

**MAY 2020 | ISSUE 02**

# **UIS NEWSLETTER**

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**GEMS UNITED  
INDIAN SCHOOL**

**NEWSLETTER**

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*Remote  
Learning  
Edition*

# Message from the Principal



**Dear Parent,**

GEMS has been delivering academic excellence for more than 50 years and is committed to leading international best practice at all times.

The global pandemic of COVID-19 has resulted in school closures since March 2020. Robust Remote Learning Programmes (RLPs) are in place and our teachers are using innovative tools to provide educational continuity until the anticipated reopening of schools in September 2020.

While parents are encouraged to establish clear routines at home for their learning, they can very well witness the learning taking place at home. We do not expect parents to be makeshift educators.

We recommend parents to observe their children's learning style and guide them to improve their learning behaviour. Parents may have a conversation with the child on the character aspects such as responsibility, self-assessment, attitude to improve, growth mind-set (to fight the 'can't learn attitude'), build a sense of relevance and purpose by asking 'how can you use this learning in the real world'?

If you notice carefully, most of the learning tasks that students need to complete are situated in the context of learners' experiences. Our intent is to connect the learner emotionally with the learning content and relate to it as much as possible.

In order to bring in a sense of social interaction, we have scheduled various activities. Your ward may have already participated in intra-class, inter class competitions. Student leadership team is all set to take charge as champions in their area of responsibility. We are turning the challenging stay-home situation into an opportunity for our young innovative minds to work in virtual space.

COVID 19 may have caused several disruptions but we are quickly adapting to the new normal. It may be a completely new experience to the teacher and the student, but most feedback from our wonderful parents is very encouraging and motivating. Together, we can make the stay-home learning time an exciting and enriching experience!

Thank you for your support.

**K.George Mathew**  
**Principal/CEO**

# Message from the Vice Principal



**Dear UIS Community,**

It is wonderful to reach out to you once again with snapshots of the fortnight!

The holy month of Ramadan has flown past and we're now on the last stretch of home-run towards Eid. This promises to be a very unique Eid as we remain confined to our spaces and meet and greet our dear ones digitally.

Our students continue to impress as we see them getting more creative and expressive in their performance tasks. All learners have shown resilience and great adaptability as they continue to make very good progress in their learning.

Please be sure to visit the social media links shared by the Supervisor to see the wonderful work done by our students. Kudos to the students and parents for all their valued support!

Teachers on the balancing hand have demonstrated unflinching commitment and continue to work round the clock to ensure high quality learning is within every learner's reach. Well done teachers! Hats off to you!

In the following weeks, teachers will be playing additional video clips (between classes) to facilitate simple stretching exercises for their students. Please ensure you are part of these relaxation sessions. While they are aimed for the learners, parents are most welcome to partake in these short sessions.

For those who missed out on the reading links I shared in my previous newsletter message, here are the links for perusal.

KG 1 & 2: Mekids Junior: <http://tmg-worldwide.com/emagazine/aprilmkj/index.html>

Grades: 1 – 3 Mekids: <http://tmg-worldwide.com/emagazine/aprilmk/index.html>

Grades: 4 & above - The Youngest:

<http://tmg-worldwide.com/emagazine/apriltyme/index.html>

While there has been encouraging activity on the ACTIVEKIDS portal, we need more of you students to upload your fitness routines and get rewarded.

I encourage you read all the RLP guidelines for students and parents that are part of this newsletter and follow the same on a daily basis. Inculcation of these values as remote learners will significantly improve their overall development as young learners.

We had a very interesting set of sessions with the student leaders of the school this week. Each of the bright and zestful candidates was eloquent while presenting their skills and thought processes. The selection committee had a tough time selecting leaders from this dynamic bunch. The final list of student leaders will feature in the next edition of the newsletter. Do watch out for that feature.

Until next time, keep the flame of kindness and respect burning bright! We will be sending out requests to share your acts of kindness so please gear up to share your efforts.

Eid Mubarak to all in advance!

**Shaikh Murad Sarfraz**  
**Vice-Principal**

# Message from the Senior Supervisors



**Dear Parents,**

Online learning is the future of education, and it is happening right now, all around us. Distant learning is providing access to information and skills that were previously available to a few.

At GUIS, we have made academics and co-scholastic activities available at the click of a button. Apart from the RLP, we have introduced the Remote Co-scholastic Activities for students. Keeping in mind students physical fitness, and to have a balance between screen time and learning activities, we have introduced stretching exercises for the students, and the video will be played on stretching exercises before the beginning of every session for 2 minutes.

Following are the activities that were conducted in the last week of May:

**1. Elocution competition (Grade 6,7 & 8):** The goal of the Elocution competition was to encourage the skills and talents related to the art of speaking. The competition was conducted successfully with maximum participation of students.

**2. JAM (Just a Minute) Grade 9, 10 & 11:** Students were given the topic a minute before to prepare and then had to speak on that topic. Students were selected from each class after which they will have the next round for the Inter class.

**3. Online painting competition:** The aim of the painting competition was to engage children in a creative exercise to identify their hopes and dreams of the future. It allows complete self-expression and supports their creativity and innovative ideas expressed through art.

**4. Selection of student leaders:** "Leadership is the capacity to transform vision into reality." Things will not be coming to a standstill in spite of the distant learning. The candidates short-listed for the post of Head/Deputy Head Boys/ Girls were subjected to voting process by the students of GUIS in a democratic way. The successful candidates were invited for a panel interview with members of SLT. Results will be out soon!

**5. Open House:** A Virtual Open House was conducted for the parents where they were given a platform to discuss the ongoing RLP program. Parents also took the opportunity to thank the school management for the same. They are looking forward to such Open House sessions in the near future.

**6. PULSE:** A program introduced by GUIS, where teachers can connect with parents for regular feedback through mails and telephonic conversations, "What are we doing well" or "What can be done better". The feedback will help teachers to support learning activities of students and fill their learning gaps .

WISHING YOU ALL A BLESSED AND BLISSFUL EID!!

May Allah's greatness fill you with happiness and prosperity and provide you with strength to overcome every challenge.

**Senior Supervisors: Mrs. Sunitha Nambiar & Mr. K Joseph**

# RLP Expectations for Parents and Students (Grades 6-12)

Dear Parents,

Please find below expectations of students and parents during remote learning sessions. We've listed out what you need to know and do during daily routine set-ups, teaching and learning, assessments and in the event of cyber-bullying or violation of safeguarding limits. Parents are requested to explain students' expectations to their wards frequently so their minds are prepared to practice expected behaviours. As parents, you are requested to practice these guidelines on a regular basis and encourage your children to follow the same to ensure all remote learners and caregivers are demonstrating the ethos and values of GEM United Indian School.

PARENT EXPECTATIONS			
Daily routine	Teaching-Learning	Assessments	Cyber-bullying alerts
<p>Check weekly learning expectations</p> <p>Ensure 100% attendance check if ward has submitted notebooks, assignments</p> <p>Check if use of language is appropriate</p> <p>Ensure readiness-Train students to wake up on time dress appropriately and be on time for RLP as per the schedule given to maintain 100% attendance.</p> <p>Create effective learning space-</p> <p>Ensure the child's learning space is away from bed, TV and other gaming tools to avoid distraction.</p>	<p>Ensure students follow the balanced time table-schedule with four Synchronous and 1 Asynchronous sessions per day shared with breaks of 10 to 15 min between all sessions.</p> <p>Check weekly expectations-shared to keep them updated on the upcoming T/L topics of all subjects.</p> <p>Upload for future use-PPT/videos of online live lessons uploaded in classroom for the use of children – who are unable to attend certain sessions due to health issues.</p> <p>Resources readiness intimation - Parents to ensure children are equipped with the required resources for learning based on teacher's upload for the day's lesson</p>	<p>Track AOL blocking dates on classroom portal and encourage the child to be well prepared.</p> <p>Keep track of MS Teams &amp; Forms links and support timely uploads of assignments.</p> <p>Monitor/administer the test, which is time bound and ensure the child does timely submission.</p>	<p>Ensure online behavior contract-guidelines on online behavior shared on 5th April is read and understood and practiced by parent.</p> <p>For technical issues, contact help desk mail ID shared with parent to contact.</p> <p>Ensure their wards are not misusing/sharing of his/her id with friends or others for the access of e-learning module.</p> <p>Ensure use of appropriate language and correct use of teams chat box. Ensure students are not using disallowed applications.</p>

STUDENT EXPECTATIONS			
Daily routine	Teaching-Learning	Assessments	Cyber-bullying alerts
Report on time for attendance and for all learning sessions in a day.	Do not hesitate to ask for help from the teacher.	Complete all assigned tasks, reflection forms, assessments	Activate camera for face to face answering by students
Be prepared for synchronous lessons with Properly set up computer equipment.	Be open-minded and share your own ideas as well as listen to ideas that others have.	To actively take part in discussion board work/research and self-check based on rubrics	Not involve in deleting of all files in the phoenix class room
Do not hesitate to ask for help from the teacher.	Take the time to think before responding to others in a polite and respectful manner		No off line chatting between students
Be self-disciplined	To take charge of managing your own learning by making the time to read, participate and reflect on the learning		Online cyber policy to be shared and signed by students
Be honest, respectful, and open while interacting with other students.	Making notes in lessons		
	Ensure "Camera on, mic off"		

**Please open the link for more activities**

<https://www.facebook.com/1094781230542561/posts/3208357399184923/?vh=e&d=n>

<https://www.facebook.com/1094781230542561/posts/3202311563122840>

<https://www.facebook.com/1094781230542561/posts/3224288247591838/?vh=e&d=n>

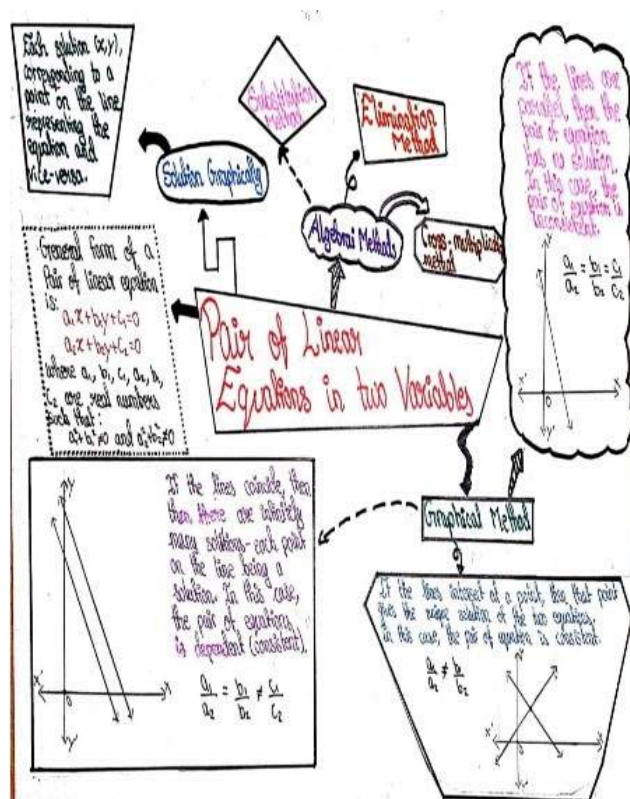
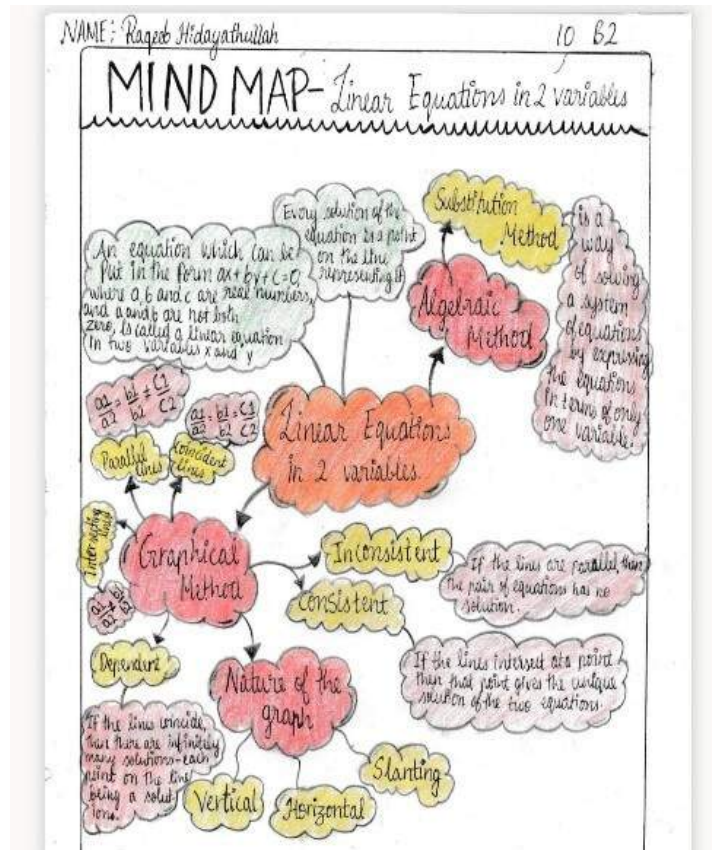
**SAFE GUARDING UPDATE:**

Keep the computer or other electronic devices in a public place in the house and periodically check on what your child is doing.  
 Discuss the kinds of Internet activities your child enjoys.  
 Be up front with your child that you will periodically investigate the files on the computer, the browser history files, and your child's public online activities.  
 Search for your child's name online, look at his or her profiles and postings on teen community sites, review web pages or blogs.  
 Tell your child that you may review his or her private communication activities if you have reason to believe you will find unsafe or irresponsible behavior.  
 Watch out for secretive behavior as you approach your child when they are online, such as rapidly switching screens, changing passwords and for attempts to hide online behavior, such as an empty history file.  
 Engage with them about their online experiences and specifically monitor for instances of cyberbullying.

Make sure they know that you are not judging them, but rather wanting to engage in dialogue with them about their experiences.

# GRADE 10

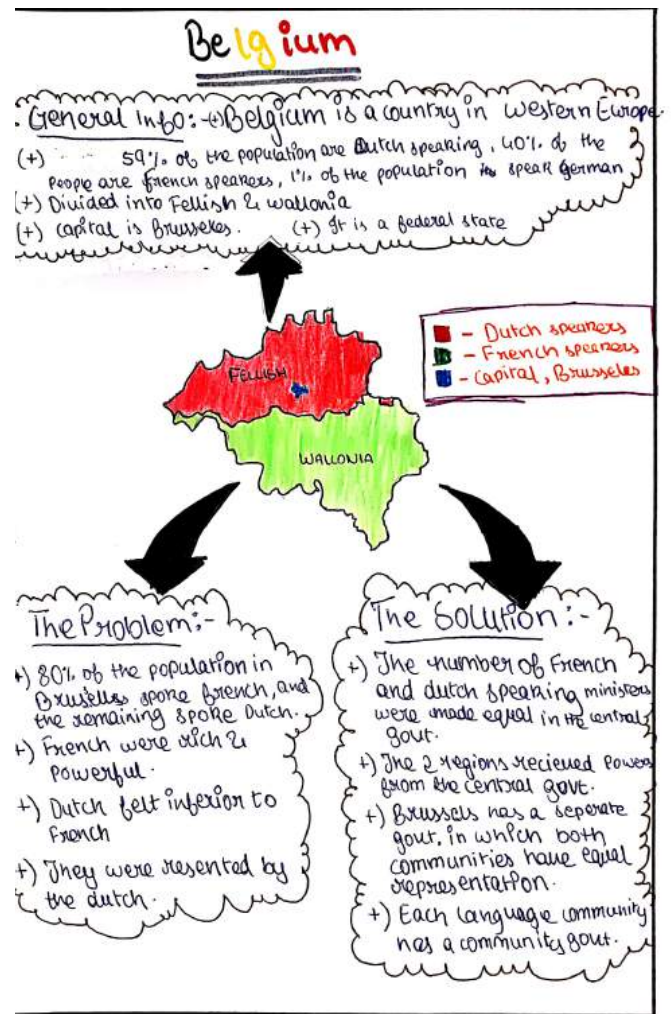
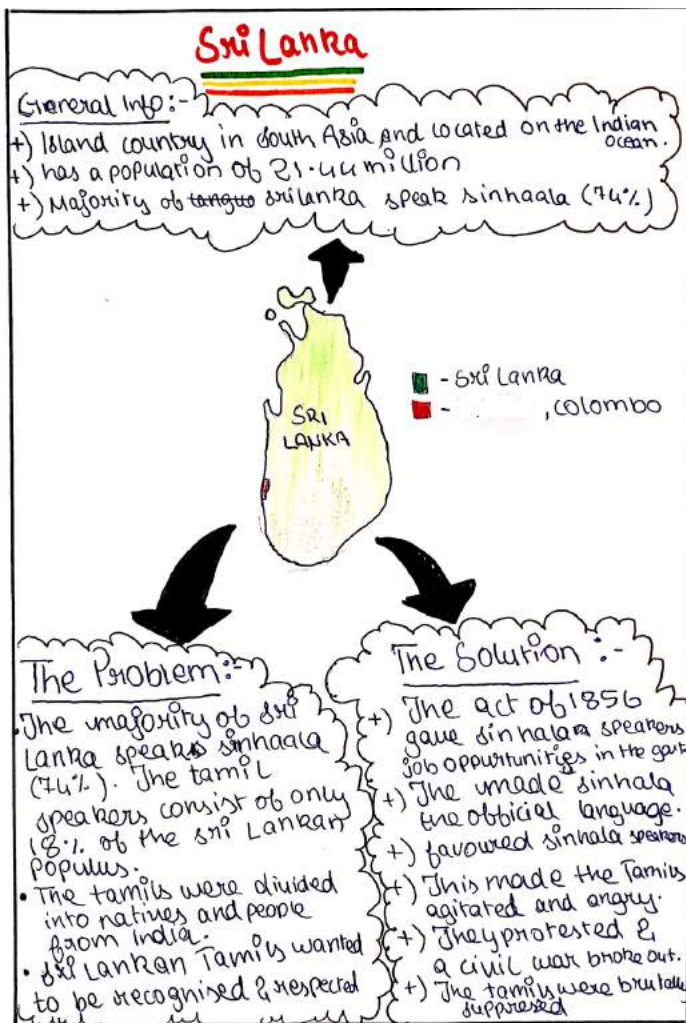
## MATHEMATICS



# Grade 10

## POLITICAL SCIENCE

The students of Grade 10 created a mind map depicting the reasons and solutions behind the ethnic problems faced by Belgium and Sri Lanka.





# Grade 10

## CHEMISTRY

*'It is not sufficient to have an experience in order to learn. Without reflecting upon this experience it may quickly be forgotten, or its learning potential lost.'*

- Gibbs (1988)


The students did a wonderful reflection on the Periodic Table, linking theory with practice or reality.

**DOBEIENER'S TRIAD:**  
Dobereiner classified elements in the increasing order of atomic mass into groups of 3 elements called triads.  
Middle element's atomic mass is the average mass of other two elements.  
Limitations: • Could not find more triads  
• All the known elements could not arranged in triads

**NEWLANDS LAW OF OCTAVES:**  
Classified elements in their increasing order of atomic masses into groups of 8 called octaves.  
Every 8<sup>th</sup> element similar to 1<sup>st</sup>.  
Limitations:  
• Applicable only till Ca  
• Said that no more elements would be discovered in future  
• Adjusted unlike elements to same slot

**CLASSIFICATION OF ELEMENTS**

**MENDELEEV'S LAW:**  
Properties of elements are periodic functions of their atomic number.  
→ arranged elements in the increasing order of atomic mass.  
→ Basis of classification - formulae of oxides and hydrides.  
Limitations:  
• No fixed position for hydrogen  
• No place for isotopes



**HOMWORK:** Reflection - How hard or easily attempts at the classification of elements.


**LIMITATIONS:**  
• He could not find more triads  
• All the known elements could not be correctly arranged into triads

**DOBEIENER'S TRIADS:**  
Dobereiner classified elements in the increasing order of their atomic masses into groups of 3 elements called triads.  
Dobereiner's triads is a group of 3 elements where the middle element's atomic mass is the average mass of other two elements.

Alkali formers		Gold formers	
Li	7	Cl	35.5
Na	23	Br	80
K	39	I	127

**NEWLANDS LAW OF OCTAVES:**  
Classified elements in their increasing order of atomic mass into groups of 8 elements called octaves like notes of music's property of every 8<sup>th</sup> element is similar to first one.  
Limitations:  
• Applicable only upto Calcium, the said elements would be discovered in future, he adjusted with the elements into their slot (E.g. Cobalt and Nickel)

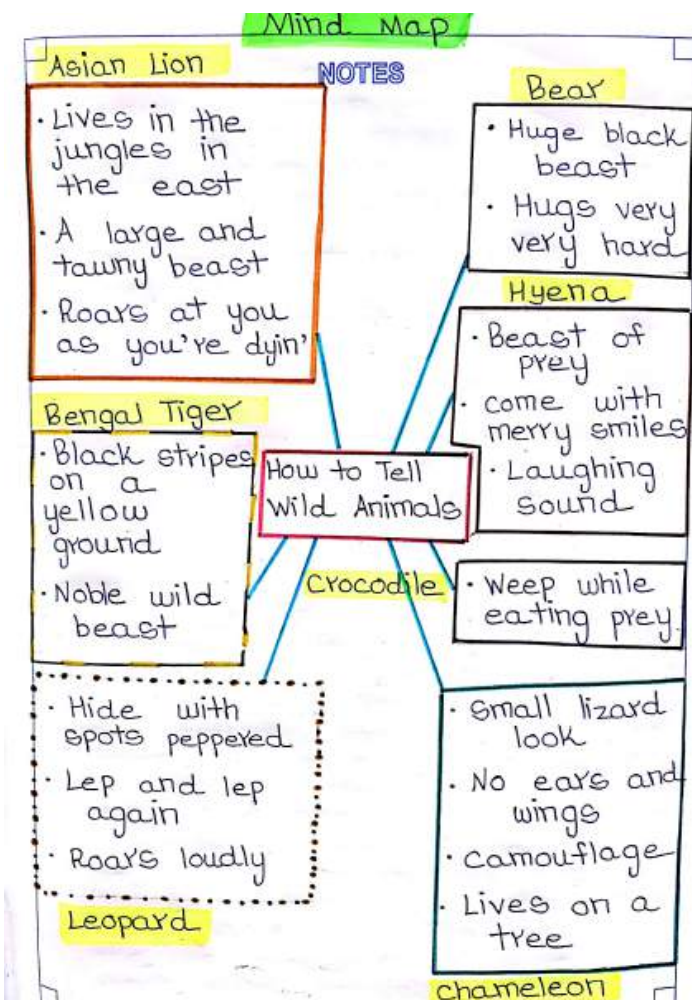
**MENDELEEV'S PERIODIC LAW:**  
Properties of elements are periodic functions of their atomic mass.  
→ Classified elements in increasing order of atomic mass and similarities in their properties, formulae of oxides and hydrides is also a basis of classification.  
Limitations:  
• No fixed position for hydrogen, No place for isotopes.



# Grade 10

## ENGLISH

When one makes an extrapolation, they collect facts and make observations about a present situation and use them to develop a prediction about what might eventually happen. The students of Grade 10 did exactly that, by extrapolating the poems; 'The Ball' and 'How to tell Wild Animals'.



7/20

## The Ball Poem

Date \_\_\_\_\_

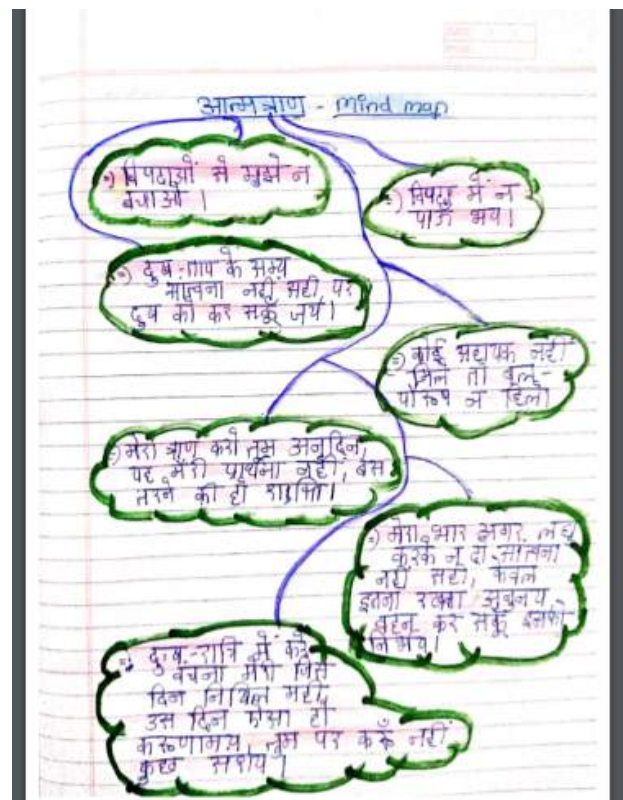
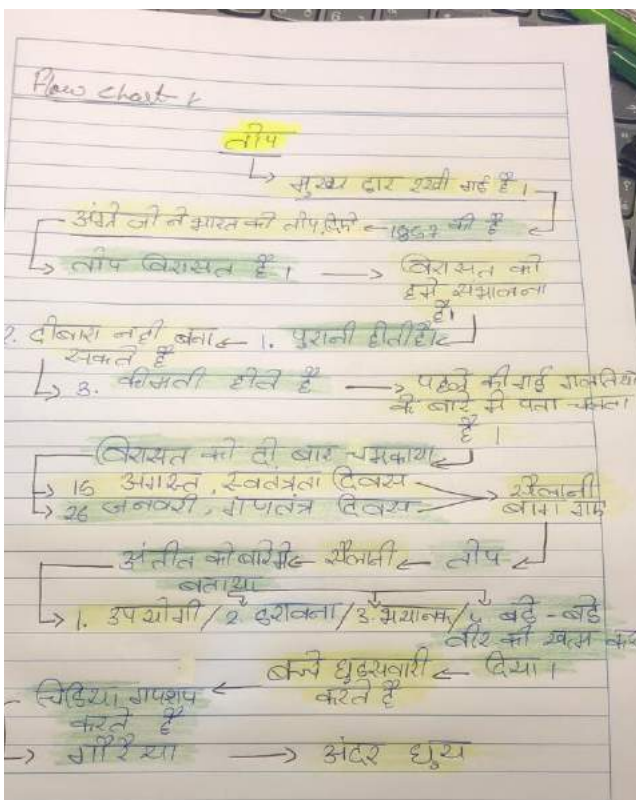
y:- To summarize the poem.

The Ball Poem, composed by John Berryman, gives a short account on loss and the weight of responsibility. It speaks of a young innocent boy losing his ball. He had played with the ball for a significant part of his innocent childhood, and as such it held on almost irreplaceable part of his fond memories. The poet does not comfort or offer money to the boy, for he wants him to feel the nature of loss. People shall always try to take others' possessions, and losses and sacrifices are a part of life. We must, however, learn to take responsibility for our own possession, and must stand up for ourselves as the boy realizes by the end of the poem.

# Grade 10

## HINDI

Flow chart and mind map द्वारा कविता और पाठ की व्याख्या।



GEMS Ambassador Programme



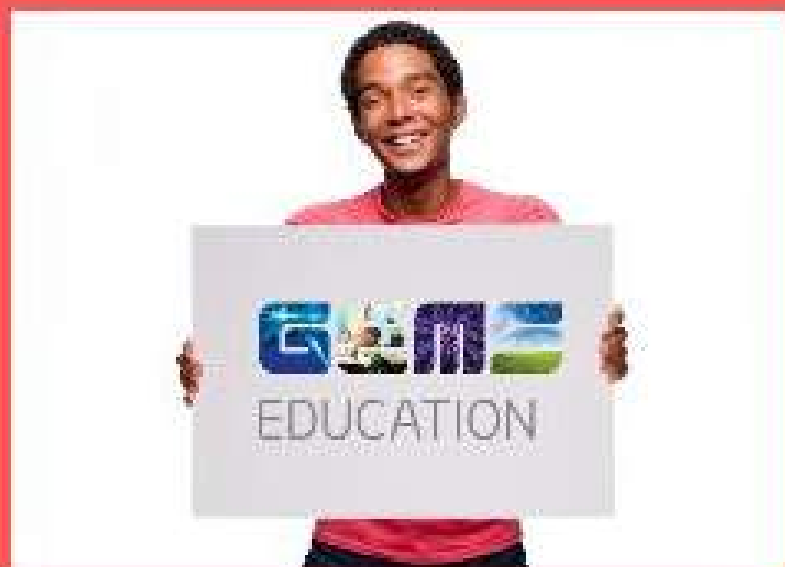


# Grade 10

## HINDI: STUDENT ACTIVITIES ON ONE NOTE

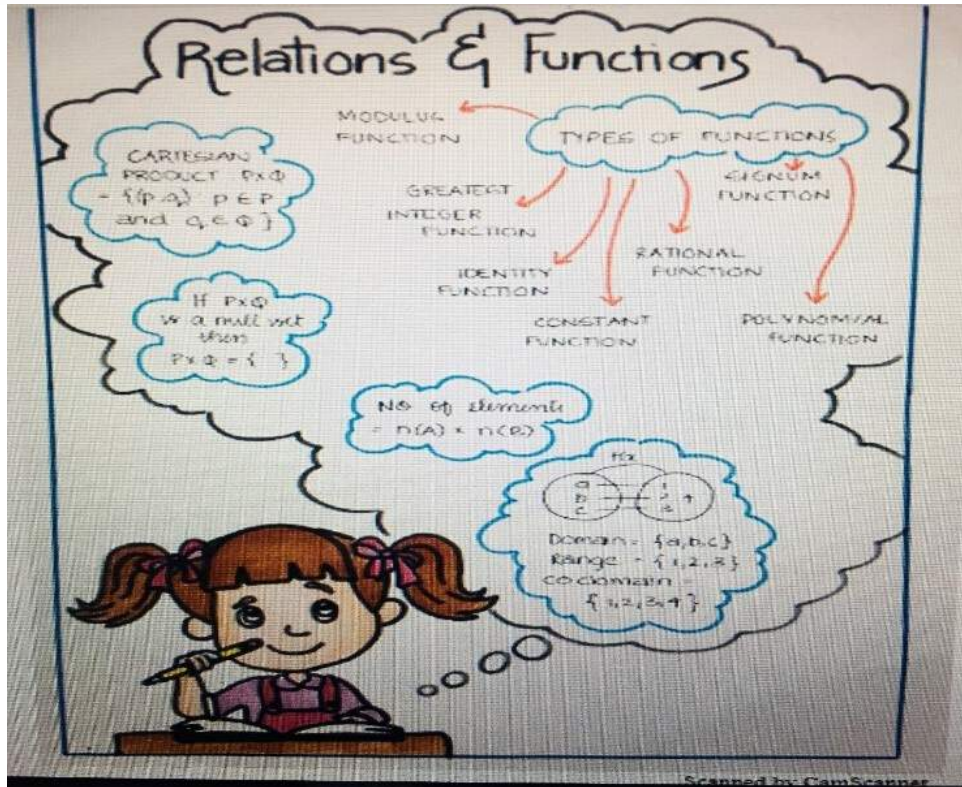
## A QUESTION EVERYDAY!

The Question-a-Day assessment or the QaD was an innovative idea to help students acquire the strategies and skills to solve problems that require higher order thinking.



# Grade 11

## MATHEMATICS



**ALGEBRA**

$(f+g)x = f(x) + g(x)$   
 $(f-g)x = f(x) - g(x)$   
 $(f \cdot g)x = f(x) \cdot g(x)$   
 $(k \cdot f)x = k(f(x))$   
 $\left(\frac{f}{g}\right)x = \frac{f(x)}{g(x)}$

**FUNCTION**

A function is a specific type of relation where every element  $x$  of set  $A$  has one and only image  $y$  in set  $B$ .

$f: A \rightarrow B$ , where  $f(x) = y$

$A$  is domain and  $B$  is codomain of  $f$ . The Range of the function is the set of images.

**DOMAIN & RANGE**

- Domain of  $R$  is set of all 1<sup>st</sup> elements of the ordered pairs in relation  $R$ .
- Range of relation  $R$  is the set of all second elements of the ordered pairs in a relation  $R$ .

**ORDERED PAIR**

A pair of elements grouped together in a particular order.

**REAL FUNCTION**

Has set of real no.s in one of the subsets as both domain and as the range.

**CARTESIAN PRODUCT**

- $A \times B$  of two sets  $A$  and  $B$  is given by  $A \times B = \{(a, b) \mid a \in A, b \in B\}$
- If  $(a, x) = (x, y)$  then  $a = x$  and  $b = y$
- If  $n(A) = p, n(B) = q$  then  $n(A \times B) = pq$
- $A \times \phi = \phi$

**RELATIONS AND FUNCTIONS**

**RELATION**

A relation  $R$  from set  $A$  to set  $B$  is a subset of the cartesian product  $A \times B$  obtained by describing a relationship between the 1<sup>st</sup> element  $x$  and the 2<sup>nd</sup> element  $y$  of the ordered pairs in  $A \times B$ .

# Grade 11

## ECONOMICS

**EXPECTATIONS**  
When consumer expects or wishes a change in product in the near future, it can affect the demand of the product.

**Fastes & Preferences**  
Each consumer has his/her own choices. They can be influenced by a lot of factors.  
T ↑ P ↓ D ↑  
T & P ↓ D ↓

**Income**  
Demand for normal goods tend to increase with increase in income.  
Demand for inferior goods decrease with increase in income.

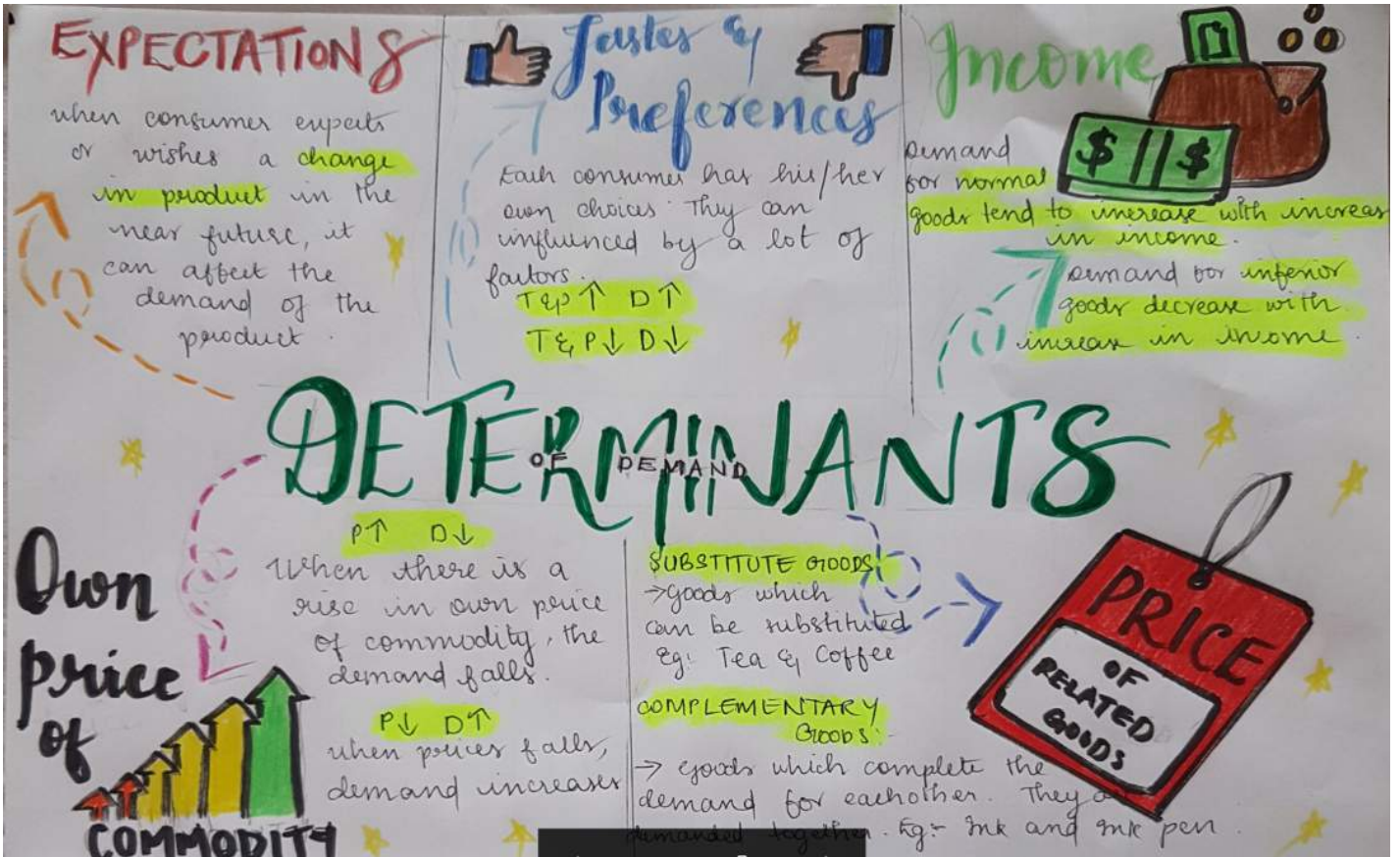
**DETERMINANTS OF DEMAND**

**Own price of COMMODITY**  
When there is a rise in own price of commodity, the demand falls.  
P ↓ D ↓  
When price falls, demand increases.  
P ↓ D ↑

**SUBSTITUTE GOODS**  
→ goods which can be substituted.  
Eg: Tea & Coffee

**COMPLEMENTARY GOODS**  
→ goods which complete the demand for each other. They are demanded together. Eg: Ink and ink pen.

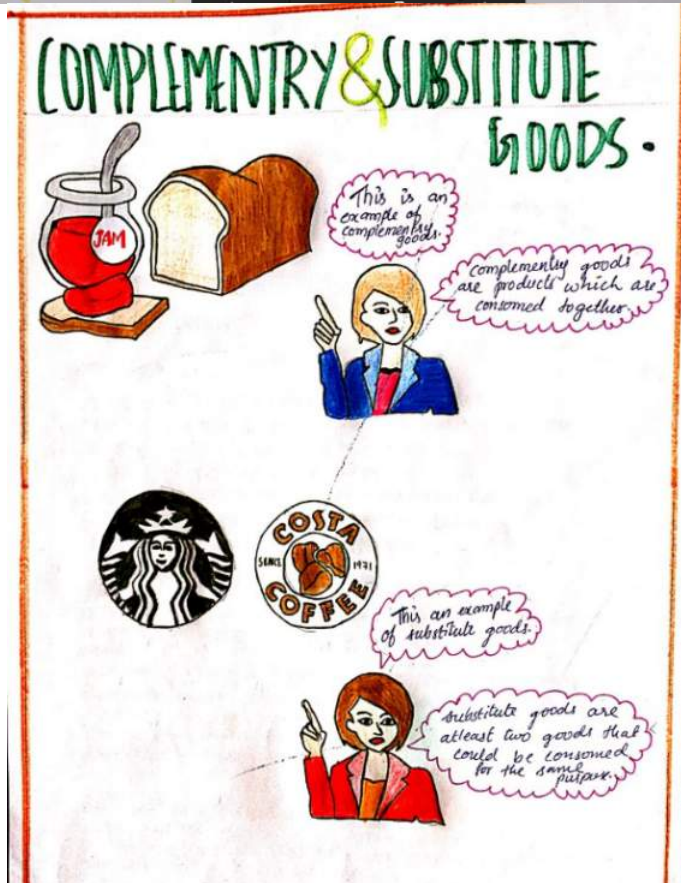
**PRICE OF RELATED GOODS**



**COMPLEMENTRY & SUBSTITUTE GOODS.**

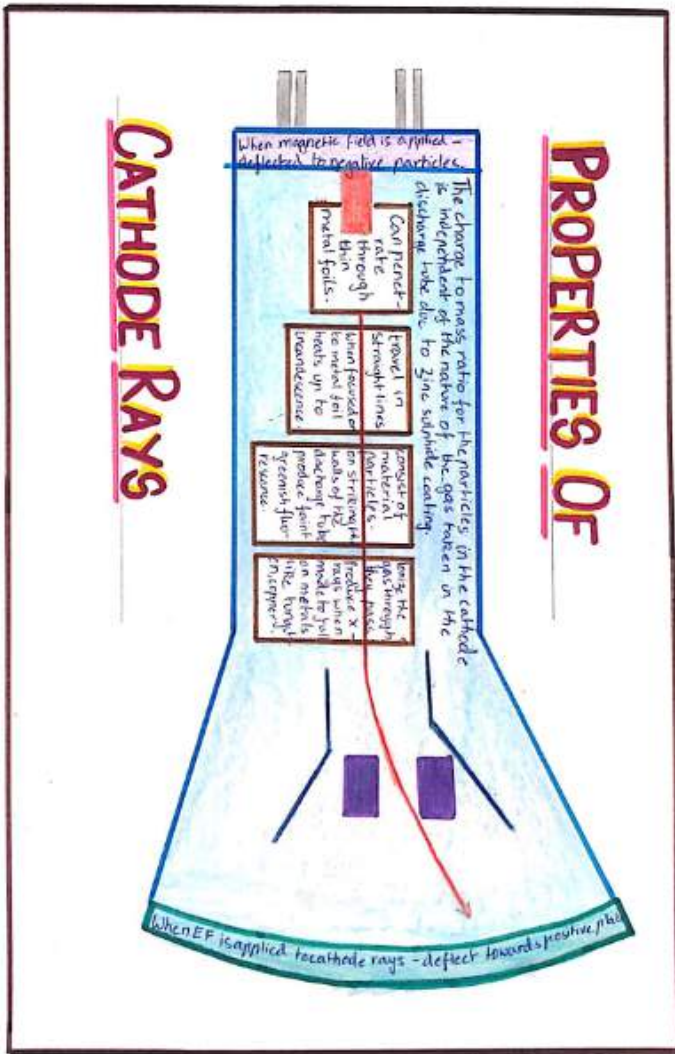
This is an example of complementary goods.  
Complementary goods are products which are consumed together.

This is an example of substitute goods.  
Substitute goods are at least two goods that could be consumed for the same purpose.



# Grade 11

## CHEMISTRY



### Discovery of an Electron

Electron was discovered by J.J. Thomson in 1897 when he was studying the properties of cathode rays.

It was discovered by cathode ray discharge tube experiment.

**Results:**

Properties of cathode rays -

- Cathode rays travel in straight lines
- It consists of material particles
- When an magnetic field is applied they get deflected downwards parallel plate
- They are negatively charged
- It travels fast through wire they pass
- They penetrate through thin metal plate
- Fluor characteristic change depend on the nature of the gas present in the tube.

**Properties of Anode Rays +**

- Anode rays travel in straight lines
- It consists of material particles
- They are positively charged
- Sp. ratio depends on the nature of gas taken in the discharge tube

### Thomson's MODEL OF AN ATOM

According to Thomson, atoms are in a spherical shape which had positive charges particles and negatively charged particles equally distributed and known as plum pudding model.

Its observations couldn't be called as plum pudding model as a watermelon.



### Milikan's Oil Drop Experiment

For the determination of charge of an electron.

The charge 'e' on the electron was determined by a method in 1909 by oil drop experiment.

The charge on the electron is found to be  $1.6022 \times 10^{-19} \text{C}$ .

### Atomic Number

Atomic number (Z) = no. of protons present in the nucleus = no. of electrons in the neutral atom.

### Mass Number (A)

Mass number (A) = no. of protons (Z) + no. of neutrons (N)

$A = Z + N$

Charge to mass ratio of electron:

The measure of mass ratio of an electron (e) to the mass of an electron (m) by using the oil drop experiment and applying classical and magnetic fields perpendicular to each other would be the ratio of charge to mass.

$\frac{e}{m} = 1.758820 \times 10^{18} \text{ kg}^{-1}$

## Structure of Atom

### Rutherford's MODEL OF ATOMS

Yonkers experiment of cathode ray with X-rays particles scattering experiment.

**Result:**

- Most X-particles passed without deflection
- A small fraction of X-particles were deflected by small angles
- A very few X-particles bounced back.

Develops an atomic structure of some elements having different masses.

Isotopes are different elements having same atomic mass.

Isotopes are different elements with same no. of neutrons.

### Plank's Quantum Theory

Energy is not emitted or absorbed continuously. It is emitted or absorbed in the form of wave packets or quanta.

The amount of energy associated with quantum of radiation is directly proportional to the frequency (f) of

### Wave nature of electromagnetic radiations

Maxwell's electromagnetic theory

According to this theory, when electrically charged particles move and vibrate with electric and magnetic fields are produced and transmitted. These fields are transmitted in the form of waves called electromagnetic waves or electromagnetic radiation.

**Properties of electromagnetic radiations:**

- Travel in straight lines
- They travel with the speed of light
- They exert pressure
- They are transverse waves
- They are produced by vibrating electric charges
- They are produced by vibrating magnetic charges
- They are produced by vibrating electric and magnetic charges
- They are produced by vibrating electric and magnetic charges
- They are produced by vibrating electric and magnetic charges

### IMPORTANT TERMS

ISOTONES

ATOMIC NUMBER

MASS NUMBER

ISOTOPE

**ACROSS**

- Number of protons in the nucleus of an atom. (Z)
- Number of protons + number of neutrons. (A)
- Atoms of the same element having same atomic number, but same mass number.
- Atoms of different elements having the same number of neutrons.

**DOWN**

- Atoms of different elements that have different atomic numbers, and same mass number.

### Atomic models

**THOMSON'S**

- Atom is a sphere of positive charge with negatively charged particles (electrons) embedded in it.
- It is called plum pudding model.

**RUTHERFORD'S**

- Atom has a central nucleus with positive charge.
- Electrons are present outside the nucleus.
- It is called nuclear model.

**BOHR'S**

- Electrons revolve in certain discrete orbits (energy levels) around the nucleus.
- Electrons do not radiate energy while revolving in these orbits.
- When an electron jumps from a higher energy level to a lower energy level, it emits energy in the form of light.

**ACHIEVEMENTS**

- It was able to explain the stability of atoms.
- It was able to explain the emission spectrum of hydrogen.
- It was able to explain the spectrum of other elements.

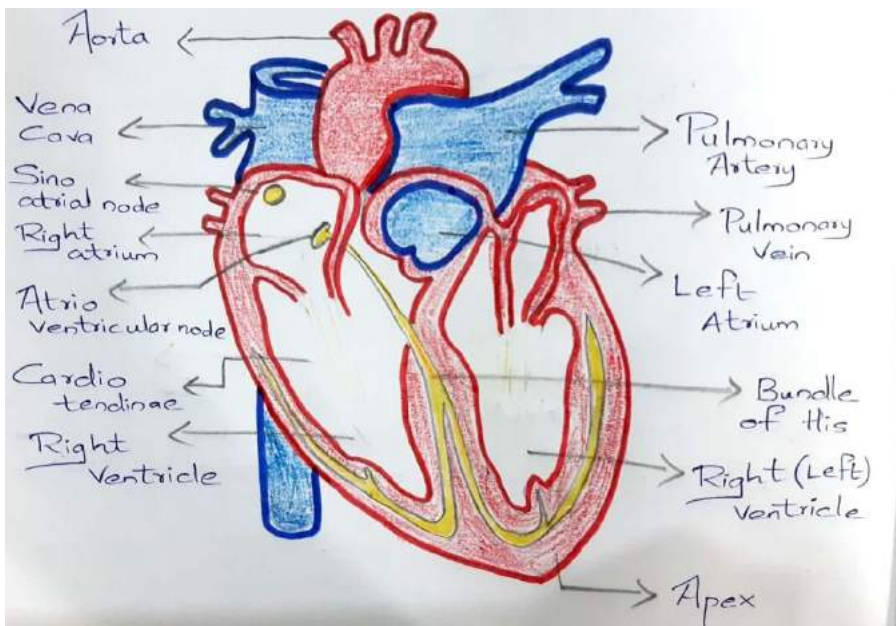
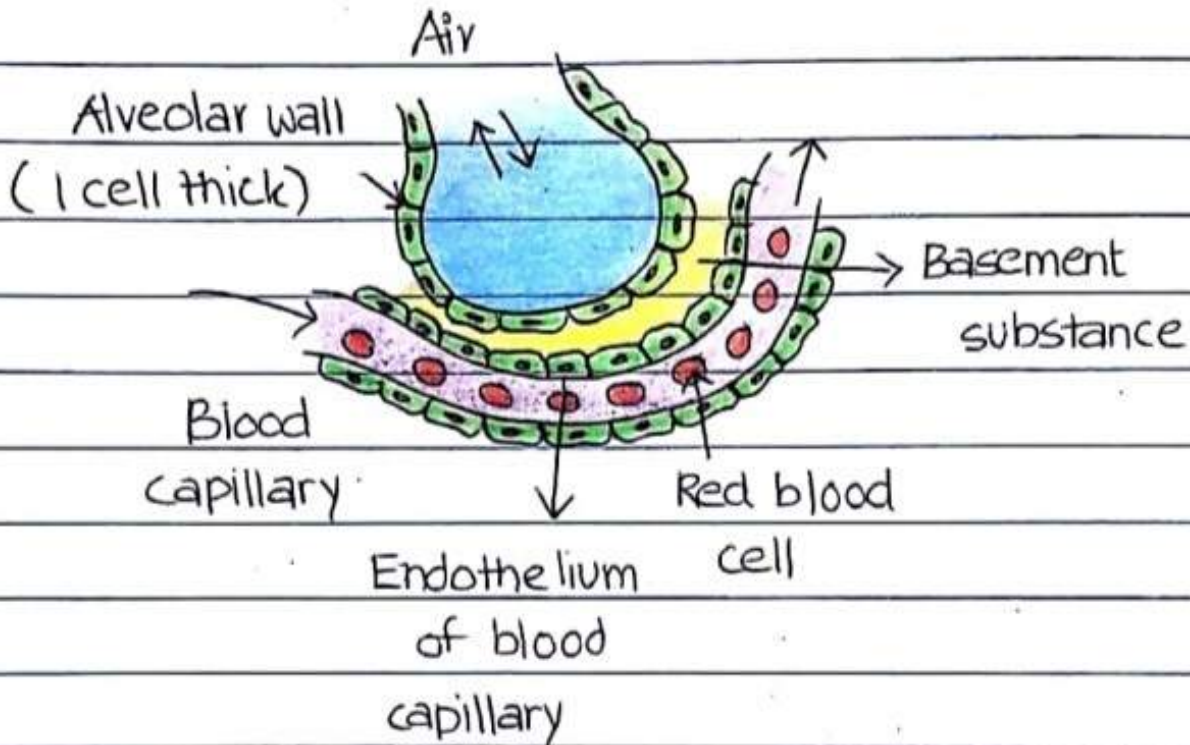
**LIMITATIONS**

- It could not explain the spectrum of atoms other than hydrogen.
- It could not explain the stability of atoms.
- It could not explain the spectrum of atoms other than hydrogen.



# Grade 11

## BIOLOGY



<u>ASSOCIATION &amp; DISSOCIATION OF O<sub>2</sub> &amp; CO<sub>2</sub></u>	
<u>OXYGEN :</u>	<u>CARBON DIOXIDE :</u>
i) In the alveoli, High pO <sub>2</sub> , low pCO <sub>2</sub> , lesser H <sup>+</sup> ion concentration, and lower temperature	i) In the alveoli, low pCO <sub>2</sub> , High pO <sub>2</sub>
ii) In the tissues, low pO <sub>2</sub> , High pCO <sub>2</sub> , High H <sup>+</sup> ion concentration, High temperature.	ii) In the tissues, High pCO <sub>2</sub> , low pO <sub>2</sub>
↓ <u>Association and Dissociation of O<sub>2</sub> &amp; CO<sub>2</sub></u>	
i) These factors are all favourable for the formation of oxyhaemoglobin.	i) These factors are favourable for binding of CO <sub>2</sub> .
ii) These factors are all favourable for dissociation of oxygen from oxyhaemoglobin.	ii) These factors are favourable for dissociation of CO <sub>2</sub> from carbamino-haemoglobin.

# Grade 11

## COMPUTER SCIENCE

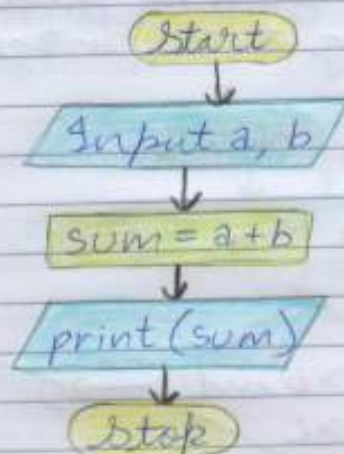
Commonly used symbols in a flowchart are as follows:-

Symbols	Name
	Start / Stop
	Calculation / Process
	Input / Output
	For Conditions / Decisions
	Connection
	Connector

Examples:-

Q. Draw a flowchart to find the sum of two numbers.

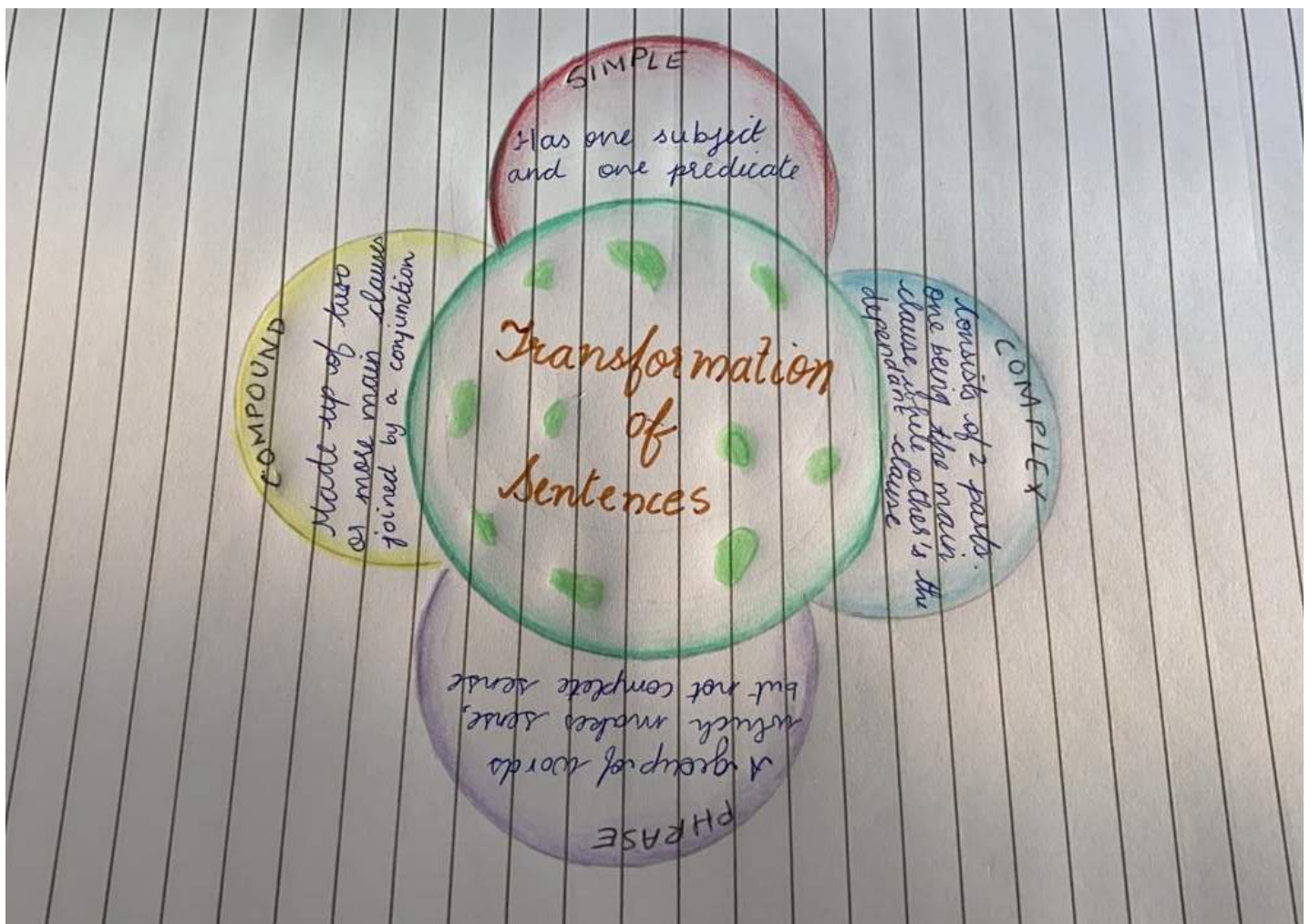
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# Grade 11

## ENGLISH

The students of Grade 11 mastered the style of writing through grammar lessons on 'Transformation of Sentences'. They designed a mind map portraying and reflecting the learned concepts.



# Grade 12

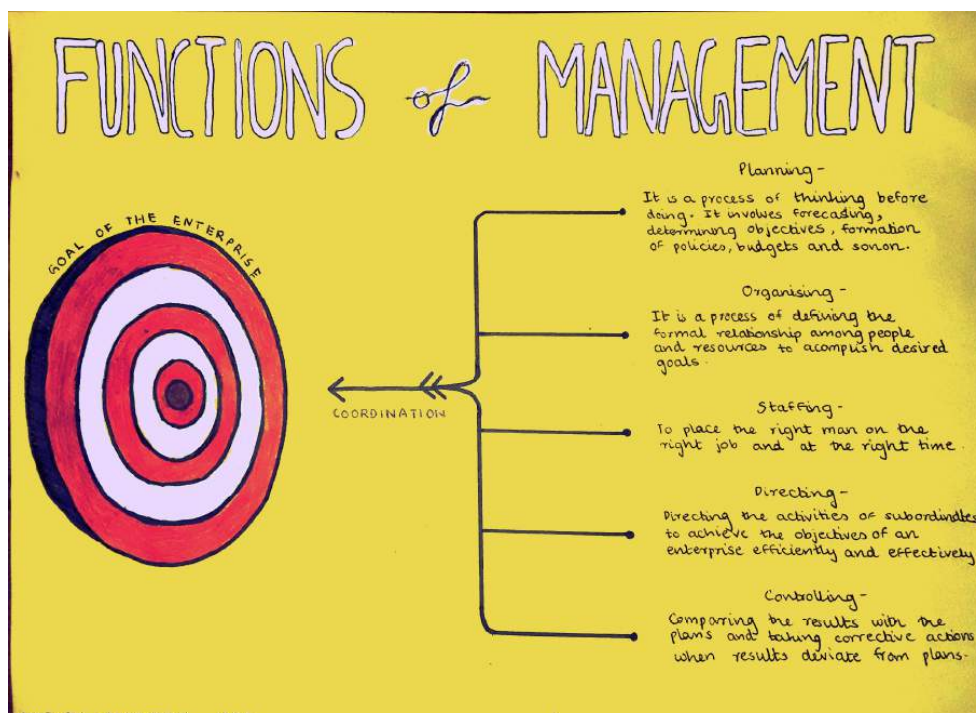
## MATHEMATICS

DEFINITIONS	CHARACTERISTICS
<ul style="list-style-type: none"> <li>continuity of a function is a function by which, the graphical form of function is a continuous wave.</li> <li>A differentiable function is a function whose derivative exists at each point in its domain.</li> <li>chain rule is rule to differentiate composites of function. If <math>v = v(x)</math>, <math>t = u(v)</math> and if both <math>\frac{dt}{dv}</math> and <math>\frac{dv}{dx}</math> exist then <math>\frac{dt}{dx} = \frac{dv}{dx} \cdot \frac{dt}{dv}</math></li> </ul>	<ul style="list-style-type: none"> <li>A function is continuous if it is continuous on the whole of its domain.</li> <li>sum, difference, product and quotient of continuous functions are continuous.</li> <li>Every differentiable function is continuous, but the converse is not true.</li> </ul>
<p style="text-align: center;"><b>Continuity and Differentiability</b></p>	
EXAMPLES	NON-EXAMPLES
<p>Example 1 <math>\rightarrow f(x) = 2x+3</math> at <math>x=1</math></p> <p>Example 2 <math>\rightarrow f(x) = x^2</math> at <math>x=0</math></p> <p>Example 3 <math>\rightarrow f(x) =  x </math> at <math>x=0</math></p> <p>Example 4 <math>\rightarrow x^2 + bx</math></p>	<p>Example 1 <math>\rightarrow f(x) = \begin{cases} x^3+3, &amp; \text{if } x \neq 0 \\ 1, &amp; \text{if } x = 0 \end{cases}</math></p> <p>Example 2 <math>\rightarrow f(x) = \begin{cases} 3x-2 &amp; \text{if } 0 \leq x &lt; 1 \\ x^2-2 &amp; \text{if } 1 \leq x &lt; 2 \\ 5x-4 &amp; \text{if } x \geq 2 \end{cases}</math></p> <p>Example 3 <math>\rightarrow f(x) = \begin{cases} -x+3 &amp; x &lt; 3 \\ 0 &amp; x = 3 \\ 2-3 &amp; x &gt; 3 \end{cases}</math></p>

DEFINITIONS	CHARACTERISTICS
<p><b>CONTINUITY:</b> a function is continuous at <math>x=a</math>, if and only if all 3 of the following conditions are met:</p> <ol style="list-style-type: none"> <li>the function is defined at <math>x=a</math>, i.e. <math>f(a)</math> equals a real number</li> <li>the limit of the function as <math>x</math> approaches <math>a</math> exists</li> <li>the limit of the function as <math>x</math> approaches <math>a</math> is equal to the function value at <math>x=a</math></li> </ol> <p><b>DIFFERENTIABILITY:</b> a function is differentiable whose derivative exists at all points on its domain, i.e. the graph of a differentiable function must have a unique tangent line at each point in its domain, be relatively smooth &amp; cannot contain break or corners.</p>	<p><b>CONTINUITY:</b></p> <p>LHL, <math>\lim_{x \rightarrow a^-} f(x)</math></p> <p>RHL, <math>\lim_{x \rightarrow a^+} f(x)</math></p> <p><b>DIFFERENTIABILITY:</b></p> <p>right hand derivative, <math>f'(a) = \lim_{h \rightarrow 0} \frac{f(a+h) - f(a)}{h}</math></p> <p>left hand derivative, <math>f'(a) = \lim_{h \rightarrow 0} \frac{f(a-h) - f(a)}{-h}</math></p>
<p style="text-align: center;"><b>CONTINUITY &amp; DIFFERENTIABILITY</b></p>	
EXAMPLES	NON-EXAMPLES
<p><b>CONTINUITY:</b></p> <p>Q: Show that the function <math>f(x) = 2x -  x </math> is continuous at <math>x=0</math>.</p> <p>A: <math>f(x) = \begin{cases} 2x-x &amp; x &gt; 0 \\ 2x-0-2x &amp; x = 0 \\ 2x-x &amp; x &lt; 0 \end{cases}</math></p> <ol style="list-style-type: none"> <li><math>f(0) = 2 \cdot 0 = 2(0) - 0 = 0</math></li> <li>LHL, <math>\lim_{x \rightarrow 0^-} 3x = 0</math> RHL, <math>\lim_{x \rightarrow 0^+} 3x = 0</math> <math>\therefore \text{LHL} = \text{RHL} \Rightarrow \lim_{x \rightarrow 0} f(x)</math> does exist</li> <li><math>f(0) = 0 = \lim_{x \rightarrow 0} f(x) = 0</math> <math>\therefore f(x)</math> is continuous at <math>x=0</math></li> </ol> <p><b>DIFFERENTIABILITY:</b></p> <p><math>(2x -  x )</math></p>	<p><b>CONTINUITY:</b></p> <p>Q: Check if the function <math>f(x) = \begin{cases} \frac{\cos x}{x} &amp; x \neq 0 \\ 1 &amp; x = 0 \end{cases}</math> at <math>x=0</math></p> <p>A: <math>f(x) = \begin{cases} \frac{\cos x}{x} &amp; x &gt; 0 \\ 1 &amp; x = 0 \\ -\frac{\cos x}{x} &amp; x &lt; 0 \end{cases}</math></p> <ol style="list-style-type: none"> <li><math>f(0) = 1</math></li> <li>LHL, <math>\lim_{x \rightarrow 0^+} -\frac{\cos x}{x} = -4</math> RHL, <math>\lim_{x \rightarrow 0^-} \frac{\cos x}{x} = 1</math> <math>\therefore \text{LHL} \neq \text{RHL} \Rightarrow \lim_{x \rightarrow 0} f(x)</math> does not exist &amp; discontinuous</li> </ol>

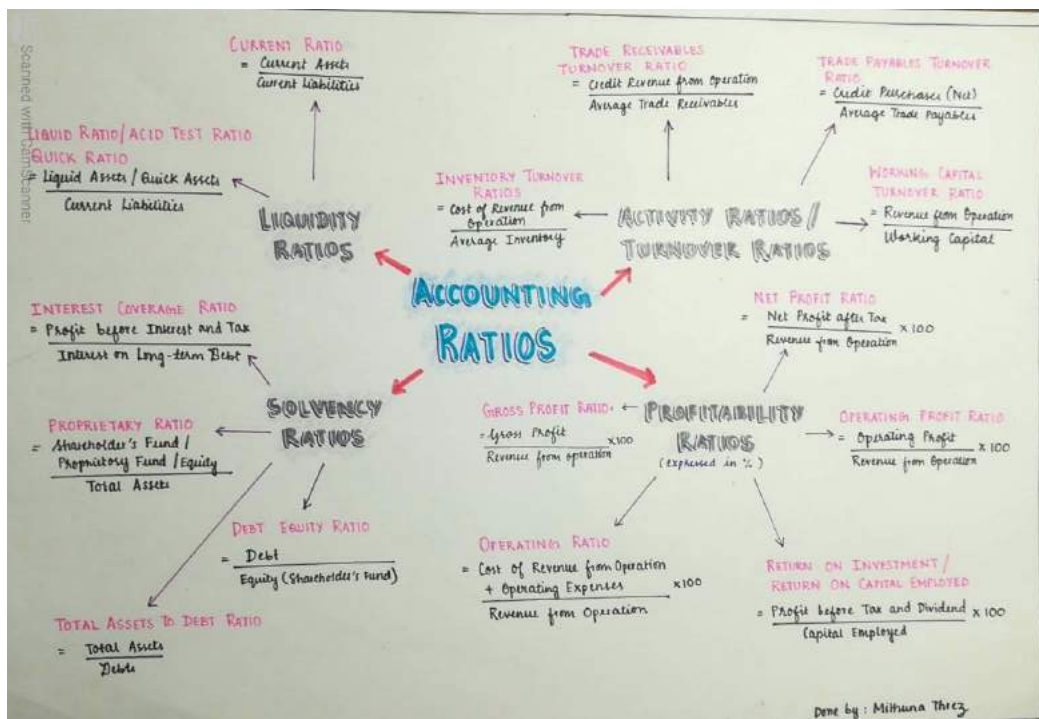
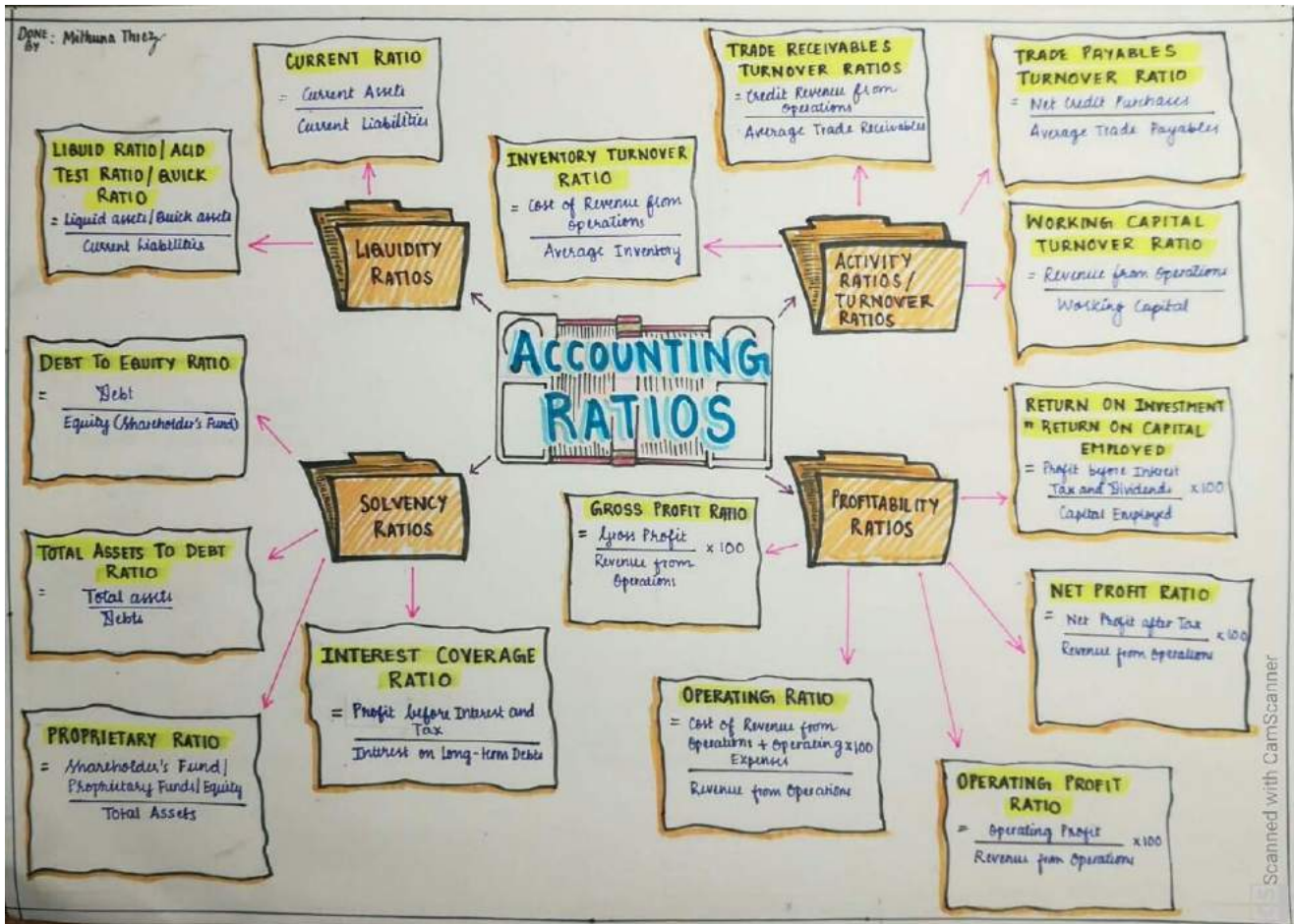
# Grade 12

## BUSINESS STUDIES



# Grade 12

## ACCOUNTANCY



# Grade 12

## PHYSICS

The students of Grade 12 solved problems based on capacitors with the help of Padlet, which was then followed by self evaluation.

2020  
I.O. - Numericals

Find - (a)  $C_e$   
(b) Charge and voltage on each capacitor

(a) In series -  $\frac{1}{C_s} = \frac{1}{200} + \frac{1}{100}$   
 $\Rightarrow \frac{1}{C_s} = \frac{1}{200} + \frac{2}{200} = \frac{3}{200}$   
 $\therefore C_s = 100 \text{ pF}$

In parallel -  $C_p = 100 + 100 \Rightarrow 200 \text{ pF}$

In series -  $C_e = \frac{1}{\frac{1}{100} + \frac{1}{200}} = \frac{200}{3}$   
 $\therefore C_e = 66.67 \text{ pF}$

(b)  $\therefore \Phi = C_e V$   
 $\Rightarrow 66.67 \times 300 \Rightarrow 2 \times 10^4 \text{ pC}$   
 $\Rightarrow 2 \times 10^{-8} \text{ C}$

$\therefore \Phi_1 = \Phi_2$   $\because$  Both have same  $C$   
 $\Rightarrow \frac{\Phi}{2} = 1 \times 10^{-8} \text{ C}$

Voltage  $\rightarrow 200 \text{ pF} \Rightarrow 50 \text{ V}$   $\{$  with  $\Phi_2$   
 $200 \text{ pF} \Rightarrow 50 \text{ V}$   $\{$  with  $\Phi_2$   
 $100 \text{ pF} \Rightarrow 100 \text{ V}$   $\{$  with  $\Phi_1$   
 $100 \text{ pF} \Rightarrow 200 \text{ V}$   $\{$  with  $\Phi_1$

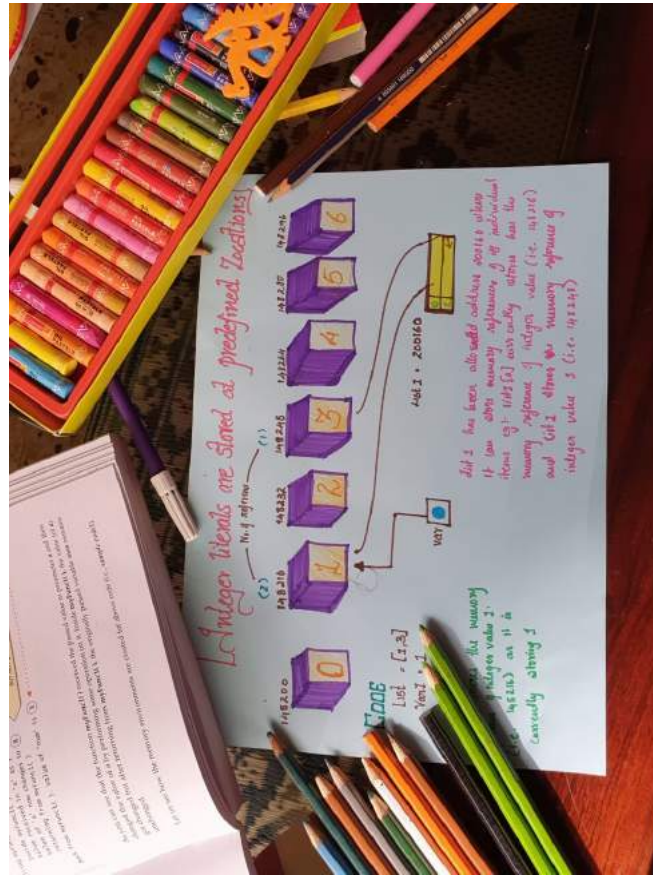
These capacitors of capacitances  $2 \text{ pF}$ ,  $3 \text{ pF}$  and  $4 \text{ pF}$  are connected in parallel.

padlet  
wilson\_suja + 2 - 20h  
Discussion corner- Unit 1  
Grade 12 Radiant Shelf

<b>UNIT 1 chapter 1 (doubts)</b>	<b>UNIT 1 chapter 2 (doubts)</b>	<b>Chapter 3 Current Electricity (doubts)</b>
<b>Aswin Nair</b> mam can you explain how the vectors get added up in deriving the expression for the electric field of a dipole at a point on the equatorial plane of the dipole?	<b>Generator</b> .....REPLY..... <b>Varsha,</b> For your first question, <b>No matter the shape of that ds the final equation and the conclusion remains the same.</b> expression of ds depends on the shape of the gaussian surface we choose. Van de graff is NOT in our syllabus	<b>ELECTRICITY!</b> What does the term 'm' indicate in the final equation of resistance in terms of physical features of a conductor??  What does the term 'm' indicate in the equation for mobility??  .....REPLY..... <b>Dear Varsha,</b> <b>m indicates the mass of electron</b>

# Grade 12

## COMPUTER SCIENCE



## THE VARKEY FOUNDATION

We are a family foundation established to improve standards of education and raise the status and capacity of teachers throughout the world.

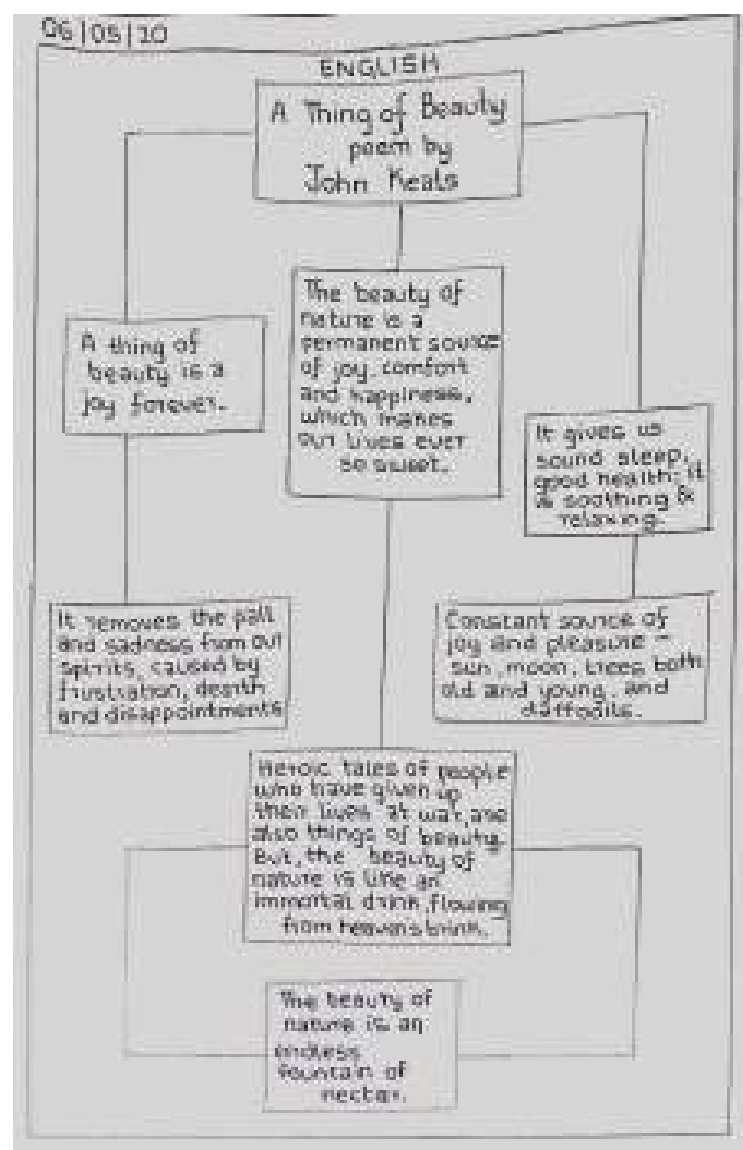




# Grade 12

## ENGLISH

The students of Grade 12 attempted a critical appreciation of the poem, 'A Thing of Beauty', written by the acclaimed British poet, John Keats. The whole experience swayed and delighted the learners as they were able to live through the moods and aspirations of the Romantic poem, emboldening the fact that beauty in any form is an elixir of life.



# Grade 12

## CHEMISTRY

### D-Block Elements

Atomic no.	Element	Symbol	Atomic mass	Configuration	Oxidation Number
21	Scandium	Sc	45	$3d^1 4s^2$	+2, +3
22	Titanium	Ti	47.8	$3d^2 4s^2$	+2, +3, +4
23	Vanadium	V	51	$4s^2 3d^3$	+2, +3, +4, +5
24	Chromium	Cr	52	$4s^1 3d^5$	+2, +3, +4, +5, +6
25	Manganese	Mn	55	$4s^2 3d^5$	+2, +3, +4, +5, +6, +7
26	Iron	Fe	55.8	$4s^2 3d^6$	+2, +3, +4, +5, +6
27	Cobalt	Co	59	$4s^2 3d^7$	+2, +3, +4
28	Nickel	Ni	58.6	$4s^2 3d^8$	+2, +3, +4
29	Copper	Cu	63.5	$4s^1 3d^{10}$	+1, +2
30	Zinc	Zn	65.4	$4s^2 3d^{10}$	+2
39	Yttrium	Y	89	$5s^2 4d^1$	+3
40	Zirconium	Zr	91.2	$5s^2 4d^2$	+3, +4
41	Niobium	Nb	93	$5s^1 4d^4$	+2, +3, +4, +5
42	Molybdenum	Mo	96	$5s^1 4d^5$	+2, +3, +4, +5, +6
43	Technetium	Tc	98	$5s^2 4d^5$	+2, +4, +5, +7
44	Ruthenium	Ru	101	$5s^1 4d^7$	+2, +3, +4, +5, +6, +7, +8
45	Rhodium	Rh	103	$5s^1 4d^8$	+2, +3, +4, +6
46	Palladium	Pd	106.4	$5s^0 4d^{10}$	+2, +3, +4
47	Silver	Ag	107.8	$5s^1 4d^9$	+1, +2, +3
48	Cadmium	Cd	112.4	$5s^2 4d^{10}$	+2

GA  
30/6/20

# STUDENT'S VOICE

As the Corona virus pandemic upends work, travel and home life, the rules are shifting for what people 'can' and 'can't' do in their daily lives. Such a shift is seen in the field of education as well. Nevertheless, through Gems United Indian School's Remote Learning Programme, we can continue our learning journey without compromising on its quality and quantity. Remote learning is where the student and the teacher are not physically present in a traditional classroom environment. Instead, information is relayed through technology, such as video conferencing and online assessments. Our school has come up with novel initiatives to enhance the quality of learning through the concepts of Frayer's Model of Reflection, Mind Maps, Spider Webs, KWL charts, Learner's Profile, Padlets and more! Through such invigorating methods, the students are kept on their toes and their insatiable thirst is awakened. I believe that the advantages of Remote Learning far outweigh its disadvantages. Firstly, students don't miss out on the learning. Otherwise, if the RLP was not taking place, the students would probably sit at home and remain indolent. Through the RLP, they are making effective use of their time and talents. Secondly, it provides pupils with a stress-free environment to study. Going and coming back from school is a tedious and energy-consuming task which leaves the students enervated and exhausted by the time they return home. The RLP cuts back on all these drawbacks and presents the best environment for a student. Thirdly, it creates a friendly and open atmosphere for students to clarify their doubts. Some children tend to be nervous while asking doubts when present in a physical classroom. They fret, thinking about the reactions of their teacher and fellow peers, but now they feel free and confident to clear their queries. Fourthly, the RLP guarantees 100% student participation. The virtual classes are live and engaging, which assures the active participation of all. To conclude, I would like to highlight that the Remote Learning Programme is like an anchor which docks the ship of our school onto the deck. It brings us all together and helps us stay positive and energized in these saddening and depressing times. The future of the world is now in our virtual classes!

- Candace Sara Ciju

11-G2

# STUDENT'S VOICE

I had never imagined my academic year to start on a digital note. With my Grade 12 classes starting in full swing on March 8th 2020, we began covering our syllabus through Microsoft Teams. The RLP is very convenient, considering the fact that we have a great deal of energy left even after the end of the school day. This learning platform promotes qualities for a 21st Century learner such as self-dependency, resilience, problem-solving, and technological literacy. Given the pandemic and the increasing importance of health and safety, the Phoenix Classroom provides us with various tutorials on dance, yoga, and music. Our RLP sessions have an assessment slot every week guided by an assessment schedule. This helps the teachers to keep track of our progress. Teachers create assignments through which we upload our assigned tasks and receive feedback on the same. The addition of Asynchronous learning provides an opportunity for students to research and delve deeper into a concept. These concepts are more or less repeated in the following synchronous classes. Teachers encourage us to ask questions and help us in using different virtual portals to make learning efficient and comfortable. The school day ends with a ten-minute reflection slot wherein, a Microsoft form is sent to us to give our feedback for the day. Our teachers and their dynamic teaching methods have wonderfully adapted to this pandemic situation and have come to use more innovative learning techniques. This endeavor, fuelled by the collective vision of our teachers and school management is a step into the future filled with new possibilities and hope!

-Rachael

12-G1

# STUDENT'S VOICE

Change is the order of nature. The environment, the economy, and perspectives are evolving and changing for the better as well as worse. Things that were once believed to be constant are losing their permanence. However, there is one thing that has and always will be the same which is knowledge, and our unquenchable thirst for it. Remote Learning helps us to quench this yearning as it transforms our homes into classrooms and helps us to delve deeper into topics, and acquire education at our own pace. E-learning makes the classes and assessments easy to access and adapt to. It also enables us to keep track of our growth and patch our flaws. It is a boon, especially for those of us who are in our final year of high school as it gives us ample time to introspect on our plans. It also enables us to prepare for our highly anticipated finals without time and travel constraints. Moreover, it provides us with a generous amount of time to spend with our families before going off to university next year. We express our heartfelt gratitude towards our school and teachers for their successful efforts in imparting knowledge from a distance and aiding our growth as young global citizens.

-Sona Mariam

12-GI

# STUDENT'S VOICE

The E-learning experience which we have embarked upon has been truly remarkable. Firstly, all classes are carried out smoothly and regular reinforcement ensures effective communication and understanding. Daily assignments and assessments give us an added advantage in the learning process and helps maintain self-discipline. Secondly, assignments are uploaded regularly, which are then assessed by the teachers and the feedback which we receive, helps us keep track of our performance. Our work and progress are monitored regularly, and the provided guidelines and corrective measures pave way for shaping our skills and individual learning style. To add on, reflection sessions are held daily wherein we reflect upon the day's work and list out the concepts which are yet to be understood. Lessons progress at a comfortable pace and the supplementary learning materials aid us in the learning process. Moreover, our needs and requirements are attended to by the persistent efforts of our teachers for which we are truly grateful. Digital tools such as PPTs, videos, etc. give us an advantage of understanding lessons. The use of digital tools adds novelty to the traditional learning experience. Although we are confined to our homes, we are provided with various platforms and opportunities to express our creativity, share ideas, and spread positivity. All these factors provide us with an ideal learning environment that targets the factors which are vital to a student's cognitive and social development. All the endeavors undertaken by our teachers and the school management are truly commendable.

-Evelyn Freegance

12-G1

# STUDENT'S VOICE

The whole of humanity is witnessing one of the most widespread pandemics till date. It is hard to accept that a microscopic entity has us all locked up. However, during this period of isolation, education has not been hindered. Teaching and learning is taking place, through screens, all while being cozily seated in our rooms. Teachers have made the most of the various online tools, such as Power-Point Presentations, Octopus, and a number of websites to make learning almost as effective as in classrooms. Furthermore, the regular morning school routine involving the recitation of the National Anthem, School Song and the School Prayer, along with well differentiated class hours, have brought in a school environment for us to savor from the comfort of our homes. I have observed that all the homeworks, assignments and tests, especially the descriptive ones are having a huge impact on automatically keeping me up-to-date with all the lessons, and this is the case for several other students as well. If we continue this well-organized learning program under the guidance of the Senior Leadership Team and indeed our meticulous teachers, there is no doubt that we would be well equipped with knowledge, ready to face our examinations with ease.

- Krishna Sunil

12-B1