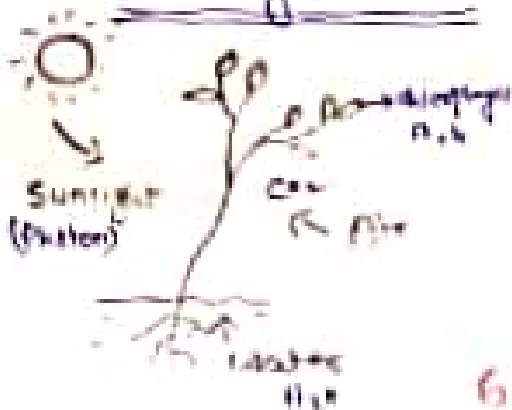


- All the basic functions performed by living organisms to survive on earth.
- Ex - nutrition, respiration, transportation, excretion, control and coordination, growth etc.
- Nutrition :- The process by which living organisms obtain food and utilize it.
 - Plant nutrition → Autotrophic → can make their own food.
 - Animal nutrition → Heterotrophic → Depends on other animals and plants

- Photosynthesis :- The process by which plants can make their own food in the presence of sunlight and chlorophyll to produce carbohydrate compound ($C_6H_{12}O_6$ / glucose) and O_2 , H_2O as bi-product.



- Two phases of photosynthesis :-
 - Light reaction $H_2O \rightarrow (2H^+ + 2e^- + \frac{1}{2}O_2)$
 - Dark reaction (Calvin cycle)
- Site of photosynthesis :-
 - Green leaf contain mesophyll cells containing green pigment **Chlorophyll**
- Raw material of photosynthesis :-
 - chlorophyll, sunlight, water, carbon dioxide.
- Light reaction
 - In the presence of sunlight - Chlorophyll help to break H_2O in $O_2 + H_2$ called photolysis or light reaction.

Assignments

SCIENCE

- (i) what do you mean by nutrition?
- (ii) write the balanced chemical equation of photosynthesis
- (iii) why chlorophyll is needed for photosynthesis?
- (iv) write the name of raw materials used for photosynthesis and their sources.
- (v) write some criteria to decide whether something is alive or not?
- (vi) write the importance of 'Hill reaction'?
- (vii) write the events of photosynthesis?
- (viii) what is chlorophyll? where does it found?
- (ix) what is stomata? how does it form?
- (x) which type of guard cells are found in monocot and dicot plants?

• Events of Photosynthesis :

- (i) Absorption of light energy by chlorophyll
- (ii) Conversion of light energy into chemical energy + breaking of water into hydrogen and oxygen
- (iii) Reduction of CO_2 to carbohydrate.

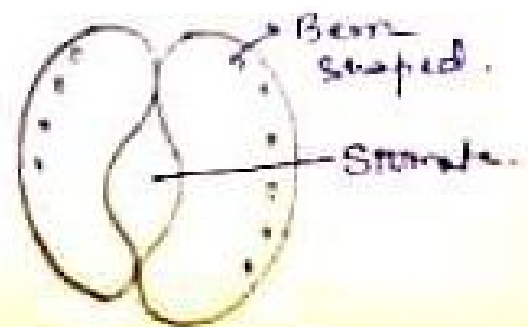
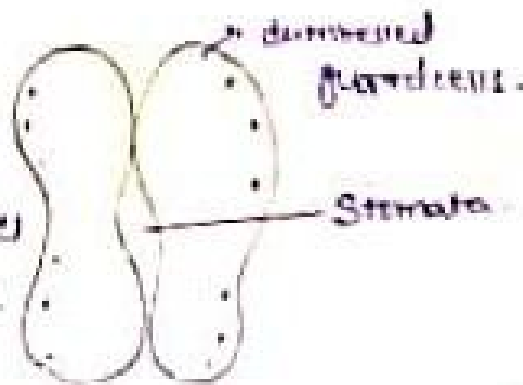
• STOMATA - Tiny pores present on the surface of the leaves.

Functions:-

- (i) Exchange of gases O_2 and CO_2
- (ii) Help in transpiration to lose large amount of water, formed during photosynthesis.

• Types:-

* Stomata are formed by different types of guard cells in monocot and dicot plants



Real Number :-

Introduction :-

Euclid's division lemma

It tells us about divisibility of integers.

It states :-

Any positive integer a can be divided by any other positive integer b in such a way that it leaves a remainder r that is smaller than b.

$$a = bq + r.$$

It provides us a step-wise procedure to compute the HCF of 2 positive integers.

This stepwise procedure is known as Euclid's algorithm.

The fundamental Theorem of Arithmetic. Notes

Tells us about expressing positive integers as the product of prime integers.

February		2019	
Mon	4	11	18 25
Tue	5	12	19 26
Wed	6	13	20 27
Thu	7	14	21 28
Fri	1	8	15 22
Sat	2	9	16 23
Sun	3	10	17 24

Euclid's division algorithm

Persian mathematician al-Khwarizmi gives word algorithm.

Algorithm means a series of well defined steps

Theorem:- If a and b are positive integers such that $a = bq + r$, then every common divisor of a and b is a common divisor of b and r , vice versa.

Proof:- Let c divides both ' a ' and ' b '. Then,

$$c|a \Rightarrow a = cq_1 \text{ for some integer } q_1$$

$$c|b \Rightarrow b = cq_2 \text{ for some integer } q_2$$

Now,

$$a = bq + r$$

$$\Rightarrow r = a - bq$$

$$\Rightarrow r = cq_1 - cq_2q$$

$$\Rightarrow r = c(q_1 - qq_2)$$

\therefore

c divides r .

c is common divisor of b and r .

4 Monday

035-330
February '19

Conversely, let d is common divisor of b and r .

So,

$$d|b \Rightarrow b = dr_1$$

$$d|r \Rightarrow r = dr_2$$

$$a = bq + r$$

$$\Rightarrow a = r_1 d q + d r_2$$

$$\Rightarrow a = d (r_1 q + r_2)$$

So,

$$d|a$$

d is common divisor of a and b .

Example \Rightarrow for, 117 and 45

$$117 = 45 \times 2 + 27$$

$$45 = 27 \times 1 + 18$$

9 divides 45, 27, 18.

THE FUNDAMENTAL THEOREM ARITHMETIC

Every composite numbers can be expressed in form of products of primes.

Theorem 2. Let p be a prime number and a be a positive integer. If p divides a^2 , then p divides a .

Proof :- On factorizing a ,
let,

$$a = p_1 p_2 p_3 p_4 \dots p_n$$

$$\therefore a^2 = (p_1 p_2 p_3 \dots p_n) (p_1 p_2 p_3 \dots p_n)$$

$$a^2 = p_1^2 p_2^2 p_3^2 \dots p_n^2$$

It is given that p is prime and if divides a^2 . Therefore, p is a prime factor of a^2 .

$$\therefore p \mid p_1 p_2 p_3 \dots p_n \Rightarrow p \mid a.$$

Q. let a, b, c, d be positive rationals such that $a + \sqrt{b} = c + \sqrt{d}$, then either $a = c$ and $b = d$ or b and d are squares of rationals.

Solⁿ:- if $a = c$, then

$$a + \sqrt{b} = c + \sqrt{d} \Rightarrow \sqrt{b} = \sqrt{d} \Rightarrow b = d$$

So, let $a \neq c$, then, there exists a positive number x such that $a = c + x$.

Now,

$$\begin{aligned} a + \sqrt{b} &= c + \sqrt{d} \\ \Rightarrow c + x + \sqrt{b} &= c + \sqrt{d} \\ \Rightarrow x + \sqrt{b} &= \sqrt{d} \end{aligned} \quad \text{--- (1)}$$

Squaring both side

$$\begin{aligned} (x + \sqrt{b})^2 &= (\sqrt{d})^2 \\ \Rightarrow x^2 + b + 2x\sqrt{b} &= d \\ \Rightarrow d - x^2 - b &= 2x\sqrt{b} \\ \Rightarrow \sqrt{b} &= \frac{d - x^2 - b}{2x} \end{aligned}$$

So, \sqrt{b} is rational

from 1 we have,

$$\begin{aligned} \sqrt{d} &= x + \sqrt{b} \\ \sqrt{d} &= \text{Rational} + \text{Rational} \end{aligned}$$

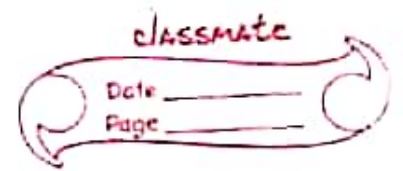
So, \sqrt{d} is rational

Hence, d is rational.

Deadlines are important. Greet them and meet them

March		2019			
Mon	4	11	18	25	
Tue	5	12	19	26	
Wed	6	13	20	27	
Thu	7	14	21	28	
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Sat	2	9	16	23	30
Sun	3	10	17	24	31

Reader section
Assignment Questions
1920-21
Chapter 1



A Letter to God

- Q1:- How did the rain change? what happened to Lencho's field?
- Q2:- what were Lencho's feelings when the hail stopped?
- Q3:- What made Lencho angry?
- Q4:- Why does the postmaster send money to Lencho?
- Q5:- What kind of a person would you say Lencho is?
- Q6:- Why did Lencho keep gazing at the sky?
- Q7:- How did Lencho feel when it started rain?
- Q8:- what was the effect of the rain on the crops?
- Q9:- what are the raindrops compared to and why?
- Q10:- Lencho had only 'one hope'. what was it?

Chapter 1 Assignment questions

A Triumph of Surgery (Supplementary Reader)

- Q1:- Why is Mrs Pumphrey worried about Tricki?
- Q2:- How does the narrator treat the dog?
- Q3:- Why is the narrator tempted to keep Tricki on as a permanent guest?
- Q4:- What made Tricki get well so soon?
- Q5:- What was the main cause of Tricki's problem?
- Q6:- How do you know that Tricki had an affluent life?
- Q7:- Why was Mrs Pumphrey not able to control Tricki's diet?
- Q8:- Why did Mr. Herriot expect a call from Mrs Pumphrey?
- Q9:- Why did Mrs Pumphrey keep Tricki on that extra diet?
- Q10:- How was Tricki greeted at the surgery by other dogs in the beginning?