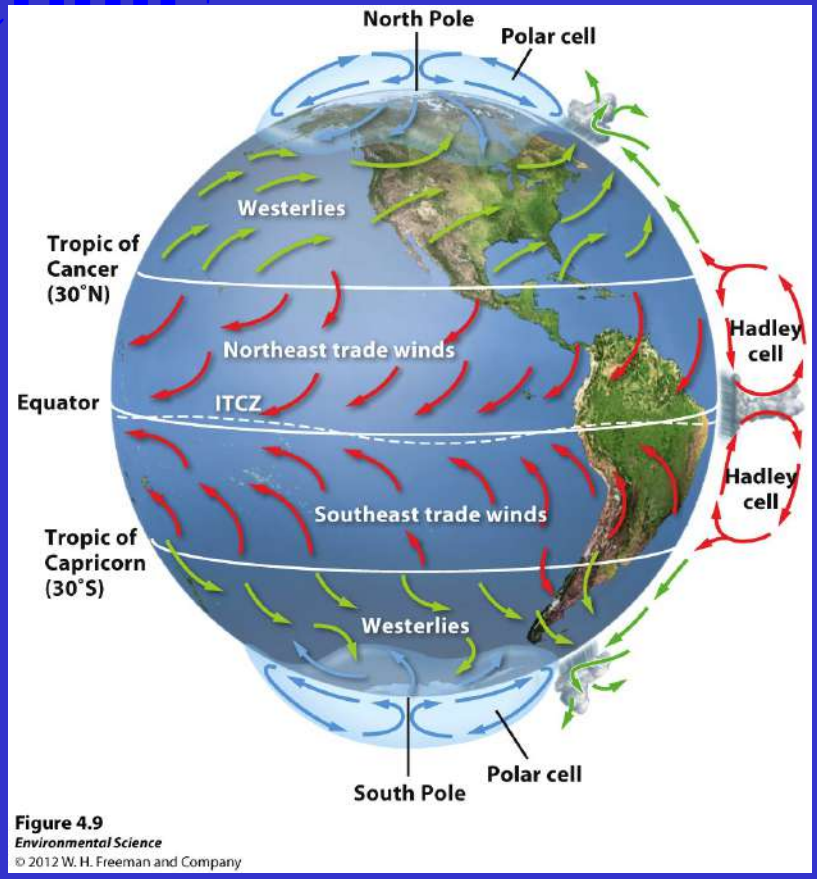




Figure 4.9
*Environmental Science*

**Explain and give an example of upwelling.**

# What is an ocean current off the coast that moves water upward toward the surface bringing with it valuable nutrients to support large populations of producers, increasing the biodiversity?

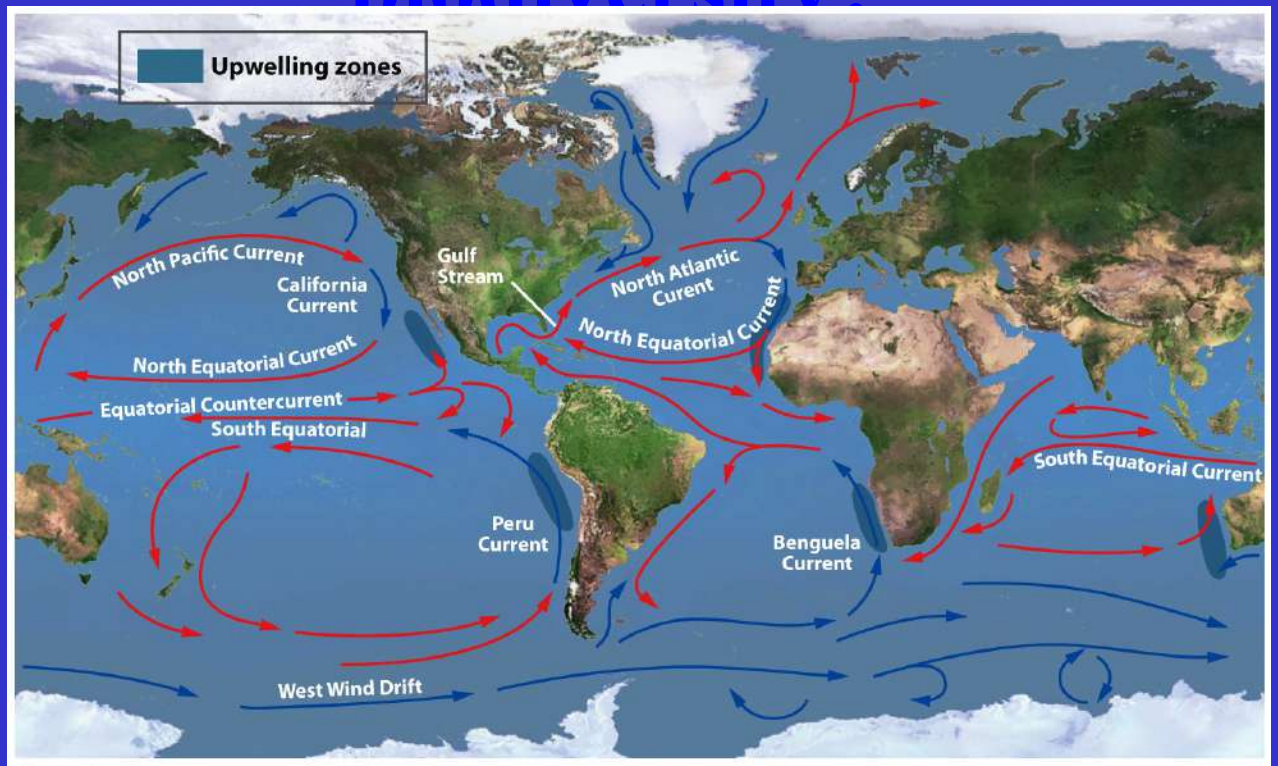



**Figure 4.11**
*Environmental Science*

**Which respect to Energy and Matter on Earth, explain Inputs and Outputs.**

# What is Energy input = Solar Radiation, Output is Heat and reflected light?

# What is Matter input – none (unless it is an asteroid) Output – None (unless you consider satellites shooting off into space.

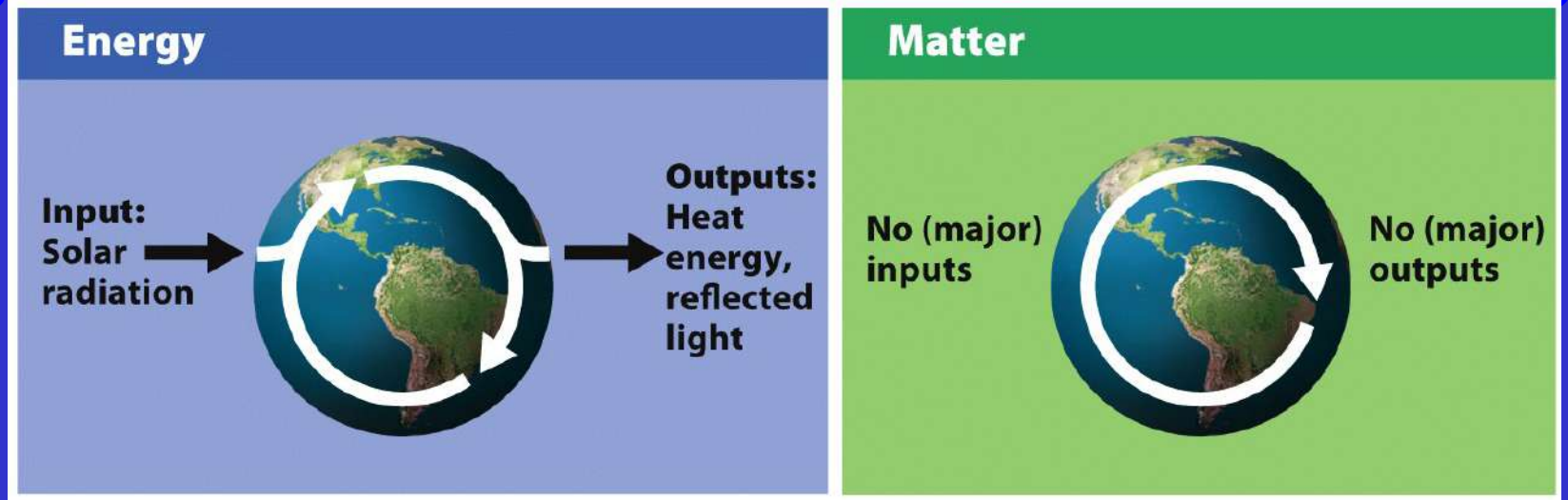



**Figure 2.18**
***Environmental Science***

# Explain the Intermediate Disturbance Hypothesis

# What Species diversity is highest at intermediate levels of disturbance? The most competitive and best adapted to their environment survive to reproduce.

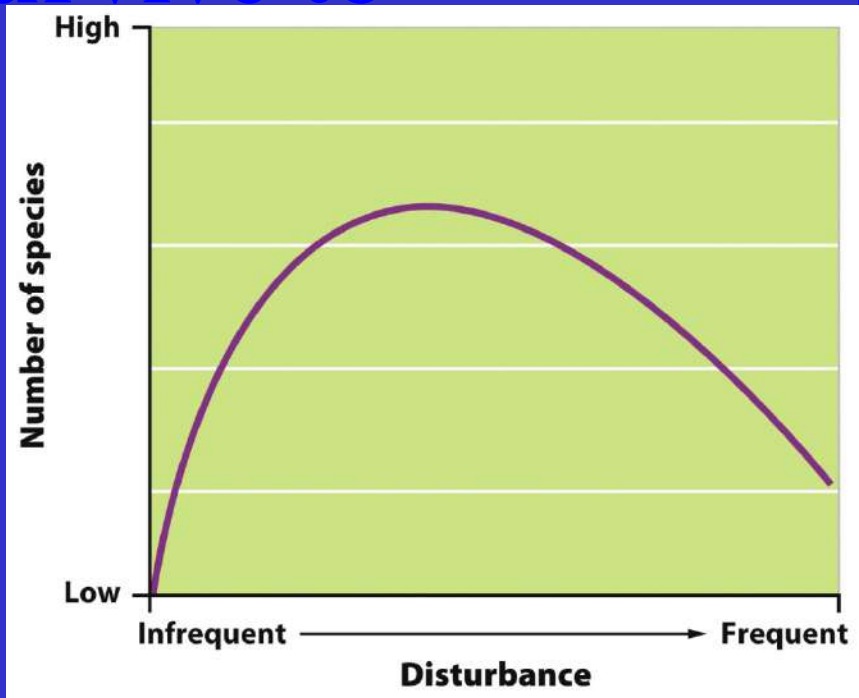



Figure 3.19
*Environmental Science*

# These are the 4 Eras in Earths History.

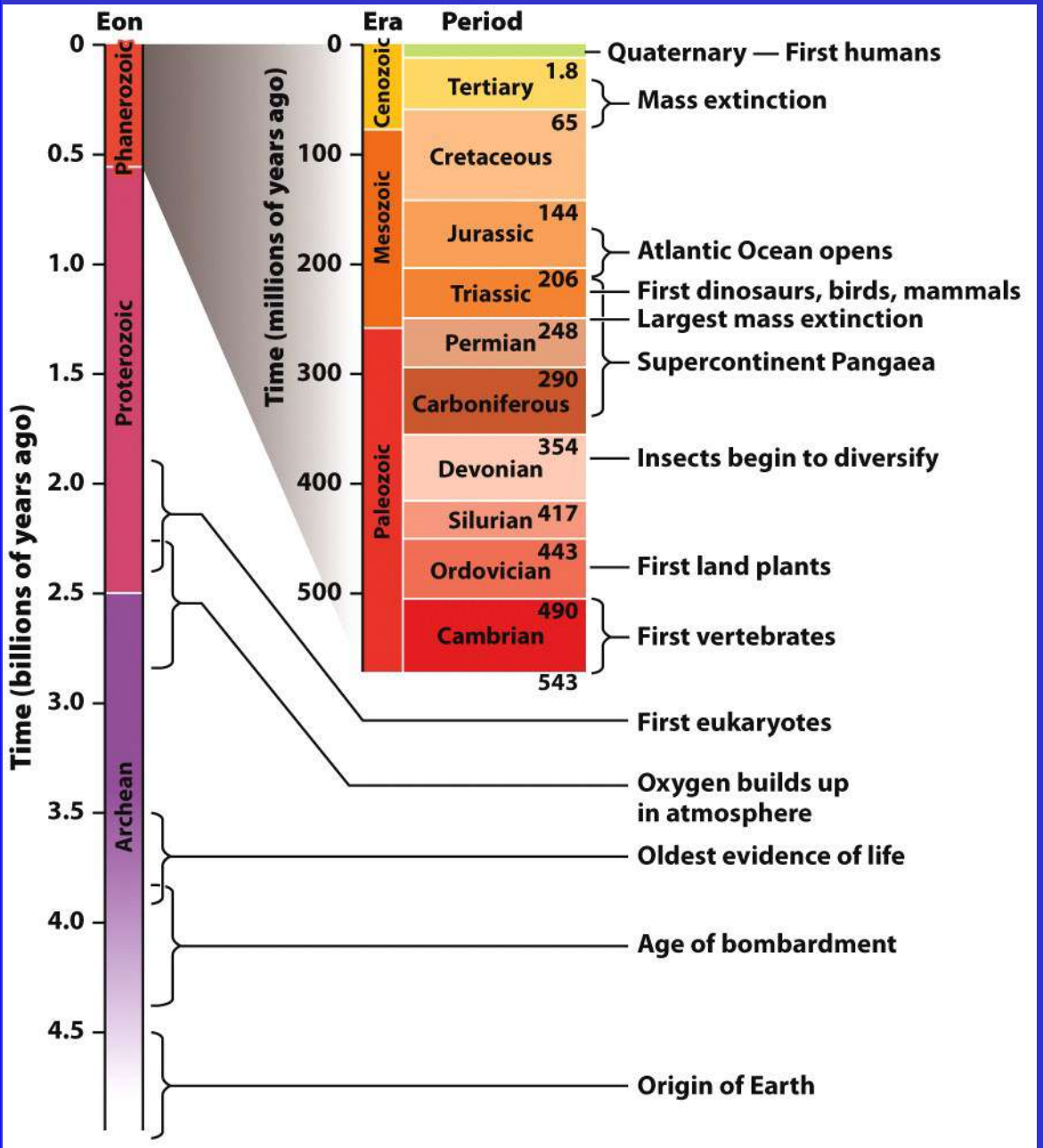



**Figure 8.6**
***Environmental Science***


# What are Precambrium, Paleozoic, Mesozoic, Cenozoic?

**Describe the three particle sizes of Soil & their ability to hold water.**

# What are clay, silt, sand?

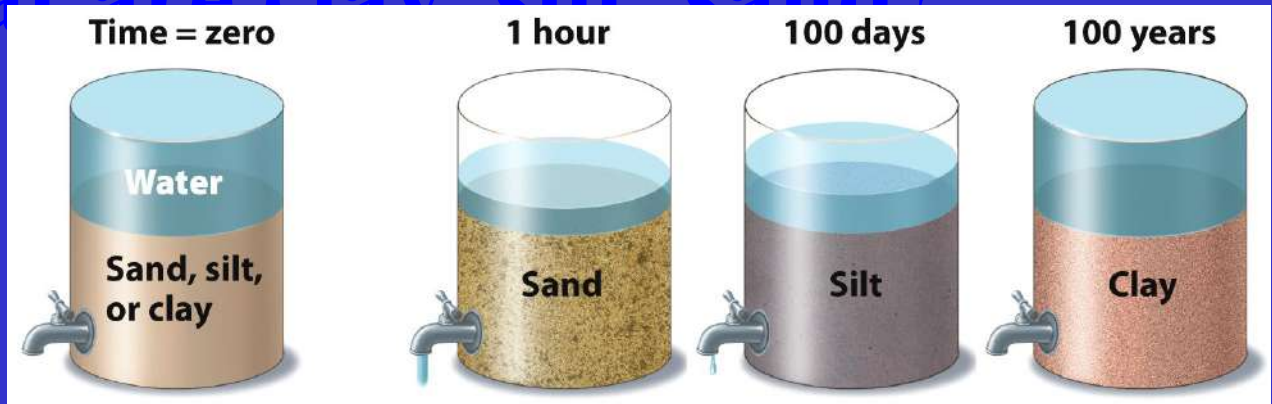
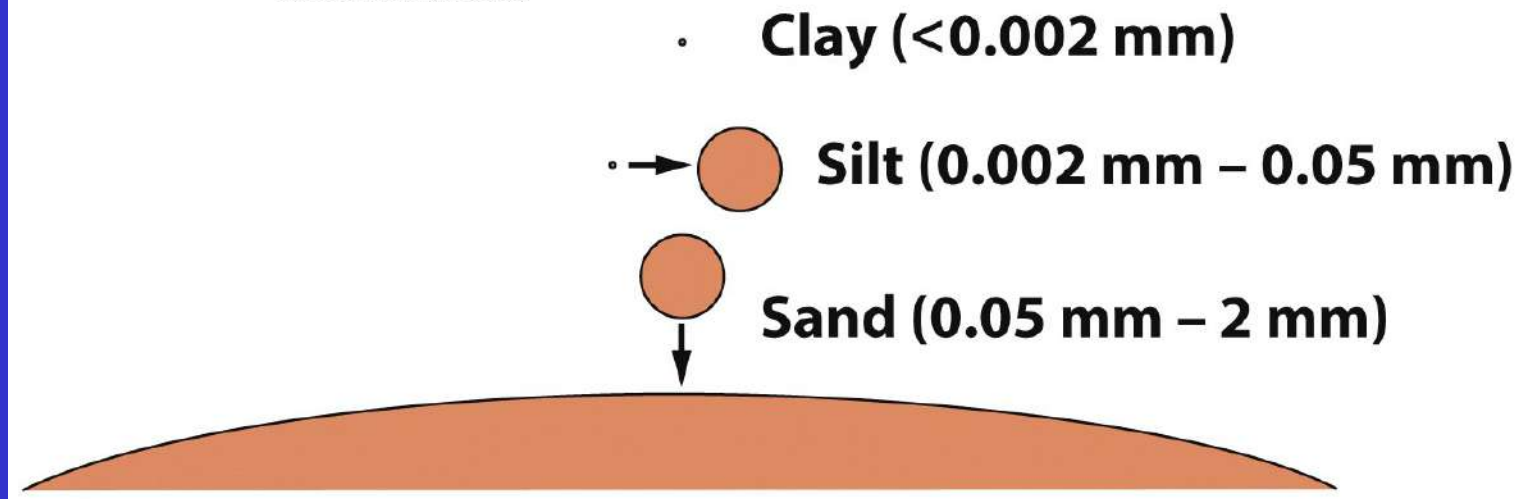



**Figure 8.23**
*Environmental Science*


**Relative soil particle sizes (magnified approximately 100 times)**

**Figure 8.22b**
*Environmental Science*

**Volcanoes and earthquakes occur along these.**

# What are plate boundaries?

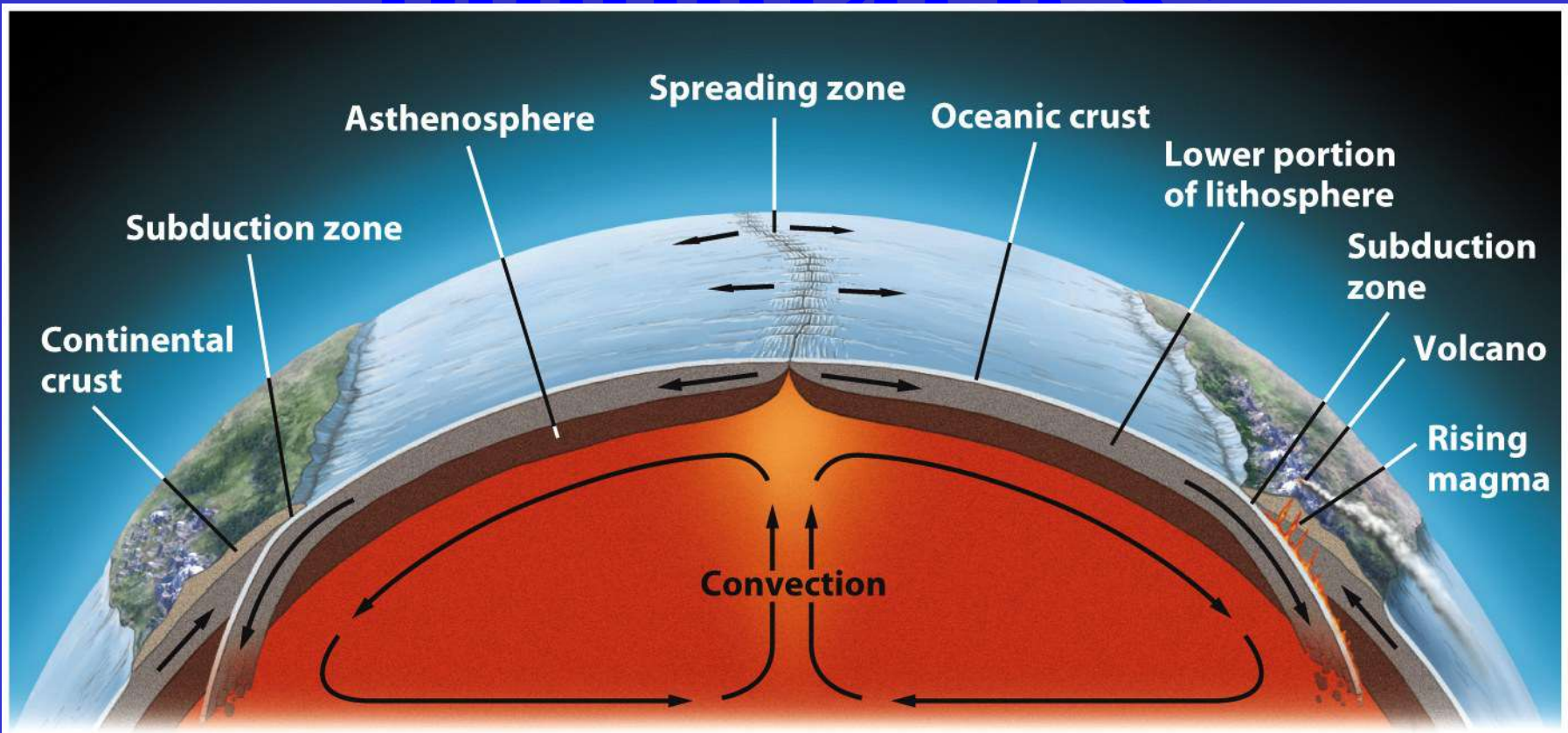
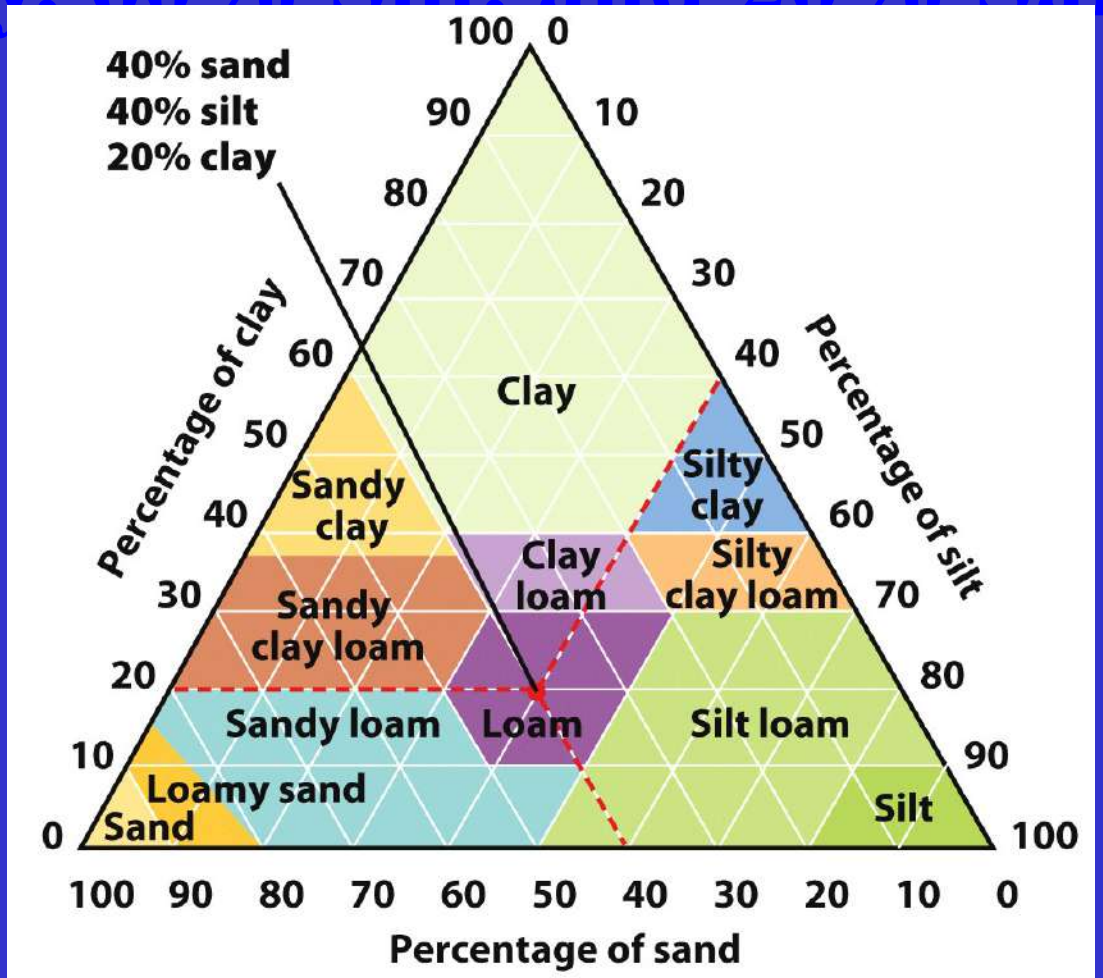



**Figure 8.5**
***Environmental Science***

# Using the soil Texture Chart, what soil is 20% Clay, 60% Silt, and 20% Sand?




**Soil texture chart**

**Figure 8.22a**
*Environmental Science*

# What is Silt Loam?

**These are the steps in the scientific method.**

**Question:** Do organophosphate pesticides have detrimental effects on the central nervous system?

**Null hypothesis:** Chlorpyrifos has no observable negative effects on the central nervous system.

**Conduct experiment:**

1 mg/kg chlorpyrifos

Experimental group

Control group (normal food)

Measure enzyme activity in order to test for the effect of chlorpyrifos on the brain.

**Results** (enzyme activity):

Reduced | Normal

**Interpret results:** Under these conditions, feeding chlorpyrifos to young rats reduces the activity of a key brain enzyme. The null hypothesis is disproved.

**Figure 1.18**
*Environmental Science*


Observe and question

Form testable hypothesis/prediction

Collect data/conduct experiment to test prediction

Interpret results

If hypothesis is rejected

If hypothesis is accepted

Disseminate findings

**Figure 1.16**
*Environmental Science*

# Scientists outlined the plate boundaries based on the location of these

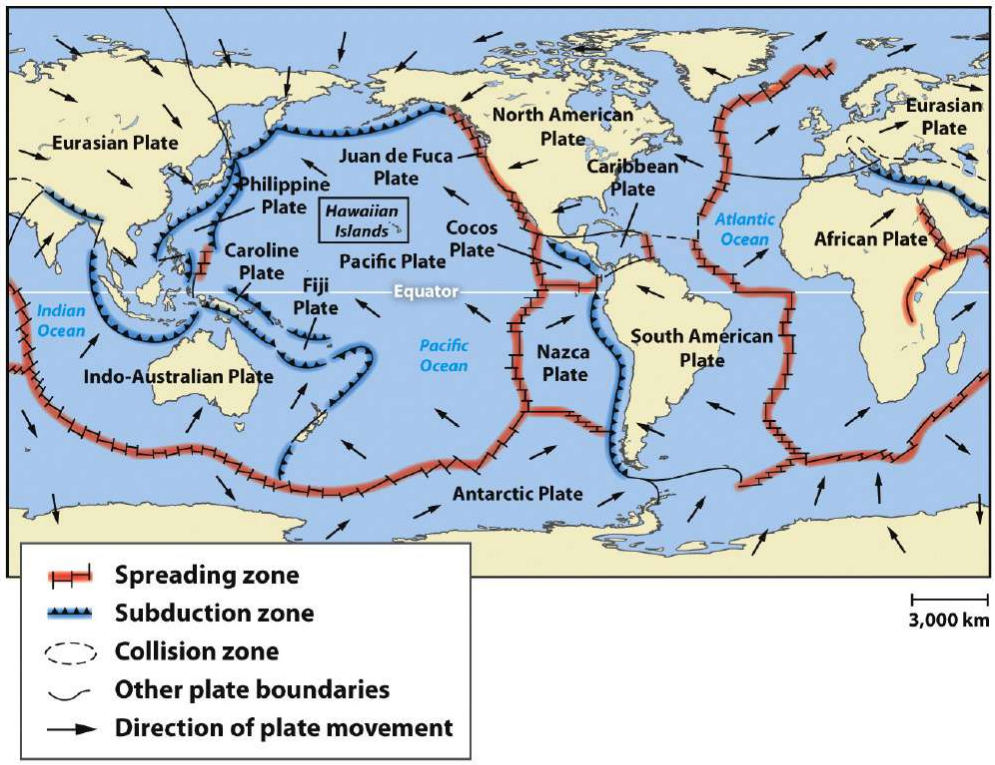



**Figure 8.4**
*Environmental Science*

# What are earthquakes and volcanoes?

**The pattern of earthquake intensity goes from high to low surrounding this.**

# What is the epicenter?

# What lava is called beneath Earth's surface

# What is Magma?

**When one plate is forced under another plate.**

# What is subduction?

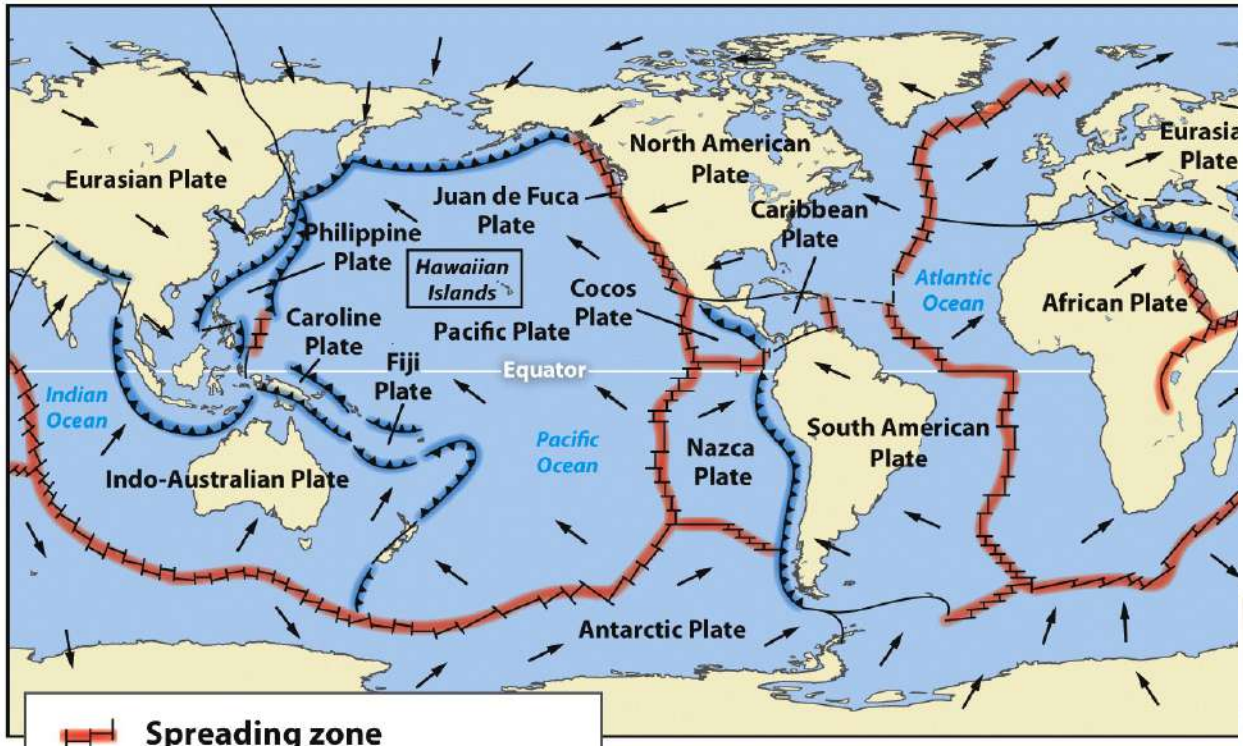
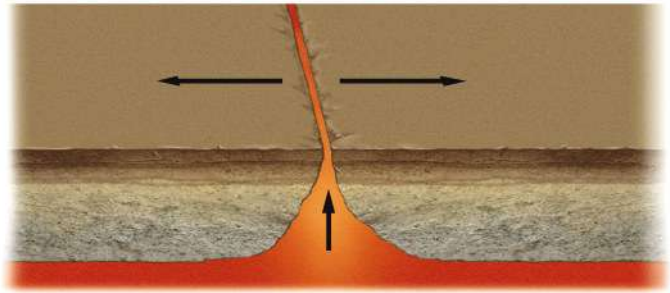
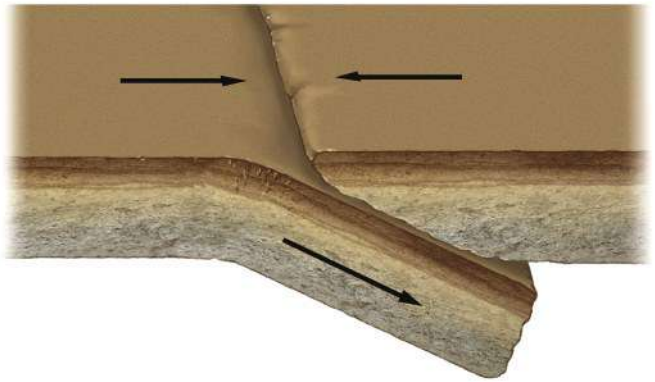


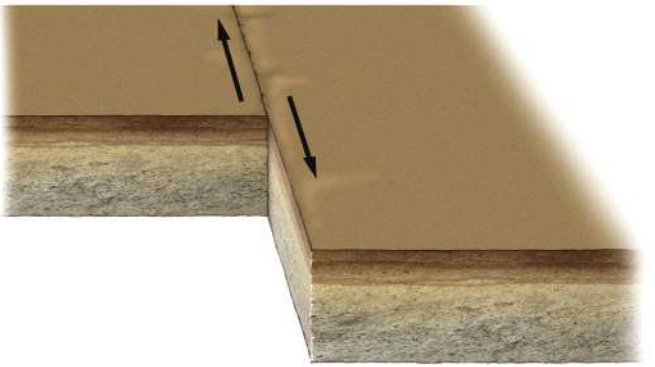

Figure 8.4
*Environmental Science*

(a) Divergent plate boundary



(b) Convergent plate boundary



(c) Transform fault boundary

Figure 8.8
*Environmental Science*

**The pH of the Ocean is approximately 8.3. How many times more acidic is a stream on the eastern US from Acid Rain with a pH of 5.3?**

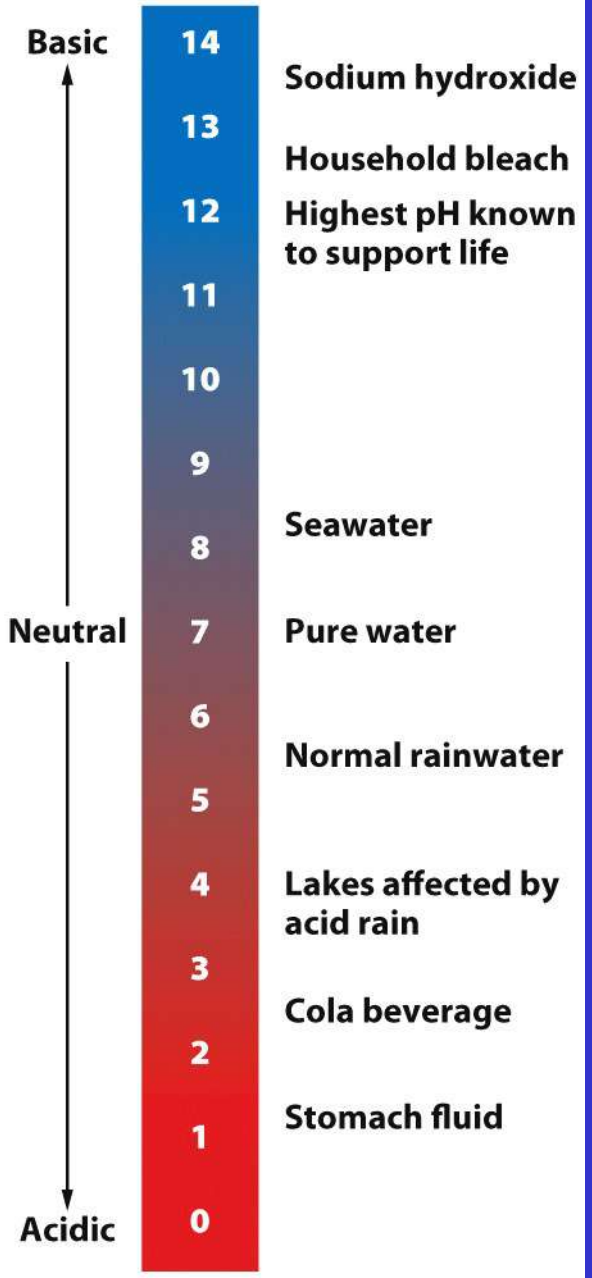



**Figure 2.8**
*Environmental Science*


# 1000?

# 8.3-5.3 = 3

# $10^3 = 10 \times 10 \times 10$

**This in the First Law of Thermodynamics.**

# What is Energy can not be created or destroyed?

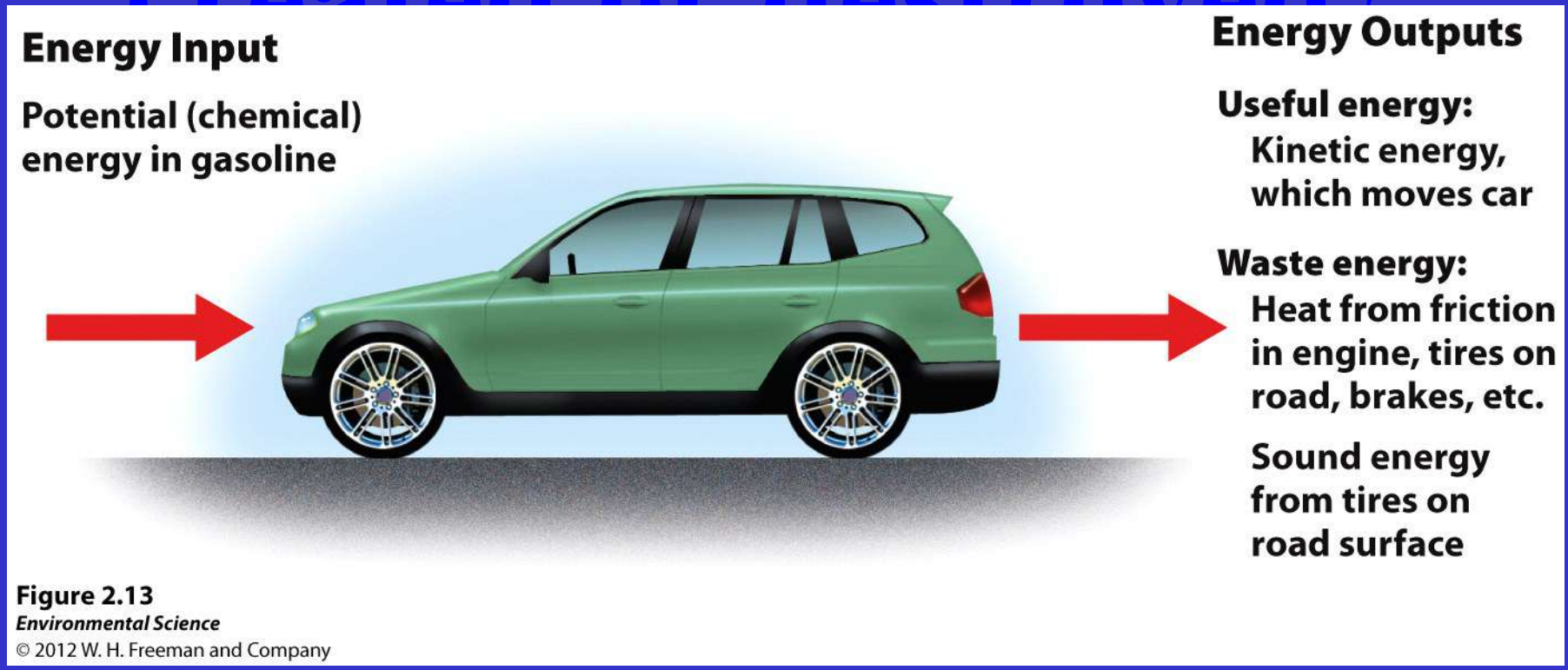



**Figure 2.13**
***Environmental Science***

# This si the Second Law of Thermodynamics

# What is entropy, when energy is transformed, that energy is less usable because it is lost as heat ?

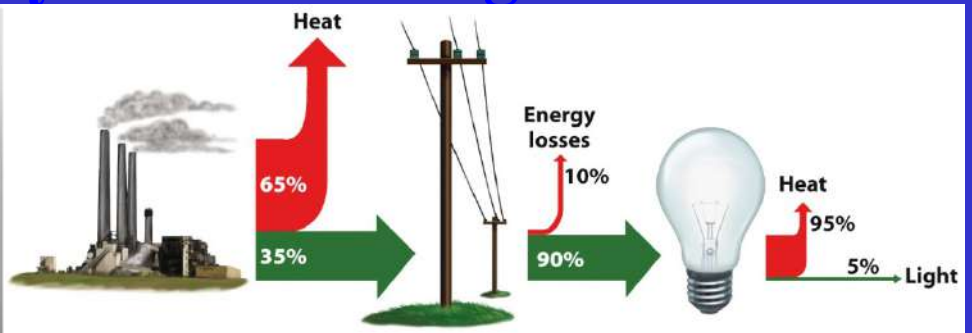
Figure 2.16a
*Environmental Science*


**The quantity of energy remains the same, but its ability to do work diminishes due to heat loss and heat is not very usable, unless you are heating water.**

(a) Traditional fireplace

(b) Modern woodstove

Figure 2.14
*Environmental Science*


**Calculation: (35%) × (90%) × (5%) = 1.6% efficiency**

Figure 2.15
*Environmental Science*

# Final Jeopardy

*Make your wager*

# Three pieces of evidence that support the theory of continental drift

# What are rock formation, climate, and fossils?

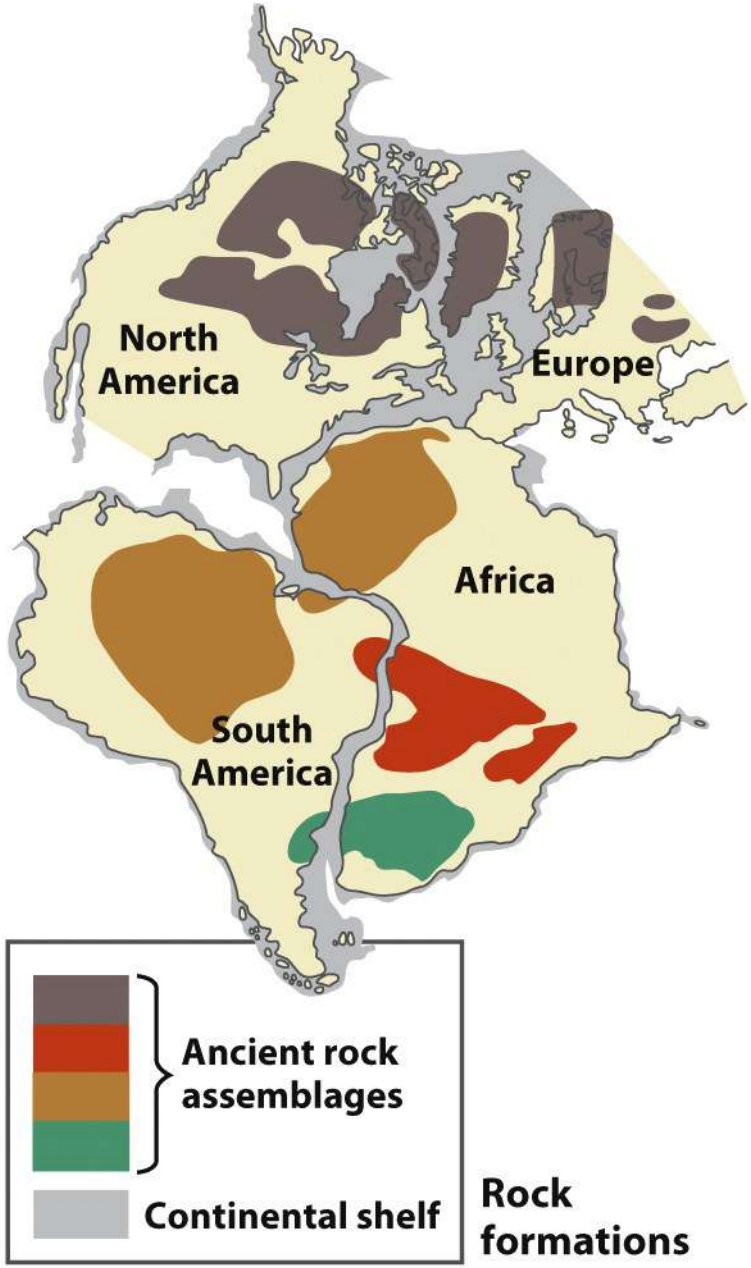



**Figure 8.3a**
*Environmental Science*

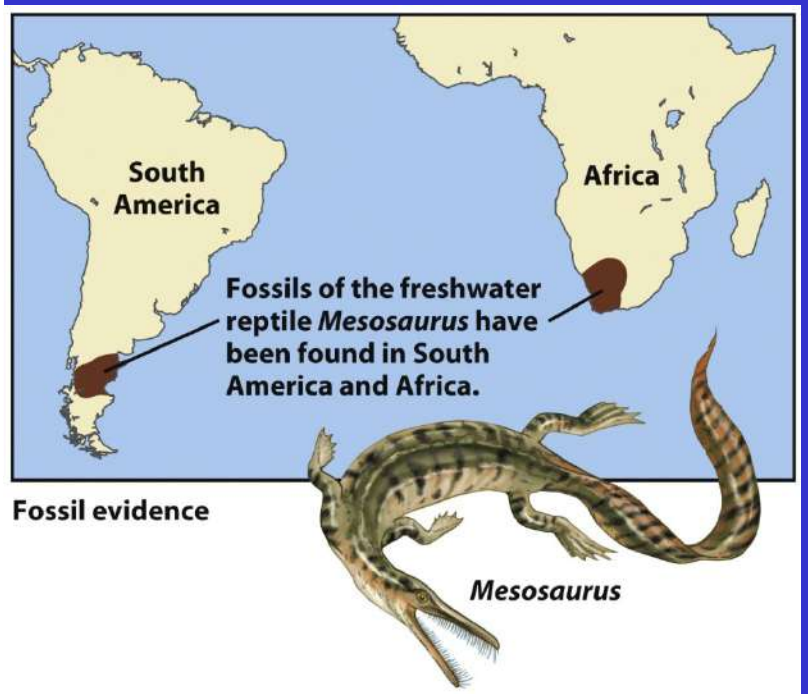




**Figure 8.3b**
*Environmental Science*