Fairgrounds

Our **iCAN** mind map

THE BIG IDEA

We all know that fairground rides are designed to thrill our senses, through fear, excitement and the unexpected. How are these rides powered in a way which enables them to speed up and slow down at just the right moments, whilst staying on a track that twists upside down? These mysteries will be revealed as we learn more about the science behind energy, forces, sound and light.

iCAN British International School

ipc international primary curriculum

Science

As scientists at iCAN we will be investigating:
- What keeps our feet on the ground
- Other forces that act upon us
- How to identify and measure forces
- How forces act on everyday life
- How to use electricity as a source of power
- Magnetism: how and why magnets work
- How light travels and how we see
- How sound travels and how we hear

Learning Goals

3.1 Know that the study of science is concerned with investigating and understanding the animate and inanimate world around us and that some processes or forces cannot be seen or heard but experienced through their observable effects on the behaviour of everyday objects

3.2 Be able to conduct scientific investigations
- Posing scientific questions
- Choosing an appropriate way to investigate a scientific issue
- Using our scientific knowledge and understanding to predict an outcome
- Relating the outcome to our original prediction
- Making systematic and accurate measurements from our observations
- Drawing conclusions based on the evidence
- Explaining and justifying our predictions, investigations, findings and conclusions
- Recording and communicating our findings accurately using the most appropriate medium and the appropriate scientific vocabulary and conventions
- Repeating investigations, observations and measurements to check their accuracy and validity
- Identifying patterns in the results
- Using scientific language to explain any differences found in the results of investigations
- Suggesting ways in which our investigations and working methods could be improved
- Relating our own investigations to wider scientific ideas

3.3 Be able to gather evidence from a variety of sources including first-hand observation and measurement and secondary sources, such as books, CD-ROMs and the Internet

3.4 Be able to discriminate between evidence and opinion

3.5 Understand the importance of obtaining and using evidence to test scientific ideas, opinions and predictions

3.6 Understand some of the effects of forces and the availability of energy in different forms on people's everyday lives

3.45 Be able to represent electrical circuits, including switches, bulbs, buzzers and cells, in drawings using conventional symbols

3.46 Be able to construct circuits, including switches, bulbs, buzzers and cells, on the basis of drawings using conventional symbols

3.47 Be able to vary bulbs, wires, switches and cells in an electrical circuit to change its effect

3.48 Know about the nature and effect of gravitational force on everyday life situations

3.49 Be able to identify the effects of physical forces including gravity, friction, centrifugal, centripetal and magnetism in real situations

3.50 Understand how forces are measured in Newtons and to be able to measure them with a force meter

3.51 Be able to identify and record the direction and strength of forces using arrows of different lengths

3.52 Know that light travels in a straight line until it strikes an object

3.53 Know that light behaves differently when it interacts with different materials and that it can be reflected, refracted or absorbed and how these properties have been used in everyday situations such as road safety

3.54 Know that light travels through some materials and not through others and how we use these material properties in everyday situations

3.55 Know that we see things when light from them enters our eyes

3.56 Know how sounds are changed by altering the nature and frequency of vibrations

3.57 Know that vibrations from sound sources travel through a medium to reach the ear

3.58 Be able to identify the effects and uses of light and sound in everyday life situations

Technology

As designers at iCAN we will be learning:
- How to solve problems to understand how everyday objects work
- How people use technology
- How to design and make models and games

Learning Goals

3.1 Know that access to technology varies and affects people's everyday lives

3.2 Know how the everyday lives of people in Cambodia are affected by the extent of technological advance or availability

3.3 Know how the everyday lives of people in our home country are affected by the extent of technological advance and availability

3.4 Be able to respond to identified needs, wants and opportunities with informed designs and plans to make simple useful products

3.5 Be able to gather and use information from first hand evaluation and secondary research, using books, CD-ROMs and the Internet, to suggest simple solutions to everyday problems

3.6 Be able to devise and use clear designs and step-by-step plans

3.7 Be able to consider the needs of users when designing and making useful everyday objects

3.8 Be able to select the most appropriate available tools and materials for a task from a given range

3.9 Be able to work with a variety of tools and materials, including electric circuits and magnets, with some accuracy

3.10 Be able to test and evaluate our own work and the work of others and improve on it

3.11 Be able to investigate the way in which simple products, such as musical instruments, optical devices and road safety equipment, in everyday use are designed and made and how they work

3.12 Be able to evaluate the effectiveness of simple products in everyday use

3.13 Understand the need for accurate design and working

3.14 Understand the ways in which technology can be used to meet needs, wants and opportunities

3.15 Understand that different techniques, tools and materials are needed for different tasks

3.16 Understand that the quality of a product depends on how well it is made and how well it meets its intended purpose defined by demands of intended audience

ICT

As digital learners at iCAN we will be exploring:
- How to use light and sound sensors
- How to use ICT to control events

Learning Goals

3.1 Know that the study of ICT is concerned with applying technology to gather, use and exchange information

3.2 Know about and use word processing, presentation and control applications of ICT

3.3 Be able to frame questions appropriately when gathering information using the Internet

3.4 Be able to interpret our findings from Internet searches and CD-ROM information sources

3.5 Be able to identify whether our findings are valid

3.6 Be able to manipulate and combine different forms of information from different sources into presentations and reports

3.7 Be able to use ICT to present information in lists, reports and presentations

3.8 Be able to exchange information and ideas in a number of different ways including use of the Internet

3.9 Be able to use ICT to control simple light sequences, sounds or movements

3.10 Be able to use ICT to sense physical data such as light/dark, temperature or pressure

3.11 Be able to use ICT-based models and simulations

3.12 Understand that the quality of information input affects the results of any enquiry

International

As international citizens at iCAN we will be learning:
- About fairgrounds and theme parks in Cambodia and our home countries
- How international agencies are helping to increase energy efficiency and tackle the problems of noise and light pollution
- About international aid agencies and their work

Learning Goals

3.3 Know about ways in which the lives of people in the countries we have studied affect each other through the development and accessibility of technology

3.4 Know about similarities and differences between the everyday lives of people in different countries due to availability and access to technology

3.5 Be able to explain how the lives of people in one country or group benefit or are adversely affected by the activities of other countries or groups

3.6 Be able to identify ways in which people work together for mutual benefit through international energy projects and aid agencies