Science: tools for development of technology **Technology**- application of science.

Lab Safety Symbols

Biohazard: Live micro-organisms may be present.

Sharp Objects: Some lab equipment may cause cuts or punctures.

Poison: Toxic substances will be used.

Eye Protection: Proper eye protection is required.

Chemicals: Caustic or Corrosive chemicals, or chemicals that can be absorbed through the skin will be used.

Protective Clothing: Lab aprons and gloves are required.

Disposal: Some materials have special disposal requirements.

Fumes: Chemical reactions may produce harmful fumes.

Electrical: You will be working with electricity.

No Flame: Open flames prohibited.

Fire: You will be working with open flames.

Heat Protection: You will be working with heated glassware / objects.

Explosion: Improper handling of materials may result in an explosion

Animals: You will be working with live animals.

Plants: You will be working with poisonous or thorny plants.

Solved challenges of Science and technology

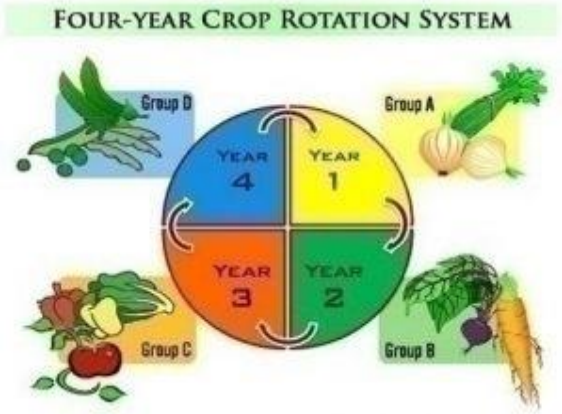
Soil conservation methods: Terracing and crop rotation.

Terracing: think of a steep-sloping hillside. If this is the only land you have to grow crops on, how do you then grow crops without everything sliding down the hillside?

Since ancient times, farmers have built terraces to shore up a hillside, creating several levels of farms. In a small, seemingly inhospitable place, they can grow the crops they need to grow to survive.

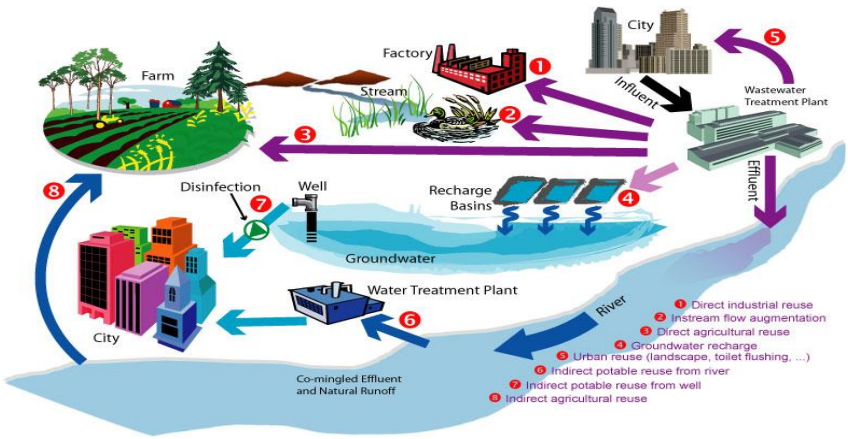
Instead of flowing freely down the hillside, water stops on the level terrace, plain. In this way, the lower terraces are not eroded and, also, the water higher terraces get enough water. On a straight, steep slope, needed would tumble down the hillside, carrying crops and much-soil with it, letting nothing grow. But add the element of a terrace, and you have flat areas on which to farm.

Crop rotation: Growing the same crop repeatedly in the same place eventually depletes the soil of various nutrients. One way that farmers can avoid a decrease in soil fertility is to practice crop rotation, by which different crops are planted in a regular sequence so that a crop that leaches the soil of one kind of nutrient is followed during the next growing season by a crop that returns that nutrient to the soil. If crop rotation is done properly, farmers can keep their fields under continuous production, without a need to let them lie fallow or to apply artificial fertilizers, both of which can be expensive.



Desalination recycling waste water:

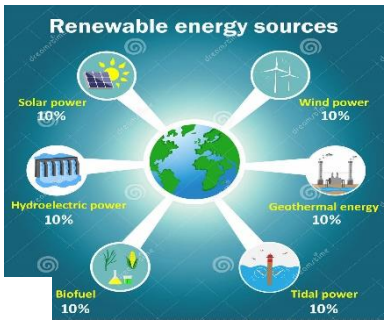
Desalination is a process by which dissolved salts are removed from seawater or brines water thereby converting it into potable water.



Hydroponics: simply growing plants without the use of soil.

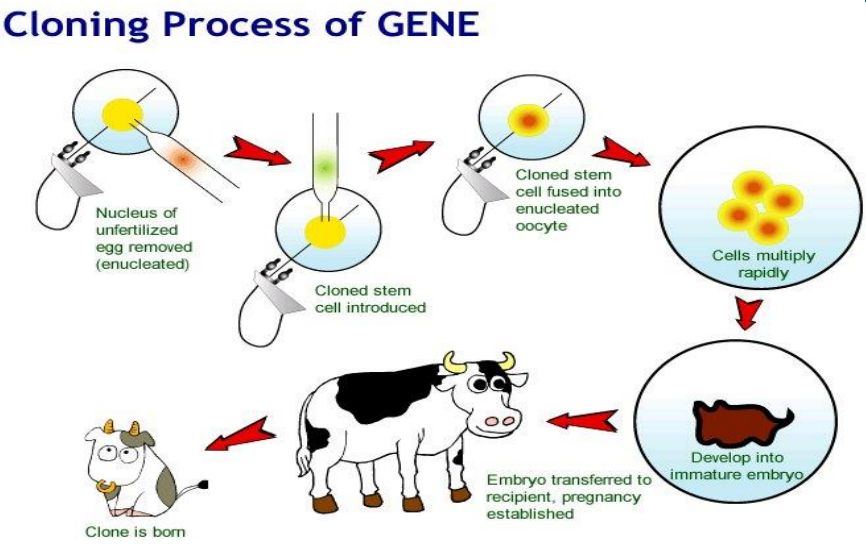
Green House Technology: A **green house** (also called a glasshouse) is a building where plants are grown under controlled micro environment.

Alternative sources of energy such as solar, wind, hydroelectric, biofuel, geothermal energy provide away to decrease our costs of living.



Tidal power and

Cloning: making copies of a gene from the parent cell.



New roof designs:

Challenges of science and technology

Science is not always in perfect sense of the world when it enhances technology. Some challenges include:

a. loss of agricultural land

B. Decrease in potable water

g.

Loss of physical resources.

Costly energy supplies

ELECTRIC COMPANY
P.O. BOX 123, Anytown, USA

ACCOUNT NUMBER	ACCOUNT NAME	RATE	CYCLE	SERVICE ADDRESS
1234560	Jones, Bob	5	708	123 Main Street

SERVICE PERIOD FROM	TO	NO. DAYS	BILL TYPE	METER READING PREVIOUS	PRESENT	MULTIPLIER	kWh USAGE	$AMOUNT
08/13	09/11	29	0	96434	98114	1		
BASE CHARGE								10.00
ENERGY CHARGE							1680	134.47
FUEL COST ADJUSTMENT: ($0.005)								8.40
SALES TAX - STATE								5.78
SALES TAX - SPECIAL								1.44
TOTAL AMOUNT DUE								160.09

THE CITY OF SAN DIEGO
WATER & WASTEWATER SERVICES
PUBLIC UTILITIES

Page 1 of 1
Mailed on Nov 04 2013

ACCOUNT NUMBER | SERVICE ADDRESS | Dec 04 2013 PAYMENT DUE DATE

0
1
0
0

RETURN THIS PORTION

MAKE CHECK PAYABLE TO CITY TREASURER

$20.58CR
TOTAL AMOUNT DUE

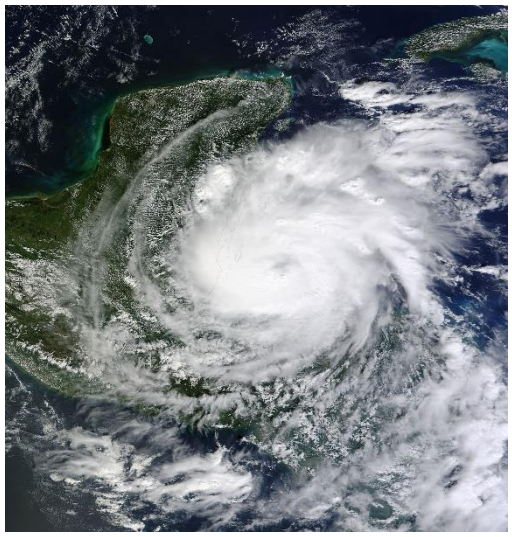
ACCOUNT NO.
SERVICE ADDRESS

Dec 04 2013
PAYMENT DUE DATE

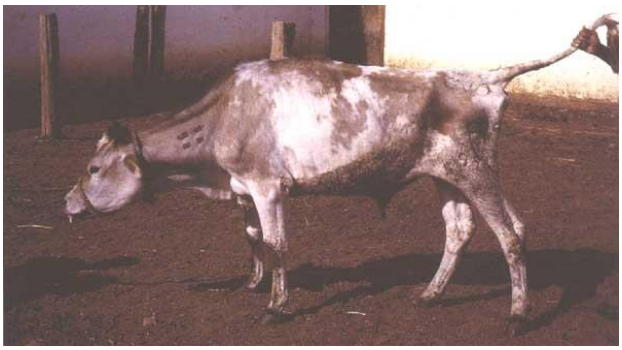
$20.58CR
TOTAL AMOUNT DUE

TYPE OF SERVICE	METER	SERVICE PERIOD FROM	TO	DAYS	METER READING PREVIOUS	CURRENT	USAGE HCF*	AMOUNT	CODE
Water Base Fee		09-04-13	10-31-13	58	Meter size = 3/4 Inch			38.66	
Water Used	88793224	09-04-13	10-31-13	58	[illegible]	4,602	19	70.16	
					14.00 HCF @ $3.6121 =		$50.57		
					5.00 HCF @ $3.9180 =		$19.59		
Sewer Base Fee		09-04-13	10-31-13	58				30.66	
Sewer Service Charge		09-04-13	10-31-13	58				35.98	
Storm Drain								1.90	
						Current Charges		177.36	
Previous Balance								17.83CR	
Applied Credits								180.11CR	
						TOTAL AMOUNT DUE		$20.58CR	

G. susceptibility of physical structures to damage from weather systems (hurricanes, storms, floods)



Loss of livestock and crops due to diseases.



Scientific method: a way to ask and answer a scientific question.

Steps include:

1. ask a question: Identify the problem you would like to solve.

2._____Observation_____: Do research about your topic (use your 5 senses). Study carefully.

3. _____Hypothesis_____: an educated guess about what will happen or how something works. Needs to be testable.

4. Test and design and experiment Make sure to test one thing at once. Everything must remain the same.

5._____Analyze data_____: Study your results of the experiment and compare data. (what does it mean)

6. _____Conclusion_____: use your data to answer your aim. If this statement disagrees with your experiment it only means that you need to see what can you do to get your experiment right.

7. _____Manipulative _____ variable that causes a change.

8. _____Responding_____ variable that changes.