



# STEM Programme

## Course Introduction

The acronym stands for Science, Technology, Engineering and Mathematics in STEM. It is a vast academic and professional field that includes Chemistry, Biology, Physics, Math and all its derivations. It is a very important part of K-12 education and is receiving great amounts of attention all over the world.

The STEM programme we offer has been recognized by many American middle schools and put into use. It is also recognized by British Children 's University, and adopted by Australia's new Southwest Welsh Education Hall- and already sold to many famous Australian schools.



## Course Profile

Timetable	Saturday 10:00-12:00 or 13:00-15:00.
Class size	12 students per class
Age group	4-6/7-10/9-12
Entry requirement	N/A
Total hours	50 hours
Pricing	RMB 26,100 (including the textbook, materials fees, and uniform)

## Contact Details

For more information or to enroll, please contact us at:

Email: [harrowsaturdays@harrowbeijing.cn](mailto:harrowsaturdays@harrowbeijing.cn)

Tel: (8610) 64448900-6851

Website: [www.harrowbeijing.cn](http://www.harrowbeijing.cn)

## CALENDAR

2018	
Aug	25
Sep	15, 22
Oct	20, 27
Nov	3, 10, 24
Dec	1, 8
2019	
Jan	12, 26
Feb	16, 23
Mar	2, 9, 16, 23
Apr	20, 27
May	4, 11, 18, 25
Jun	1



# STEM 课程

## 课程简介

STEM 是由 **science**、**technology**、**engineering** 和 **mathematical** 的首字母组成，它融合了科学、技术、工程与数学的学科知识，并将知识的获取、方法与工具的利用以及创新生产的过程进行了有机的统一。如今，STEM 成为科学教育的发展趋势，主导着许多国家的研究方向和相关政策。

周六学校所提供的 STEM 课程基于丰富的国际办学的国际联合办学的经验。获得美国中学学分课程认证，已被多所美国中学采纳，进行课堂使用。该课程获得英国 Children's University 学分课程课程认证，并已被澳洲新西南威尔士教育厅及多所澳洲名校采纳试用。



## 课程概况

上课时间	周六 10:00-12:00 或 13:00-15:00
班级规模	每班 12 人
适合年龄	4-6 岁/7-10 岁/9-12 岁
入学要求	无
课时总数	50 小时
课程学费	26,100 元 (含教材材料费 800 元及校服费 300 元)

## 联系方式

如需报名咨询，请通过以下方式联系周六学校：

邮箱: [harrowsaturdays@harrowbeijing.cn](mailto:harrowsaturdays@harrowbeijing.cn)

电话: (8610) 64448900-6851

网址: [www.harrowbeijing.cn](http://www.harrowbeijing.cn)

## 课程校历

2018	
8 月	25
9 月	15, 22
10 月	20, 27
11 月	3, 10, 24
12 月	1, 8
2019	
1 月	12, 26
2 月	16, 23
3 月	2, 9, 16, 23
4 月	20, 27
5 月	4, 11, 18, 25
6 月	1



# STEM Programme

## TEACHER'S BIOGRAPHY

### Ms. Breanna Sherlock

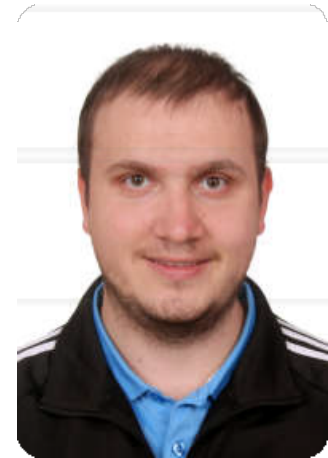
- ✓ Graduated from Florida State University with a master's degree;
- ✓ Rich teaching experiences in Pre-schools;
- ✓ Good at making the class fun and vivid, fully mobilizing the children's enthusiasm, and creating a pure English teaching environment for the children;
- ✓ Many years of research experiences in how children can learn English in a second language better.



**Ms. Breanna Sherlock**

### Mr. Mike Viudez

- ✓ Graduated from the Leicester university and designed many courses of scientific activities independently.
- ✓ With many years of teaching experience, good at controlling the class and allowing students to enjoy the class.
- ✓ Loves science and has a deep understanding of many kinds of scientific experiments, so that students can develop comprehensively.
- ✓ Taught STEM, science, mathematics and English courses for many years.



**Mr. Mike Viudez**



## STEM 课程

### 教师简介

#### Ms. Breanna Sherlock

- ✓ 毕业于佛罗里达州立大学，硕士学位；
- ✓ 多年从事幼儿教师相关工作，教学经验丰富；
- ✓ 上课有趣生动，充分调动孩子积极性，为孩子们创造纯英语教学环境；
- ✓ 多年致力于研究孩子们如何能够更好学习第二语言英语。



**Ms. Breanna Sherlock**

#### Mr. Mike Viudez

- ✓ 毕业于莱斯特大学，曾自主设计多节科学活动课程；
- ✓ 具有多年教学经验，善于控制课堂，让学生享受课堂；
- ✓ 热爱科学，对于各类科学实验有深刻理解，能够让学生全面发展；
- ✓ 曾教授多年 STEM，科学，数学，英语课程，涉猎广泛，经验丰富。



**Mr. Mike Viudez**



# STEM Programme

## Weekly Plan for Age 4-6

<i>Week</i>	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<i>Topic</i>	<b>The Dam on the Yangtze River</b>	<b>The City Flowing through the Yangtze River</b>	<b>Fish on the Yangtze River</b>	<b>Plants on the Yangtze River</b>	<b>Interesting Archaeology</b>	<b>Hydrological</b>	<b>Ship Lift</b>
<i>Description</i>	Learning some basic knowledge of the dams on the Yangtze River.	Learning some characteristics of cities and cities on the Yangtze River.	Knowing some endangered fish and protection methods on the Yangtze River.	Knowing the endangered plants and protection methods on the Yangtze River.	Understanding the formation of fossils by simulating animal and plant burial.	Know the basic common Knowledge of hydrology.	Knowing some basic principles of a ship lift.
<i>Week</i>	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
<i>Topic</i>	<b>Five Level Sluice</b>	<b>Colorful Christmas tree</b>	<b>Accelerated Dissolution</b>	<b>Mechanical Hand</b>	<b>Animal Connecting Rod</b>	<b>Filtration</b>	<b>Mock Exam</b>
<i>Description</i>	Understanding the operation of the sluice free	Make a beautiful crystal tree using the crystallization of saturated liquid.	accelerating the dissolution process	Creating a mechanical hand based on simple materials	Building a mechanical animal	Learning some basic filtering methods.	
<i>Week</i>	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21
<i>Topic</i>	<b>Color Transmission</b>	<b>Rolling Wheels</b>	<b>Interesting Bubbles</b>	<b>The Secret of the Shadow</b>	<b>Solid Classification</b>	<b>Liquid Classification</b>	<b>When the Detergent Meets the Starch</b>
<i>Description</i>	Use of the capillary phenomena to transfer color.	Making use of materials to make rolling wheels.	Making bubbles with various materials and blowing them up.	Shadows are common in life. Children learn about shadow through experiments.	Separating the different sizes of solids by using reasonable materials	Using different ways to separate liquids of different densities.	Making color slime by washing clean and starch.
<i>Week</i>	Week 22	Week 23	Week 24	Week 25			
<i>Topic</i>	<b>The Secret of the Mirror</b>	<b>Interesting Inclined Plane</b>	<b>Moveable CD-ROM</b>	<b>End-of-Year Presentation</b>			
<i>Description</i>	Mirrors are common in life, but children rarely know the secrets. Children in this class will learn the secrets of mirrors by playing games	Use the slant to make the vehicle reach the specified position quickly.	Using some methods to move the CD-ROM				



# STEM 课程

## 4-6 岁班课程计划

教学周	第 1 周	第 2 周	第 3 周	第 4 周	第 5 周	第 6 周	第 7 周
课程主题	长江上的大坝	长江流经的城市	长江上的鱼类	长江上的植物	有趣的考古	水文	升船机
课程描述	通过学习知道长江上的一些基本的大坝	通过学习了解一些长江上的城市以及城市的特点	知道长江上一些濒临灭绝的鱼类和保护方法	知道长江上濒临灭绝的植物和保护方法	通过模拟动植物掩埋来了解化石的形成	知道水文的基本常识	知道一些升船机的基本原理
教学周	第 8 周	第 9 周	第 10 周	第 11 周	第 12 周	第 13 周	第 14 周
课程主题	五级水闸	七彩圣诞树	溶解快快快	机械连杆手	动物连杆	过滤	模考
课程描述	了解无积水闸的运行情况	利用饱和液体的结晶来制作漂亮的结晶树	想办法让一些固体溶解加快	能够利用一些材料制作一个会动的机械手	利用连杆原理制作一个会动的动物	能够学会一些基本的过滤方法	
教学周	第 15 周	第 16 周	第 17 周	第 18 周	第 19 周	第 20 周	第 21 周
课程主题	色彩传动	滚来滚去的轮子	有趣的泡泡	影子的秘密	固体分分分	液体分分分	当洗洁精遇上淀粉
课程描述	利用毛细现象使色彩发生传递	利用材料制作会滚动的轮子	使用各种材料制作泡泡并且能够吹起来	生活中影子是常见的，孩子通过实验了解影子	利用合理材料将不同大小固体分开	利用材料将不同密度的液体进行分离	利用洗洁精和淀粉制作彩色橡皮泥
教学周	第 22 周	第 23 周	第 24 周	第 25 周			
课程主题	镜子的秘密	有趣的斜面	会动的光盘	结课汇报演讲			
课程描述	镜子是生活中常见的东西，但是镜子的秘密孩子们却鲜有知晓，这节课将带着孩子	利用斜面来使车辆快速到达指定位置	能够利用一些方法让光盘动起来				



# STEM Programme

## Weekly Plan for Age 7-10

Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>Topic</b>	<b>DIY 3D eyeglasses</b>	<b>Telescope</b>	<b>Lighting a LED Lamp</b>	<b>Light Controlling</b>	<b>Light Dimmer</b>	<b>Electromagnet</b>	<b>Suspension Pen</b>
<b>Description</b>	3D glasses technology is the application of virtual reality technology. The artificial virtual environment created by virtual reality technology can make people feel that they are real and active in the artificial environment. Today we come to make a 3D spectacle.	The telescope is a very important scientific observation tool. It helps us find a lot of the mysteries of science. Today, let's find out the secrets of the telescope.	When it comes to light bulbs, people usually think of incandescent lamps or fluorescent lamps. But with the progress of the times and the development of science and technology, a new type of light source which has smaller volume and higher efficiency has been more and more popular.	The light control device is a device that uses the change of light to control the electrical appliance. It is widely used. Today we use a photosensitive resistance to make a light control light.	We brighten the LED light in the previous lesson, but if the LED light is always on, can you apply the resistor to change the light and dark of the LED light? Let's try it together and try it	An electromagnet is a device that generates magnetic force through current. It is a permanent magnet, which can easily start or eliminate its magnetism. Let's play an electromagnet in this class	Magnetic levitation technology is a technology that uses magnetic force to overcome gravity and make objects suspended. You must have already seen the maglev train, but have you ever seen the magnetic suspension pen?
Week	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
<b>Topic</b>	<b>Tumbler</b>	<b>Clown Walking on Wire</b>	<b>DIY Steamboat</b>	<b>Submarine</b>	<b>Thermometer</b>	<b>Pinhole Camera</b>	<b>Mock Exam</b>
<b>Description</b>	The tumbler is a Chinese toy ancient, the earliest record in the Tang dynasty. Why it does not fall down? Let's make one.	Steel wire is a very exciting sport, walking on a steel wire like a flat. You need to have courage and some skills. As long as we master the skills, we can walk the wire.	After James Watt made the utility steam engine, some scientists tried to use the steam engine as the power device for the ship. This idea seemed simple - only to connect the steam engine to the paddle, but failed several times until 1807. Then how does the steamboat work? Let's explore it.	As an underwater ship, submarines are very useful, which are national strategic weapons, and are also used for non-military purposes, such as marine scientific research, rescue of property, exploration and exploitation, scientific detection, and so on. We're going to build a submarine	With the scientific revolution and the invention of new technologies, the Galilean thermometer uses the density of liquids to measure temperature. The thermometer was first used by Galileo, who had noticed that the frequency of liquid changes with temperature.	2400 years ago, the Chinese scholars - Mo Di (Mo) and his students, were the first scientists to explain that the light travels in straight lines. That discovery was the first step to creating the pinhole camera, in this lesson we will discover it together and try to create our simple camera.	
Week	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21
<b>Topic</b>	<b>Caged Bird</b>	<b>Paddle Steamer</b>	<b>The Buoyancy of Water</b>	<b>Homemade Motor</b>	<b>Hand-cranked generator</b>	<b>Traffic Light</b>	<b>Lever</b>
<b>Description</b>	In 1825, scientists Pali Shi invented a "caged bird" game, which is the originator of today's movies, called Pali Shi diorama. In this activity, we will investigate different ways in which light is produced and transmitted, as well as learn more about film industry and the recent	In this experiment, the students will get to know more about the paddle steam boat in which the spinning drum acts as oars, pushing against the water as it rotates. Paddle boats were widely used in the early 19th century as a unique form of marine transportation.	The Chinese history is rich by its inventions and discoveries one of them is the buoyancy method that was used to weight an elephant during the three kings' era. Today, the students will learn more about the buoyancy of water.	In this class, the students will be introduced to different types of energy as they will ask questions about the various kinds of motors that produce power. Today's challenge will be about creating a simple engine in which we apply the principle of Faraday's electric	Humans cannot live without electricity; it is well known that there are plenty of sources that can generate power. Some of them are environmentally friendly, but others are not. This class will be aimed to make a hand-cranked generator it!	Through long-term development and improvement, the lights now are generally composed of red, green and amber light. Today, let us use LED diodes, batteries, wires and other components to design and produce a traffic light.	A lever is a simple machine that allows you to gain a mechanical advantage in moving an object or in applying a force to an object... A lever consists of a rigid bar or beam that is allowed to rotate or pivot about a fulcrum. An applied force is then used to move a load.
Week	Week 22	Week 23	Week 24	Week 25			
<b>Topic</b>	<b>Rain Alarm</b>	<b>Vacuum</b>	<b>Newton's Cradle</b>	<b>End-of-Year Presentation</b>			
<b>Description</b>	When it rains, you just care about the clothes drying outdoors, while you're taking a nap or concentrating on a particular job, but some clothes or shoes, will be damaged by the rain. Today, let us design and build our rain automatic alarm device, so we can promptly take appropriate	Before the vacuum invention people used cloth or broom dust tools to clean up. people were not happy about that so they decided to invent a machine that can be both efficient and fast. let's find out the principles of the vacuum and work together to build a simple one.	Newton's Cradle is not only a common physics demonstration experiment device. In fact, it is also not complicated as its essence is the momentum transfer process between various items (balls). Today, let's build a project to create a Newton's Cradle.				



# STEM 课程

## 7-10 岁班课程计划

教学周	第 1 周	第 2 周	第 3 周	第 4 周	第 5 周	第 6 周	第 7 周
课程主题	DIY 3D 眼镜	望远镜	点亮 LED 灯	光控装置	调光小灯	电磁铁	磁悬浮笔
课程描述	3D 眼镜技术是虚拟现实技术的应用。利用虚拟现实技术创造出的人工虚拟环境能使人们感觉自己真实地存在和活跃于该人工环境之中，今天我们来动手制作一个 3D 眼镜吧	望远镜是一种非常重要的科学观察工具，它的发明帮助我们发现非常多的科学奥秘，今天我们就来一探望远镜的秘密吧	提到灯泡，一般人会想到白炽灯或荧光灯，这两种灯具是生活中使用最广泛的。但随着时代的进步和科技的发展，一种体积小、效率高的新型光源受到了人们的欢迎的 LED。	光控装置是一种利用光的变化来控制用电器的装置，在很多地方都有应用，今天我们就用一个光敏电阻，自己来做一个光控小灯	前一节课我们使 LED 小灯亮了起来，可是如果 LED 小灯一直亮着那可不行，能不能应用电阻器来改变 LED 小灯的亮暗情况呢？我们一起来动手试试吧	电磁铁是可以通电流来产生磁力的器件，属非永久磁铁，可以很容易地将其磁性启动或是消除。我们这节课就来玩一玩电磁铁吧	磁悬浮技术是指利用磁力克服重力使物体悬浮的一种技术。大家一定见过磁悬浮列车，但是你们有没有见过磁悬浮笔呢？
教学周	第 8 周	第 9 周	第 10 周	第 11 周	第 12 周	第 13 周	第 14 周
课程主题	不倒翁	小丑走钢丝	DIY 蒸汽船	潜水艇	热检测器——温度计	小孔成像	模考
课程描述	不倒翁是一种古老的中国儿童玩具，最早记载出现于唐代。为什么不倒翁不会倒，我们也来造一个不倒翁吧	走钢丝是一项极具刺激性的运动项目，要想在钢丝上如履平地般的行走，除了需要过人的胆量之外，还需要掌握一定的技巧才行。只要掌握了技巧，我们也可以走钢丝哦	詹姆士·瓦特制造出实用蒸汽引擎后，有一些科学家尝试将蒸汽机作为轮船的动力装置，这一想法看似简单——只要将蒸汽引擎连接船桨即可，但经历了数次失败，直到 1807 年才获得成功。那蒸汽船到底如何工作呢，我们来一探究竟吧！	潜水艇作为一种水下舰艇，有非常大的用处，即是国家战略性武器，也被用于非军事用途，如海洋科学研究、抢救财物、勘探开采、科学侦测等等。今天我们就来造一艘潜水艇吧	古人是通过观察结冰的情况来判断温度的高低。后来随着意大利科学家伽利略利用液体的热胀冷缩性质发明温度计以来，温度计便成了可以准确的判断和测量温度的工具，今天就让我们像科学家一样，动手制作一个温度计吧！	2400 年以前中国的学者墨翟和他的学生，做了世界上第一个小孔成倒像的实验，解释了小孔成倒像的原因，指出了光的直线进行的性质，这是对光直线传播的第一次科学解释。今天就让我们利用身边的材料，完成小孔成像实验，探究小孔成像的原理吧！	
教学周	第 15 周	第 16 周	第 17 周	第 18 周	第 19 周	第 20 周	第 21 周
课程主题	笼中鸟	明轮船	水的浮力	自制电动机	手摇发电机	交通信号灯	杠杆天平
课程描述	1825 年，科学家帕里士发明了“笼中鸟”的游戏，这就是当今电影的鼻祖，称为帕里士西洋镜。受到帕里士的启发，爱迪生利用“视觉暂留”的原理，制作完成了第一台动画，从此，现代电影技术由此而产生。今天，就让我们通过对“笼中鸟”项目的制作，体验视觉暂留的现象吧！	明轮船是指在船的两侧按有轮子的一种船，由于轮子的一部分露在水面上边，因此被称为明轮船。近代社会用蒸汽机带动明轮，使浆轮转动，浆轮上叶片泼水，推动船舶前进。今天就让我们按照明轮船的基本结构，一起来制作一艘能够行驶的明轮船吧！	《三国志》记载，曹操收到孙权赠与的一头大象，曹操很想知道这头大象的重量，可是古代没有能够秤出大象重量的大秤。此时，曹操 7 岁的儿子曹冲，却想出了利用浮力来给大象秤重的办法。今天就让我们通过实验来了解水的浮力原理，完成大铁块重量的测量项目。	法拉第将通导体做成线圈，结果发现通电后，线圈会转动，电能转化为机械能，这就是直流电动机的工作原理。电动机的工作，使人类的工业生产和家庭生活实现了自动化。今天，就让我们运用法拉第电动机原理，自己来制作一个电动机吧！	人类的生活离不开电能，那么怎样才能发电呢？其实无论哪种发电方式，都是利用各种能量推着发电机转动实现发电。只要能够把庞大的发电机缩小，那么我们自己也可以像发电厂那样来发电。今天，就让我们来制作一个手摇发电装置吧！	信号灯的出现，使交通得以有效管制，对于疏导交通流量、提高道路通行能力，减少交通事故有明显效果。通过长期的发展与改良，现在的信号灯一般由红灯、绿灯、黄灯组成。今天，就让我们使用 LED 二极管、电池、导线等元件，设计与制作一个交通信号灯吧！	杠杆是一种利用直杆或曲杆，在外力作用下能绕杆上一固定点转动的简单机械。生活中的很多称量工具都是利用杠杆平衡原理来制作的，当杠杆平衡时，必须满足一定的条件。今天就让我们一起动手来制作一个杠杆尺，探究影响杠杆平衡的因素。
教学周	第 22 周	第 23 周	第 24 周	第 25 周			
课程主题	下雨自动报警装置	自制吸尘器	牛顿摆	结课汇报演讲			
课程描述	当下雨时，你恰好有衣物晒在户外，这将是一件很不愉快的事情，因为有些衣服或鞋等将会因淋雨而损坏。今天就让我们自己来设计与制作一个下雨自动报警装置，这样你就可以及时做好防护措施，减少损失。	吸尘器的发明与广泛使用，使得我们能够较短的时间内，将房间变得一尘不染，那么，它是怎样做到的呢？吸尘器的工作原理又是什么呢？今天，就让我们一起来了解吸尘器的工作原理，并且动手制作一台简易吸尘器吧！	牛顿摆通常由五个质量相同且密度较高的球体组成，五个球体由吊绳固定彼此紧密排列。其实牛顿摆的原理并不复杂，其实质就是动量在各个球之间的传递过程。今天就让我们动手来制作一个牛顿摆项目，并探究牛顿摆中能量传递的奥秘吧！				





# STEM Programme

## Weekly Plan for Age 9-12

Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>Topic</b>	<b>The Dam on the Yangtze River</b>	<b>The City Flowing through the Yangtze River</b>	<b>Fish on the Yangtze River</b>	<b>Plants on the Yangtze River</b>	<b>Interesting Archaeology</b>	<b>Hydrological</b>	<b>Ship Lift</b>
<b>Description</b>	There are five of the world's top ten dams on the Yangtze River. These dams represent China's strength. What are the secrets of them? Let's learn!	The Yangtze River is China's mother river, and the Yangtze River flows through eleven cities. Let us learn the characteristics of these cities	There are many rare fishes in the Yangtze River. These fish are on the verge of extinction. Do you want to know them? Let's learn.	There are many plants on the edge of the Yangtze River, some of which are endangered plants. How to keep the leaves of these plants, we can use dropping glue.	What archaeology is, archaeology enables us to understand the way of life in ancient times, the progress of society and the evolution of species.	We have not paid attention to some hydrology knowledge in our life, but the hydrology is really important to our life. What is the hydrology? Let's learn.	It is not easy to lift a large ship to a certain height. How can we do it? Let the steamer lift up by the elevator. Let's do it together.
Week	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
<b>Topic</b>	<b>Five Level Sluice</b>	<b>DIY 3D Eyeglasses</b>	<b>Telescope</b>	<b>Lighting a LED Lamp</b>	<b>Light Controlling Equipment</b>	<b>Light Dimmer</b>	<b>Mock Exam</b>
<b>Description</b>	Let the ship climb like stairs. The five level sluice of the Three Gorges is done. If we want to know how to do it, let's learn.	With the progress of science and technology, 3D glasses have entered thousands of households. The world seems more real.	Long ago, a telescope invented by chance has been invented. Nowadays, telescope has become the most important observation tool in our daily life.	Learning some basic circuit connection methods. Understanding the concept of LED. Making a small lamp and use this lamp to make some shapes.	Recognizing photosensitive resistor and thinking about how to use photosensitive resistor to manufacture and apply optical control device.	Knowing the resistance and how to change the resistance. We can use the way of changing the resistance to make the dimming lamp.	
Week	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21
<b>Topic</b>	<b>Electromagnet</b>	<b>Suspension Pen</b>	<b>Tumbler</b>	<b>Clown Walking on Wire</b>	<b>DIY Steamboat</b>	<b>Submarine</b>	<b>Drawing Rainbow without Pen</b>
<b>Description</b>	It is possible to find some connection between electromagnetic fields and use materials to make electromagnets. Understanding the transition between electromagnetic energy through production.	It is possible to understand that magnets repel each other and attract each other. And the pen is suspended by finding the balance point.	Knowing the change of center of gravity can make the object balance change.	Many of the acrobatic shows we see are related to the center of gravity. We can make the object move according to our needs when we find the center of gravity.	Since Walter invented the steam engine, steam has been used in our life and changed our life and become an important part of the industrial revolution.	The submarine is not only a weapon in the war, but also a tool for exploring the world of the sea. It is the most interesting part of our children to know how submarines work.	The rainbow is very beautiful in the air. Now we can make the rainbow on our own paper plate and use a few beans.
Week	Week 22	Week 23	Week 24	Week 25			
<b>Topic</b>	<b>Invisible ink</b>	<b>Archaeological discovery</b>	<b>Insect observer</b>	<b>End-of-Year Presentation</b>			
<b>Description</b>	The method of information transfer is becoming more and more simple in our daily life, but it is also getting more and more easily obtained by others, so how to use secret transmission becomes more important.	Archaeology is an important channel for us to understand ancient times. We can not only understand the ancient creatures but also know the way of life of the ancient people. Let's come to the archeology together.	Insects are the most numerous animals in the world. Insects are the rulers of the earth. What do insects really look like? Let's watch it together				



# STEM 课程

## 9-12 岁班课程计划

教学周	第 1 周	第 2 周	第 3 周	第 4 周	第 5 周	第 6 周	第 7 周
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<b>课程主题</b>	长江上的大坝	长江流经的城市	长江上的鱼类	长江上的植物	有趣的考古	水文	升船机
<b>课程描述</b>	世界前十的大坝有五座在长江上，这些大坝代表了中国的实力，究竟他们是什么样的呢？我们来学习！	长江是中国的母亲河，长江流经十一个城市，这些城市的特点就让我们来学习。	长江里有许多珍稀的鱼类，这些鱼类有些濒临灭绝，你想知道有哪些鱼类吗？我们来学习。	长江边的植物有很多，有些事濒临灭绝的植物，如何保留这些植物的树叶，我们可以使用滴胶。	考古是什么，考古让我们了解古代的生活方式，社会的进步和物种的进化。	在我们的生活中我们没有关注过一些水文知识，但是水文对于我们的生活确实很重要，水文是什么，让我们来学习吧	要把大型轮船升到一定的高度那是一件不容易的事情，怎么做呢？让轮船坐电梯升上去，我们一起来做吧

教学周	第 8 周	第 9 周	第 10 周	第 11 周	第 12 周	第 13 周	第 14 周
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<b>课程主题</b>	长江流经的城市	DIY3D 眼镜	望远镜	点亮一个 LED 灯	光控装置	调光小灯	模考
<b>课程描述</b>	长江是中国的母亲河，长江流经十一个城市，这些城市的特点就让我们来学习。	随着科技的进步，3D 眼镜已经进入了我们千家万户，我们看到的世界更加真实。	很早以前一个偶然的机人们发明的望远镜，如今望远镜已经成为我们日常生活中最主要的观测工具。	学会一些基本的电路连接方式，认识 LED 发光二极管，能够制作一个小灯并且用这个灯制作一些造型。	认识光敏电阻并且能够思考如何使用光敏电阻制作并应用光控装置	认识电阻并且知道如何改变电阻，能够使用改变电阻的方式制作调光小灯。	

教学周	第 15 周	第 16 周	第 17 周	第 18 周	第 19 周	第 20 周	第 21 周
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<b>课程主题</b>	电磁铁	磁悬浮笔	不倒翁	小丑走钢丝	DIY 蒸汽船	潜水艇	不用画笔画彩虹
<b>课程描述</b>	能够发现电磁之间存在某种联系并且使用材料制作出电磁铁。通过制作了解电磁能量之间的转变。	能够了解磁铁同极相斥异极相吸并且通过找到平衡点让笔悬浮起来。	了解重心位置的改变能够使得物体平衡发生变化。	我们看到的很多杂技表演都和重心有关，找到重心我们就可以让物体按照我们的需求运动。	自从瓦特发明蒸汽机后，蒸汽就在我们的生活中使用并且改变着我们的生活，成为工业革命的重要一环。	潜水艇不仅是战争中的武器，也是一种探索海底世界的工具，了解潜水艇是如何工作的是我们孩子最有趣的内容。	彩虹挂在空中异常美丽，如今我们把彩虹做上自己的纸盘，利用几颗小豆子，我们就可以做到。

教学周	第 22 周	第 23 周	第 24 周	第 25 周
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<b>课程主题</b>	隐形墨水	考古大发现	昆虫观察家	结课汇报演讲
<b>课程描述</b>	信息传递的方法在我们日常生活中变得越来越简单，却也越来越容易被他人获取，因此如何使用隐形的传递方式变得更为重要。	考古是我们了解古代的一种重要渠道，我们不仅能够了解古代的生物也能知道古人的生活方式，让我们一起来考古吧	昆虫是世界上数量最多的动物，昆虫才是地球的统治者，昆虫到底长什么样呢？让我们一起来观察吧	