New Delhi, 25 Mar:
Do you love reading comics? Then there is good news for you.
On March 25th 2021, in an innovative initiative, our Education Minister Ramesh Pokhriyal launched 100 comic books based on topics/subjects from National Council of Educational Research and Training (NCERT) textbooks. These topics have been carefully chosen, to help students understand concepts and gain practical knowledge as opposed to rote learning. The comics were created by teachers and children of various schools under Central Board of Secondary Education (CBSE) and curated (carefully chosen and organized) by the NCERT.

An important aim of the initiative is also to make students aware of the cultural and social diversity existing in India through various characters and storylines of these comics. This step is aimed to provide holistic (all-round) learning to students under the new National Education Policy and make them creative, out of the box thinkers. The three ways to access this content is by DIKSHIA web portal (diksha.gov.in), DISKHA app (android Smartphone) and a WhatsApp powered Chatbot.

Each comic is carefully designed with a specific learning objective. It starts with an introduction to the storyline and characters of the comic followed by narration. Fun worksheets, to reinforce the learning objective are also provided. Some important topics like, consumer rights, money and credit, sectors of Indian industries etc. are covered as comics to make kids understand important day to day concepts.
The Children’s Post

New species of Peacock Spider discovered

South Australia, 25 Mar: A new type of peacock spider has been discovered on Mount McIntyre and Nangwarry, in South Australia by a citizen scientist Sheryl Holliday. Peacock spiders are tiny spiders with extremely colourful backs and belong to the genus *Maratus*.

It has been scientifically named as *Maratus nemo*, because of a bright orange face with white stripes that resemble the clownfish Nemo from the famous animated movie, Finding Nemo.

It is the size of a grain of rice, has a beautiful bright blue back with red and black stripes, and green eyes. Unlike other peacock spiders, which prefer a dry habitat, *M.nemo* inhabits marshy vegetation in wetlands. (Picture Courtesy: https://museumsvictoria.com.au/)

[Image of peacock spider]

Arachnologist (a person who studies spiders) Joseph Schubert of Museums Victoria, who had earlier identified seven new species of the peacock spider, has done a detailed description of *M.nemo* and his findings are published in the journal Evolutionary Systematic.

Biomimicry Series - Iridescent Peacock Feathers

Peacock is one of the most beautiful birds in nature and its beauty is attributed to its colourful feathers. But did you know that peacock feathers are actually grey in colour.

*But how do they display such beautiful colours?*

This is possible because of a phenomenon called Iridescence. Iridescence is generating colours from micro and nano sized crystal like structures that selectively filter and reflect light. The spacing and arrangement between these natural crystals determines the colour that is reflected back and hence what we see. We can call this structural colour. The unique nature of structural colour is that it changes colours when you look at it from different angles because light gets reflected differently. But colours in many plants and animals also result from pigments, which are chemical substances that selectively absorb light at some wavelengths and reflects it in others.

*How do we differentiate between the two?*

Pigment-based colours do not change when we view them from different angles.
Whereas, structural colours change when viewed from different angles. We can do a small experiment to see the difference, which you can also try at home. Wet only one half of the peacock feather with water and observe the colours. Try the same by wetting some flowers collected from the garden. You can clearly notice that the wet side and the dry side of the peacock feather exhibit different colours, whereas as flowers do not show this change in colour as they are pigment based. This is because water fills the spaces between the microscopic structures in the peacock feather, which changes the angle of reflection is changed and thus the color of the peacock feather is changed.

A. The peacock feather showing iridescence. Lower wet portion appears greenish whereas top dry portion appears blue. B. Flowers with natural pigments showing no iridescence when wet.

**Uses of Iridescence in human applications**

Iridescence based artificial crystals are being explored in a variety of applications, including newer computer screens and to make the e-readers colourful and more power efficient.
DIY Science Corner – Natural pH Indicators

Grade Level: 8

Material needed: Red hibiscus flowers or red cabbage, vinegar, water, hand wash liquid, few transparent glasses or test tubes. Litmus paper to test pH is optional.

Procedure:

1. Collect 10 to 15 hibiscus flowers. Boil them in one cup of water for 5-10 minutes. The pigment from the leaves dissolves in water turning it into reddish purple colour. Strain the liquid and remove the flowers. The purple liquid will work as a pH indicator solution. Red cabbage can also be used to make the indicator instead of hibiscus flowers.

2. Take three glasses half filled with water. Add 10 drops of Vinegar to the first glass and 10 drops of hand wash liquid to the second glass and mix thoroughly. The third glass will have plain water. Add 2 spoonful of the prepared indicator solution to all the three glasses.

Observations: As soon as the indicator solution is added, the vinegar solution turns pink indicating an acidic pH. The hand wash liquid turns into yellow indicating a basic pH. The glass containing plain water does not undergo any change indicating neutral pH. If you have access to pH paper or Litmus paper you can use it to confirm the pH of the solution.

Why it happens:

• pH is a measurement of how acidic or basic something is. It is measured on a scale of 0-14.
• A pH of 7 indicated the substance is neutral. A pH of < 7 is an acid and a pH of > 7 is a base.
• A pH indicator is a chemical that changes colour in the presence of an acid or a base.
• Hibiscus and Red cabbages have pigments called anthocyanins. Anthocyanins change their colour with the pH of the solution. They turn pink in acidic solutions, maintain their purple in neutral solutions and become greenish-yellow in alkaline solutions.

Experiment variations:

• Use other coloured fruits and flowers to do this experiment to see if they also act as pH indicator.
• Use different liquids available at home like apple juice, milk, hand wash liquid etc. to measure their pH.
• Establish a pH gradient (gradual increase or decrease) using these liquids. This will show the different strengths of acids and bases.

This Experiment was submitted by Shivani Manivannan, PS Senior Secondary School Chennai

Share your DIY experiments to feature the in this column.
Editorial

Hello Dear Readers,

Today on the occasion of Holi, we have put together a colourful edition for you. I hope you enjoy reading it.

Happy Holi to all of you!
Padma aunty. tcpedit@gmail.com

Hurray!! And the Monday Master Minds are:

Solution A: Only box (b) can be formed.
When the pieces in the first figure are folded to form a box then dot and the shading will be on opposite sides. Hence, figures a, c and d which have the dot and the shading faces adjacent to each other cannot be formed.

Solution B: When cut into 64 pieces, each side of the cube will yield 4 cubes with yellow on only one side. So, 4 x 6 (sides) = 24 cubes with only one side painted yellow.

Holi Colour Challenge
Say the colour of the word

Why is this task difficult?

We have trained our brain to recognize words instantly without any processing. Whereas saying the colour of the word requires us to process the colour information before it can be said and hence is a slower process.

Interestingly, a kid who know only colors, but cannot read will not face this challenge as the words have no meaning to them. Ridley Stroop discovered this strange phenomenon in the 1935.

It is called the "Stroop Effect"
How about spending quality time with family playing board games this summer holidays? Check out your favourite classic board games in the grid based on the given pictures. Send us your answers.

### Monday Masterminds: Brain Tickler

**A. Which number completes the series?**

| 5 | 7 | 11 | 13 | 17 | 19 | 23 | ? |

| a. 25 | b. 27 | c. 29 | D31 |

**B. What is summer without ice cream? Enjoy your summer with some yummy ice cream and find the values of these ice creams using multiplication.**

| 5 | 7 | 11 | 13 | 17 | 19 | 23 | ? |

| a. 25 | b. 27 | c. 29 | D31 |

### Word Search

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**Spot the difference – at least 5 out of 7**

Learn about the Human Body: What is the hardest substance in the body? Tooth Enamel 😊
**HOLI**

A festival of colours, a festival of joy, 
it delights everyone, even a small boy!

People cheer, 
throwing water drops gushing through the air!

People bring colours of each type, 
and throw them on others, filling them with hype!

People bring water guns, 
to have tremendous fun,

On this wonderful day, 
it removes sadness, 
and fills everyone with happiness!

This festival remarks that good always wins, 
over the cruel and evil, Well let us say they go in the bin!

People pray to God, 
They listen to everyone, 
Appreciate them, and nod!

A wonderful day, I tell you, 
No one feels alone or even blue!

I love this festival, I really do, 
Now let me ask you a question, DO YOU?

Poem by Devansh Gupta