Activities conducted by UTAR

No.	Booth number	Faculty / Centre	Type	Title	Description	Age group
1	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Biology	Fingerprint analysis	To observe the different ridges of human fingerprints.	7 - 18 years old
2	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Biology	What is in the oil that you consume daily?	To identify the type of lipid (saturated or unsaturated). The investigation will be done by testing a lipid is saturated or unsaturated by adding iodine to various substances. If the iodine changes from brown to clear the lipid is unsaturated. If the iodine does not change colors the lipid is saturated. The practical application from the results of this project is to reinforce the idea that as part of a healthy diet we should try to reduce the amount of saturated lipids and trans-fats we eat and replace them with unsaturated lipids.	7 - 18 years old
3	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Biology	How Oily Are Your Potato Chips?	Potato chips are widely consumed today and they are typically prepared using different methods i.e. baking, frying etc. As such, the grease (lipid) content can vary greatly between brands. One of the properties of lipid is that it causes and translucent stain on paper. Therefore, we can take advantage of this property to estimate the lipid content of potato chips.	7 - 18 years old
4	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Biology	Which Drinks Has the Most Vitamin C?	Vitamin C (ascorbic acid) is an antioxidant that is essential for human nutrition. Many fruits and vegetables contain vitamin C. Fruits have varying levels of vitamin C. DCPIP is a blue dye which can be reduced to colourless compound by ascorbic acid, a strong reducing agent. The fruit that contains the most vitamin C can decolorize the DCPIP faster.	7 - 18 years old
5	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Chemistry	Electrolysis of Water	To study the decomposition of water to produce hydrogen and oxygen gas. To observe the changes in the colour of pH indicators at the different electrodes.	7 - 18 years old
6	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Chemistry	Rainbow Connection	To observe the colour changes of a solution due to changes in their pH. To demonstrate the reversibility of indicator colour change.	7 - 18 years old
7	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Chemistry	Chromatography Flowers	To show the separation of inks into their primary colours. To demonstrate the patterns formed by varying the methods used in chromatography.	7 - 18 years old
8	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Chemistry	Colour Changing Lemonade	To study the colour changes of a natural pH indicator. To observe the effects of density by using materials in the home.	7 - 18 years old
9	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - IT	Augmented Reality (AR) vs Virtual Reality (VR)	Augmented Reality (AR) Laptop version 1. Set up a laptop on a table. 2. Hold and face a printed marker to the webcam of the laptop. 3. AR graphic will be displayed on printed marker through the laptop screen. Tablet PC version 1. Set up a tablet PC on a table. 2. Colour a printed marker template. 3. Place the coloured marker on a table and scan it using the camera of the tablet PC. 4. AR graphic will be displayed on coloured marker through the screen of the tablet PC. Virtual Reality (VR) 1. Download any VR app and load it on the smartphone. 2. Place the smartphone inside the VR DIY headset and try viewing it.	7 - 18 years old
10	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - IT	Internet of Things (IoT)	Demonstrate how useful IoT is in daily life especially as security kit for home. 1. Set up the smart home security kit at the entrance of the booth. 2. Connect the security kit to the smartphone. 3. Use smartphone to interact with the security kit.	7 - 18 years old
11	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Mathematics	Math puzzles	Objective: To stimulate students' creative mind in formulating shape and constraints How to play: A player will be given different shape of puzzles with labeled numbers 1 – 6 and player has to arrange those puzzles on the board to satisfy the constraint stated on row/column on the board.	7 - 18 years old

No.	Booth number	Faculty / Centre	Type	Title	Description	Age group
12	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Mathematics	Math scrabble game	Objective: To stimulate students' creative in constructing equation or inequalities How to play: 2 – 4 players required and players earn points by constructing equation or inequality with numbers and mathematics operators and placing them on a grid board. 1. Each player draw 10 tiles from a box. 2. The game start with the first player placing the equation they form on the center of the grid board. 3. In each turn, a player can decide to place an equation or inequality on the board, exchange the current tiles with new tiles or pass their turn. 4. Once the tiles are placed on the board, players will draw new tiles to replace. 5. All equation or inequality placed on the grid must touch at least one tile that is already on the board to form at least one complete equation or inequality. 6. When all tiles are gone from box and a single player has placed all of their tiles or no one can form any equations, the game ends. The player with the highest score wins. 7. The final score is calculated by adding up the tile on the board they place and subtract the sum of their unplaced tiles, if any.	7 - 18 years old
13	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Mathematics	Magic Hexagon	Objective: To develop students' memorization skill and logical skill. How to play: There are 19 hexagon blocks with labeled numbers 1 to 19 and player has to arrange those numbered blocks on the board with the condition of summation of each row must be equal to 38.	7 - 18 years old
14	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Mathematics	Math Bingo	Objective: To exercise on basic mathematical operations with single digit number and to think strategically in probability context. How to play: 2 or 3 players required and they need to decide wisely on which number to be placed on which slots because some numbers can be formed from a lot of numbers combinations and thus easier to be cancelled from the rolls of dice. They also have to think wisely and strategically on which mathematical operations to be use because different operations form different numbers. 1. Players write any numbers ranging from 1 to 12 (each number repeat twice) into their desired slots of a 5 by 5 grid. 2. 2 dice are rolled and each player has to decide which mathematical operation (add, subtract, multiply or divide) to be put in between the numbers shown by the dice and the number product will be cancelled off from their grids. 3. Whoever first has any three of the number rows (horizontally, vertically or diagonally) in their grid cancelled wins.	7 - 18 years old
15	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Physics	Defying Gravity	To introduce the concept of center of gravity and demonstrate how to hang one or more objects over a simple support. Setup of Apparatus & Material 1. Matches are ready on the tables with 5 persons per table. 2. A demo set will be shown to the audience with introduction of physics in centre of gravity and guidance of the setup. 3. The audience are allowed to take their time to successfully finish the setup. 4. If budget allows, simple prizes may be awarded for participation. Note: Some of the audience may require time to master the technique taught, and might not be able to immediately show improvement. Theory All objects behave as though their mass (the matter they are made from) is concentrated at a point called their centre of gravity. If supported at this point, the object would remain in equilibrium or balanced in any position. Since the centre of gravity of this workshop is made at the edge or slightly under the table, the water bottle can be balanced by a match stick.	7 - 18 years old

No.	Booth number	Faculty / Centre	Type	Title	Description	Age group
16	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Physics	2D Diffraction with Torch Light	To demonstrate diffraction one dimensional and two dimensional diffraction pattern with white light. Theory: When a white light passes through the grating perpendicularly, each wavelength will be diffracted at different angle for every order of bright fringe. This will split a white light into a rainbows pattern at every bright fringe. When an additional diffraction grating with its slits axis is placed perpendicularly to that of the first grating, each diffracted light ray then becomes an individual light source to the second grating thus producing an intersecting two dimensional diffraction pattern. As a result, multiple two dimensional rainbows patterns can be observed. Set Up/Procedure: 1. Secure the torch light horizontally at retort stand. 2. Place a piece of diffraction grating (secured at another retort stand) in front of the torch light. 3. Turn on the torch light to demonstrate the one dimensional diffraction pattern. 4. Add another piece of diffraction grating with its slits axis perpendicular to that of the first one. 5. Turn on the torch light to demonstrate two dimensional diffraction patterns. Precaution: 1. Two pieces of polarizers with transmission axes aligned perpendicularly are to be placed in front of the torch light to achieve a comfortable level of brightness of observers.	7 - 18 years old
17	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Physics	2D Diffraction with Laser	To demonstrate diffraction one dimensional and two dimensional diffraction pattern with colour laser Theory: A diffraction grating consists of many equally spaced parallel slits. When a monochromatic light wave passes through the grating perpendicularly, it will undergo a combined effect of interference and diffraction to produce near equally spaced bright fringes on a screen. When an additional diffraction grating with its slits axis is placed perpendicularly to that of the first grating, each diffracted laser ray then becomes an individual laser source to the second grating thus producing an intersecting two dimensional diffraction pattern. Set Up/Procedure: 1. Secure the laser pointer horizontally at retort stand. 2. Place a piece of diffraction grating (secured at another retort stand) in front of the laser pointer. 3. Turn on the laser pointer to demonstrate the one dimensional diffraction pattern. 4. Add another piece of diffraction grating with its slits axis perpendicular to that of the first one. 5. Turn on the laser pointer to demonstrate two dimensional diffraction patterns. Precaution: 1. Always avoid pointing the laser pointer to the observers. 2. Always barricade the path of diffracted laser rays. 3. Diffracted pattern to be illuminated onto the inner wall (coated in black colour if necessary) of a box of appropriate size for the purpose of containing the diffracted lasers.	7 - 18 years old
18	B01 - B03	Centre for Foundation Studies (Kampar Campus)	Experiment - Physics	Anti-Gravity Forks	To demonstrate the balance of a pair of identical forks at the tip of a toothpick through centre of gravity Theory: The center of gravity of any object is the point about which you can balance the object as if all the masses were concentrated or gathered at this point. That means, it's the point at which the object balances from left to right, front and back, and top and bottom. When the forks and the toothpick are set up as shown in the following picture, the centre of gravity of the interlocked pair of forks is now shifted into the glass. As a result, an equilibrium position can be achieved in the setup. Set Up/Procedure: 1. Two identical forks are to be interlocked at the tines and secured onto the tip of a matchstick. 2. The setup is to be carefully placed onto the edge of the plastic cup / beaker to achieve an equilibrium position. Precaution: 1. Avoid using the forks other than experiment purpose. 2. An additional or unused forks are to be kept away from the reach of visitors.	7 - 18 years old
19	B16	Faculty of Engineering and Green Technology	Workshop	DIY Toy Robot	Students will be briefed around 5 minutes on the construction of a toy robot. Then, the students will do experiment to construct the toy robot using provided electronic parts and components. 1. To expose students to simple application of electronic components. 2. To generate interest in electronic engineering and its application in robotics	8- 10 years old

No.	Booth number	Faculty / Centre	Type	Title	Description	Age group
20	B16	Faculty of Engineering and Green Technology	Workshop	Paper Circuit	Students will be briefed around 5 minutes on the construction of a circuit. Then, the students will construct the circuit as demonstrated on a piece of paper using the provided electronic parts and components. 1. To expose students to simple application of electronic components. 2. To teach students on the fundamentls of a circuit. 3. To generate interest in the field of electronic engineering.	8- 15 years old
21	B07	Faculty of Engineering and Green Technology	Workshop	Construction Costume Party (Recognize Personal Protective Equipment in construction site)	Allow the students in all age know about the basic Personal Protective Equipment (PPE) used in construction site; and understand the importance of wearing PPE correctly and enhance the awareness of safety and health.	7 - 18 years old
22	B07	Faculty of Engineering and Green Technology	Workshop	Do You Know Them? (Recognize the tools, signboard, construction plants and equipment, materials, and items use in construction)	Allow the students know more about the basic tools and construction plants and machinery as well as materials that usually use in construction, and understand the function of each plants and machinery as well as tools by doing some hands-on activities, for instant, screw/un-screw the bolt and nuts by using screwdriver and wrench.	7 - 18 years old
23	B08	Faculty of Engineering and Green Technology	Workshop	Can You Build? (Build a structure to withstand the given weight)	Allow the students to be creative and build their own dream building to withstand the loads!	13 - 18 years old
24	B08	Faculty of Engineering and Green Technology	Workshop	Mix and Match Game	Find the matching pairs by turning the card to mix and match with the respectively pictures and words. -To allow the participants to know some of the construction vehicles, materials and signboard through the mix and match game	5 - 12 years old
25	B17	Faculty of Science	Workshop	Colour Chemistry	Participants will have a brief introduction to alginate (it's from seaweed!) and how it gels through ionic attraction. Come and make colourful beads and worms with alginate!	7 - 12 years old
26	B17	Faculty of Science	Workshop	Chemistry in Daily Life	Kitchen chemistry Participants will have a brief introduction to kitchen chemistry and have a hands-on experience in making chocolate mousse and American pancakes	7 - 12 years old
27	B18	Faculty of Science	Workshop	Chemistry in Daily Phenomenon	1) Paper flowers formation Participants will be guided to design and make paper flowers and bring them home. This activity will expose participants on the understanding on chromatography technique and how the color pigments are separated. 2) pH indicator from natural resources Basic Chemistry in acidity and alkalinity in food will be introduced. By using natural plant based pH indicator, various food products can be tested and their acidity or alkalinity properties will be resolved immediately. This technique can be applied even in the kid's daily routine!	7 - 12 years old
28	C61	Faculty of Science	Experiment	Fun with Multiplication Tips and Tricks	Participants will be guided to learn the standard multiplication table with some interesting techniques without using calculator in one and a half hour.	7 - 12 years old
29	C63	Faculty of Science	Experiment	Fun with 4 Colors Theorem	Learn how to color a territory map only using four colors such that all the adjacent countries must be in different colors. There are three different levels (easy, intermediate and hard).	7 - 18 years old
30	C64	Faculty of Science	Experiment	Home-made low-power microscope / telescope	Demonstrate the optical theory behind microscope / telescope through a coarse-grained setup using lenses, retort-stands and other common apparatus.	7 - 18 years old
31	C62	Faculty of Science	Experiment	Sudoku Challenge	Participants will solve the Sudoku problem three different levels (easy, intermediate and hard).	7 - 18 years old
32	B19	Faculty of Information and Communication Technology	Experiment	Logic Games	Logic games usually simulate some well-known logic puzzle like Master Mind or the game where you have put sliding numbered tiles in order inside a box. Apart from the challenge zone time, rest of the time people can visit and play any game turn by turn. It includes the chess competitions.	7 - 18 years old
33	B19	Faculty of Information and Communication Technology	Experiment	Lightbot Challenge	Lightbot is a programming puzzle game: a puzzle game that uses game mechanics that are firmly rooted in programming concepts. Rewards to the participants who are able to complete all the stages	7 - 18 years old
34	B19	Faculty of Information and Communication Technology	Experiment	Interactive Games	Interactive games provide the interactions to the students to incite their interests in computer learning. One of the prominent ideas is the gesture control interactive games (Creative Senz3D Camera) such as A Million Minions, Kung Pow Kevin and World Reconstruction @ Aligned and many more. Apart from that, there will be flash games provided school children as well.	7 - 18 years old
35	B20	Faculty of Information and Communication Technology	Workshop	Lightbot Challenge	• To introduce logic programming in interactive ways. Topics: • Stage 1 – Basics: 8 puzzles. To be used as intro and warm-up. • Stage 2 – Procedures: 6 puzzles. To be used in competition for primary school group. • Stage 3 – Loops: 6 puzzles. To be used in competition for secondary school group. • Stage 4 -- Covering LightBot concepts: Basic, Procedures and Loops	7 - 18 years old

No.	Booth number	Faculty / Centre	Type	Title	Description	Age group
36	B20	Faculty of Information and Communication Technology	Workshop	Wix: Developing Your Personal Webpage	• To introduce free and fun ways to develop your own website. Topics: • Introduction • Explaining the concept of Multimedia Elements: o Text o Video o Image o Animation o Sound 3. Word Wide Web (WWW) and HyperText Markup Language (HTML) • Registering the Website. • Website design creation hands-On.	7 - 18 years old
37	B20	Faculty of Information and Communication Technology	Workshop	Hour of Code: Angry Bird Code Game	• To provide the learning platform for the concepts of how to code using drag-and-drop visual blocks. Topics: • Introduction (through a video) • The concept of move forward, turn • The concept of repetition • The concept of event controller	7 - 18 years old
38	B20	Faculty of Information and Communication Technology	Workshop	Star Wars- Buiding a Galaxy with Code	• To provide the learning platform for the concepts of how to code using drag-and-drop visual blocks. Topics: • There are 15 puzzles that are required to be solved by the participant. There are basically four main parts in the program: Game space, instructions, tool box and workspace.	7 - 18 years old
39	B20	Faculty of Information and Communication Technology	Workshop	Virtual Reality and Non-Immersive Environment	• To provide a creative platform to enable to build and code their own experiences by immersing into virtual environment. Topics: • Modelling - Building 3D models to explain and demonstrate different • concepts. • Texturing – Application of surface texture, or color information on a • 3D objects. • Behavioral and Interaction (animations) - Identify behaviors exhibited • by objects; classify them into simple physical, and making the illusion of • motion of 3D object. • Rendering – Rendering based on texture mapping in a projection based virtual environments.	7 - 18 years old
40	B40	Faculty of Medicine and Health Sciences	Workshop	Knowing Your Body Constitution Type (体质) Based on Traditional Chinese Medicine(TCM) Evaluation	• To introduce the 9 constitutions type based on TCM to the participants. • To enhance participants' understanding to their own body constitution. • To share some tips on health for different body constitutions.	7 years old and above
41	B40	Faculty of Medicine and Health Sciences	Experiment	The mechanism of relieving pain through acupuncture	To exhibit the model of the acupuncture treatment, take effect on nerve system to relieve pain	7 years old and above
42	B39	Faculty of Medicine and Health Sciences	Experiment	Station Games	1. To raise the awareness of the participants. 2. To learn about human anatomy and physiology.	7 years old and above
43	B39	Faculty of Medicine and Health Sciences	Experiment	How can hear heart beat and how to use stethoscope?	To learn how to use a stethoscope and the blood flow in the heart.	7 years old and above
44	B39	Faculty of Medicine and Health Sciences	Experiment	Learning Reflex	To learn knee-jerk reflex	7 years old and above
45	B39	Faculty of Medicine and Health Sciences	Experiment	Bell Jar Lung	To learn the respiration process.	7 years old and above
46	B39	Faculty of Medicine and Health Sciences	Experiment	How much sugar in the drinks?	To raise the awareness towards diabetes mellitus (DM).	7 years old and above
47	B39	Faculty of Medicine and Health Sciences	Experiment	Did you wash your hand properly?	To demonstrate and educate the proper ways (7 steps) to wash the hand.	7 years old and above
48	B39	Faculty of Medicine and Health Sciences	Experiment	Cancer Awareness	To raise the awareness of public towards cancer.	7 years old and above
49	B39	Faculty of Medicine and Health Sciences	Experiment	Immune Game	To learn the immune response in human body.	7 years old and above
50	B39	Faculty of Medicine and Health Sciences	Experiment	DNA extraction	1. To let the participants to learn how to extract DNA. 2. To observe DNA via naked eyes.	7 years old and above

No.	Booth number	Faculty / Centre	Type	Title	Description	Age group
51	B38	Lee Kong Chian Faculty of Engineering and Science	Workshop	DIY Solar Cell Measurement	Students will find out the curve that relates the efficiency of solar cell and temperature. The first two groups of students who have completed their curves first will be given gifts.	7 - 18 years old
52	B09	Lee Kong Chian Faculty of Engineering and Science	Workshop	Straw Bridge Challenge	Working as engineering teams, students design and create model beam bridges using plastic drinking straws and tape as their construction materials. Their goal is to build the strongest bridge with a truss pattern of their own design, while meeting the design criteria and constraints. They experiment with different geometric shapes and determine how shapes affect the strength of materials. They develop a design on paper, build their bridge, present and test their bridge to the audience, evaluate their results and those of their teammates, and complete reflection sheets. Let competition begin! Objectives: 1) Learn about engineering design. 2) Learn how engineering can help solve society's challenges. 3) Learn about teamwork and problem solving.	10 -18 years old
53	B10	Lee Kong Chian Faculty of Engineering and Science	Workshop	ARCHI : SENSE	1. Abstract to Reality : To understand color scheme, language and characteristics of architecture, to translate shapes into building facade and to undeerstand sense that the form created provides. Materials provided for each group: - A5 crafting board - 5 lines and shapes templates - color pencils - Textured material - Scissors - UHU Glue Procedures: 1.Let fellow participants choose from the 5 template provided. 2. Helpers designate placement of building elements. (e.g. openings, roof, walls, and more) * placement of elements may need explanation from helpers * 3. Color with color pencils and paste the template with pre-cut textured materials. 4. After step 3, helpers may explain the participant's creation with the helper's understanding of architecture. 5. Participants may take the product as a souvennier. (The product may be framed and placed on walls) 2. Form Making with Shadows:	7 - 18 years old
54	B22	Lee Kong Chian Faculty of Engineering and Science	Experiment	Math is Fun	1. Puzzles and Number Games: (Interactive computer games and puzzles of numbers of different difficulty levels.) 2. Mathematical Models: (Demonstration of a mobius strip and let the audience play with it.) 3. Tessellations: (An array of pictures of some beautiful tessellations to showcase the friendship between Art and Mathematics.) 4. Actuary Now: (A display about the importance of Actuarial Science in today's life, to visualise the unforeseen, by the Actuarial Society)	7 - 18 years old

No.	Booth number	Faculty / Centre	Type	Title	Description	Age group
55	B36	Lee Kong Chian Faculty of Engineering and Science	Workshop	DIY Concrete Craft	1. Concrete Fridge Magnets: To understand the proper ratio of concrete mixture (water-cement-sand ratio) Materials provided for each group: - Mixing bowl - Cement - Sand - Magnet - Plastic mould - Rubber gloves/mask - Water - Weighing machine - Boards and trowels - Steel rod - Plastic wrap Procedures: 1.Weigh out the amounts of Portland cement, sand and coarse aggregates to give mixes of specified proportion by weight. Weigh out the ingredients as exactly as possible. 2. Mix with water using a water/cement ratio of 0.50 – 0.60, the mixing is to be carried out until it is uniformly mixed. 3. Scoop the concrete out and fill each compartment of the plastic mould. 4. When the mould is full, flatten and smooth the concrete with the back of the trowel. 5. Add the magnet. Just lightly squash it into the concrete mixture. If the concrete is a bit too runny, you'll have	7 - 18 years old
56	B31	Lee Kong Chian Faculty of Engineering and Science	Workshop	Sorting game and Playground Coding	1) Sorting game: To understand the benefit of learning programming. 2) Playground Coding 1. Unity Game Engine 2. The links listed below are games that are created with the Intention of showcasing the steps that are required to make code work. As simple as it is, it is to show the concept, not the actual hard coding. https://studio.code.org/s/20-hour/stage/2/puzzle/1 https://blockly-games.appspot.com/maze?lang=enInsert senior games.	7 - 18 years old
57	B25	Lee Kong Chian Faculty of Engineering and Science	Workshop	Handmade Ice Cream	Water has three states: solid, liquid and gas. Water changes into its solid state when it reaches 0 degrees Celsius (32 degrees Fahrenheit), but if there is Sodium Chloride (NaCl) present, otherwise known as salt, then that temperature drops. That's because salt lowers water's freezing point, which is the freezing point depression. When you're making ice cream, the even lower temperature of the ice and salt mixture, which surrounds the cream and sugar mixture, is cold enough to change the state of the cream from a liquid to a solid.	7 - 18 years old
58	C10	Lee Kong Chian Faculty of Engineering and Science	Experiment	Electromyogram (EMG) controlled 3D printed prosthetic hand	Objectives: 1. To introduce and promote Biomedical Engineering 2. To foster new knowledge in biomedical engineering research project, the development of novel technologies and innovative applications, for example prosthetic hand. 3. To develop a quantitative understanding of the human body, for example anatomy and physiology of hand, and the neuromusculoskeletal system. Introduction: Measuring muscle activation via electric potential, referred to as electromyography (EMG) , with the advent of ever shrinking yet more powerful microcontrollers and integrated circuits, EMG circuits and sensors have found their way into prosthetics. Yet, EMG systems remain expensive so through this activity, participants able to gain the knowledge about EMG and prosthetic hand. Activity: A: The Power of Electromyogram (EMG) (4 sets) Bicep is one of the strong muscle of human arm, contracting of muscle will generate EMG signal, this experiment will collect the EMG signal and connected to computer via arduino. The strength of signal can be shown on monitor and also indicated by 4 different LED. Procedures: 1. Student will understand the theory of muscle signal. 2. Place 3 EMG lectrodes on their biceps and reference point. (Fig 1) 3. Contract the arm, and obeserve the changes of LED light. (Fig 2)	7 - 18 years old

No.	Booth number	Faculty / Centre	Type	Title	Description	Age group
59	C09	Lee Kong Chian Faculty of Engineering and Science	Experiment	Junior QS	To expose the roles of QS to young generation in construction industry Content :- 1. Colorful bricks/blocks will be given to all the participants 2. The participants have to build something e.g building, bridge etc follow their own creativity 3. Then calculated the total quantity of bricks/blocks following the sizes that already been used 4. The lecturer on duty will brief them on the building elements involve	7 - 12 years old
60	B21	Lee Kong Chian Faculty of Engineering and Science	Workshop	Workshop 1: DIY Badge Workshop 2: Monopolar motor Workshop 3: Concrete Photoclip Alphabet	Workshop 1: Thermoplastics soften when heated and harden and strengthen after cooling. Thermoplastics can be heated, shaped and cooled as often as necessary without causing a chemical changed. Workshop 2: The polarity of the magnetic field emitted by the conductor and the permanent magnets does not change. If there is an electric current flowing throughout the circuit, then it will cause a force on the wire. The electric current between the battery and magnet caused a force on the wire. Therefore making the wire spin. This can be seen as Electromagnetism because there was a force that caused an interaction between the electronically charged particles. Workshop 3: The stopping joint is mixed with a correct proportion and will dried up to be a model.	7 - 18 years old
61	B14	Centre for Foundation Studies (Sungai Long Campus)	Workshop - Biology	Lung model	Objective: • To understand how the lung works • To construct a lung model Content/Description: Participants will learn the method to construct a lung model. From the lung model constructed, they should understand how the mechanism of lungs work to breath in and out. During inhalation, the chest expands. The pressure inside the lung is lower and this causes the air (oxygen) to flow into the lung. The reverse happens during exhalation.	7 years old and above
62	B13	Centre for Foundation Studies (Sungai Long Campus)	Workshop - Biology	Wonder of Taxonomy 3.0	Objective: 1. To portray the biodiversity value in Malaysia 2. To share with the public about the importance of life classification Content/Description: The workshop consists of three highlights- road to classification of life, treasures of nature and pinning show time. Introduction and history of taxonomy mark the beginning of the first part of the session, followed by the journey to capture and collect specimens and ended with species identification through dichotomous keys. Treasures of nature is the highlight of the exhibition with up to 30 species of insect and organ specimens displayed. “Finding Keys to the Species” is an interactive activitiy to allow public to attempt to identify a species with the use of dichotomous keys. Pinning show time involves current or ex-members of taxonomy mini project to deliver their skills in preserving insect specimens.	15 years old and above
63	B15	Centre for Foundation Studies (Sungai Long Campus)	Workshop - IT	Coding with Python	Objective: • To improve problem-solving kills. • To develop algorithmic and logical thinking. Content/Description: • Participants will learn to tackle problems and break them down into smaller parts. • Then, they will formulate step-by-step procedures to produce desired outcomes, using concepts such as sequencing, conditional and repetition logics. • Participants will develop a simple game at the end of this workshop.	10 years old and above
64	B12	Centre for Foundation Studies (Sungai Long Campus)	Workshop - Science	1. Turn Milk into plastic toys! 2. Salt Painting.	1. In this multidisciplinary science project, the participants will investigate how to make the best recipe for making plastic out of milk. 2. To investigate the science of absorption.	7 years old and above
65	B11	Centre for Foundation Studies (Sungai Long Campus)	Workshop - Science	1. Gravity Free Water 2. Elephant toothpaste 3. Oobleck	1. To investigate the effects of air pressure. 2. To observe the examples of chemical and physical reactions. 3. To observe the chemical and physical changes as corn starch is mixed with water.	7 years old and above
66	B04 - B05	Centre for Foundation Studies (Sungai Long Campus)	Experiment - Physics	Flying Rocket	1. To enhance students knowledge and interest in Physics 2. To provide educational experience and fun through participation in Physics experiments. 3. To create the awareness of students in the importance of Sciences application in daily life.	7 years old and above
67	B04 - B05	Centre for Foundation Studies (Sungai Long Campus)	Experiment - Physics	Magic Boat	1. To enhance students knowledge and interest in Physics 2. To provide educational experience and fun through participation in Physics experiments. 3. To create the awareness of students in the importance of Sciences application in daily life.	7 years old and above

No.	Booth number	Faculty / Centre	Type	Title	Description	Age group
68	B04 - B05	Centre for Foundation Studies (Sungai Long Campus)	Experiment - Physics	Water Fountain	1. To enhance students knowledge and interest in Physics 2. To provide educational experience and fun through participation in Physics experiments. 3. To create the awareness of students in the importance of Sciences application in daily life.	7 years old and above
69	B04 - B05	Centre for Foundation Studies (Sungai Long Campus)	Experiment - Physics	Newton's Disc	1. To enhance students knowledge and interest in Physics 2. To provide educational experience and fun through participation in Physics experiments. 3. To create the awareness of students in the importance of Sciences application in daily life.	7 years old and above
70	B04 - B05	Centre for Foundation Studies (Sungai Long Campus)	Experiment - Chemistry	Rainbow Bath bomb	To make rainbow bath bombs	7 - 18 years old
71	B04 - B05	Centre for Foundation Studies (Sungai Long Campus)	Experiment - Chemistry	DIY Peppermint Toothpaste	To make natural DIY Toothpaste	7 - 18 years old
72	B04 - B05	Centre for Foundation Studies (Sungai Long Campus)	Experiment - Mathematics	Intelligence Mathematics Activities - Puzzle Kingdom	• To enhance knowledge and to promote interest in Mathematics for all categories of people. • To provide educational experience and fun through participation in Mathematics activities/games. • To create the awareness of public especially students in the importance of Mathematics application in daily life.	7 - 18 years old

Group size	Number of session	Duration per session	Time
		15 minutes	9.00 am - 6.00 pm
		15 minutes	9.00 am - 6.00 pm
		5 - 10 minutes	9.00 am - 6.00 pm
		10 minutes	9.00 am - 6.00 pm
		10 minutes	9.00 am - 6.00 pm
		15 minutes	9.00 am - 6.00 pm
		15 minutes	9.00 am - 6.00 pm
		15 minutes	9.00 am - 6.00 pm
		10 minutes	9.00 am - 6.00 pm
		15 minutes	9.00 am - 6.00 pm
		5 minutes	9.00 am - 6.00 pm

Group size	Number of session	Duration per session	Time
		10 minutes	9.00 am - 6.00 pm
		10 minutes	9.00 am - 6.00 pm
		8 minutes	9.00 am - 6.00 pm
		10 - 15 minutes	9.00 am - 6.00 pm

Group size	Number of session	Duration per session	Time
		5 minutes	9.00 am - 6.00 pm
		5 minutes	9.00 am - 6.00 pm
		5 - 10 minutes	9.00 am - 6.00 pm
10 students per session	3 sessions per day	30 minutes per session	10.30am - 11.00 am; 2.30 pm - 3.00 pm; 4.30 pm - 5.00 pm

Group size	Number of session	Duration per session	Time
10 students per session	3 sessions per day	60 minutes per session	9.30 am - 10.00 am ; 11.30 am - 12.00 pm; 3.30 pm - 4.00 pm
10 students per session	6 sessions per day	60 minutes per session	9.00 am - 5.00 pm
10 students per session	6 sessions per day	60 minutes per session	9.00 am - 5.00 pm
10 students per session	6 sessions per day	60 minutes per session	9.00 am - 5.00 pm
10 students per session	6 sessions per day	60 minutes per session	9.00 am - 5.00 pm
20 participants/session (4 participants per group, total 5 groups)	3 sessions per day	60 minutes per session	11.30 am - 12.00 pm, 1.00 pm - 1.30 pm, 2.00 pm - 2.30 pm
20 participants/session (4 participants per group, total 5 groups)	3 sessions per day	120 minutes per session	9.00 am - 11.00 am, 3.00 pm - 5.00 pm
20 participants/session (4 participants per group, total 5 groups)	4 sessions with activities carried out alternatively, 2 hours per session	120 minutes per session	
		10 minutes	
		10 minutes	
		10 minutes	
		10 minutes	
		15 minutes	
		15 minutes	
		15 minutes	
20 participants/session	3 sessions	60 minutes per session	11.00am - 12.00pm (2 - 4 Nov 2018)

Group size	Number of session	Duration per session	Time
20 participants/session	3 sessions	60 minutes per session	2.00pm - 3.00pm (2 & 3 Nov 2018), 12.30pm - 1.30pm (4 Nov 2018)
20 participants/session	1 session	60 minutes per session	12.30pm - 1.30pm (3 Nov 2018)
20 participants/session	1 session	60 minutes per session	12.30pm - 1.30pm (2 Nov 2018)
20 participants/session	3 sessions	60 minutes per session	3.30pm - 4.30pm (2 & 3 Nov 2018), 2.00pm - 3.00pm (4 Nov 2018)
		20 – 40 minutes	
		10 minutes	
		30 minutes	
		10 minutes	
		10 minutes	
		10 minutes	
		10 minutes	
		10 minutes	
		10 minutes	
		10 minutes	
		10 minutes	

Group size	Number of session	Duration per session	Time
20 participants/session (2 participants per group, total 10 groups)	9 sessions per day	30 minutes	9.00 am – 9.30 am 10.00 am – 10.30 am 11.00 am – 11.30 am 12.00 pm – 12.30 pm 1.00 pm – 1.30 pm 2.00 pm – 2.30 pm 3.00 pm – 3.30 pm 4.00 pm – 4.30 pm 5.00 pm – 5.30 pm
4 - 8 persons x 6 group Maximum: 8pax/group	9 sessions per day	30 minutes	9.00 am – 9.30 am 10.00 am – 10.30 am 11.00 am – 11.30 am 12.00 pm – 12.30 pm 1.00 pm – 1.30 pm 2.00 pm – 2.30 pm 3.00 pm – 3.30 pm 4.00 pm – 4.30 pm 5.00 pm – 5.30 pm
3 - 4 persons x 6 group	9 sessions per day	45 minutes	9.00 am – 9.45 am 10.00 am – 10.45 am 11.00 am – 11.45 am 12.00 pm – 12.45 pm 1.00 pm – 1.45 pm 2.00 pm – 2.45 pm 3.00 pm – 3.45 pm 4.00 pm – 4.45 pm 5.00 pm – 5.45 pm

Group size	Number of session	Duration per session	Time
3 - 4 persons x 10 group	9 sessions per day	30 minutes	9.00 am – 9.30 am 10.00 am – 10.30 am 11.00 am – 11.30 am 12.00 pm – 12.30 pm 1.00 pm – 1.30 pm 2.00 pm – 2.30 pm 3.00 pm – 3.30 pm 4.00 pm – 4.30 pm 5.00 pm – 5.30 pm
20 participants/session	13 sessions per day	30 minutes per session	9.00 am – 9.30 am 9.30 am – 10.00 am 10.00 am – 10.30 am 10.30 am – 11.00 am 11.00 am – 11.30 am 1.30 pm - 2.00 pm 2.00 pm – 2.30 pm 2.30 pm - 3.00 pm 3.00 pm – 3.30 pm 3.30 pm - 4.00 pm 4.00 pm – 4.30 pm 4.30 pm - 5.00 pm 5.00 pm – 5.30 pm
20 participants/session	9 sessions per day	30 minutes	9.00 am – 9.30 am 10.00 am – 10.30 am 11.00 am – 11.30 am 12.00 pm – 12.30 pm 1.00 pm – 1.30 pm 2.00 pm – 2.30 pm 3.00 pm – 3.30 pm 4.00 pm – 4.30 pm 5.00 pm – 5.30 pm
2 persons x 4 groups	9 sessions per day	30 minutes	9.00 am – 9.30 am 10.00 am – 10.30 am 11.00 am – 11.30 am 12.00 pm – 12.30 pm 1.00 pm – 1.30 pm 2.00 pm – 2.30 pm 3.00 pm – 3.30 pm 4.00 pm – 4.30 pm 5.00 pm – 5.30 pm

Group size	Number of session	Duration per session	Time
3 - 4 persons x 10 group	9 sessions per day	30 minutes	9.00 am – 9.30 am 10.00 am – 10.30 am 11.00 am – 11.30 am 12.00 pm – 12.30 pm 1.00 pm – 1.30 pm 2.00 pm – 2.30 pm 3.00 pm – 3.30 pm 4.00 pm – 4.30 pm 5.00 pm – 5.30 pm
20 participants/session	8 sessions per day	30 minutes	9.00 am – 9.30 am 10.00 am – 10.30 am 11.00 am – 11.30 am 12.00 pm – 12.30 pm 1.00 pm – 1.30 pm 2.00 pm – 2.30 pm 3.00 pm – 3.30 pm 4.00 pm – 4.30 pm 4.30 pm – 5.00 pm
20 participants/session	4 sessions/ day	60 minutes per session	9 am to 10 am 11 am to 12 pm 2 pm to 3 pm 4 pm to 5 pm
20 participants/session	4 sessions/ day	60 minutes per session	9 am to 10 am 11 am to 12 pm 2 pm to 3 pm 4 pm to 5 pm
20 participants/session	4 sessions/ day	60 minutes per session	9 am to 10 am 11 am to 12 pm 2 pm to 3 pm 4 pm to 5 pm
16 participants/session	4 sessions/ day	60 minutes per session	9.00 am - 10.00 am 11.00 am - 12.00 pm 1.00 pm - 2.00 pm 3.00 pm - 4.00 pm
16 participants/session	4 sessions/ day	60 minutes per session	10.00 am - 11.00 am 12.00 am - 1.00 pm 2.00 pm - 3.00 pm 4.00 pm - 5.00 pm
		10 minutes	
		10 minutes	

Group size	Number of session	Duration per session	Time
		10 minutes	
		10 minutes	
		15 minutes	
		15 minutes	
		15 minutes	