

SCIENCE MAGAZINE 2020-2021

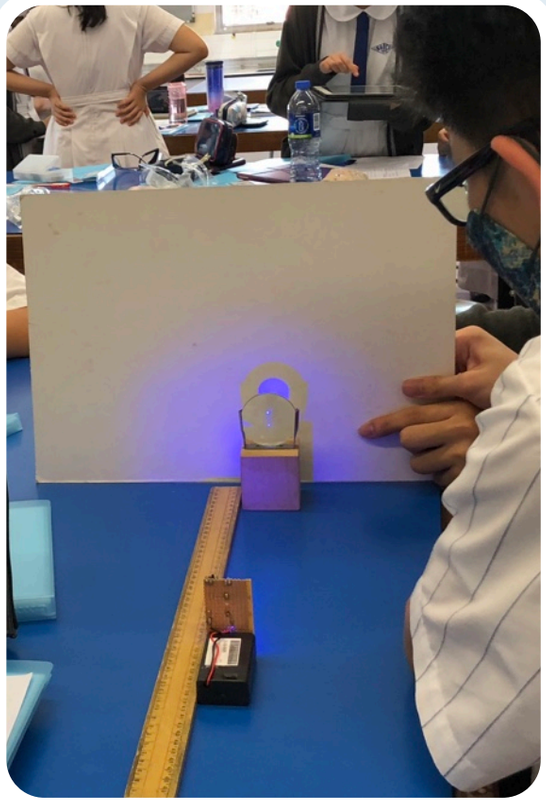
ST. MARGARET'S CO-EDUCATIONAL ENGLISH SECONDARY AND PRIMARY SCHOOL

1

LEARNING AND TEACHING INITIATIVES

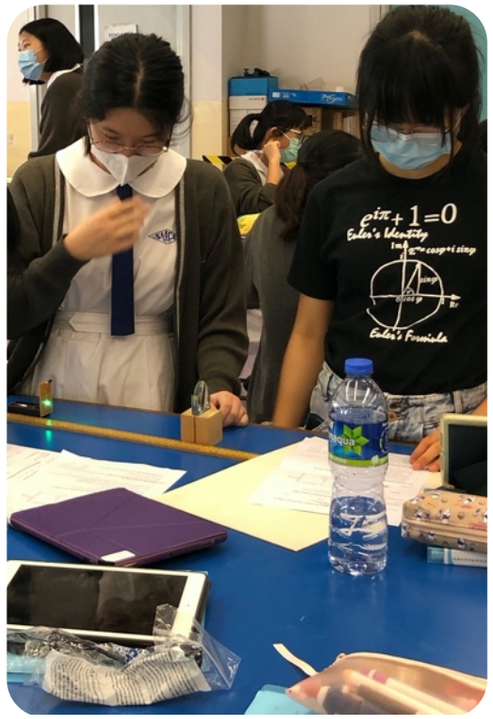
STUDENT LED LEARNING ACTIVITIES

Creativity stems from variations of the minds. We respect and cater for such variations by letting students own their learning. We believe that innovative and original ideas can be nurtured when learners actively participate and take the lead in learning.

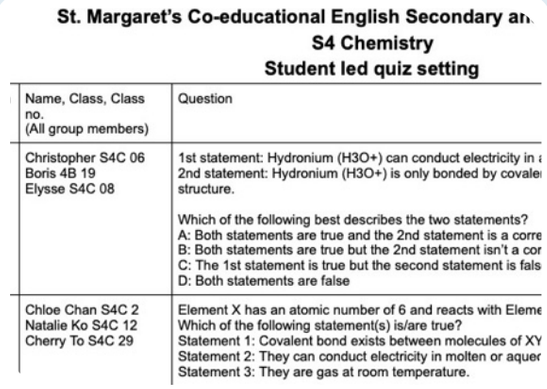


S3 Students using LED lights made by S5 students for their experiments to investigate formation of image by convex lens.

#Student led LED



#Student led LED



St. Margaret's Co-educational English Secondary an
S4 Chemistry
Student led quiz setting

Name, Class, Class no. (All group members)	Question
Christopher S4C 06 Boris 4B 19 Elysse S4C 08	1st statement: Hydronium (H_3O^+) can conduct electricity in 2nd statement: Hydronium (H_3O^+) is only bonded by covale structure. Which of the following best describes the two statements? A: Both statements are true and the 2nd statement is a corre B: Both statements are true but the 2nd statement isn't a cor C: The 1st statement is true but the second statement is fals D: Both statements are false
Chloe Chan S4C 2 Natalie Ko S4C 12 Cherry To S4C 29	Element X has an atomic number of 6 and reacts with Eleme Which of the following statement(s) is/are true? Statement 1: Covalent bond exists between molecules of XY Statement 2: They can conduct electricity in molten or aquer Statement 3: They are gas at room temperature.

S4 Students formed groups and designed MC questions to challenge their classmates.

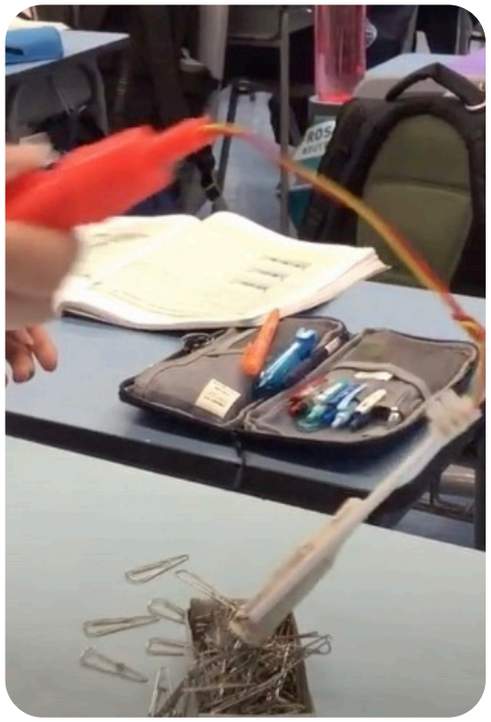
#Assessment as learning



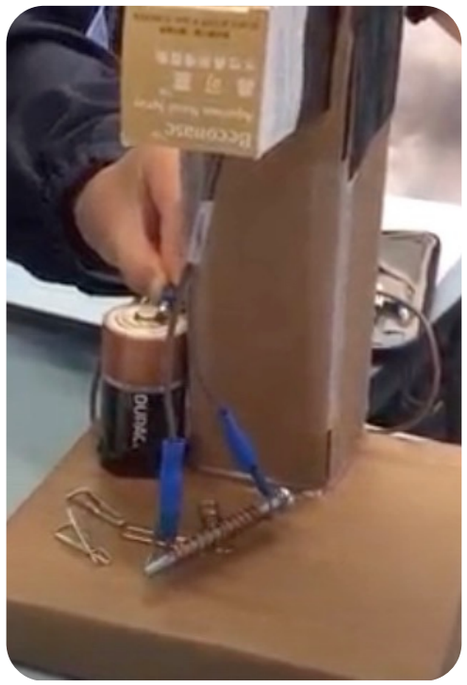
S2 Students designed and created their own electromagnets.

#DIY electromagnet

Students have come up with many novel, creative ways to decorate their electromagnets. During the making process, they constantly reflected and improved their electromagnet in terms of appearance, strength and safety.



#DIY electromagnet



#DIY electromagnet

EXPERIMENTS AND PROJECT LEARNING

By putting theory into practice, students can understand the concepts in context and realize the ideas in an authentic situation. Practicals and experiments are essential in students' science learning.



P6 students trying to capture the motion of the box using iPad

#P6 experiment



P6 students trying to measure the frictional force on a rough surface using newton balance

#P6 experiment



P6 students trying to put different parts of a pulley system together

#P6 pulley



P6 student testing a pulley system that was made by himself

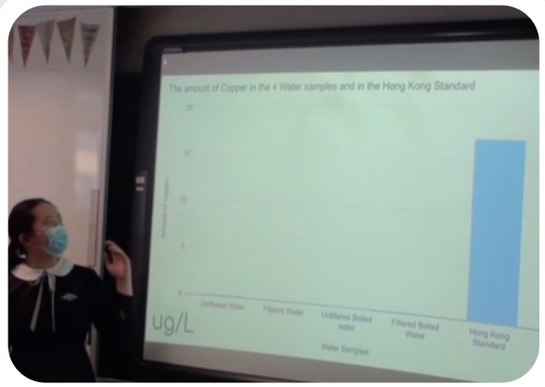
#P6 pulley

Collaboration is one of the most important interpersonal skills in the modern world. People from different fields often work together for a common goal. Project learning is a great opportunity for student to acquire and practice collaborative skills.



S1 students used a testing kit to measure the level of various substances such as metal ions and chlorine content in water treated with different methods.

#Water testing



An S1 Student presenting experimental results on water testing to the class

#Water testing

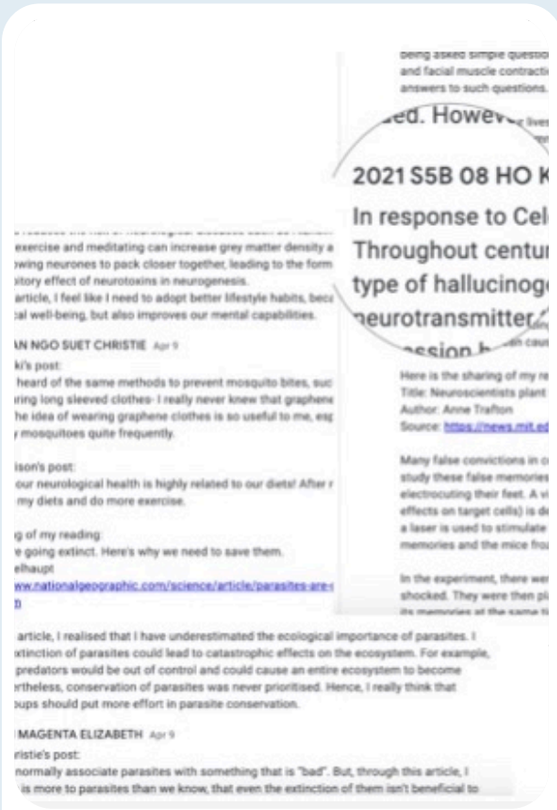
LEARNING MODES UNDER THE PANDEMIC







While only half day schooling is permitted under the pandemic, there has been limited opportunities for students to learn in a face-to-face manner. Different modes of learning have emerged to meet students' learning needs.



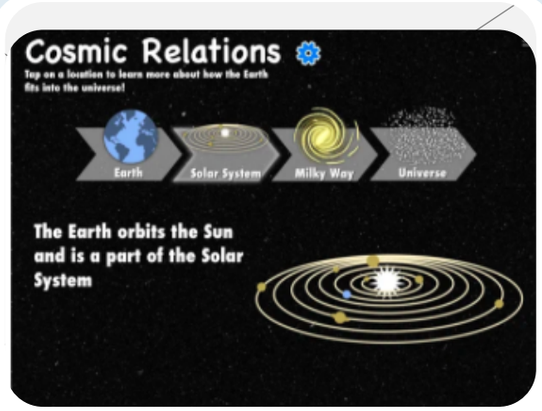
S5 students sharing what they read and commenting on each others' sharing on google classroom.

#Reading forum



IS interactive e-book for primary students

#Reading



Students can learn about the solar system in a fun way with interactive ebooks.

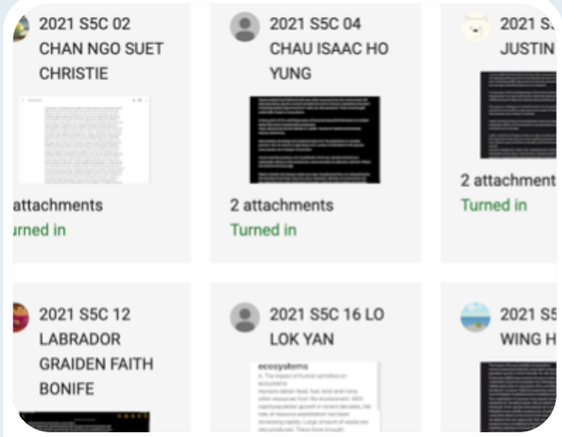
#Reading



Primary students shared their practical results on Padlet after an exciting morning in the lab

#Primary Saturday lab time

Different learning modes such as reading, home experiment have been adopted to cater for the learning needs of students during pandemic.



Students used the dictation function of the iPad to record their reading.

#Read aloud



The colligative properties of strawberry can be investigated at home with teachers' guidance.

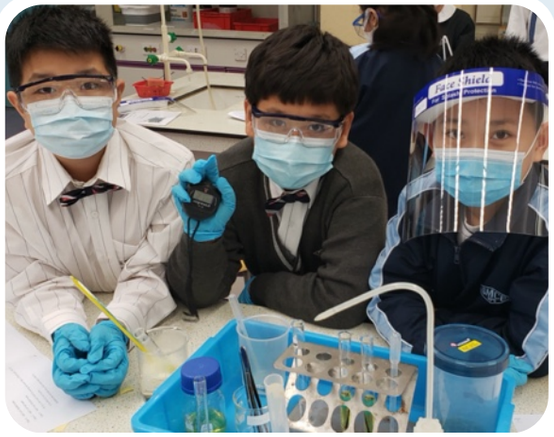
#Home experiment

2

INTERNAL ACTIVITIES

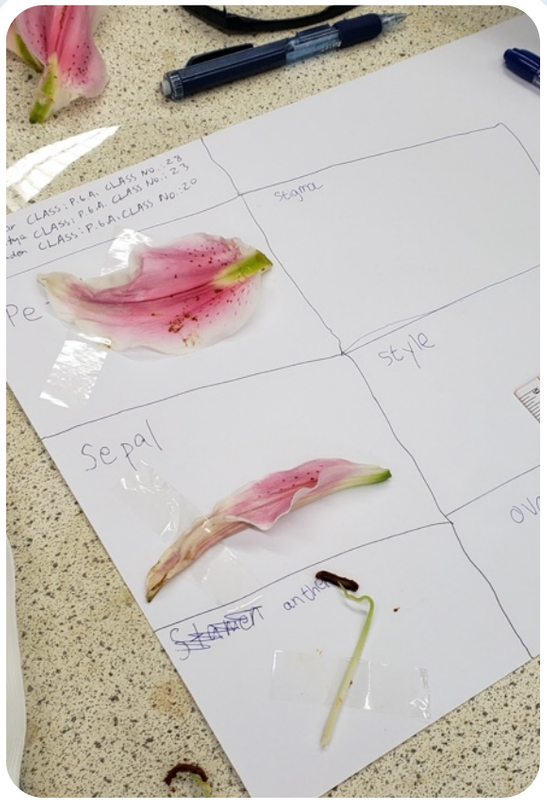
IS PRACTICALS FOR PRIMARY STUDENTS

With shortened lesson time, extra IS practical activities were arranged for primary students on Saturday to further consolidate students' learning.



The colour intensity of rust indicator was compared after a certain period of time.

#measurement



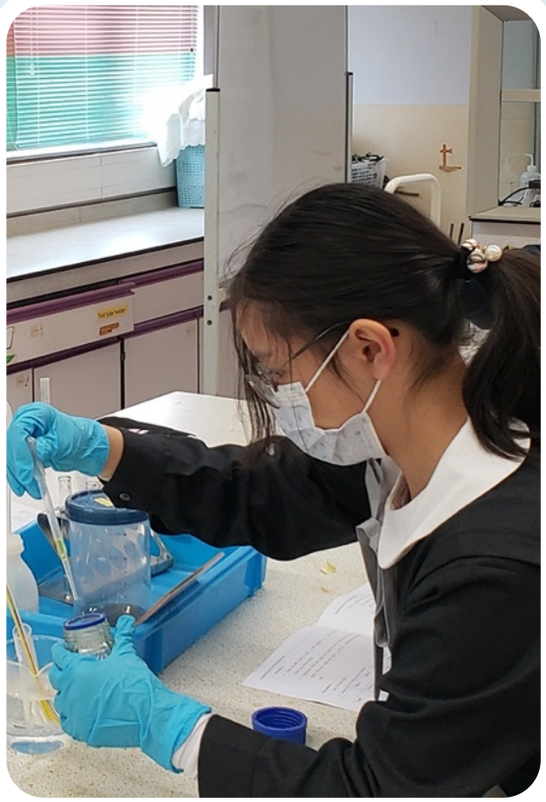
Different parts of a flower were fixed and labelled

#dissection



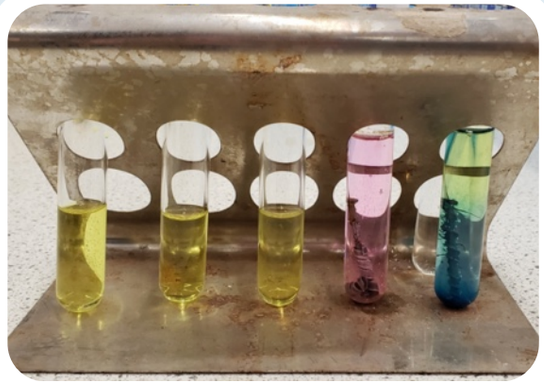
Observing different parts of a flower under light microscope

#light microscope



Adding rust indicator to start the measurement

#transfer solution



Investigating factors affecting rusting of iron using rust indicator

#iron rust

Two practical activities, investigating factors affecting the rate of rusting and dissection of flower, were arranged for primary students to complement what they had learnt in textbooks.



The experiment were recorded and the result can be reviewed.

#data collection

STEM ACTIVITIES

A wide range of STEM related learning activities, such as rocket car contest, interesting videos related to STEM and STEM training were arranged for different levels of students throughout the year.



Fix rocket car wheels on an axle

#Rocket car competition



Shaping the car body of the rocket car

#Rocket car competition



Rocket car is ready to race

#Rocket car competition



A fast and furious rocket car in motion

#Rocket car competition

In the rocket car competition, students learned about aerodynamics. They designed their own rocket car using the app 'Wind Tunnel' which simulated and calculated the best design that can travel with the lowest air resistance. With the optimized design, they then constructed their rocket cars.



P6A
Ho Yu Chin (11),
Liu Sum Wai (19),
Truong Cameron Ka Lam (30),
and Wu Hoi Ching (33)

#P6 Winning team



P5B
Chang Faye (6),
Lam Annabelle (13),
Lee Sum Yee Corey (15), and
Li Hannah Ching Wan (17)

#P5 winning team

In the real world situation, science is often integrated with other disciplines. Students can learn and apply their science knowledge and process skills in a range of STEM activities.



Students learning how to construct a robot that performs different tasks

#Ver IQ training



Simulation of a Maglev train showing its working principles

#STEM week



What is happening? Science videos made for students during STEM week

#STEM week



Different science principles and green energy concepts were applied to build a contraption system.

#World GreenMech Contest training

Learning always takes place when students are engaged. Students were provided with a lot of hands-on and minds-on trainings and activities to raise their interests and understanding in STEM subjects.



Students constructing a lego automobile

#Lego training



Primary students building a playground using lego

#Lego architect

3

EXTERNAL ACTIVITIES AND COMPETITIONS

S1 PAK NAI FIELD TRIP

Under the pandemic situation, field trips become a very precious activity for students as the number of students allowed in each outing is limited.



Students observing a freshwater stream at the site

#Ridge to Reef



Students observing mangrove in coastal region

#Ridge to Reef



A wide range of different species were observed in the field trip.

#Ridge to Reef



Students learning how oysters were farmed in the past

#Ridge to Reef

6 sessions of Pak Nai ecological field trip - “Rridge to Reef” were arranged for S1 students in the post exam period.



Students getting a closer look at the mangroves

#Ridge to Reef



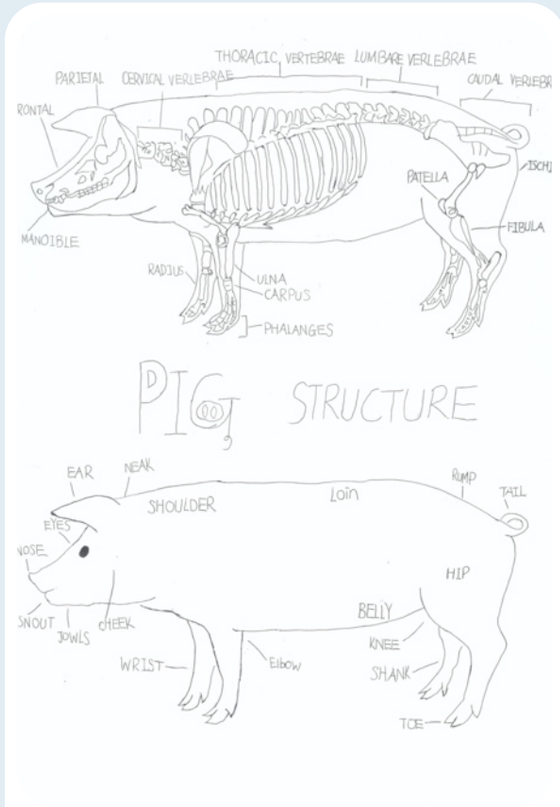
Students measuring the pH value and salinity of the water samples collected from up stream and coastal area.

#Ridge to Reef

HONG KONG SPECIMEN DRAWING COMPETITION 2020

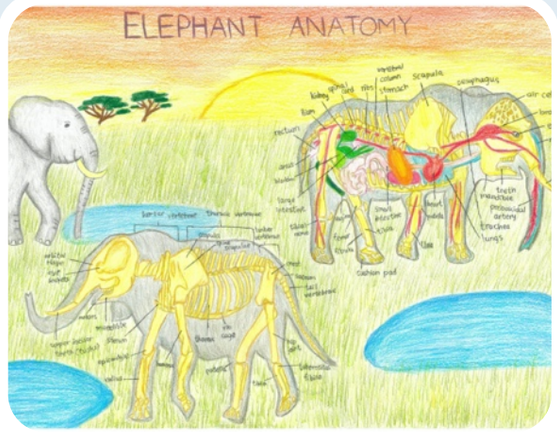


Our students participated in the Hong Kong Specimen Drawing competition. In the competition, students make an artistic yet scientifically accurate drawing of an animal or plant in Hong Kong.



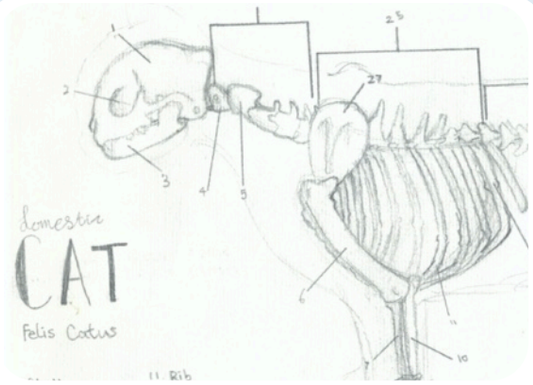
By Lau Yui Hin Elvis S1G1

#Hong kong Specimen Drawing competition 2020



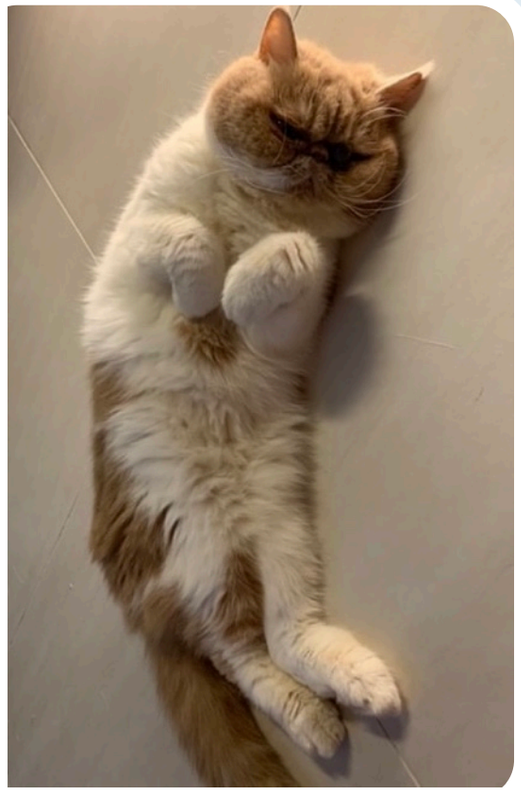
By Leung Lok Gi S1G4

#Hong kong Specimen Drawing competition 2020



By Lee Tsz Wai S2G4

#Hong kong Specimen Drawing competition 2020



The actual cat of the specimen drawing by Wai Sze Yin Shelby S2G4

#Hong kong Specimen Drawing competition 2020

Through the competition, students can learn about the names of the parts and the internal structures of their beloved animals.



By Wai Sze Yin Shelby S2G4

#Hong kong Specimen Drawing competition 2020



By Leung Lok Yin S1G4

#Hong kong Specimen Drawing competition 2020

S6 JOINT SCHOOL BIOLOGY POST MOCK EXAM

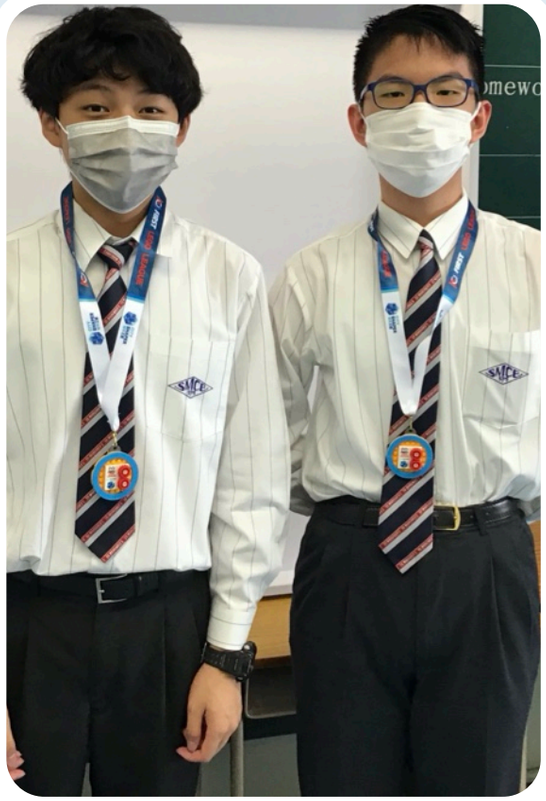


In order to expose students to the learning environments beyond SMC, a joint school biology post mock exam had been organized in March for S6 students. Students got a better understanding of what they know and do not know. They could also learn from biology teachers of other schools. Participating schools: Marymount Secondary school, Pooi To Middle School and our school.

STEM ACHIEVEMENTS AND AWARDS



Our students participated in a number of Science and STEM related competitions. They got outstanding achievements and awards in these competitions.



Gold Merit, Kwok Ching Yiu Kaden S2G4(left)
Hui Yat Long Truman S2G3 (right)

#STEM



Gold Merit, Ng Man Lok S5C (left), Ho Isabelle S5C (right)
Other students involved:
Ip Hong Ching S3C,
Ho Matthew S3C
Li Tin Lok S4C

#STEM



The best presentation award Siu Yu To P4G3, Mak Sum Yu P4G1, Hung Emmie P4G1, Zhou Chuyue P4G1, Law Patrick P4G1, Chan On Nam Anna P4G1

#STEM



Chan Shing Fung S2G4
1st Class Honour in International Junior Science Olympiad screening 2020

#IJSO

In the International Junior Science Olympiad, students had to deal with advanced content in physics, chemistry, biology and mathematics. Chan Shing Fung S2G4 has been chosen to enter the IJSO student training programme.



Ho Matthew S3C
3rd Class honour in International Junior Science Olympiad screening 2020

#IJSO



Ip Ryan S3C
3rd Class honour in International Junior Science Olympiad screening 2020

#STEM

STEM + E COMPETITION 2021



Over 300 students from 50 schools participated in STEM + E Competition



Ho Isabelle S5C
MVP
Second Runner up

2021 STEM綜合問答擂台

An online STEM competition organized by BTL and JSIT was held in March to April. The competition was open to all students in each school and thanks to all the active participation from our students. We got the following achievements:
Primary section:
Top 10
Secondary section:
優質STEM教育大獎 Second runner up
傑出團體大獎 Second runner up



4

WORDS FROM OUR STUDENTS

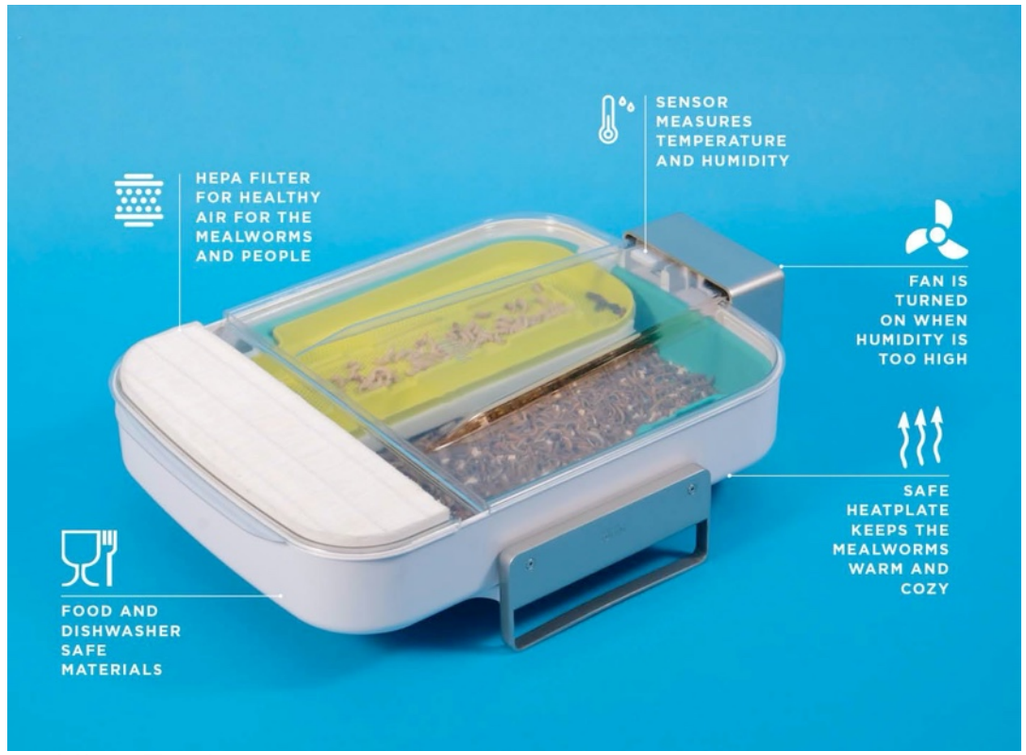
EXPERIENCES IN EXTERNAL COMPETITION



Ho Isabelle S5C
MVP
Second Runner up
STEM + E competition 2021

In the STEM+E competition, we have to come up with a business proposal for the Hive Explorer and to promote it. The Hive Explorer is an existing product from the company Livinfarm and was assigned to my team. The goal of the competition is to promote our product, the Hive Explorer and we chose to focus on environmental sustainability. The Hive Explorer is a smart mealworm home aimed at recycling food waste. The Hive Explorer is simple and easy to use, specifically designed for children and their families to use at home and at school. The mealworms in the Hive Explorer consume food waste produced by us, thus reducing the amount of domestic food going to landfills. The more mealworms you have, the less food waste going into the landfills. One of the inspirations of the Hive Explorer is how the mealworms work together to eliminate the problem of food waste, not one mealworm but boxes of them. It shows that we, as humans, can achieve anything if we all work together towards a common goal like the mealworms. As long as everyone takes a small step and contributes to protecting our environment using the Hive Explorer, the global food waste problem will no longer be a concern. Furthermore, people actually are not aware that our world is in protein shortage. The mealworms is high in protein and is suitable for both human and animal consumption. The ultimate goal is to get human to reduce the consumption of meat, due the current high demand of meat, by eating mealworm as a source of protein instead.

We chose to tackle the problem of food waste because food waste is a prominent problem not only in Hong Kong but globally. Also, many people have tried solving the problem of food waste but not many were successful. So we hope to use this opportunity to solve this problem.



Hive Explorer

EXPERIENCES IN SELF REGULATED LEARNING



Wu Shing Yau Edison
S5C

I believe we all agree that the COVID-19 pandemic has had a profound impact on student learning and participation in extracurricular activities.

Shamefully, in the past I failed to grasp the opportunities that came with the large influx of free time due to class suspensions and the switch from face-to-face to online learning. My initial approach during the pandemic was to have fun and relax at home, while doing the bare minimum just to pass my subject courses, for example procrastinating the night before tests, or by succumbing to distractions during zoom lessons. Hence, I had to learn the hard way that indolence would get you nowhere in your studies, especially in science subjects. In secondary 4, I admittedly failed almost every single chemistry test after class resumption, which was quite depressing.

After a disastrous fourth year, I knew that my attitude and my methods towards academics had to change. Fortunately, my chemistry teacher Mr. Lam, introduced me to the Feynman technique (essentially writing everything you know about a topic or subtopic on a blank sheet of paper), which proved to be very effective in reinforcing long-term factual information. My friends from higher forms also substantiated that doing a lot of past papers and analysing mistakes were effective in pinpointing misconceptions and correcting them. With the incorporation of better study methods that were recommended to me, along with a lot of hard work this year, allowed me to improve my results significantly.

I understand how difficult and frustrating it is to study science, but after getting over the initial hurdle of understanding the theories and effectively putting them into practice, you will truly find gratification and enjoyment in learning and speaking the language of science.

EXPERIENCES IN S1 CROSS CURRICULAR PROJECT



Zhou Max Virgil
S1G3

This February, my groupmates and I chose to do a science project on water purification.

We divided work among ourselves. I was tasked with the completion of the part ‘Methods’ and the experiment of boiling unfiltered water. When I wrote the part ‘Methods’, I chose to use point form and make it as simple as possible so that it would be clearer and tidier.

I came across some problems when I did the project. First, as my clock couldn’t count seconds, I had to do the experiment of boiling unfiltered water many times, but my timing was always inaccurate. Afterwards, I realised that I could use the stopwatch on my phone to measure the time, so the problem was finally solved.

The second problem was about teamwork. One of my groupmates expressed an opinion which I disagreed with, so I quickly rejected his idea. But then I felt that I was mean, so I apologized to him and accepted his opinion.

In this project, I have learned that boiling and filtering water can remove the virus and bacteria in it, and it is unsafe to drink unboiled tap water. Besides, we should respect one another and should try to accept others’ opinions. Last but not least, I have gained a lot of knowledge in this project, and I am looking forward to doing a project like this again.

EXPERIENCES IN S1 CROSS CURRICULAR PROJECT



To Yuk Yin Curtis
S1G3

I completed the S.1 cross-curricular project in January this year. My groupmates and I chose to do the science project as we were all interested in the topic of water filtration.

We divided the work evenly within the group. I was tasked with the completion of the parts ‘Procedures’ and ‘Conclusion’. At first, I thought the conclusion would be quite simple to write; however, I was wrong. Problems started to arise. I didn’t know how to get filtered water as I was not allowed to use the school equipment with the covid-19 pandemic going on.

I was talking to my groupmates about the problem when I saw my mom using the coffee filter machine. After observing what she had done, I asked my mom for the coffee machine and used it for my project. I felt great when I found that I could filter water using a coffee machine.

Learning science is fun. Science is all around us. I enjoyed doing this project and would like to do another one soon.

EXPERIENCES IN S1 CROSS CURRICULAR PROJECT



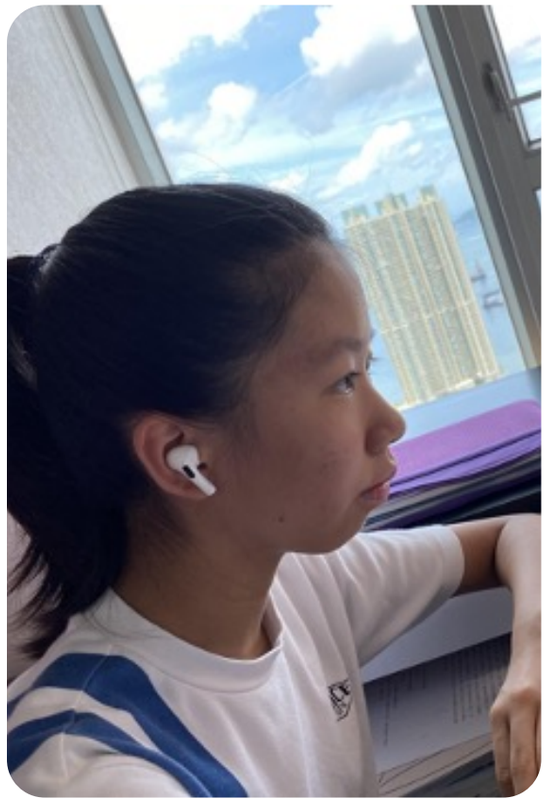
Ho Ka Yat
S1G4

In January, all S1 students were assigned to pick a topic for the Cross-curricular Project. For me, I chose the theme of water quality as it was about science.

In this project, my groupmates and I conducted an experiment about the quality of tap water, the kind of water that we get from the tap every day. To come up with our findings, we dipped some test strips into the water sample.

What I have benefited from this project is that I have learnt an array of skills and have learnt how to conduct a fair test. I have also learnt that if we immerse the test strips in the tap water for a prolonged time, the strips may change their colour and affect the accuracy of the results. Overall speaking, this project was fun and interesting.

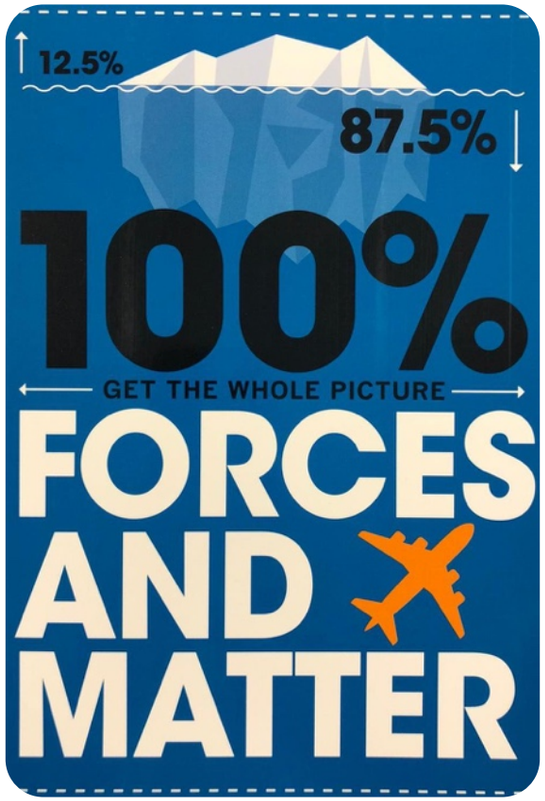
EXPERIENCES IN LEARNING AND TEACHING ACITIVITES DURING PANDEMIC

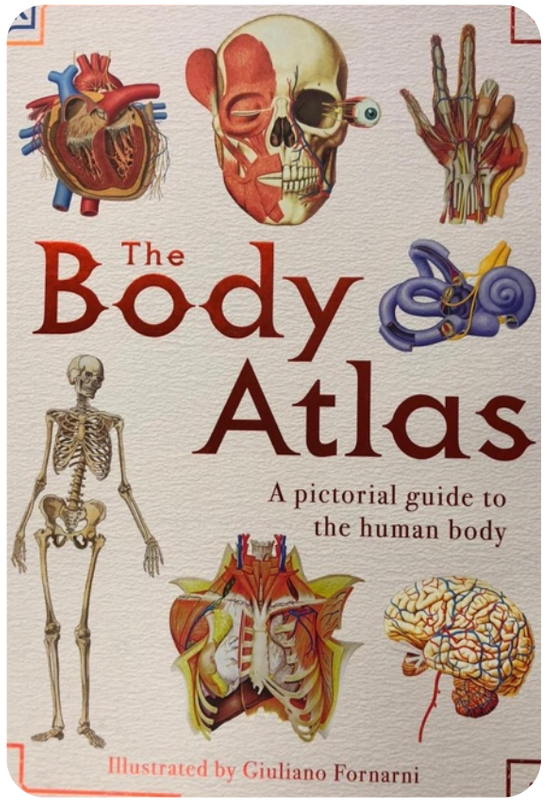


Kwong Leann
S1G4

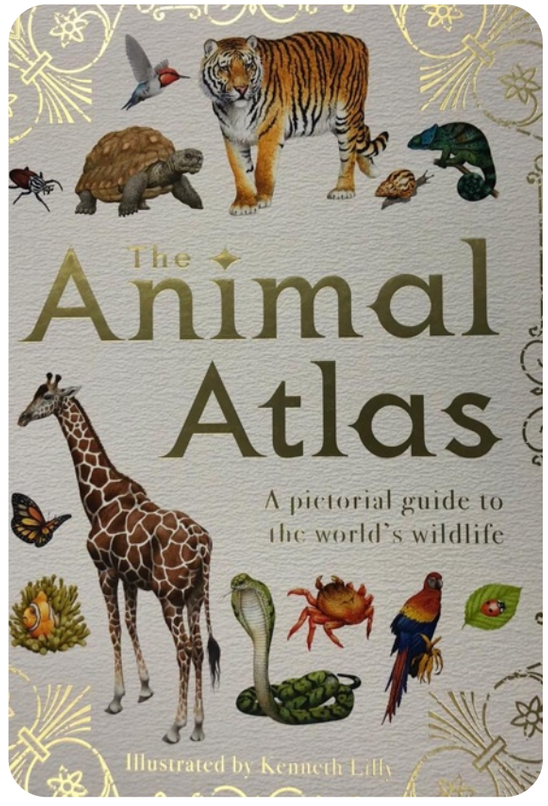
During school suspension, online learning has been a challenge for both teachers and students as we make a great effort to get used to a new learning environment. My science teacher worked really hard to make science lessons on Zoom fun and enjoyable, so that we can also keep up with the syllabus and learning progress despite the difficulties we faced.

After the school suspension, my teacher invited us to create a campus tv video related to science invention. After discussing with my teammates we decided to make a video about Dr. Peter Tsai, who invented the N95 mask. We had a lot of fun researching and filming the video and with the help of our teacher it successfully aired. Our teacher also brought us to the lab and we carried out many amusing and inspiring experiments which helped us understand the topic better.


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FORCES AND MATTER


The Body Atlas
A pictorial guide to the human body
Illustrated by Giuliano Fornarni


10%
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SPACE AND TIME


The Animal Atlas
A pictorial guide to the world's wildlife
Illustrated by Kenneth Lilly

GOODREADS

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New Books **(Items added in the past 30 days)**

#1 **Title**: 小木馬當郵差/ 程昱華.
Call Number: CNFS8 859.9 2664 c.6
Added: 2021-06-24

#2 **Title**: 頭髮上的鳥窩/ 程昱華.
Call Number: CNFS8 859.9 2664 c.9
Added: 2021-06-22

#3 **Title**: Adventure Box, 2021 / Bayard.
Call Number: SERP SERP-ABO-2021 v.254 (Jun. 2021)
Added: 2021-06-08

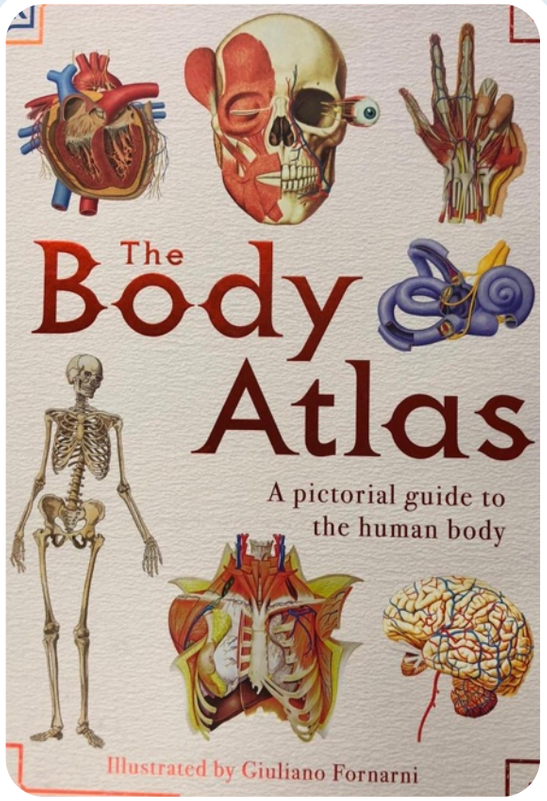
#4 **Title**: Adventure Box, 2021 / Bayard.
Call Number: SERP SERP-ABO-2021 v.255 (Jul.Aug.2021)
Added: 2021-06-24

Reading is an essential reading skill that develops our minds and allows us to discover new things and knowledge. We can sustain a life-long learning through reading.



Machines we use

#Science



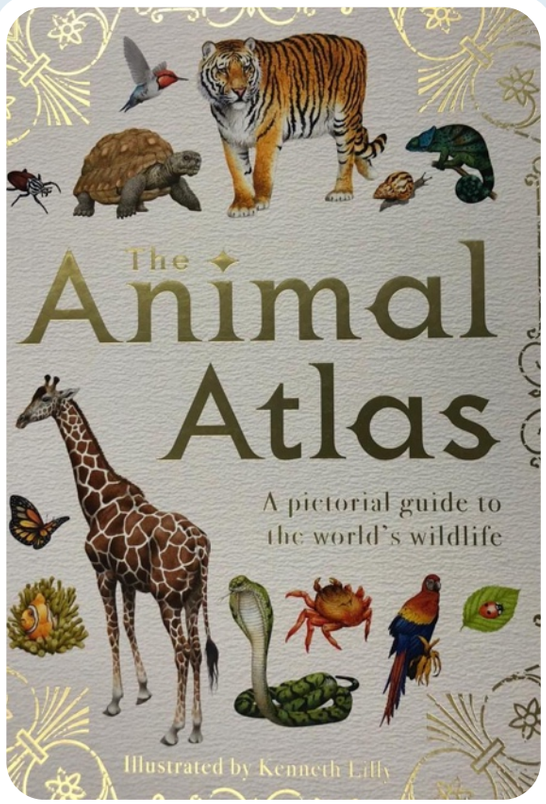
The body atlas a pictorial guide to the human body

#Human body



Light and dark

#Science



The animal atlas A pictorial guide to the world's wildlife

#Animals



My Growing Body

#Biology

Are there any suggested titles that you would like the science department to purchase? Send your ideas / opinions to lls@smcesps.edu.hk!



The book of space rockets

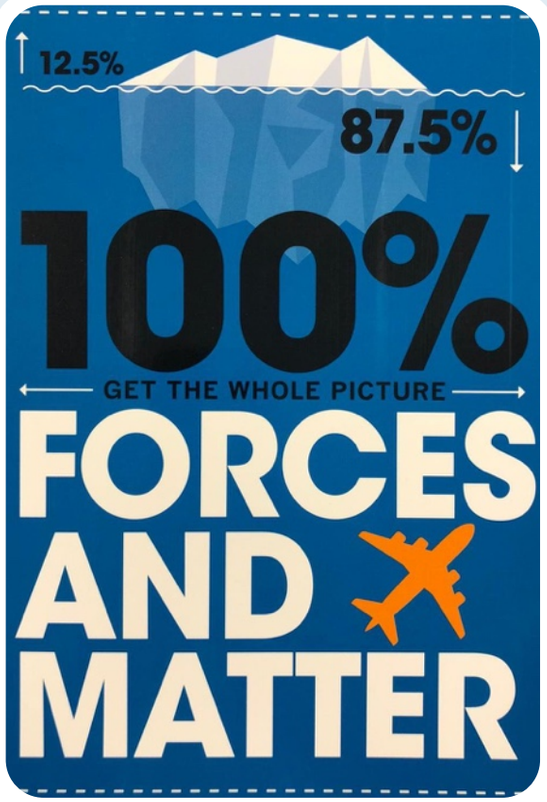
#Physics

"A reader lives a thousand lives before he dies. The man who never reads lives only one."



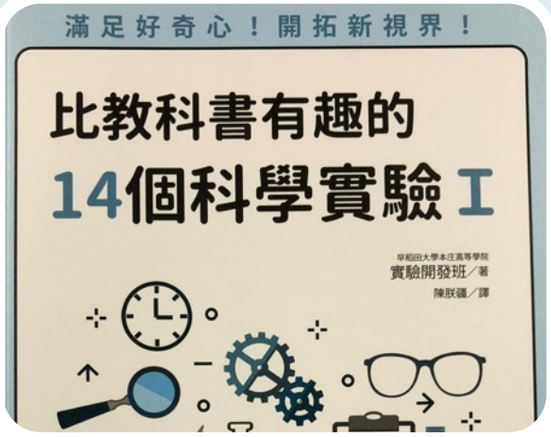
高中基礎化學

#Chemistry



Forces and matter

#Physics



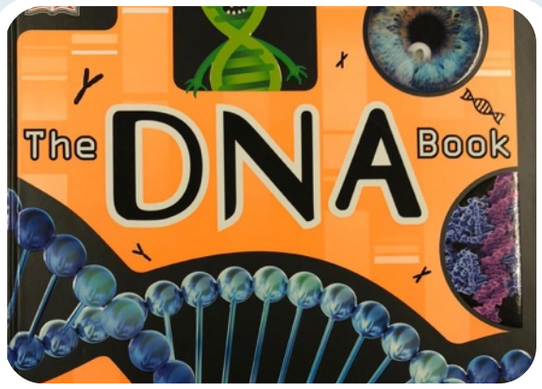
Interesting science experiments
(Contact your science teachers if you are interested)

#Science



Space and time

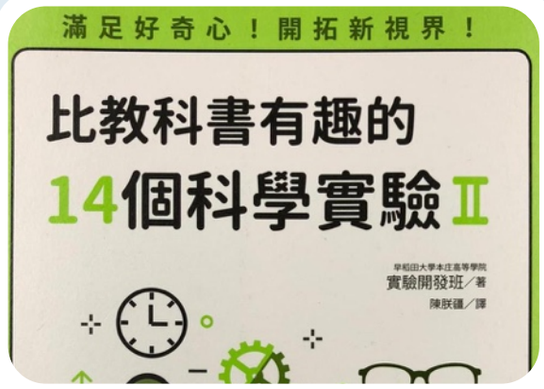
#Physics



The DNA book discover what makes you you

#Biology

Feel free to explore the new books in the primary and secondary libraries!



Interesting science experiments
(Contact your science teachers if you are interested)

#Science

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