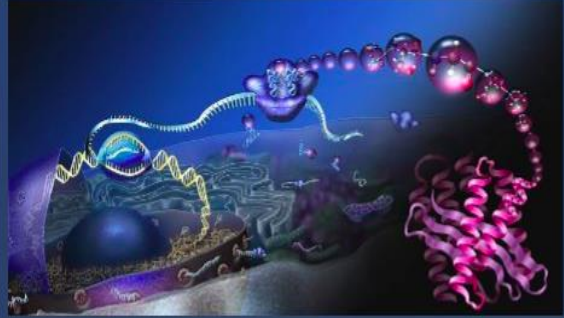


Pythagorean Theorem

Pythagorean Theorem
 $a^2 + b^2 = c^2$

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**GANGA
 INTERNATIONAL
 SCHOOL,
 HIRAN KUDNA
 HOLIDAY HOMEWORK
 (2022-23)**



Dear Parents
Warmest Greetings!

Summer vacation forms an integral part of every child's life. As summer rolls around, students ardently wait for the vacation to start to spend time with the loved ones, relax and rejuvenate.

Who wouldn't love to have a fun-filled vacation? Certainly, summer vacation time is exquisite and it also is the best time to learn new things and pursue their hobbies. Therefore, children need to utilize this time more wisely in dynamic learning. As parents it's important for you to keep your kids active and engaged with a variety of fun-engaging games and activities. It will help enrich their skills and keep them entertained during their break.

Reading is one of the best summer-time activities as it helps to improve their reading skills, helps to gain knowledge, increase vocabulary, etc. Summer vacation can be made interesting by going for trips as they give kids chance to explore the world with fresh air, exercise, and observation. Engaging kids in arts and crafts, gardening, watching movies, cooking, learning new skills, joining online courses, helping parents in daily chores, etc. help in the child's growth and development.

How can one ignore studies during summer vacation?

Dear parents, holiday homework provides the perfect opportunity to students to keep their 'intellectual mind' ticking over, and keeps them challenged and stimulated. It develops vital skills such as independent research, enhancing knowledge, etc. which ultimately helps them to prepare for university life. Parents' role in encouraging children to do their holiday task is an undeniably a major one. Therefore, you are expected to render your whole-hearted support to your kids in completing their homework. Thus, summer vacation can prove to be a time of fruitful exuberance as children reap benefits from them if spent wisely and intelligently.

Hope you all enjoy your family time, laughter, and have fabulous memories!
We wish you all a safe and fun summer time!
Happy Summer Vacation!

Regards
Principal
Ganga International School
Hiran Kudna, New Delhi



GANGA INTERNATIONAL SCHOOL, HIRAN KUDNA HOLIDAY HOMEWORK (2022-23) CLASS XII (SCIENCE)

ENGLISH

General Instructions:

All homework is to be done on A4 size sheets and compiled in a file / folder. Design an attractive cover for your file/ folder. You may use different colour A4 size sheets for different topics.

1. Practise Comprehension Passages (any five) from your BBC Practice Sample Papers.
2. Write Notices on the following: (two from each category)
 - a. Tours b. Sports c. Cultural / Extra- curricular activities
 - d. Lost & Found e. Public Notices
3. Write articles on the following topics (Word-limit 150- 200)
 - a. My Vision of Future India b. Digital Education in India
 - c. Women Safety in India d. Measures and prevention of Covid 19
4. Write Formal letters on the following topics (two of each category)
 - a. Letter to Editor b. Job Application Letter with Resume
5. Read the following chapters of your text book 'Flamingo' and write a brief pictorial summary of each:
 - i. Last Lesson ii. Lost Spring iii. Poem- My Mother at Sixty-Six
6. Read the following chapters of your text book 'Vistas' and write a brief pictorial summary of each:
 - i. The Third level ii. The Tiger King
7. Write 2 articles/poems (beautifully designed) on topics of your choice for the publication in your school magazine.

PHYSICS

1. Project Work: Prepare a project report on any topic in physics. (Investigatory project) (The report should contain at least 20 pages containing a good investigated content and well supported by diagrams and pictures)
Write the project in this sequence:

Topic, Certificate, Acknowledgement, Aim of your investigatory project, 5-6 pages of content of the topic (along with diagrams, pictures, graphs and data related to topic), Conclusions or encapsulation, Bibliography

2. Flowchart Making: Learn chapter 1 and 2 deeply and make a flow chart containing all the topics of the chapter along with a short hint of the topic.

- Make it on a chart paper using different colours if it is possible.
- Make separate flow charts for chapter 1 and 2.

3. Perform at least 5 activities of physics related to your everyday life and prepare a scrap file. Note down your observations and write the activity including all steps.

4. Make a circuit of ohm's law (Make simple circuit) and check the conductivity of at least 10 materials. Write your observations in tabular form in your scrap file.

5. Do all examples and back exercise of chapter 1 & 2 (NCERT) in note book.

CHEMISTRY

(a) Prepare a chart on the topic vitamins under the subheadings: vitamin type, chemical name of vitamin, sources of vitamin, disease caused by deficiency of vitamin.

(b) Prepare an art integrated project on any one topic from the syllabus either in form of a video, PPT or a three-dimensional model.

2. Write the following in an auxiliary notebook for practical purpose and learn it: (i) Scheme for inorganic salt analysis (ii) molecular formulas and molar masses of the following: oxalic acid, Mohr salt, KMnO_4 , Potash alum (iii) principle of chromatography (iv) Retention factor (R_f value formula).

3. Differentiate between (i) ideal and non – ideal solution (ii) positive and negative deviation (iii) Minimum boiling azeotrope and Maximum boiling azeotrope (iv) RNA and DNA (v) amylose and amylopectin (vi) α – helix structure and β – pleated structure (vii) nucleotide and nucleoside (viii) cellulose and starch

4. What are colligative properties? How will you calculate molar mass of solute by using different colligative property?

5. Define the following terms and write their formulas; (i) molarity (ii) molality (iii) mole fraction (iv) parts per million (v) mass by volume percentage (vi) mass percentage (vii) volume percentage (viii) normality (ix) Henry's law (x) Raoult's law.

6. Explain the following terms with examples: (i) invert sugar (ii) anomers (iii) denaturation of protein (iv) nucleic acid (v) peptide linkage (vi) glycosidic linkage (vii) biocatalyst (viii) amino acid (ix) reducing sugar (x) non reducing sugar.

7. Prepare an Investigatory Project as suggested by CBSE:

- Choose the topic of your choice and get it approved before making the project.
- It should be an investigatory project with proper result and conclusion and its significance in our daily life.
- The project needs to be neatly written on the coloured pastel sheets.
- The contents of the project report are as follows:

1. Name of the project

2. Acknowledgement

- | | |
|----------------------------------|------------------|
| 3. Certificate | 4. Index |
| 5. Theory | 6. Procedure |
| 7. Observations and calculations | 8. Conclusion |
| 9. Significance | 10. Bibliography |

Note-

- (i) Student should perform the experiments involved in investigatory project.
- (ii) Work should be neat and clean, and should be in separate notebook.

BIOLOGY

General Instructions:

(i) All questions are compulsory.

(ii) Students are required to do this assignment in their class notebook.

1. Make **mind maps/flow chart** of Chapter-01, Chapter-02 and Chapter-03.
2. Rahul and his friends are having discussion about a recently released movie in which hero is a sperm donor. His Friends say that sperm donation is a means to earn money. Rahul explains that sperm donation can help infertile Couples. Whom do you think is right? In which type of infertile cases such sperm donation is helpful.
3. Draw the well **labelled diagram** of the following:
 - (i) Seminiferous tubule
 - (ii) Transport of ovum into uterus during fertilisation.
4. **Make a video** while explaining any of the following topics or topic of your choice.

Time limit: 10-15 minutes.

 - (i) Pre fertilisation event
 - (ii) Mega Sporogenesis
 - (iii) Male Reproductive System
 - (iv) Fertilization and Implantation
5. You all can gain competence and expertise to deal with the subject project chosen by you. For this you will have to begin with a journey. For this, you have to first Select a topic for which you need to work and read different chapters of your syllabus and also consults scientific literature, magazines, newspapers, use search engines of internet, etc.

Then select the topic of your interest.

MATHEMATICS

1. Make a **chart** on any of the following topics :-
 - (a) Types of Functions with graphs
 - (b) Trigonometric Functions
 - (c) Straight Lines
 - (d) Conic Sections
 - (e) Limits and Derivatives
 - (f) Differentiation
2. Make a **power-point presentation** of Mathematics on any of the following topics with minimum 25 slides :-

- (a) History of Indian Mathematicians : Aryabhata, Brahmgupta, Varahamihir, Sridhara, Bhaskaracharya, Ramanujan etc., and history of foreign mathematicians such as Cantor, Pythagoras, Thales, Euclid, Leibnitz, Euler, Gauss, Newton, etc.
- (b) Applications of Calculus in daily life.
- (c) Integration of Mathematics and other subjects: Mathematics and Physics, Mathematics and Chemistry, Mathematics and Music, Mathematics and Environment, Mathematics and Arts, Mathematics and Information and Communication Technology.
- (d) Project based on the Fibonacci sequence, their properties and similar pattern found in nature.
- (e) Career opportunities in Mathematics.

3. Collect data from newspapers/internet/news channels etc. and represent the growth of COVID-19 in different parts of INDIA or in different countries by various Statistical Graphs.

Solve the following questions:

4. If $A = \begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 1 & -1 \\ 1 & 3 & 1 \\ -1 & 1 & 3 \end{bmatrix}$ find the product AB and use this result to solve the following

$$2x - y + z = -1$$

$$-x + 2y - z = 4$$

system of equations: $x - y + 2z = -3$

5. Using properties of determinants, show that:

$$(i) \begin{vmatrix} a+x & y & z \\ x & a+y & z \\ x & y & a+z \end{vmatrix} = a^2(a+x+y+z)$$

$$(ii) \begin{vmatrix} 1 & a & bc \\ 1 & b & ca \\ 1 & c & ab \end{vmatrix} = 0$$

$$(iii) \begin{vmatrix} x+4 & x & x \\ x & x+4 & x \\ x & x & x+4 \end{vmatrix} = 16(3x+4)$$

$$(iv) \begin{vmatrix} 1 & x & x^3 \\ 1 & y & y^3 \\ 1 & z & z^3 \end{vmatrix} = (x-y)(y-z)(z-x)(x+y+z)$$

$$(v) \begin{vmatrix} a+b+c & c & -b \\ -c & b+c+a & -a \\ -b & a & c+a+b \end{vmatrix} = 2(a+b)(b+c)(c+a)$$

Prove that $(vi) \begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = abc(a+1/b+1/c)$

$$(vii) \begin{vmatrix} b+c & c+a & a+b \\ c+a & a+b & b+c \\ a+b & b+c & c+a \end{vmatrix} = 2(a+b+c)(ab+bc+ca-a^2-b^2-c^2)$$

6. Solve the following system of equations:

i $3x + 4y + 7z = 14, 2x - y + 3z = 4, x + 2y - 3z = 0$

ii. $2x - z = 3, 5x + y = 7, y + 3z = -1$

iii. $x + 2y - 3z = 6, 3x + 2y - 2z = 3, 2x - y + z = 2.$

iv. $x - y + z = 3, 2x + y - z = 2, -x - 2y + 2z = -1.$

v. $2/x + 3/y + 10/z = 4, 4/x - 6/y + 5/z = 1, 6/x + 9/y - 20/z = 2$

7. Construct a 2×3 matrix whose elements in the i th row and j th column are given by:

(i) $\frac{3i - j}{2}$ (ii) $\frac{2i + 3j}{2}$ (iii) $\frac{(i - 2j)^2}{2}$

8. If $f(x) = x^2 - 4x + 1$, find $f(A)$, when $A = \begin{pmatrix} 2 & 3 \\ 1 & 2 \end{pmatrix}$.

9. Find a matrix X such that $2A + B + X = 0$, where $A = \begin{pmatrix} -1 & 2 \\ 3 & 4 \end{pmatrix}$, and $B = \begin{pmatrix} 3 & -1 \\ 1 & 5 \end{pmatrix}$.

10. If $A = \begin{pmatrix} 3 & -5 \\ -4 & 2 \end{pmatrix}$ Show that $A^2 - 5A - 14I = 0$ and hence find A^{-1} .

COMPUTER SCIENCE

1. Finalize topic of your class XII Board Project which should be very unique and innovative. Do complete case study of your selected topic and make data flow diagrams and screen shots on your notebook. Analyze and finalize columns of the text file (s) related to your project.
2. See articles in IT section in newspaper/IT magazines regularly and cut the relevant articles related to IT Field and make a collage on a chart paper.
3. Make a good quality colored chart (most preferably 3 D charts) on any one of the following topic:
 - Cloud Computing
 - 5G Technology
 - Famous IT Personalities
 - Latest discoveries in IT Field
 - Name of few Interesting software and their uses
 - FOSS (concept, examples and effect)
 - ARTIFICIAL INTELLIGENCE
 - Collage of famous and relevant quotes related to IT, Computer or technology
4. Explore the internet to understand the basic process of creating a small robotic device. Try to create your very own small robotic devices by following **Best out Of Waste** concept.
5. Practice Python commands covered in the class on any online Python editor on the topics Revision of Python covered in the class XI, functions (built-in, user defined), take the screenshots (at least 10), save it on the digital document created on the cloud, and share the link of the document.

6. Practice Text File handling commands of python to store data in the text files covered in the class on any online Python editor, take the screenshots (at least 10), save it on the digital document created on the cloud, and share the link of the document.

INFORMATICS PRACTICES

Finalize topic of your class XII Board Project which should be very unique and innovative. Do complete case study of your selected topic and make data flow diagrams and screen shots on your notebook. Analyze and finalize SERIES & DATAFRAMES related to your project.

2. See articles in IT section in newspaper/IT magazines regularly and cut the relevant articles related to IT Field and make a collage on a chart paper.

3. Make a good quality colored chart (most preferably 3 D charts) on any one of the following topic:

- Cloud Computing
- 5G Technology
- Famous IT Personalities
- Latest discoveries in IT Field
- Name of few Interesting software and their uses
- FOSS (concept, examples and effect)
- Robotics
- Collage of famous and relevant quotes related to IT, Computer or technology

4. Create a movie on the topic e-Waste (disasters and its management) to spread awareness about it in the community.

5. Practice SQL commands covered in the class on any online SQL editor, take the screenshots (at least 10), save it on the digital document created on the cloud, and share the link of the document.

6. Practice PANDAS commands to create SERIES & DATAFRAMES covered in the class on any online Python editor, take the screenshots (at least 10), save it on the digital document created on the cloud, and share the link of the document.

PHYSICAL EDUCATION

1. Write the procedure, benefits & contraindications of Pachimottansana, Dhanurasana and Suryabedhan pranayama for preventing the Obesity problem. Also paste the photo of your own for all these asanas.
2. Write the procedure, benefits & contraindications of Katichakrasana, Bhujangasana and Kapalbhathi for preventing the Diabetes problem. Also paste the photo of your own for all these asanas.

3. Write the procedure, benefits & contraindications of Tadasana, Gomukhasana and Anuloma-Viloma for preventing the Asthma problem. Also paste the photo of your own for all these asanas.
4. Write the procedure, benefits & contraindications of Matyasana, Uttanmandukasana and Nadi-shodhana pranayama for preventing the Hypertension problem. Also paste the photo of your own for all these asanas.
5. Find out any two sports personalities from google those who had represented for India in Paralympics and achieved medal for the nation. Share their journey from beginning to now in 300 words.
6. Why the Nutrition is playing very important role for all the fields, either it is in sports or in academics? Explain it with the proper real-life examples.

COMMERCIAL ART

Write a research base note on given below topic with appropriate pictures examples -

1. The Rajasthani and Pahari School of Miniature Painting.
2. The Mughal and Deccan School of Miniature Painting.

Practical Assignment:

Sketching:

1. Make two human and animal figures everyday in your sketchbook.

Posters:

1. Make 2 posters on half imperial size paper by using the poster color. You are free to choose any one social issues promotion and one product promotion related theme.

Illustration:

2. Make 2 Illustrations on A3 size paper and paint it by poster or water color. All Illustrations Should Be In a Semi Realistic Approach. You are free to choose a topic in illustration but these should be relevant to the syllabus.

Happy Summer Holidays.

*Enjoy the summer
with your close ones.*



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