i-Learner Burns Term



STEM Edition Tips for Comparing budding international scientists maths **Build your** own bridge! Fun science experiments How to to try at get 5** home! in DSE Maths

Back by popular demand, our Summer Scholars Camps will run from 15th July to 31st August.

Call 3113 8815 to register today!

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Love to Write 愛上寫作

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- Increase confidence
 了解和相信自己,還有周圍的世界
- Apply accurate grammar 用書面語表達自己
- Expand creative vocabulary 自如地運用不同的詞彙



Over recent years, I have noticed more and more people talking about the importance of STEM education. What is STEM and how does it relate to language education and what we do at i-Learner?

STEM education covers science, technology, engineering and mathematics and focuses on building a cohesive curriculum with a focus on application in the real world. At i-Learner, we believe that it is important for children to have a complete curriculum experience, and as such we always take the chance to include elements of STEM in our summer courses. In previous years, students have enjoyed learning about science in our Scholars camp science workshops and on our Electronics, Programming and Robotics courses.

Learning in a STEM-informed classroom is also a fantastic way to broaden students' experience and skill base. Studying the sciences nurtures wider critical thinking skills that will serve students both in other subjects they study, and onto the future of their university studies and professional careers. STEM is more than just learning about science and maths, however. We see it as a chance to develop a student's interest in English beyond their usual experience. Some children begin getting fidgety even at the thought of sitting down quietly with a storybook, but often these kids are great at other, hands-on activities. STEM topics are a great chance to involve these students in the English classroom too. Children learn best when they are interested in what they are doing, no matter whether that interest is traditional fairytales, stories about flying robots, or non-fiction articles on the latest developments in technology. A diverse classroom is an effective classroom.

Knowing the importance of this, i-Learner is working on more and more materials that integrate a range of interests across school curricula, so that our English and Chinese lessons can be engaging and effective for all children. Watch this space for more interesting developments!



Competitive mathematics at i-Learner

What is competitive maths?

Many people think that competitive maths is all about advanced topics that are far beyond what you study at school. In fact, competitive maths takes knowledge you already have and applies it to unfamiliar situations. Practising these types of problems helps you to further understand what you have learnt and encourages you to search for faster or more elegant solutions.

How does i-Learner teach competitive maths?

To help students prepare for such challenging maths questions, our course focuses on the analytical and logical inferencing skills required for maths contests. With reference to real problems in the Mathematical Olympiad, we equip students with a toolkit to look at unfamiliar problems and puzzles and to apply their mathematical knowledge. Key topic areas we focus on are: mental calculations of integers, decimals and fractions; inverse thinking and logical deduction; sequencing and arranging; and geometry and understanding of shapes.

What's the hardest part about competitive maths?

The hardest questions in upper primary and secondary level competitive maths typically require you to visualise various 'hidden' steps and quantities to be found, and to set up suitable equations to deal with these. Unlike predictable school topics, in competitive maths, it may not be immediately clear what area of maths is required to tackle a problem. You may be expected to make links between different areas of knowledge in order to tease out the steps between the question and the answer.

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So what does a competitive maths problem look like?

If you're curious to know what competitive maths looks like, try your hand at some brain teasers from the primary level of our course (clues can be found on the next page). Ask Mr Michael to check your answers next time you're at i-Learner.

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Bug Bug feels hungry! Can you lead him to find as many kinds of food as possible before escaping from this maze?

running for? So how long has the sparrow been flying for? 2. Rephrase the details of the question and consider: what length of time is Bug Bug You should be able to find 5 kinds of food!

Don't treat this as a typical maze puzzle. Remember to collect food before leaving.

Mathematics

Programmes

Bug Bug is hurrying to i-Learner from the MTR station, which is 200m away. A strange sparrow is sitting on Bug Bug's head. When Bug Bug starts running to i-Learner at 2m/s, the sparrow also flies to i-Learner at 6m/s. When the sparrow reaches i-Learner, it turns around and returns to Bug Bug. It repeats the process until it catches Bug Bug at i-Learner. How many metres does the sparrow travel in total?

> i-Learner provides an extensive maths curriculum that caters to students' needs from P1 up to DSE. Learn more about how to improve your maths with i-Learner here.



Call 3113 8815 today to reserve your place on one of i-Learner's **Mathematics** courses.

Our bilingual teaching materials are taught in Cantonese and supplemented with English. English classes can be formed upon agreement by four of more students.

- Problem Solving
- Geometry & Measures
- Numeracy and Problem Solving Class
- Competitive Mathematics Class



Did you know that in summer i-Learner doesn't just offer English, Chinese and Maths classes? In fact we offer a whole range of exciting, fun, experiential courses.

From experimenting with science to exploring nature, there's something for everyone. In particular, lots of students have enjoyed our Electronics, Programming and Robotics course.

Starting with the very basics of circuits and electricity, students do hands-on experiments to gain an understanding of how electronics work. Students interact with each other to solve challenges such as making lights illuminate in sequence, just like traffic lights do.

The next step is learning to program with real code running on laptops in the classroom and making simple applications to display text, count and do calculations. This seems tricky,

Robotics at i-Learner

but broken down into simple steps the task becomes easy. Our students love playing with their programs and then working logically to fix any bugs. This kind of roblem-solving encourages students not to give up at the first hurdle but to keep trying until they succeed.

The final aspect of the course is bringing what we've learnt together to design and build functioning robots that roam around the classroom and respond to environmental stimuli. We use our own custom-designed circuit boards with reprogrammable microprocessor "brains" so that once students leave the classroom, they can let their imaginations run wild and add new features as their programming and robotics skills develop.

Who knows, maybe an i-Learner robot will take over the world one day!



i-Learner student Bruce showing off his latest creation, a mini-monitor that can connect to other machines and re-display their screens.

Of course, some of our students are already enthusiastic about electronics and attend the course to develop particular skills in an environment where they can experiment in a supervised manner. Bruce, S4, is a fantastic example of a student who has taken what he has learnt at i-Learner, mixed it with his own creativity and achieved great results.

So far, Bruce has built his very own robot, a customised watch with temperature sensors, and his own miniature computer monitor. Bruce explains that it's quite hard to play games on his 0.5" monitor but his creation shows what's best about the spirit of the course. Bruce assembled the monitor and the watches not for any specific purpose but for the joy of creation and in pursuit of ingenuity. This is exactly the sort of self-motivation and creativity that it's key to develop before university. CALL 3113 8815 NOW TO REGISTER YOUR INTEREST FOR THESE CLASSES THIS SUMMER!



If you're interested in science and want to learn more than what your school teaches you, then there are plenty of ways to get engaged and extend your learning.

We asked Mr MacDonald, who studied Chemical Engineering at Manchester University to share his top tips for children interested in the sciences.

In primary school

Even if you're in primary school, there are many ways to learn more about science. When I was in primary school, I used to read lots of science magazines and books aimed at young children. They are easy to understand and usually focus on the more interesting parts of science! A couple of my recommendations are:

Mr MacDonald's

top tips for

aspiring science

students 🕹



• The Young Scientists' Magazine

This is a magazine that originally comes from Singapore but is available in Hong Kong. There are four levels which cover a range of interesting science topics all the way from P1 to S1.

Horrible Science

Have you heard of the Horrible Histories series? These science versions focus on the more unusual side of science topics. They are full of fun and naughty science experiments and packed with all the most gruesome and shocking parts of science!

In secondary school

As you get older, you begin to learn more about the theory behind science. You get to do hands-on experiments and see what really happens when you mix two chemicals together. As you begin learning about deeper topics in science, you can start exploring magazines that will supplement what you study at school. I remember reading the following magazines and books:

New Scientist



This widely available magazine is popular with students who are thinking of applying to university to study science. It is full of the latest developments in science, with longer articles and interviews that explore topics in more depth. The kinds of topics I read about in New Scientist helped inform my choice of subject at university.

· CGP Study Guides

In England, CGP Study Guides are popular resources for students preparing for their GCSEs. They give you a chance to review material you are familiar with in a fresh way – and they are peppered with jokes to make your revision more interesting!

Preparing for university



If you are thinking of studying a science subject at university, it's vital that you begin branching out beyond what your school teaches you. Top universities will want to see that you have shown some real interest in your subject outside of your secondary curriculum. The internet is full of fantastic videos and information to help you extend your learning. Besides the wide range of videos available on YouTube, my favourite online science resources are:

https://minutelabs.io/

This fantastic website contains lots of customisable experiments, where you can play around with variables and explore in more detail what you learn at school. There is a wide array of interactive science topics for you to enjoy.

• https://www.khanacademy.org/ or https://brilliant.org/ On these sites you can find lots of lectures and courses aimed at higher level students. You can get a taste for the types of topics you may cover at university and find out more about topics you don't get to study at school, such as robotics, cosmology and neuroscience. You may be surprised to learn that the maths curriculum in Hong Kong is about one year ahead of that in the UK. This may explain why Hong Kong students, together with Chinese and Singaporean students, tend to excel in international maths tests and contests. MATHS

<u>How do th</u>



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Fun experiments to try / Y



There are many ways to enjoy science at home. One of the best is to do your own science experiments with things you have lying around the house. Take a look at our top recommendations to see different areas of science in action for yourself!



All you need is...

1. Salt

2. A glass jar

3. A spoon

4. String

Grow your own crystals

When water is full of salt, it is called **saturated**. Hot water can dissolve more salt than cool water, so when the hot water cools, salt is pushed out as crystals. The string in the water gives the crystals a place to form.

Step 1

Mix the salt in hot

water until no more

can dissolve. You will

undissolved salt at the

see a few grains of

bottom.

Step 2

Balance the spoon over the jar. Tie the string around the spoon and let it hang in the water without touching the side. A crystal will form on the string!

To extend



Try using different types of salt. Add food dye to create crystals of different colours!



All you need is...

1. Two forks

3. A glass

2. A toothpick

Defy gravity

Objects balance their weight around their centre of gravity. If we support objects right under their centre of gravity, then they won't fall down. By using forks, we can see what happens when the centre of gravity is outside the object!

Step 1

Intertwine the ends of the forks so they lock together. Stick a toothpick through the holes.

Step 2

Balance the toothpick on the edge of a glass, so the forks hang down. They should balance without falling!

To extend



Try using objects other than forks. What can you balance? Where is the centre of gravity?



Dye your own flowers

Just like we eat with our mouths, flowers eat and drink through their roots. They suck up nutrients and water through their stems in a process called transpiration. In this experiment, you can really see this in action!

All you need is...

1. White flowers 2. Food colouring (any colour)

3. A glass

Fill a glass with water and add 20 to 25 drops of food colouring to the water.

Step 1

Step 2

Put the flowers in the water and wait a few hours. You should start to see the flowers changing colour!

To extend



Experiment with putting flowers in other liquids. Cola? Milk? Tea? What are the effects?

There is a lot more fun science content and experiments for kids to enjoy online. Check out https://thekidshouldseethis.com/



Our online reading platform has tonnes of great videos about science experiments for you to check out. Take a look at one of them here.



Last year we had lots of fun doing science experiments in summer. Students learnt all about the world around them, improved their English, and made many new friends.

This year's theme for summer is WATER, so we're sure to have even more fun exploring the world of science together, in all its watery forms!

Call 3113 8815 to reserve your spot for our Summer Scholars Camps in 2019.

How to get

Ever wondered what the secrets are to getting 5** in Maths DSE? We asked Mr Michael to share how he got 5**.



Mr Michael, our maths teacher, got 5** in his maths DSE.

There are three main things to think about if you're aiming high in the DSE:

DSE Maths

Speed

Exams can sometimes feel like a race against the clock. That's why it's critical to work in a way that makes best use of the limited time you have.

- Calculators can be programmed. This will save you time on common calculations such as: using sine/cosine, and simultaneous equations.
- Substitute numbers into algebraic multiple choice questions to quickly find solutions.

Efficiency

On top of working quickly, it's importantly to work intelligently. Tackling questions strategically can earn you a few extra vital marks.

- Writing something is better than nothing. If you don't know what to do, recall any relevant formulas and make some calculations. They may get you marks or inspire you to see a solution.
- Know which steps you can skip. Writing the in-between steps to solving a simultaneous equation does not earn you more marks.

Cross-topic Questions

For the DSE, you need to keep in mind each section's main topic areas. Focus on the following to ensure your revision gets you the most marks.

Prepare for the most common cross-topic questions in Section B:

- Statistics, probability & permutations
- Logarithms & straight line equations
- Coordinate geometry & quadratic equations
- 3D trigonometry

If you want to study something related to maths at university, then you need to think about studying either M1 or M2 at DSE.



First ask yourself: What do I want to study at university?

DO know what I want to study at university. I want to choose DSE topics that help me best prepare. I DON'T know what I want to study at university yet. I want to choose DSE topics that fit my learning style.

M1 Calculus & Statistics

I want to study...

- Business Administration and Accounting
- Social Sciences
- Medicine and Health Sciences

M2 Algebra & Calculus

I want to study...

- Applied Sciences
- Engineering
- Mathematics and Sciences

M1 Calculus & Statistics

l enjoy...

- Understanding application over theory
- Finding solutions to real-life problems
- Researching and analysing

M2 Algebra & Calculus

l enjoy...

- Thinking about abstract theories
- Finding out the how and why of problems
- Calculating numbers and following models

Online Maths Platform

- iPad compatible
- Fun games and activities
- Clear explanations
- · Covers all key primary school topics

i-Learner's online maths platform provides comprehensive help to maths students from P1 to P6. Scan the QR code to found out more and sign up!



港珠澳大橋 Hong Kong-Zhuhai-Macau Bridge

What can we learn from this giant bridge?

October 2018 saw the opening of a huge construction project – the Hong Kong-Zhuhai-Macau bridge! It is the longest bridge over water in the world, snatching the title from the Jiaozhou Bay Bridge, also in China. While the bridge is a symbol of Hong Kong's recent transport developments, the initial ideas for the bridge were actually first suggested in the 1980s, around 30 years ago. Imagine if you were planning one idea for the next 30 years!

The construction began in December 2009 and included three main sections: a main bridge (over 30km) and two link roads (around 25km) at either end. The bridge also needed to connect to an undersea tunnel, to open up the sea for boats to travel freely.

Such a huge project required people with good analytical skills, an ability to work with large amounts of information and think clearly about difficult problems.

You can guarantee the people who planned and designed this bridge did well at school, especially in science and maths.

Bridge Fact File

Did you know that the bridge...

- measures around **55** kilometres long
- the same as walking from Jordan Station to i-Learner over **1000** times!
- is made of around **400,000** tonnes of steel
 - the same weight as around **1,600** Big Buddha statues!
- cost around HKD **156,000,000,000**
 - this is around the same price as going to Disneyland **300,000,000** times!
- took around 8 years to construct
 almost 3,000 days, or over 70,000 hours!



What kind of bridge is it?

The Hong Kong-Zhuhai-Macau Bridge is actually a bridge-tunnel system. The bridge sections are called cable-stayed bridges, which means there are towers along the bridge which are connected to big cables that hold up the bridge.

i-Learner's online English platform is full of interesting video lessons, including more about the world's amazing bridges. Scan the QR code to learn more about interesting bridges!



Now that you've learnt more about the Hong Kong-Zhuhai-Macau Bridge, and some other famous bridges of the world with our Reading i-Learner videos, it's time to try your hand at making your own bridge.

There are many ways to make bridges, as you saw in the videos. Below is one way of making your own cable-stayed bridge at home.

Build your own cable-stayed bridge

1. Making "A" frames

Take two chopsticks and cross them at the top. Use a dab of glue and the string in an over-under pattern to hold them securely. Take a lollipop stick and glue it across the middle of the chopsticks about half way up. Now you've made one "A" frame. You'll need 4 in total! Pop some magazines on top to help press them together as they dry.

2. Building the Towers

Once the "A" frames have dried, stand two of them up. Take two lollipop sticks and glue them between the two "A" frames near the top. You'll probably need to use the elastic bands, small heavy objects and maybe someone else's hands to help you with this step! Repeat this procedure to make the other tower.

3. The Bridge Deck

Take three or four drinking straws and push one inside the other until you have one really long straw – then repeat so you have two long straws. Tie the string to one end of the long straw, over the top of the first tower, back down and around the straw in the middle, over the other tower and then tie it off at the far end of the long straw. Do this for the straws on both sides and glue lollipop sticks along the length of them just like train tracks.

4. Completing the Bridge

The deck should be flat and level so that you can put toy cars or other figures on it. Congratulations on your superb construction project!

If you are interested in more fun activities like this that help you learn, take a look at i-Learner's Love to Write course. We include a wide range of fun topics to engage everyone's interests, and get students' creativity flowing. This course is a great chance to have fun, and also to improve your writing!



Materials required

What you'll need

- Long disposable wooden chopsticks
- Lollipop sticks (from the craft shop)
- Thin nylon string
- Drinking straws

What might help you

- Some elastic bands
- Heavy objects like old magazines to weigh down parts of the bridge while you're building it

Send in a picture of your finished bridge to our WhatsApp 9049 3014 and we will share your creation on our Facebook page: @ilearner.studio English 中文 Maths

Your Path to ** 注 と路

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Wan Chai

Aim high on your DSE with i-Learner

Get ready for your DSE with i-Learner's new curriculum. Our carefully designed teaching materials help all students get the best out of their potential and prepare to achieve on the DSE.

為求貼身滿足每位學生的獨特需求,我們的DSE課程採取小 班教學,幫助學生在這人生至關重要的考試中,激發潛能,贏 取最好成績。而學生的學習旅程也不僅限於課堂——為了 鞏固學習成果,我們的DSE課程配合特別打造的e-learning 平台。學生課後也可練習課上所學,將應試技巧臻至完美。

Our DSE course is specifically fashioned to mould to students' needs through small-class teaching so as to maximise their chances of attaining the best results possible in the most important examination of their lives. To better facilitate our students' learning journey, our DSE course is paired with our specially designed e-Learning platform so that students practise and further polish the techniques acquired in class.

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We are pleased to announce the opening of our new location in Wan Chai! We are grateful to all our patient parents over the moving period and are happy to see students settling into their new learning environment.

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