

SCHOOL NAME : _____

Hurray! Summers again and it's time for a break! Let us break the monotony of doing the same boring home assignments and explore the interesting ongoing themes through different subjects. There are two themes, labelled as Theme 1 and Theme 2. Choose **any one theme** and explore about the same through the projects defined under each subject.



Learn many new skills during the holidays and decide for your most favourite hobby.

Wishing you all 'A HAPPY AND HEALTHY' summer break!



Artificial Intelligence and Automation vs. Human Intelligence

Just like humans, machines have also evolved over a period of time. With technology making its presence felt in every walk of life, Artificial Intelligence (AI) and automation is no exception. AI is a science of making machines that exhibit intelligent behaviour, learn, demonstrate, explain and advice its users. It works alike the humans and thus is coming as a big challenge of overpowering the human intelligence. But the ideal world would be when AI works in sync with the Human Intelligence.

Exciting ENGLISH

Artificial Intelligence Replace Humans?

Write an article in about 300–400 words on the topic 'Will Artificial Intelligence Replace Humans?' The article should include following parameters.

- History of Artificial Intelligence
- Present areas where Artificial Intelligence is making its mark

Make your article interesting by stating facts, pasting/drawing pictures, etc.

हर्षाती हिंदी

आर्टिफिशियल इंटेलिजेंस, कैसे है जीनियस

आप अपने दैनिक जीवन में आर्टिफिशियल इंटेलिजेंस (कृत्रिम बुद्धिमत्ता) का प्रयोग करते हैं। अपने भाई/बहन को पत्र लिखकर आर्टिफिशियल इंटेलिजेंस और उसके दैनिक जीवन में प्रयोग के बारे में बताएँ।

Sparkling SCIENCE

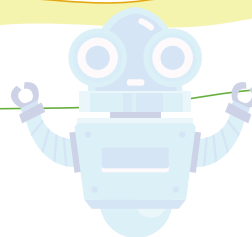
My e-book

Prepare a digital module of 5–6 slides on any one of the following topics –

- Human Digestive System
- Acids and Bases
- Heating Effects of Electric Current

Convert the hardcopy of the chosen topic into a PowerPoint Presentation by clicking pictures of each page of that topic from your mobile phone. You can also add the audio in these slides for explaining some diagrammatic representations or chemical equations.

This digital module will help you to learn the concept at your own pace and within your own set time frame. It would be like to have a teacher with you all the time. Hence you can enjoy and learn your favourite topics, chapters or even read books all at the same time by just a few clicks. Also, mention the advantages and disadvantages of such conversion. Present this module in your class.



Sassy SOCIAL SCIENCE

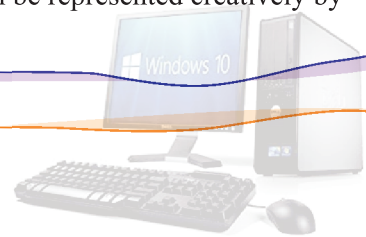
A Journey from Early Man to a Robot

Human life has evolved over times as it has gone through a lot of trials and tribulations. It has faced the challenges that lead towards an age of new discoveries and complexities. We have reached a time where the hardships of doing most of the work manually have reduced to such an extent that machines have taken the place of humans.

Collect information on how the given fields have changed from New Stone Age to present time of Artificial Intelligence. Do a comparative study and prepare a T-chart on each aspect on A3 sized sheets.

- Transportation
- Telecommunication

Ensure that each aspect covers at least 3–4 parameters. Also the T-chart can be represented creatively by adding some pictures, iconic drawings, etc.



Magnetic MATH

AI Flowcharts

Imagine you are an Artificial Intelligence (A.I.) designer of a company. You are asked to design a smart tea/coffee vending machine and a math robot teacher, which responds automatically to the commands of the user. Description of each is given below.

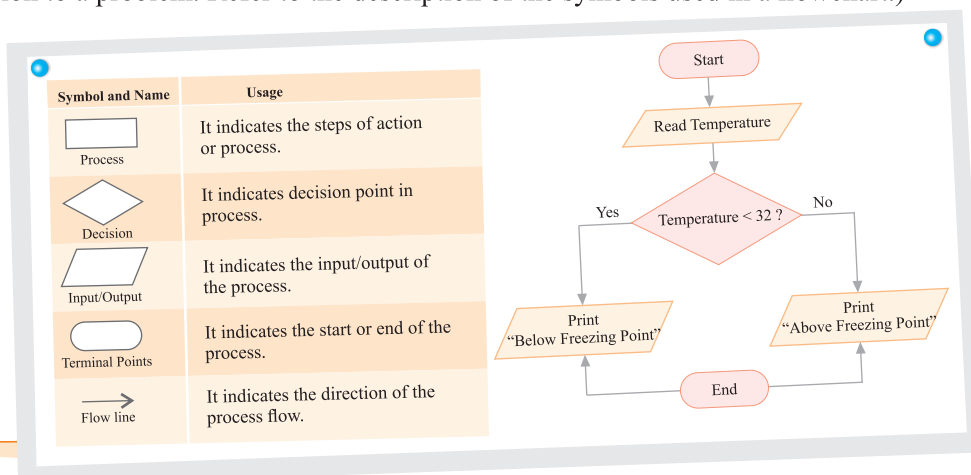
Smart tea/ coffee vending machine:

This machine asks the user to choose between tea or coffee and other related parameters, like with or without sugar, light or strong etc. Then, it listens to the voice commands of the user and performs the operation accordingly. In the end, it delivers the required product.

Math robot teacher:

This robot teacher asks the student to choose a topic which he/she wants to learn about from the given options. Based on the choice of the student, the robot will explain the topic with the help of pre-built text and modules. The robot will also ask guiding questions from the students and provide them with the remedial solutions if they are not able to understand the topic. The robot will also assess the understanding of the student by asking an application based question on the topic.

Make a flowchart to depict how your smart tea/coffee vending machine and the robot teacher would work. (A flowchart is a diagrammatic representation that illustrates the sequence of operations to be performed to get the solution to a problem. Refer to the description of the symbols used in a flowchart.)



THEME
2

Skill Training and Theoretical Knowledge

Knowledge can be acquired in various ways, such as, books, lectures, events, competitions, etc. Amongst these, few lie in the category of theoretical knowledge and others under skill based knowledge. Both are prominent at their own instances and neglecting one could lead to drastic failure in the other. Theory provides you the apt information about the experiences of others and skill based knowledge helps you build your own experiences.

Exciting ENGLISH

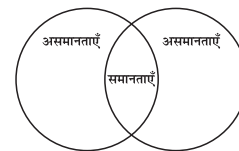
Comic Strip

Imagine you aspire to become a photographer/painter/singer. Design a comic strip of 8 scenes on the topic 'Theoretical Knowledge, Skill Training or both would be necessary to excel in your field'. Make sure that you give strong reasons for your choice. You can make the comic strip interesting you can draw the scenes, make use of various dialogue boxes, include facts, etc.

हर्षाती हिंदी

रोज़गार है जो पाना, कौशल को है बढ़ाना

कौशल प्रशिक्षण और सैद्धांतिक प्रशिक्षण (Skill Training and Theoretical Training) की समानताओं और असमानताओं को वेन डायग्राम (आरेख) के द्वारा सुंदर ढंग से दर्शाएँ।



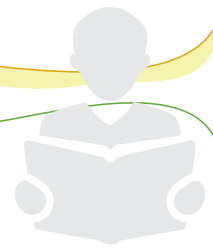
Sparkling SCIENCE

Theoretical vs. Experimental

Choose any one experiment from the list given below.

- Demonstrating the process of conduction of heat with the help of bricks, metal rod and matchsticks
- Observing the growth of fungi in both warm and wet conditions
- Classifying a few food items as acidic or non-acidic based on their taste

Explain the detailed procedure of the chosen experiment to any one of your family member. Ask that member to draw the inference for the explained experiment. Next, perform the experiment in front of same family member and again ask for the inference. Ask some other family member to click pictures while you are explaining and performing the experiment. Now, ask the same family member to whom you explained the experiment both theoretically and practically about his/her experience. Ask him/her which method of explanation was better for him/her and why. Write a short note describing the same.



Sassy SOCIAL SCIENCE

To Teach is to Learn

Imagine you have to conduct a teacher's workshop and prepare some sessions on the following topics using the best possible approach that is, skill based, theory based or both.

- Ahoms: Tribals of India
- Social and Economic Inequality in India
- Need of Advertisements
- Earthquake and Volcano
- Architecture of temples/mosques built during the medieval Indian period

Read about these topics from books, internet or other sources. You can also relate these topics with some practical means like, movies, plays, pictures, field visits, debates, discussions, etc. Create a PowerPoint Presentation to evaluate the listed topics for promoting the best possible way of imparting theoretical knowledge with skill focussed learning. Also, evaluate if 'only skill based approach' is sufficient, or 'only theoretical knowledge' is sufficient or there should be a balance between 'both theoretical knowledge and skilled based approach'.

Choose the best possible approach for each of the given topics and may choose more topics and justify their choice with the support of examples along with reasons and skill that will be focused with such examples.

Magnetic MATH

Building India: Vocational or Theoretical?

Choose any 2 states of India. Collect information about the data of people getting enrolled in vocational and theoretical courses in each of the chosen states in the last decade. Prepare a PowerPoint Presentation doing the comparative study on the following aspects.

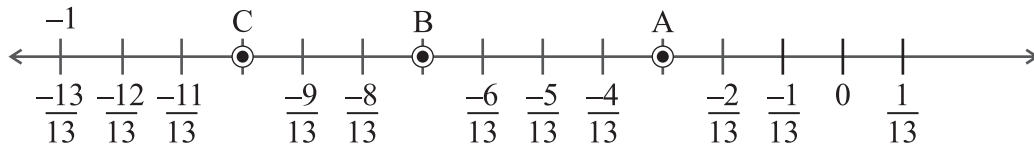
- Difference in enrollments on the basis of gender
- How the enrollments changed within each gender over the decade
- Difference in enrollments on the basis of age
- Difference in enrollments on the basis of state
- How the scenario changed in each state over the decade
- How the choice of courses changed over the year

Support your presentation with graphical representation of the data like double bar graph, pie chart, line graph, etc.



MATH PRACTICE

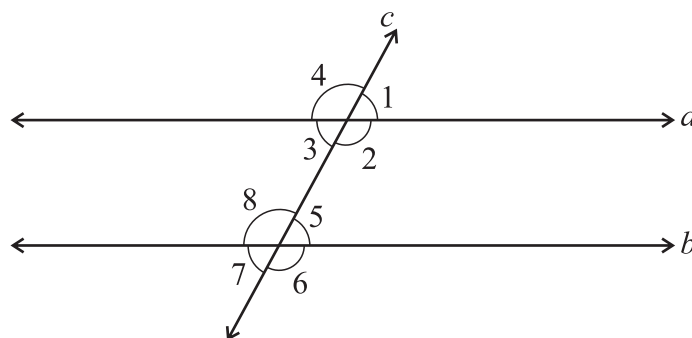
- Find four rational numbers between $\frac{1}{10}$ and $\frac{1}{2}$.
- Find the sum of the rational numbers represented by the points A, B, and C on the following number line:



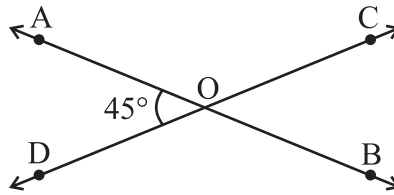
- Verify that $\frac{-4}{7} \times \left(\frac{14}{3} + \frac{34}{18}\right)$ and $\left(\frac{-4}{7} \times \frac{14}{3}\right) + \left(\frac{-4}{7} \times \frac{34}{18}\right)$ are equal.
- If $3\frac{1}{2}$ cups of milk is required to bake 1 kg cake, how many cups of milk are required to bake 9 kg cake?
- A ribbon is $\frac{3}{8}$ m long. It is divided into 3 equal parts. What is the length of each part?
- Simplify and express the results in exponential form.

a. $\left[\left(\frac{3}{8}\right)^4\right]^2$ b. $\frac{\left(\frac{1}{5}\right)^8}{\left(\frac{1}{5}\right)^3} \times \frac{\left(\frac{1}{5}\right)^4}{\left(\frac{1}{5}\right)^2}$ c. $\left[\left(\frac{-5}{2}\right)^2\right]^7 \times \left(\frac{-18}{25}\right)^{14}$ d. $\frac{(5)^3 \times a^8}{(125)^6 \times a^6}$ e. $\frac{(5)^6 \times 25 \times x^6}{125 \times x^2}$

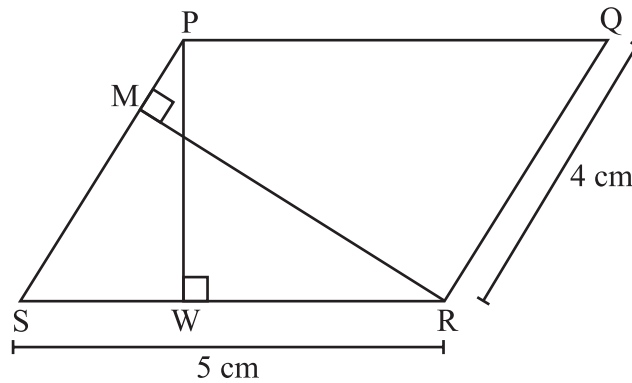
- What should be added to $x^2 - 4xy + 5y^2$ to get $3x^2 + 8xy - 4y^2$?
- If the n th term of a number sequence is $6n + 5$, find the 12th term of the sequence.
- Write an equation for the following statements.
 - A number when divided by 6 gives quotient as 36.
 - 3 less than one-fifth of a number is 16.
 - Sum of twice of a number and 8 is 22.
 - Age of Mayank is 30 years less than his father.
- In the given figure $a \parallel b$. Which all angles in the figure are of same measure as $\angle 4$.



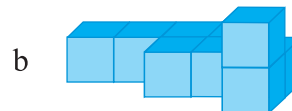
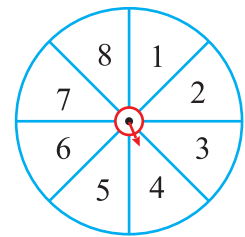
12. In the following figure, line AB and CD intersect at O. If $\angle AOD = 45^\circ$, find the measure of the angles—then the measure of $\angle AOC$, $\angle COB$ and $\angle BOD$.



13. In $\triangle PQR$, $\angle P = 60^\circ$ and $\angle Q = 30^\circ$, find the measure of the exterior angle at vertex R.
 14. Check if $30:60::90:120$ in proportion or not?
 15. In a science lab, there are 6 beakers for every 18 students. How many beakers will be needed for 30 students?
 16. The area of the given parallelogram PQRS is 20 cm^2 . Find the length of the altitudes PW and RM.



17. The diameter of a cycle wheel is 15 cm. How much distance will it cover in 35 complete revolutions? (Take $\pi = 3.14$)
 18. Find the median of first ten even numbers.
 19. Ria spun the given spinning wheel. Find the probability that the number at which the pointer stopped is
 a. an even number
 b. an odd number
 c. a prime number
 20. Draw the front, side and top views of the following solids.



ENGLISH PRACTICE

Reading is fun and informative! Read a book of your choice during the summer vacation. Also, read a newspaper daily, for 10 minutes and find 3 words that you haven't read before. Form your own 'Vocabulary Book' by writing the words with their meanings and frame sentences using the same words.