Hindustan Times PACE

PARTNERSHIPS FOR ACTION IN EDUCATION

HT School

Bringing the world to classrooms

CURRICULUM SUPPORT PACKAGE

SEASON 2

FEBRUARY - 2021

CSP E- Book For Junior Classes 6 to 8

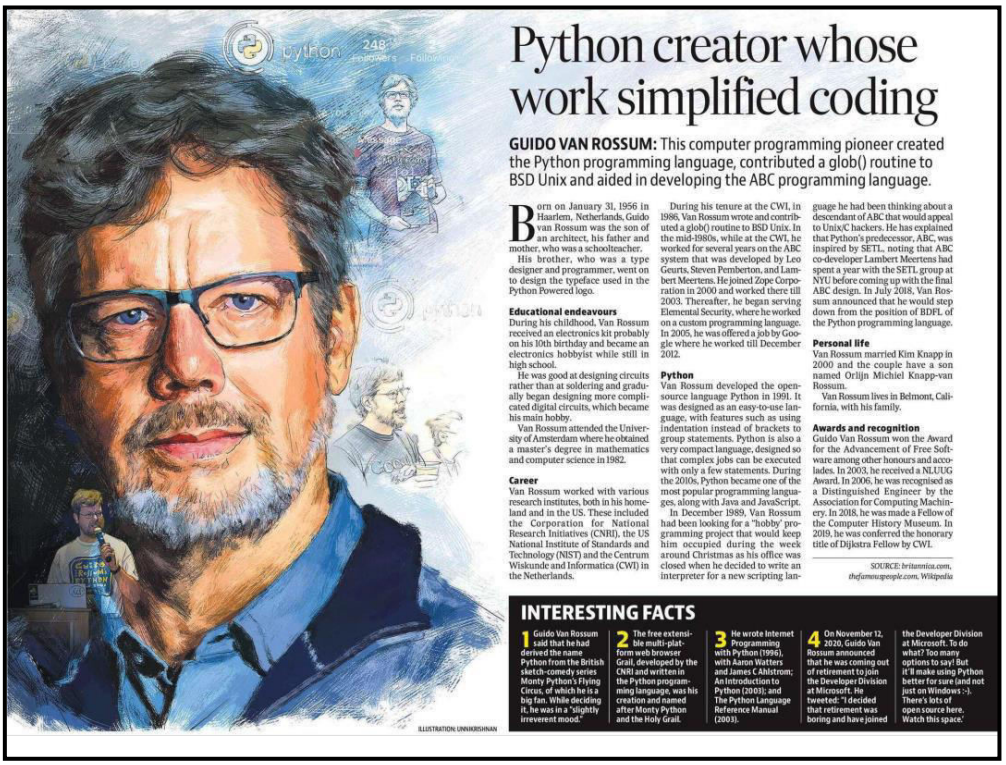
VI

ENGLISH

February, 2021

Note to the teacher: The module tests the students' comprehensive skills, vocabulary, speaking skills, grammar and writing skills.	***Curriculum Link:*** ➢ **Vocabulary** ➢ **Writing Skills** ➢ **Grammar**

Ref: *'Python.....simplified coding'*, (HT PACE Edition, Jan 6, Pg. 03)



Python creator whose work simplified coding

GUIDO VAN ROSSUM: This computer programming pioneer created the Python programming language, contributed a glob() routine to BSD Unix and aided in developing the ABC programming language.

Born on January 31, 1956 in Haarlem, Netherlands, Guido van Rossum was the son of an architect, his father and mother, who was a schoolteacher.

His brother, who was a type designer and programmer, went on to design the typeface used in the Python Powered logo.

Educational endeavours

During his childhood, Van Rossum received an electronics kit probably on his 10th birthday and became an electronics hobbyist while still in high school.

He was good at designing circuits rather than at soldering and gradually began designing more complicated digital circuits, which became his main hobby.

Van Rossum attended the University of Amsterdam where he obtained a master's degree in mathematics and computer science in 1982.

Career

Van Rossum worked with various research institutes, both in his homeland and in the US. These included the Corporation for National Research Initiatives (CNRI), the US National Institute of Standards and Technology (NIST) and the Centrum Wiskunde and Informatica (CWI) in the Netherlands.

During his tenure at the CWI, in 1986, Van Rossum wrote and contributed a glob() routine to BSD Unix. In the mid-1980s, while at the CWI, he worked for several years on the ABC system that was developed by Leo Geurts, Steven Pemberton, and Lambert Meertens. He joined Zope Corporation in 2000 and worked there till 2003. Thereafter, he began serving Elemental Security, where he worked on a custom programming language. In 2005, he was offered a job by Google where he worked till December 2012.

Python

Van Rossum developed the open-source language Python in 1991. It was designed as an easy-to-use language, with features such as using indentation instead of brackets to group statements. Python is also a very compact language, designed so that complex jobs can be executed with only a few statements. During the 2010s, Python became one of the most popular programming languages, along with Java and JavaScript.

In December 1989, Van Rossum had been looking for a "hobby" programming project that would keep him occupied during the week around Christmas as his office was closed when he decided to write an interpreter for a new scripting language he had been thinking about a descendant of ABC that would appeal to Unix/C hackers. He has explained that Python's predecessor, ABC, was inspired by SETL, noting that ABC co-developer Lambert Meertens had spent a year with the SETL group at NYU before coming up with the final ABC design. In July 2018, Van Rossum announced that he would step down from the position of BDFL of the Python programming language.

Personal life

Van Rossum married Kim Knapp in 2000 and the couple have a son named Orlijn Michiel Knapp-van Rossum.

Van Rossum lives in Belmont, California, with his family.

Awards and recognition

Guido Van Rossum won the Award for the Advancement of Free Software among other honours and accolades. In 2003, he received a NLUUG Award. In 2006, he was recognised as a Distinguished Engineer by the Association for Computing Machinery. In 2018, he was made a Fellow of the Computer History Museum. In 2019, he was conferred the honorary title of Dijkstra Fellow by CWI.

SOURCE: *britannica.com, thefamouspeople.com, Wikipedia*

INTERESTING FACTS

1 Guido Van Rossum said that he had derived the name Python from the British sketch-comedy series Monty Python's Flying Circus, of which he is a big fan. While deciding it, he was in a "slightly irreverent mood."

2 The free extensible multi-platform web browser Grail, developed by the CNRI and written in the Python programming language, was his creation and named after Monty Python and the Holy Grail.

3 He wrote Internet Programming with Python (1996), with Aaron Watters and James C Ahlstrom; An Introduction to Python (2003); and The Python Language Reference Manual (2003).

4 On November 12, 2020, Guido Van Rossum announced that he was coming out of retirement to join the Developer Division at Microsoft. He tweeted: "I decided that retirement was boring and have joined the Developer Division at Microsoft. To do what? Too many options to say! But it'll make using Python better for sure (and not just on Windows :-). There's lots of open source here. Watch this space.'

ILLUSTRATION: UNNIKRISHNAN

ACTIVITY I

➢ Answer the following questions:-

- Van Rossum worked with various research institutes. Find about any two, other than mentioned in the above article.
- List down the awards and achievements received by Van Rossum.
- Fill the table given below by writing synonyms in front of the following words:

S. No.	Word	Synonym
1	Design	
2	Receive	
3	Offer	
4	Conferred	

PROJECT

Aim: The main aim of this project is to enhance creativity of students through Art Integration.

1. Design a logo for your favorite educational site or educational application. Write two benefits of the selected application/site.

VI

MATHS

February, 2021

Note to the teacher: This module deals with Fractions.	***Curriculum Link:*** • **Fractions**

Ref: *'Republic Day parade……spectators'*, (HT PACE Edition, Dec 31, Pg. 04)

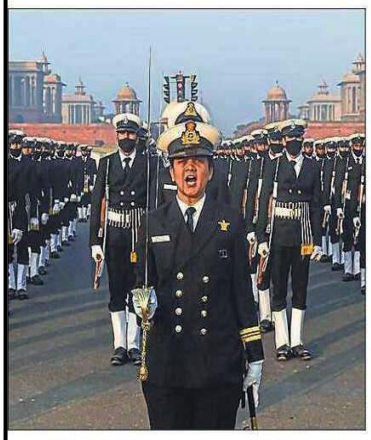
Republic Day parade to be shorter, with fewer spectators

HT Correspondent

NEW DELHI: The Republic Day parade of 2021 will be shorter, involve fewer participants and only a fourth of the usual number of spectators will be allowed at Rajpath to witness the country's military might and cultural diversity, with India's grandest ceremonial event being curtailed because of the Covid-19 pandemic, officials familiar with the development said on Wednesday.

This year's Independence Day celebrations were also muted because of the coronavirus disease outbreak and measures imposed to check the spread of the disease.

Fewer people will be allowed to witness the parade on January 26, with the government following strict social distancing protocols, and the parade itself will be shorter and with smaller marching contingents compared to previous years, the officials cited above said on condition of anonymity. Not more than 25,000 spectators will be allowed at Rajpath this year, compared to over 100,000 people who usually turn up for the parade, braving cold weather and standing in queues before the crack of dawn to enter the area. Children below the age of 15 will not be permitted at the parade.



A contingent of Indian Navy during the Republic Day parade rehearsals at Rajpath on Tuesday PTI

The size of the marching contingents from the armed forces and the paramilitary will be smaller. These squads will only have 96 participants compared to 144 in the ordinary course, the officials said. The shortened route of the parade will end at the National Stadium instead of the Red Fort, the officials said, adding that the cultural programmes will also be fewer.

Independence Day celebrations were also hit by the pandemic this year, with fewer VIPs attending the annual August 15 event at Delhi's Red Fort while schoolchildren skipped it altogether.

The Republic Day-2020 parade had many firsts to it. For the first time, Prime Minister Narendra Modi laid a wreath at the National War Memorial. Until 2019, tributes were paid to martyrs at the Amar Jawan Jyoti at India Gate. Also, the Defence Research and Development Organisation (DRDO) showcased its anti-satellite weapon for the first time.

ACTIVITY I

- **Read the article and answer the given questions:**

a) How many spectators witnessed the Republic Day parade in 2020?

b) How many will witness this year if only a fourth of the usual number of spectators will be allowed this year?

c) What is the fraction of letter 'R' in the word Republic Day parade?

d) Complete the given table:-

Month in which the celebration takes place	**Fraction of vowels in the name of the month**	**Type of fraction**	**Its first five equivalent fraction**

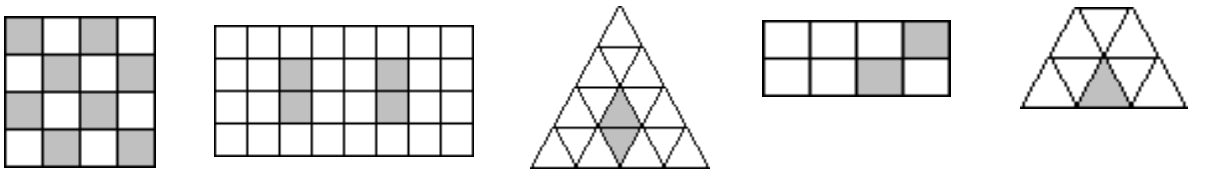
e) "These squads will only have 96 participants as compared to 144 in the ordinary course, the officials said."
Find half, one fourth, one sixth, one ninth of 144.
Think over!! 96 x_____=144.Find the missing number.

/4/

ACTIVITY II

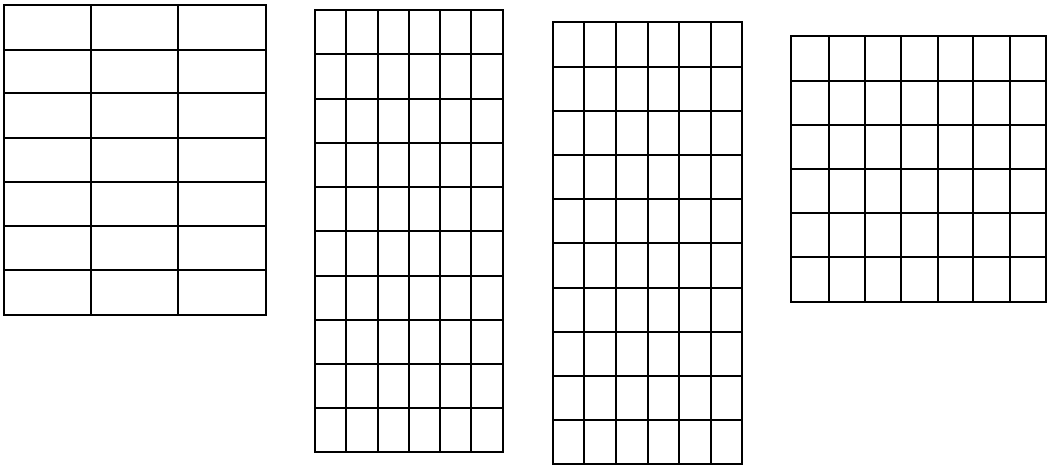
Think it over!

a) Each of the following shapes has a half, a quarter, or an eighth of it shaded. Work out what fraction is shaded in each one and write it below the shape.



_____ _____ _____ _____ _____

b) Shade the stated fraction of each shape:



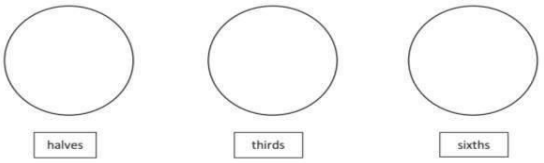
4/7	3/5	7/30	8/21

c) What fraction of each shape has not been shaded?

_____, _____, _____, _____

ACTIVITY III

- A car park is said to be $3/4^{th}$ full. How many cars are there in the car park if it holds:
  (a) 40 cars (b) 100 cars (c) 120 cars (d) 72 cars
- Sheena eats $1/5^{th}$ of the cake. What fraction of the cake is left?
- Each circle represents 1 whole pie. Estimate to show how you would cut the pie into fractional units as indicated below. Colour to show the given fraction. Try to show the same in a rectangular shape.



VI

SOCIAL STUDIES

February, 2021

This week's module provides an opportunity for students to do interesting activities on writing skills based on HT PACE Edition newspaper reports.

Ref: *'World Peace through Gandhism',* (HT PACE Edition, Jan 06, Pg.04)

World peace through Gandhism

WORLD PEACE THROUGH GANDHISM

Bunche Hopes Seminar Will Be A Success

Nehru Condemns Way Of Hatred

SEMINAR OPENS IN DELHI

New Delhi- A stirring call for promoting world peace through the application of Gandhian philosophy and technique of non-violence came from the Seminar of leading Eastern and Western thinkers at its opening session here today.

1953

Maulana Azad presided over the Seminar which is discussing the "Contribution of Gandhian Outlook and Techniques to the Solution of Tensions between and within Nations." Mr Nehru inaugurated it.

Mrs Alva Myrdal, representative of the Director-General of U.N.E.S.C.O. also addressed the inaugural session.

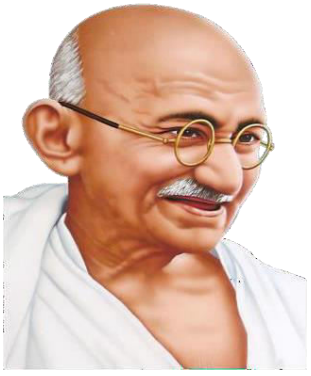
The Seminar, which has been organized by the Indian National Commission for Co-operation with U.N.E.S.C.O., will continue until January 17.

Among those participating in the Seminar from other countries are Lord Boyd-Orr (U.K.), Dr Ralph Bunche (U.S.A.), Mme. Cecilia Meieles (Brazil), Prof. Massignon (France), Dr Mohd. Hossein Heikal (Egypt), Prof. G. Tucci (Italy), Dr Matin Daftri (Iran) and Mr Yusuke Tsurumi (Japan). Prof. Pastor Niemoller (Germany) is arriving late.

ACTIVITY I

- Read the following extract and answer the following questions:

1. When and where did the seminar "World Peace through Gandhism" take place?
2. From where do we get the technique of promoting world peace and non-violence?
3. Who inaugurated the seminar?
4. Who presided over the seminar and what was the agenda of the discussion?
5. Name the Director- General of U.N.E.S.O. in 1953.
6. Which organization organized the seminar in accordance with UNESCO?
7. Name the other countries which participated in the seminar.



PROJECT

Story Time (Interdisciplinary with English)

- To promote peace and harmony in a diverse country like India - where people from different faiths come together in the spirit of humanity, celebrate India's diversity, its rich heritage and uniqueness. We, as learners and citizens of India, should read some beautiful stories (examples) of religious harmony in India.

1. When Hindus and Sikhs Helped Repair a Mosque:

   People from the Sikh and Hindu communities helped repair an old mosque in Nathowal village near Ludhiana. They also took care of more than 65 percent of the repair expenses. The project cost was around Rs. 25 lakh, of which Rs. 15 lakh was contributed by Sikhs and Hindus. The three communities live in peace in this village. Muslims and Hindus contribute to the Gurudwara work as well. A resident of the village informed an esteemed newspaper that they celebrate all festivals like Diwali, Dusshera, Rakhi, Eid, and Gurupurab together.

2. A Muslim Who Sings Kirtans:

   Shaikh Riyazoddin Abdul Gani, better known as 'Rajubaba Kirtankar', is seen singing Meera Bhajans while balancing a water-filled pot on his head. He is from a city named Beed in Maharashtra. He was fascinated by Hinduism when he was a child and used to sit outside temples to learn *kirtans*. Eventually, he was accepted by Hindus in the temple, and started singing there. On realising that people were falling asleep during kirtans, he decided to give them a twist with a dancing-singing routine. He used to sing while bringing water from the river and that gave him the idea of adding a pot to the performance. He also gave a performance at the SPIC MACAY festival of IIT-Bombay.

These are bound to restore our faith in humanity and our country.

VI

SCIENCE

February, 2021

Note to the teacher: This module deals with the Food - where does it come from- and getting to know plants.	***Curriculum Link:*** • **Food where does it come from** • **Getting to know plants**

Ref: *'Scientists…….insects,* (HT PACE Edition, January 13, Pg. 05)

INSECT APOCALYPSE

Scientists decry death by 1k cuts for world's insects

Climate change, insecticides, herbicides, light pollution, invasive species and changes in agriculture and land use are causing Earth to lose probably 1% to 2% of its insects each year, say entomologists

A Monarch butterfly flies to Joe Pye weed in Freeport, Maine, United States AP

Associated Press

WASHINGTON: The world's vital insect kingdom is undergoing "death by a thousand cuts," the world's top bug experts said.

Climate change, insecticides, herbicides, light pollution, invasive species and changes in agriculture and land use are causing Earth to lose probably 1% to 2% of its insects each year, said University of Connecticut entomologist David Wagner, lead author in the special package of 12 studies in Monday's Proceedings of the National Academies of Sciences written by 56 scientists from around the globe.

The problem, sometimes called the insect apocalypse, is like a jigsaw puzzle. And scientists say they still don't have all the pieces, so they have trouble grasping its enormity and complexity and getting the world to notice and do something.

Wagner said scientists need to figure out if the rate of the insect loss is bigger than with other species. "There is some reason to worry more," he added, "because they are the target of attack" with insecticides, herbicides and light pollution.

Co-author and University of Illinois entomologist May Berenbaum, a National Medal of Science winner, said, "Insect decline is kind of comparable to climate change 30 years ago because the methods to assess the extent, the rate (of loss) were difficult." Making matters worse is that in many cases, people hate bugs, even though they pollinate the world's foods, are crucial to the food chain and get rid of waste, she said.

Insects "are absolutely the fabric by which Mother Nature and the tree of life are built," Wagner said.

Two well known ones — honeybees and Monarch butterflies — best illustrate insect problems and declines, he said. Honeybees have been in dramatic decline because of disease, parasites, insecticides, herbicides and lack of food.

Beekeeper Sean Kennedy works to relocate a swarm of honeybees off of a fence line in a neighbourhood in Anacostia, in Washington. AP

Climate change-driven drier weather in the US West means less milkweed for butterflies to eat, Wagner said. And changes in American agriculture remove weeds and flowers they need for nectar. "We're creating a giant biological desert except for soybeans and corn in a giant area of the Midwest," he said.

Monday's scientific papers don't provide new data, yet show a big but incomplete picture of a problem starting to get attention. Scientists have identified 1 million insect species, while probably 4 million more are still to be discovered, Berenbaum said.

University of Delaware entomologist Doug Tallamy, who wasn't part of the studies, said they highlight how the world has "spent the last 30 years spending billions of dollars finding new ways to kill insects and mere pennies working to preserve them."

"The good news is, with the exception of climate change, individuals can do much to reverse insect declines," Tallamy said in an email. "This is a global problem with a grassroots solution."

Honeybees (in picture)) and Monarch butterflies best illustrate insect problems and declines, experts say. Honeybees have been in dramatic decline because of disease, parasites, insecticides, herbicides and lack of food. AP

ACTIVITY I

1. **Correct the following statements and rewrite them in your notebook**.

a. Stem absorbs water and minerals from the soil.
b. Leaves hold the plant upright.
c. Roots conduct water to the leaves.
d. The number of petals and stamens in a flower is always equal.
e. If the sepals of a flower are joined together, its petals are also joined together.
f. If the petals of a flower are joined together, then the pistil is joined to the petal.

2. Match the items given in Column A with that in Column B:

A	B
Milk	Fruit
Lemon	Bitter fruit
Cabbage	Not from plants
Neem	Sweet smelling flower
Almonds	Banana
Flowers are eaten	Seed

3. From the given plants, which of them need bees for pollination?
   Grass, maize, wheat, chilli, tomato, *tulsi*, *peepal*, *shisham*, banyan, mango, *jamun*, guava, pomegranate, papaya, banana, lemon, sugarcane, potato, groundnut.

4. Fill in the blanks with the words given:
   Herbivore, plant, milk, sugarcane, fibrous

a. Bees are_____because it sucks nectar from flowers.
b. Deer eats only_____products and so, is called herbivore.
c. Sugar cane will have_____roots.
d. The_____that we drink, which comes from cows, buffaloes and goats is an animal product.
e. We get sugar from_____.

5. Where will you find 'me'

a. Ovary
b. Stigma
c. Veins
d. Tap root
e. Sepals

ACTIVITY II

- Students will make a list of fruits and vegetables which they get during the winter months. They will check out the plant from where it comes, see it in books or search on the internet. Then they can complete the table given:-

Plant name	Column 1 Height	Column 2 Stem				Column 3 Where do the branches appead		Column 4
		Green	Tender	Thick	Hard	At the base of the stem	Higher up on the stem	Category of plant
Tomato	Short	Yes	Yes					Herb
Mango	Very tall			Yes	Yes		Yes	Tree
Lemon	About my height				Yes	Yes		Shrub

They may add more options such as whether the leaves, fruit, root, stem flower or seeds are consumed in any form by us.

- Fill in the blanks :

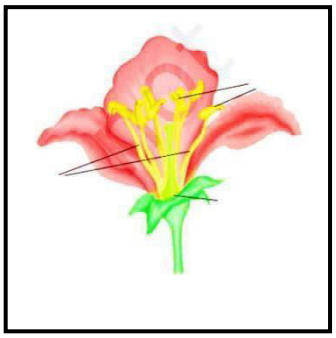
1. Mangoes grow on_____.
2. Tomato plant is_____.
3. Chana and rajma are_____of the plants.
4. Atta is obtained by grinding the seeds of_____.
5. _____plants need bees for pollination.
6. Brinjals have a plant_____than our height.
7. We eat_____of peas and peanuts.
8. Gobhi (cauliflower) is a_____.
9. Carrots are_____roots.
10. Plants would not make seeds if they did not have_____,_____and_____.

ACTIVITY III

- Read the article and find the following statements:

'People hate bugs, even though they pollinate the world's foods, are crucial to the food chain and get rid of waste. Insects are the fabric by which Mother Nature and the tree of life are built. Two well-known ones are honeybees and Monarch butterflies. Honeybees have been in dramatic decline because of disease, parasites, insecticides, herbicides and lack of food.

- Art based learning - parts of a flower or the bee hive
Use the flower or the beehive, cut it out and paste it on a card sheet. Next, make triangles, squares or any odd shapes. Cut it up, have 15-20 puzzle pieces and make a puzzle for yourself and your family!



PROJECT

- Allow students to explore bees and butterflies.
- They may search the internet to find out beekeeping methods used in India and the butterfly parks in India.
- They may study the work being done at Sunder Nursery in Delhi for conservation of bees and butterflies.

VII

ENGLISH

February, 2021

Note to the teacher: The module tests the students' comprehensive skills, vocabulary, speaking skills, grammar and writing skills.	***Curriculum Link:*** • **Vocabulary** • **Writing Skills** • **Grammar**

Ref: *'Year……temporarily'*, (HT PACE Edition, Jan 4, Pg. 05)

Year 2020 saw environment bounce back to its glory, even if temporarily

chools, workplaces, ort and industry ed closed for a large the year as people put in their houses, y skies started blue and pollutants ir began to settle

Press Trust of India

NEW DELHI: The Covid-19 pandemic battered and bruised the world in 2020, teaching the value of human life, but an evident positive impact was that it helped the environment bounce back to its glory, even if temporarily.

While schools, workplaces, transport and industry remained closed for a large part of the year as people stayed put in their houses, the grey skies started turning blue and pollutants in the air began to settle.

According to the Central Pollution Control Board, there was a significant improvement in air quality during lockdown (from March 22 to May 18) as PM2.5 in Delhi reduced by almost 50% as compared to levels observed during 2019. The pollution level in India's five most-polluted cities — Ghaziabad, Delhi, Noida, Greater Noida and Gurgaon - which are also in the top 10 globally, came down by over 50% during the first 10 days of the lockdown imposed to combat Covid-19 outbreak, said Greenpeace India.

Besides the air quality, there was improvement in water quality of seven rivers — Yamuna, Brahmani, Godavari, Cauvery, Krishna, Tapi and Brahmaputra - which was attributed to minimal industrial effluent discharges in view of closure of almost all industries, no human activities involving disposal of worshipped puja materials and garbage, no anthropogenic activities such as outdoor bathing, washing of clothes, vehicle washing and cattle washing, no pilgrimage activities etc. during lockdown phase, the CPCB had said.

The pollution level in India's five most-polluted cities — Ghaziabad, Delhi (in pic), Noida, Greater Noida and Gurgaon - which are also in the top 10 globally, came down by over 50% during the first 10 days of the lockdown HT FILE

The panic caused by the pandemic came as a blessing in disguise for animals as the government kept humans away from them and their habitats. Swinging into action after a tiger at a US zoo tested positive for Covid-19, the environment ministry had asked all states and union territories to restrict the movement of people in various national parks and sanctuaries to avoid any human-animal contact.

During the conference, the countries adopted an accord, the Gandhinagar Declaration that maintaining and restoring ecological connectivity is one of the top priorities for CMS. Three migratory birds — Great Indian Bustard, Asian Elephant and Bengal Florican — were also classified as "endangered migratory species" by a UN body, paving the way for transboundary conservation efforts.

Fear of the impact of Covid-19 on the world economy also caused the government to worry about achieving the climate goals under the Paris Agreement making environment minister Prakash Javadekar ask people not to get "too romantic" about the blue skies, fresh air and the green earth. However, few months later, the minister announced that India was the only G20 country in compliance with the Paris Agreement targets and that none of the developed nations are compliant.

The government remained on its toes in tackling waste generated due to the coronavirus cases in the country with the central pollution watchdog CPCB repeatedly issuing guidelines on waste disposal.

The year 2020 also saw a huge tussle between the Centre and environmentalists over the amendments to the environment impact assessment (EIA) with the latter alleging that it intended to bring in controversial amendments such as post-facto grant of approval, exemption of several large industries from public hearings, permission for industries to submit just one compliance report a year rather than two, increased validity of the environment clearances for mining projects and river valley projects, and many more.

Another decision by the Centre that drew sharp criticism was its grandiose plan to redevelop the Central Vista, which recently got the nod of expert appraisal committee (EAC) bringing it a step closer to getting environmental clearance.

Experts contended that the ₹ 13,450 crore project was government's way of "pampering itself" without considering that the project is going to sacrifice huge green cover and make the air toxic with its construction and demolition dust.

Several jaw-dropping reports were released this year, with one of them claiming that India would need a total land footprint roughly the size of Himachal Pradesh or Chhattisgarh to achieve its ambitious target of 175 giga watts (GW) renewable energy by 2022.

Another report claimed that over 4.5 crore people will be forced to migrate from their homes in India by 2050 due to climate disasters including floods, droughts and cyclones, three times more than the present figures. The report based on a study conducted by International agencies ActionAid International and Climate Action Network South Asia, said that by 2050, over 6 crore people will be displaced in South Asia alone. It said that in 2020, the number of people displaced in India is 1.4 crore.

The year ended on a proud note for the country with 42 wetlands from India, the highest in South Asia, being added to the list of recognised sites of international importance under the treaty of Ramsar Convention, which has 170 countries party to it and over 2,000 designated sites recognised under it. The latest site to be added from India is a high-altitude wetland complex of two connected lakes, Startsapuk Tso and Tso Kar, in Ladakh. In last three months, four wetlands, the Lonar lake in Maharashtra and Sur Sarovar, also known as Keetham lake, in Agra, Kabartal in Bihar's Begusarai district and Asan Conservation Reserve in Dehradun were added to the list. The government also made it clear this year that India's approach will be positive and constructive at the crucial 26th UN Climate Change Conference (COP 26) scheduled to be held in Glasgow, UK in November 2021, and it will make all efforts to make it a success.

ACTIVITY I

1. List down any five positive impacts of this pandemic.

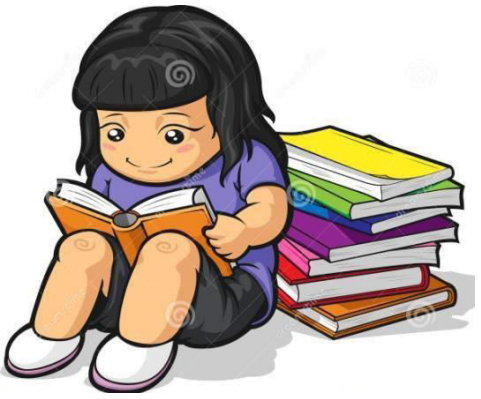
2. Tell us about the place and date of the 26th UN Climate Change Conference?
3. Make sentence with the words/phrases given below:

- Jaw-dropping
- Battered and bruised
- A blessing in disguise

PROJECT

Aim: This activity aims at Art Integration and language enhancement:

- Read the above shared article and draw or paint scenic beauty of Nature on an A4 size sheet. Let your imagination and creativity get a dose of expression. Make one pledge to take care of this beauty of Nature and write it at the bottom of your A4 sheet.



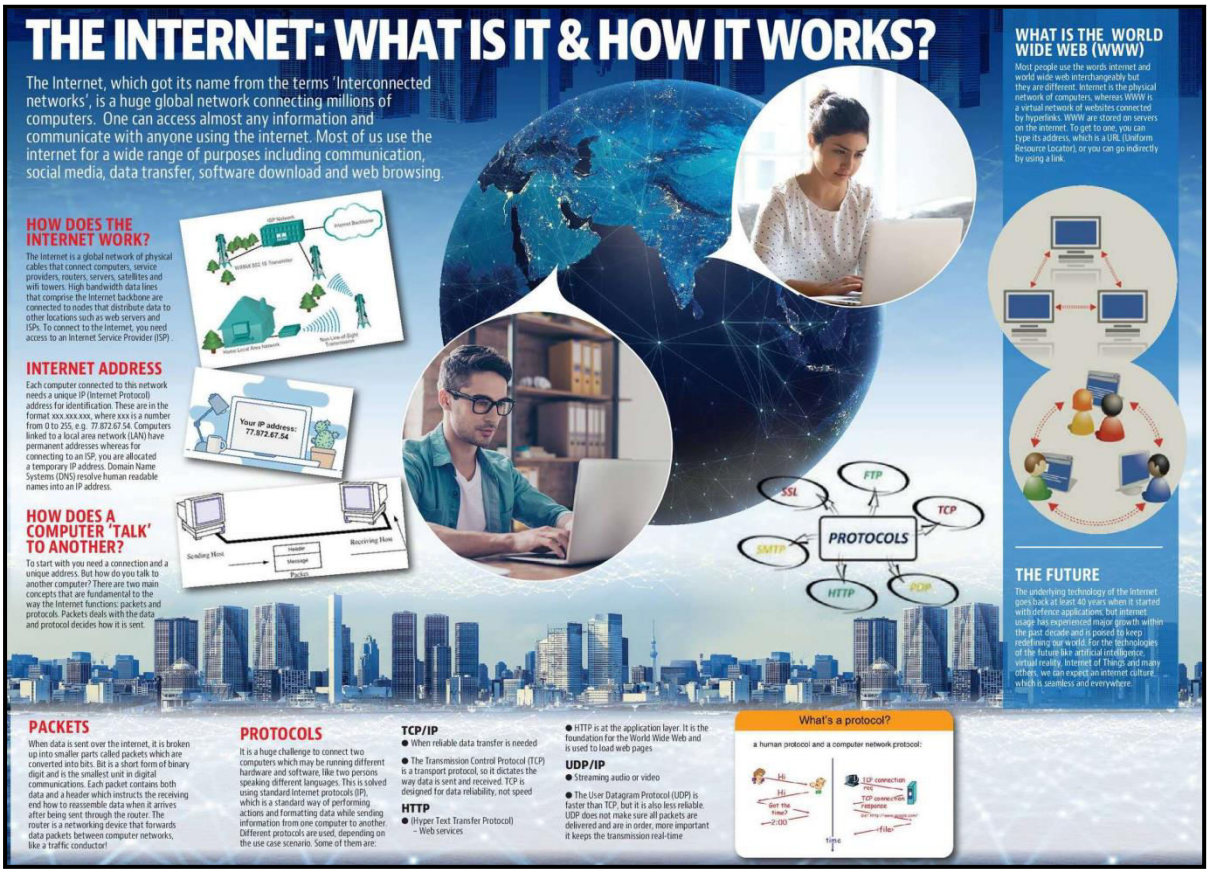
VII

MATHS

February, 2021

Note to the teacher: This module deals with the basic geometrical ideas.	***Curriculum Link:*** • **Basic geometrical ideas**

Ref: '*The internet…….works?*' (HT PACE Edition, Dec 31, Pg. 03)



ACTIVITY I

➢ Observe the picture carefully and answer the following questions:

1. Count the number of rectangles and circles and label them.
2. Highlight any two intersecting lines and parallel lines. Name them.
3. Highlight the curves and classify them as open or closed curve.

ACTIVITY II

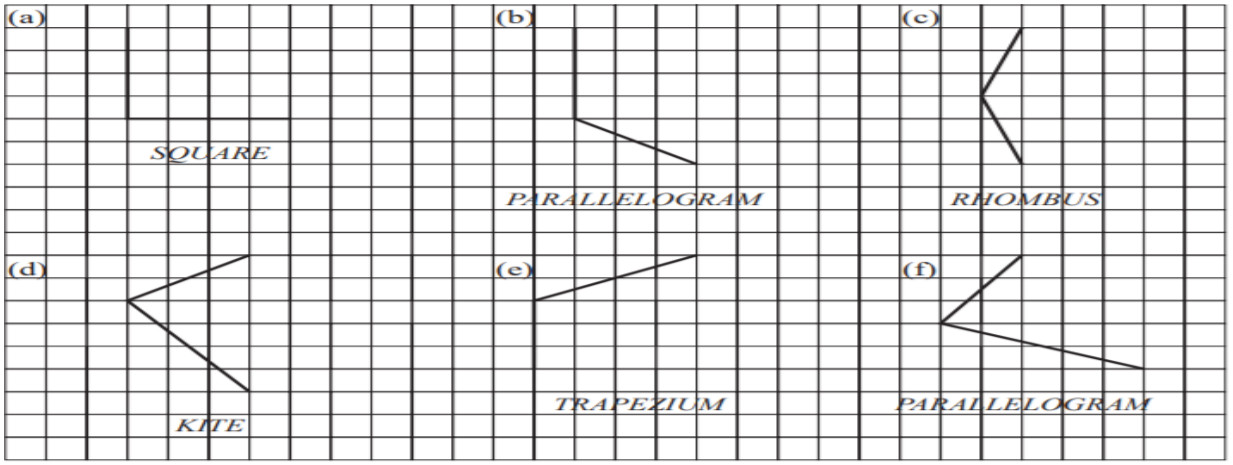
1. Observe the picture carefully and complete the given table:

Name of the polygon	Number of sides	Number of angles

2. Count and write the number of triangles and circles seen in the picture.

ACTIVITY III

1. Copy the diagram below and complete each of the shapes to form the type of quadrilateral stated.



2. Which quadrilaterals have diagonals that are always equal in length?

ACTIVITY IV

PUT ON YOUR THINKING CAPS!!

1. Draw a circle of radius 5 cm.
2. Draw a diameter.
3. Mark a point anywhere on the circle.
4. Join this point to each end of the diameter.
5. Measure the angle between the two chords you have drawn.
6. Repeat for some different points on the circle.
7. What do you notice? Write down your observation.

VII

SOCIAL STUDIES

February, 2021

This week's module provides an opportunity for students to do interesting activities on writing skills based on HT PACE Edition newspaper reports.

Ref: *'Year 2020 saw.....even if temporarily'*, (HT PACE Edition, Jan 04, Pg.05)

Year 2020 saw environment bounce back to its glory, even if temporarily

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Press Trust of India

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While schools, workplaces, transport and industry remained closed for a large part of the year as people stayed put in their houses, the grey skies started turning blue and pollutants in the air began to settle.

According to the Central Pollution Control Board, there was a significant improvement in air quality during lockdown (from March 22 to May 18) as PM2.5 in Delhi reduced by almost 50% as compared to levels observed during 2019. The pollution level in India's five most-polluted cities — Ghaziabad, Delhi, Noida, Greater Noida and Gurgaon - which are also in the top 10 globally, came down by over 50% during the first 10 days of the lockdown imposed to combat Covid-19 outbreak, said Greenpeace India.

Besides the air quality, there was improvement in water quality of seven rivers — Yamuna, Brahmani, Godavari, Cauvery, Krishna, Tapi and Brahmaputra - which was attributed to minimal industrial effluent discharges in view of closure of almost all industries, no human activities involving disposal of worshipped puja materials and garbage, no anthropogenic activities such as outdoor bathing, washing of clothes, vehicle washing and cattle washing, no pilgrimage activities etc. during lockdown phase, the CPCB had said.

The pollution level in India's five most-polluted cities — Ghaziabad, Delhi (in pic), Noida, Greater Noida and Gurgaon - which are also in the top 10 globally, came down by over 50% during the first 10 days of the lockdown HT FILE

The panic caused by the pandemic came as a blessing in disguise for animals as the government kept humans away from them and their habitats. Swinging into action after a tiger at a US zoo tested positive for Covid-19, the environment ministry had asked all states and union territories to restrict the movement of people in various national parks and sanctuaries to avoid any human-animal contact.

During the conference, the countries adopted an accord, the Gandhinagar Declaration that maintaining and restoring ecological connectivity is one of the top priorities for CMS. Three migratory birds — Great Indian Bustard, Asian Elephant and Bengal Florican — were also classified as "endangered migratory species" by a UN body, paving the way for transboundary conservation efforts.

Fear of the impact of Covid-19 on the world economy also caused the government to worry about achieving the climate goals under the Paris Agreement making environment minister Prakash Javadekar ask people not to get "too romantic" about the blue skies, fresh air and the green earth. However, few months later, the minister announced that India was the only G20 country in compliance with the Paris Agreement targets and that none of the developed nations are compliant.

The government remained on its toes in tackling waste generated due to the coronavirus cases in the country with the central pollution watchdog CPCB repeatedly issuing guidelines on waste disposal.

The year 2020 also saw a huge tussle between the Centre and environmentalists over the amendments to the environment impact assessment (EIA) with the latter alleging that it intended to bring in controversial amendments such as post-facto grant of approval, exemption of several large industries from public hearings, permission for industries to submit just one compliance report a year rather than two, increased validity of the environment clearances for mining projects and river valley projects, and many more.

Another decision by the Centre that drew sharp criticism was its grandiose plan to redevelop the Central Vista, which recently got the nod of expert appraisal committee (EAC) bringing it a step closer to getting environmental clearance.

Experts contended that the ₹13,450 crore project was government's way of "pampering itself" without considering that the project is going to sacrifice huge green cover and make the air toxic with its construction and demolition dust.

Several jaw-dropping reports were released this year, with one of them claiming that India would need a total land footprint roughly the size of Himachal Pradesh or Chhattisgarh to achieve its ambitious target of 175 giga watts (GW) renewable energy by 2022.

Another report claimed that over 4.5 crore people will be forced to migrate from their homes in India by 2050 due to climate disasters including floods, droughts and cyclones, three times more than the present figures. The report based on a study conducted by International agencies ActionAid International and Climate Action Network South Asia, said that by 2050, over 6 crore people will be displaced in South Asia alone. It said that in 2020, the number of people displaced in India is 1.4 crore.

The year ended on a proud note for the country with 42 wetlands from India, the highest in South Asia, being added to the list of recognised sites of international importance under the treaty of Ramsar Convention, which has 170 countries party to it and over 2,000 designated sites recognised under it. The latest site to be added from India is a high-altitude wetland complex of two connected lakes, Startsapuk Tso and Tso Kar, in Ladakh. In last three months, four wetlands, the Lonar lake in Maharashtra and Sur Sarovar, also known as Keetham lake, in Agra, Kabartal in Bihar's Begusarai district and Asan Conservation Reserve in Dehradun were added to the list. The government also made it clear this year that India's approach will be positive and constructive at the crucial 26th UN Climate Change Conference (COP 26) scheduled to be held in Glasgow, UK in November 2021, and it will make all efforts to make it a success.

ACTIVITY I

- Read the following extract and answer the following questions:

1. Give three ways of how the pandemic has an evident positive impact on environment.
2. Name the seven rivers which had improved quality of water.
3. List the various reasons through which the rivers are polluted.
4. Pandemic came as a blessing in disguise for animals. – Justify the statement.
5. Name the latest site to be added from India as an international importance site under the Treaty of Ramsar Convention- (International treaty for the conservation and sustainable use of wetlands).

PROJECT

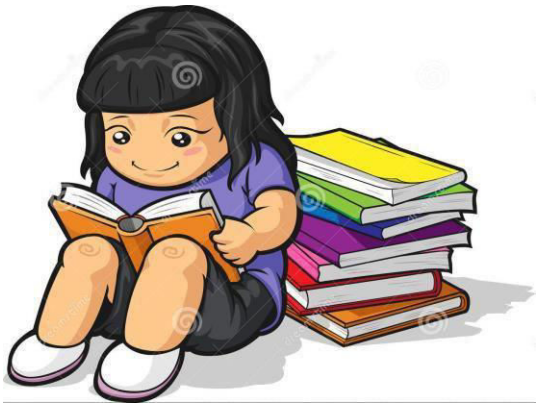
An Inconvenient Truth (Interdisciplinary with IT & English)

- Climate change is tough to discuss, but movies are an excellent way to start the conversation.

- Students to watch a movie - **An Inconvenient Truth**- to expose themselves to the concept of global warming. This may inspire learners to do their part to preserve the planet.

- Thereafter, hold a discussion in the class about the measures which each student can undertake to reduce climate changes and make the world a better place.

It is our intention to keep our students engaged and make them mindful citizens.



VII

SCIENCE

February, 2021

Note to the teacher: This module deals with weather, climate and adaptations of animals to climate.	***Curriculum Link:*** • **Weather, climate and adaptations of animals to climate**

Ref: *'Cold…7.8*c', 'Minimum..IMD', 'Capital… 4.3*C'*, (HT PACE Edition, January 11, 12 & 13 Pg. 01)

Cold winds bring min temperature to 7.8°C

NEW DELHI: Delhi's minimum temperature dipped to 7.8°C on Sunday, as cold winds from snow-clad Western Himalayas swept through the plains, the India Meteorological Department (IMD) said. The mercury is likely to drop to 5 to 6°C by January 14, an IMD official said. The Safdarjung Observatory, which provides representative data for the city, recorded a minimum temperature of 7.8°C, a notch above normal. Delhi has registered above-normal minimum temperatures since January 3, as a cloud cover persisted over the city under the influence of successive Western Disturbances. The city's minimum had settled at 10.8°C, four notches above normal, on Saturday, 9. °C on Friday and 14.4°C on Thursday, the highest in January in four years, according to IMD. PTI

Minimum temp likely to dip to 5°C by Jan 14: IMD

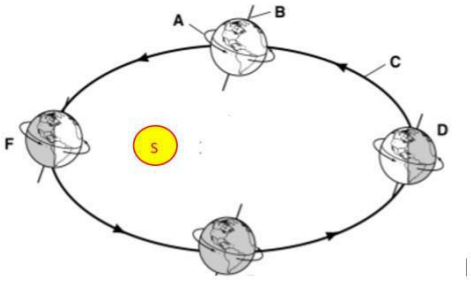
NEW DELHI: Delhi's minimum temperature was recorded at 7°C on Monday and is likely to drop further as cold winds from the snow-clad western Himalayas continued to sweep the plains, the India Meteorological Department (IMD) said. The mercury is likely to drop to 5 to 6°C by January 14, an IMD official said. The Safdarjung Observatory, which provides representative data for the city, recorded a minimum temperature of seven degrees Celsius. The maximum temperature on Sunday was 16.2°C, four notches below normal. Delhi has registered above-normal minimum temperatures since January 3 as a cloud cover persisted over the city under the influence of successive western disturbances. PTI

Capital shivers as min temp drops to 4.3°C

NEW DELHI: Delhi's minimum temperature dropped to 4.3°C on Tuesday, and is likely to dip further in the coming days, the India Meteorological Department (IMD) said. The Safdarjung Observatory, which provides representative data for the city, recorded a minimum of 4.3°C, three notches below normal, an IMD official said. Delhi had been registering above normal minimum temperatures till Monday, as a cloud cover persisted over the city under the influence of successive Western Disturbances. However, the minimum temperature has started declining with the commencement of northwesterly winds from snow-capped mountains towards the plains starting Saturday, the official said. The mercury is set to drop further. PTI

ACTIVITY I

- Study the diagram (not to scale) and answer the following questions:



1. The movement of the earth around the sun is shown by

a) A
b) B
c) C
d) D

2. The line labelled B is called

a) Orbit
b) Inclination
c) Axis
d) Tilt

3. The name of earth's movement along C is called
a) Revolution
b) Rotation
c) Translation
d) Path

4. The date on which earth reaches point F each year is
a) June 21
b) Dec 21
c) March 21
d) September 21

5. Winter in Delhi will occur when the earth is in position
a) A
b) D
c) F
d) It's not marked

6. Why do we feel cold in winter?
7. How does fire or heater keep us warm?
8. How do warm clothes keep us warm?
9. "It feels warmer if our ears are covered" Why?

ACTIVITY II

- Cut out the weather reports of last week from any newspaper. If you do not get a newspaper at home, you may get it from the internet. Paste all the cutouts on a white sheet or on a chart paper or in your notebook Now record the information from the weather reports collected by you in this table:-

Date/day	Max temp ^0C	Min temp ^0C	Humidity	Sunrise	Sunset	Air quality index
Monday	**17**	**9**	**82%**	**7:10 AM**	**5:55 PM**	**275**
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Sunday						

- The first row is just a sample. Fill all the columns according to the data in the chart that you have prepared. You may also find the average minimum and average maximum temperatures.

PROJECT

- Create postcards to depict the salient features, important months, salient foods, clothes and accessories for each season.
- Study the cause of seasons on earth. When is the earth farthest from the sun?

PROJECT

- You may divide the class and let them research on:

1) What causes seasons?
2) Why do different places on earth have different temperatures?
3) Why do northern and southern hemispheres have winter and summer seasons alternately?
4) Why does the temperature change during a season?
5) Why are day and night temperatures different?
6) When do we feel cold?
7) What if:

a) the axis of the earth was not inclined to the plane of revolution
b) the earth rotated from east to west
c) the orbit of the earth around the sun was circular and not elliptical

VIII

ENGLISH

February, 2021

Note to the teacher: The module tests the students' comprehensive skills, vocabulary, speaking skills, grammar and writing skills.	***Curriculum Link:*** • **Vocabulary** • **Writing Skills** • **Grammar**

Ref: *'Mathematician.....wizard'*, (HT PACE Edition, Jan 4, Pg. 03)

Mathematician and programming wizard

DONALD KNUTH: He authored the magnum opus titled The Art of Computer Programming, developed the TeX document preparation system and won awards such as the Kyoto Prize and AM Turing Award.

He was born on January 10, 1938 in Milwaukee, Wisconsin to German-Americans—Ervin Henry Knuth and Louise Marie Bohning. His father owned a small printing business and taught book-keeping.

Academic Pursuits

Knuth won a scholarship to study physics at the Case Institute of Technology in Cleveland, Ohio, in 1956. He joined the Beta Nu Chapter of the Theta Chi fraternity. He was one of the founding editors of Case Institute's Engineering and Science Review. He switched from physics to mathematics and received two degrees from Case in 1960. In 1963, with mathematician Marshall Hall as the adviser, he earned a PhD in mathematics from the California Institute of Technology.

Early Career

After obtaining PhD, Knuth joined Caltech's faculty as an assistant professor. He accepted a commission to write a book on computer programming language compilers. Knuth decided that in order to do justice to the topic, he must first develop a fundamental theory of computer programming which took the shape of the The Art of Computer Programming. Just before publishing the first volume of The Art of Computer Programming (TAoCP), he left Caltech to accept employment with the Institute for Defense Analyses' Communications Research Division, then situated on the Princeton University campus. Knuth then left his position to join the Stanford University faculty in 1969, where he now is Fletcher Jones Professor of Computer Science, Emeritus.

The Art Of Computer Programming

By 2011, the first three volumes and part one of volume four of his series had been published. Concrete Mathematics: A Foundation for Computer Science, second edition, which originated with an expansion of the mathematical preliminaries section of Volume 1 of TAoCP was also published. In April 2020, Knuth worked on part B of volume 4 and anticipated that it would have at least parts A through F. He also wrote Surreal Numbers, a mathematical novelette on John Conway's set theory construction of an alternate system of numbers.

Creating TeX

When the second edition of Donald Knuth's TAoCP was published in 1968, the entire book had to be typeset again because the Monotype technology had been largely replaced by phototypesetting and the original fonts were no longer available. Disappointed with it, he was motivated to design his own typesetting system. On May 13, 1977, he wrote a memo describing the basic features of TeX. The first version of TeX—TeX78, was written in the SAIL programming language to run on a PDP-10 under Stanford's WAITS operating system.

Personal Life

Knuth married Nancy Jill Carter on June 24 1961, while he was a graduate student at Caltech. Their children are John Martin Knuth and Jennifer Sierra Knuth.

Awards and Recognition

In 1971, Knuth was the recipient of the first ACM Grace Murray Hopper Award. He received various other awards including the Turing Award, the National Medal of Science, the John von Neumann Medal and the Kyoto Prize. In 1990, he was awarded the one-of-a-kind academic title of Professor of The Art of Computer Programming, which has since been revised to Professor Emeritus of The Art of Computer Programming.

SOURCE: Britannica.com, Wikipedia

ACTIVITY I

➢ **Answers the following questions:**

1. Mention any two achievements of Donald Knuth.
2. When and why Donald Knuth planned to design his own typesetting system?
3. Share some important details about Knuth's TAoCP.

4. Identify whether these are Verbs or Nouns:

- Concrete
- Assistant
- Justice
- Awarded

PROJECT

Aim: To enhance the writing skills and critical thinking of the students.

❖ Read the article **'Year 2020 saw environment bounce back to its glory, even if temporarily'** page no. 5, dated 4th Jan,2021, HT PACE Edition, pen down your experience of observing Nature's glory during lockdown duration in a form of paragraph of 150 words.

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VIII

MATHS

February, 2021

Note to the teacher: This module deals with **Decimals (Place value)**	***Curriculum Link:*** • **Decimals (Place value)**

Ref: *'India retain 2nd spot.....rankings'*, (HT PACE Edition, Dec 31, Pg. 06)

India retain 2nd spot in ICC WTC rankings

DUBAI: India kept themselves in contention of competing in the final of the ICC World Test Championship next year after winning the Melbourne Test that helped them retain their second spot in the updated points table, released on Wednesday. India bagged 30 points for their win. They are placed second with 390 points and a 72.2 percentage of points (PCT).

Australia continue to occupy the top spot despite losing the Boxing Day Test and copping penalty for maintaining a slow over-rate against India. They now have 322 points with a 76.6 PCT. New Zealand consolidated their third spot with a 101-run win over Pakistan in the first Test on Wednesday. The Black Caps earned 60 points for the win and now have a PCT of 66.7.

"New Zealand keep themselves in contention of making it to the final of the ICC World Test Championship," the International Cricket Council tweeted on Wednesday. England and Pakistan form the top five of the WTC points table. The top two sides at the end of the league on percentage points will play the final. Each series of the league is worth 120 points, distributed evenly over the number of matches in a series, ranging from 60 in two-Test series to 24 for a five-Test series.

ACTIVITY I

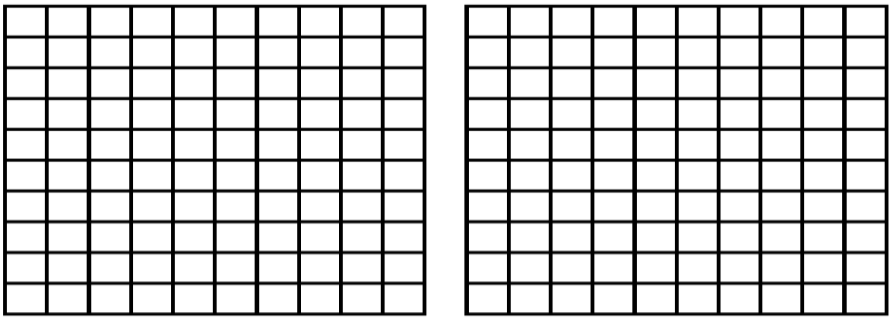
1. Read the article carefully. Highlight all the decimals and fill the decimal numbers in the given table. Complete the table.

Decimal number	Number name	Fraction	Expanded form

2. Copy all the decimals written in the column 1 of the above table (Convert all the decimals into like decimals and arrange them in ascending order.

ACTIVITY II

- Which is greater? 0.8 Or 0.08. Color to show in the grid A- 0.8 and in grid B- 0.08 and compare.



ACTIVITY III

1. Draw a 10 x10 grid and use four different colours to show 0.15 ,0.08, 0.25, 0.07
2. Complete the table as shown.

Decimal	Colour	Fraction

a) What fraction of the grid is not coloured? Write it as decimal.
b) Arrange the above decimals in descending order.

ACTIVITY IV

LET'S GO SHOPPING!

My Shopping Bag

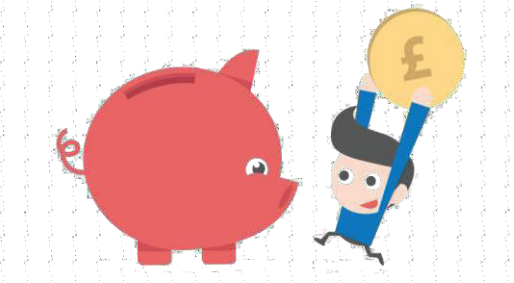
- List the items and their cost.

Item	Cost

- **Checking the budget**

1. Find the total cost of all the items you choose.
2. Did you go over your Rs.2500 budget? (Answer part a *or* part b)

a) **If you did**- remove items until you are below the budget. Explain each step you took and the calculations you did to get below the budget.
b) **If you did not**- add items until you get as close to the Rs.2500 as you can. Explain each step you took and the calculations you did to reach the budget without going over.



VIII

SOCIAL STUDIES

February, 2021

This week's module provides an opportunity for students to do interesting activities on writing skills based on HT PACE Edition newspaper reports.

Ref: *'India's 40th scientific…….. today* (HT PACE Edition, Jan 06, Pg.05)

India's 40th scientific expedition to Antarctica commences today

pedition will focus on going projects on change, geology, bservations, electric gnetic flux rements and nmental monitoring

Agencies

PANAJI: India's 40th scientific expedition to Antarctica, marking four decades of country's scientific endeavour to the southern continent, with 43 members onboard, will be flagged off from Goa on January 6. The team comprises scientists, engineers, doctors, technicians and is led by three polar veterans, said Javed Beg, group director (Antarctic Operations and Infrastructure) at the National Centre for Polar and Oceanic Research (NCPOR) in Goa.

According to the ministry of earth science, the chartered vessel MV Vasiliy Golovnin will reach Antarctica in 30 days and would return in April.

The scientific and logistic activities of the 40th Indian Antarctic expedition are limited due to the existing challenges associated with Covid-19 pandemic, it added.

The focus is to support the ongoing scientific projects on climate change, geology, ocean observations, electric and magnetic flux measurements, environmental monitoring: resupplying of food, fuel, provisions and spare and accomplishing the return of the winter crew.

The Indian Antarctic expeditions began in 1981. The first trip comprised of 21 scientists and support staff led by Dr SZ Qasim. Since then the Indian Antarctic programme has built three research stations Dakshin Gangotri, Maitri, and Bharati out of which the latter two are operational.

The chartered vessel MV Vasiliy Golovnin will reach Antarctica in 30 days and would return in April. The team comprises scientists, engineers, doctors, technicians and is led by three polar veterans SHUTTERSTOCK

The NCPOR, Goa, manages the Indian Antarctic programme.

The team was given a formal send off at the Mormugao Port Trust in Vasco town of South Goa on Monday by senior officials of the NCPOR, the Indian Oil Corporation, which is providing fuel for the expedition, and the India Post, which has released a special stamp to mark the occasion.

A senior IOC official here said the ship will leave the port on Wednesday, from where it will sail to Cape Town in South Africa.

Beg said the expedition members and the stand-by candidates underwent a rigorous examination at the Goa Medical College and Hospital.

This was followed by the institutional 14-day quarantine with multiple rounds of RT-PCR tests, supplemented by sanitsation of the cargo and upgradation of medical facilities at the Antarctica station, he said.

"The expedition leaders are under tremendous pressure to make do with half the team strength, but we place our trust in the team's determination, ability and resilience," he said.

Beg said two helicopters would be added to the expedition at Cape Town and the vessel will then leave for Bharati research station and is expected to reach in 18 days. It will also travel to Maitri, the country's other research station.

The travel distance of the ship will depend on the condition of sea ice, he said.

Yogesh Ray from the NCPOR, Atul Suresh Kulkarni from the Indian Institute of Geomagnetism and Ravindra Santosh More from the India Meteorological Department will be leading the team, he said.

Beg said the team will also relieve 48 members from the previous expedition who have been working for last 15 months, while resupplying the bases with food, fuel, provisions and spares.

NCPOR director M Ravichandran said polar regions are crucially important in answering key questions on global climate change, its contribution towards global sea-level rise, background aerosol properties, variability in sea ice cover and phenomena like the Antarctic haze and ozone concentration.

PAUSED BY COVID-19, INDIA'S YEARLY ARCTIC EXPEDITION TO RESUME IN JUNE

Press Trust of India

PANAJI: After a gap of a year due to Covid-19 pandemic, India's annual expedition to the Arctic will resume this year in the month of June, a senior Union government official said on Monday.

Talking to reporters in Vasco town, about 30 kms away from here, M Ravichandran, director, National Centre for Polar and Ocean Research (NCPOR), said the annual expedition to the Arctic region will be held from June to October.

"Last year, the expedition was cancelled because of Covid-19 outbreak. This year, we are resuming the expedition. It will be held from June to October," he said.

He said about 150-200 crew from India would be participating in the expedition in the batches of 10 at a time.

India embarked upon the Arctic research by launching first scientific expedition to Arctic in the first week of August, 2007, using the international research facility in the Spitsbergen Island of Norway.

Subsequently, India has been sending scientific teams every summer and winter for carrying out studies in the Arctic, primarily in the fields of glaciology, hydrochemistry, microbiology, and atmospheric sciences.

Ravichandran said the crew will embark on the mission by flight.

"There's a science village in the Arctic where representatives of seven countries would stay together," Ravichandran said.

He said the crew for the expedition will go in batches as the capacity of the Indian station in the Arctic is ten.

"Once ten people return, another batch of ten members will go," he added.

ACTIVITY I

- **Read the above extract and answer the following questions:**

1. Name the human resource team for the expedition.
2. What is the objective of the project?
3. Name the organization providing fuel for the expedition.
4. What role has been played by the India Post for this expedition?
5. Name the two Indians who will be leading the team.
6. Polar Regions are crucially important in answering key questions on global climate change- Justify the statement.

PROJECT

- **Portfolio (Self-Reflection) (Interdisciplinary with IT)**

  A student portfolio is a purposeful collection of work samples from each of the learning areas that stretch over a designated period of time. It may contain work samples from each learning area, assessment tasks, photos, student self-reflection, student learning goals and more.

- **Students to prepare a portfolio**: Exploring your present and your vision for the future to become a human resource for the country.

VIII

SCIENCE

February, 2021

Note to the teacher: This module deals with the pollution of air and water.	***Curriculum Link:*** • Pollution of air and water

Ref: *'Great……. Cholera',* (HT PACE Edition, January 11, Pg. 03)

Great scientist whose work reined in cholera

SAMBHU NATH DE: This scientist made major contributions to the field of medicine by his research which helped curb the spread of cholera which has killed millions. Unfortunately, he died unsung and unhonoured.

Born on February 1, 1915 in the Hooghly district of West Bengal, Shambhu Nath De's father, Dasarathi De, was a businessman. Supported by his uncle, he completed the matriculation examination with distinction from Garbati High School that helped him to secure a scholarship as well as to pursue higher education in the Hooghly Mohsin College. In 1939, De passed his MB examination from Calcutta Medical College and completed Diploma in Tropical Medicine in 1942. After graduation, he joined the Calcutta Medical College as a Demonstrator of Pathology and initiated research under Professor BP Tribedi.

Expansive career

In 1947, De enrolled as a PhD student under Sir Roy Cameron at the University College Hospital Medical School in London and obtained PhD in Pathology in 1949. After returning to India, De worked on the pathogenesis of cholera and began publishing his findings. In 1955, De became the head of Pathology and Bacteriology Division of the Calcutta Medical College, a post he held until retirement. De published more than 30 research papers. He also had written an excellent monograph on cholera and its pathogenesis.

Research on cholera

De made significant contributions to understanding cholera and related diarrhoeal diseases, especially in the modern view of diseases caused by bacterial exotoxins. Followed by the discovery of Vibrio cholerae in 1884 by Robert Koch, many works were carried out all over the world to answer questions related with its pathogenesis and mode of transmission in causing outbreaks.

De's method to understand the pathogenesis of cholera was distinctly different from previous approaches. At that time, researchers believed that the pathogenesis of cholera was related to endotoxin and used methods and routes to replicate the disease which included introducing cholera stools into a variety of animals with little success.

Following the course of the disease, De contended that the causative agent affects the permeability of the intestinal epithelium, that led him to perform work at that interface using the rabbit ileal loop model, which made him famous. Not only was De able to replicate the disease with the causative organism introduced in the ileal loops of the rabbit but was also able to replicate the disease with bacteria-free culture filtrate of V. cholerae clearly revealing the nature of the exotoxin. He also performed experiments which created the concept of enterotoxin producing Escherichia coli which today is firmly entrenched as enterotoxigenic E. coli.

As noted by John Craig of the State University of New York Health Science Center in Brooklyn, De's work was creative, novel and it "forever altered our concepts surrounding the pathogenesis of secretory diarrhoea."

Post retirement

De retired in 1973 from the Calcutta Medical College at the age of 58. Yet, he continued research at the Bose Institute to purify the cholera toxin. He started private practice by establishing a clinical pathological laboratory in his residence to keep busy.

De died on April 15, 1985 at the age of 70.

Recognition

In 1978, the Nobel Foundation invited De to participate in the Nobel Symposium on Cholera and Related Diarrhoeas. His work led to rapid progress in cholera research but he remained an unsung hero and did not enjoy deserving recognition from fellow scientists.

Source: Wikipedia, ncbi.nlm.nih.gov, ijpmonline.org

ACTIVITY I

1. **Name the following pollutants of water:**

a) things that smell bad
b) things that make water dirty and unsafe
c) things that make water cost a lot of money
d) things that cause water to dry u

2. **An example of disease caused by water pollution is -**

a) Cholera
b) Covid -19
c) Cancer
d) Tuberculosis

3. Cause of cholera is -

a) Drinking polluted water
b) Washing with polluted water
c) Swimming pools
d) Uncovered stagnant water

4. Farming causes water pollution if -

a) Farm water goes to the river
b) Farm equipment is washed in the river
c) Farmers bathe in water
d) Farm produce and waste is thrown in the river

5. One of the most effective ways of making water safe for drinking is -

a) Filtering water
b) Boiling water
c) Sedimentation
d) Using infra red rays

6. Reduce Reuse Recycle - We can reduce use of water for bathing by -

a) Bathing on alternate days
b) Not bathing in winter
c) Having a shower bath
d) Having a bucket bath

7. The water used for washing vegetables can be used for-

a) Bathing
b) Cooking
c) Gardening
d) Washing cars

8. Water can be saved by -

a) Drinking less water
b) Buying clean vegetables
c) Not allowing taps to drip
d) Bathing in the swimming pools only

9. To save a population from getting cholera -

a) Industrial waste should be recycled
b) Water containing pesticides must not flow into water bodies
c) Sewage water should not be emptied into rivers and water bodies
d) Garbage dumps should be near water bodies

ACTIVITY II

1. Constructing a water filter with simple, everyday materials. Take a plastic bottle and cut it into 2 halves at the centre. Use the upper half as a funnel by putting it upside down in the lower half. Make layers in it with paper napkin or a fine cloth followed by, cotton, sand and then gravel. Now pour dirty water through the filter and observe the filtered water.

2. Discuss the following questions amongst yourselves and with your teacher:
a) Why do we need to filter water before drinking?
b) Where do you get your drinking water from?
c) What will happen if we drink polluted water?

ACTIVITY III

- While brushing your teeth, leaving the tap running may waste several litres of water. Find out how much.
- Find a suitable bucket. Brush your teeth as you normally do. Leave the tap on and collect the water in the bucket. Mark the water level on the bucket with cello tape or electricity tape. Repeat brushing but this time close the tap while brushing , collect the water flowing out in the same bucket .Note the new level of collected waste + clean water. Compare.
- A tap that drips once every second wastes a few thousand litres of water every year. Think about it!

PROJECT

- You may divide the class into groups and they may choose to research on any one of the topics :
- Cholera and how doctors tackle it today?
- Pathogenesis of cholera.
- How is the work of Sambhu Nath De different from other researchers?
- What is Rabbit Ileal Loop Model?

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