





**Petrosains** is a modern and contemporary science discovery centre where visitors are empowered to *touch*, *play*, *feel* and *manipulate the exhibits* on display. Built for visitors of all ages, the interactive and engaging features of **Petrosains**' exhibits creates an 'innovative' environment for visitors to observe, explore, investigate, experiment, create, contemplate, discuss, debate, to question and to wonder at or about the many aspects of science and its relation to the world that we live in.

Established by **PETRONAS** to extend its commitment as a socially responsible corporate citizen, it provides a rich and stimulating environment aimed at enhancing science literacy in the nation and the passion for acquiring scientific knowledge and skills.



# **Petrosains Mission**

We provide and nurture meaningful science learning

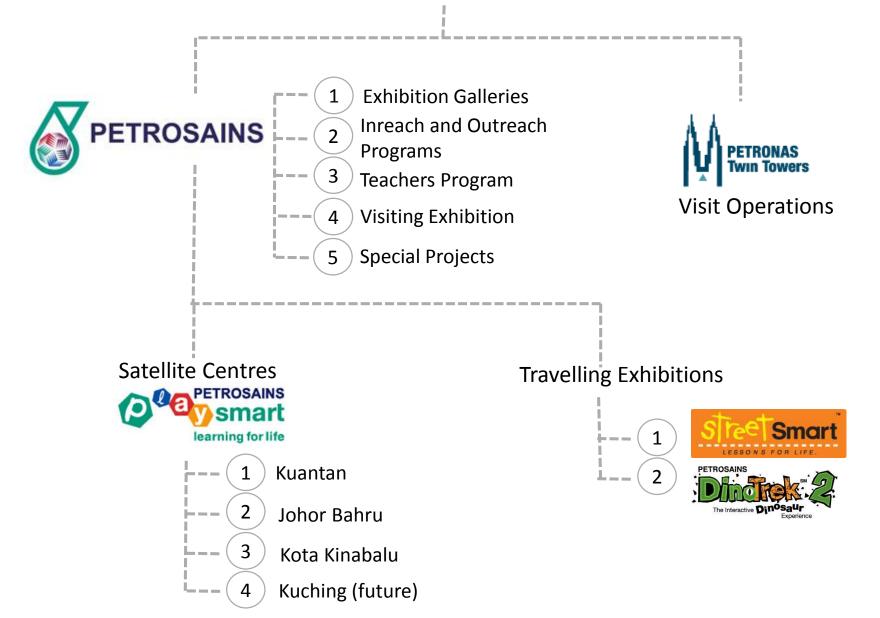
We strive for sustainability through strategic and impactful portfolio of offerings

We commit to deliver world-class customer experience We enrich people's lives and enhance the nation's future





# Product Offerings Petrosains Sdn Bhd





# Geographical Presence

Petrosains all across Malaysia



#### **Satellite Centres:**

PlaySmart Kuantan Kompleks Yayasan Pahang

PlaySmart JB
Perbadanan Perpustakaan Playsmart Johor

PlaySmart Kota Kinabalu
Perpustakaan Negeri Sabah

PlaySmart Kuching (Future)

#### **Travelling Exhibitions:**

PETRONAS StreetSmart
City One Mall, Kuching

DINOTREK 2
(Now in PSKT Kuala Terengganu)



## **Petrosains REACH**





# GRAND TOTAL OF <u>OVER 15.9 MILLION</u> PEOPLE REACHED SINCE 1999

\*as at December 2015



#### The Discovery Centre, KLCC

5.69 million visitors and counting



#### **Events and Programs**

0.60 million visitors and counting



#### **Petrosains PlaySmart Centres**

1.80 million visitors and counting



#### **PETRONAS StreetSmart**

1.49 million visitors and counting



#### **Petrosains DinoTrek**

1.25 million visitors and counting



#### **PETRONAS Twin Towers Visit Operation**

5.07 million visitors and counting

# **EDUCATION**

Develop knowledge & capabilities to support nation building

# COMMUNITY WELL-BEING & DEVELOPMENT

Improve the well-being & contribute to community development

# **ENVIRONMENT**

Conserve natural resources for current generations





# 2.1 The Role of Science Centres

- Science centres are **informal learning** institutions specifically geared towards the **improvement of scientific literacy.**
- Science centres are recognised by the Malaysian Government as contributing towards **raising the level of scientific literacy** (Malaysian Science and Technology Information Centre, 2010).
- Scientific literacy encapsulates the end goal of science centres
   expressed by individuals who understand science knowledge and
   processes, and who can make informed decisions and who are
   critical thinkers.



# 2.1 The Role of Science Centres

- When benchmarked against similar studies done in other countries, the scientific literacy of Malaysians on average remains far below that of developed nations such as U.S.A., Japan, and South Korea and is only marginally better than India (Malaysian Science and Technology Information Centre, 2010).
- Even in the U.S.A., where average scientific literacy levels are higher than Malaysia, Miller (2002) perceives the levels to still be possibly insufficient for 'a strong democratic society in a new century of accelerating scientific and technological development'.



# 2.1 The Role of Science Centres

- The Jawatankuasa Mengkaji Dasar 60:40 Aliran Sains/Teknikal:Sastera (2012) under the purview of the Ministry of Education has recognised the role of the science centre approach towards increasing scientific literacy in Malaysia in their recent strategic report.
- Science centres and its associated activities (e.g. digital initiatives, programmes, and events) are powerful change agents (Goldman & Dierking, 2005) which can effectively address the acquirement of scientific literacy (Bandelli, 2002; J. Jones, 2005) in a cost-effective and wide-reaching way.





Our Approach to Learning ...

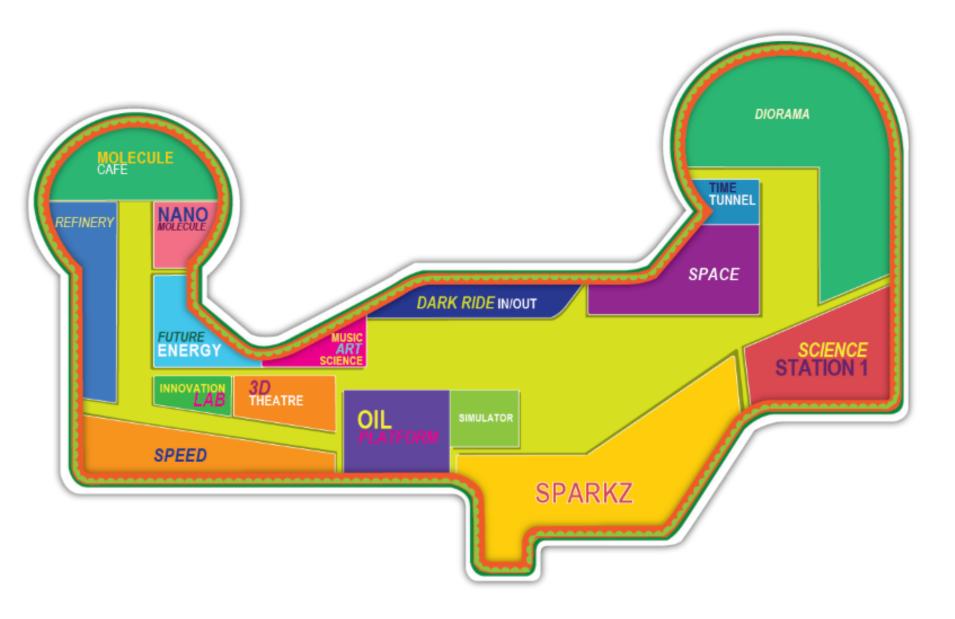
As an informal science learning institution, we aspire to provide our audience with a rich holistic Learning Experience based on the following pillars:-

- 1. Hands-On Minds-On Hearts-On
- Social Constructivism
- 3. Inquiry Approach
- 4. Scientific Skills and Thinking Skills
- 5. Creativity and Innovation
- 6. Science Communication platform
- 7. Blending of Music, Arts and Science
- 8. Free Choice Learning for all ages
- 9. Science is Everywhere
- 10. Current and Contemporary
- 11. Connection to School Curriculum
- 12. Science and Society











Start

HotScience

Dark Ride

Space

Geotime

SS1











Innovation Lab

Molecule Cafe

Speed!

Oil Platform

Sparkz

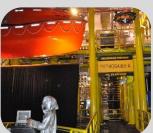




Molecule









SS3

3D Theater

**Future Energy** 

Music, Arts & Science

Exit Ride

Xplorasi Gift Shop













# PETROSAINS

#### **Petrosains Entrance**





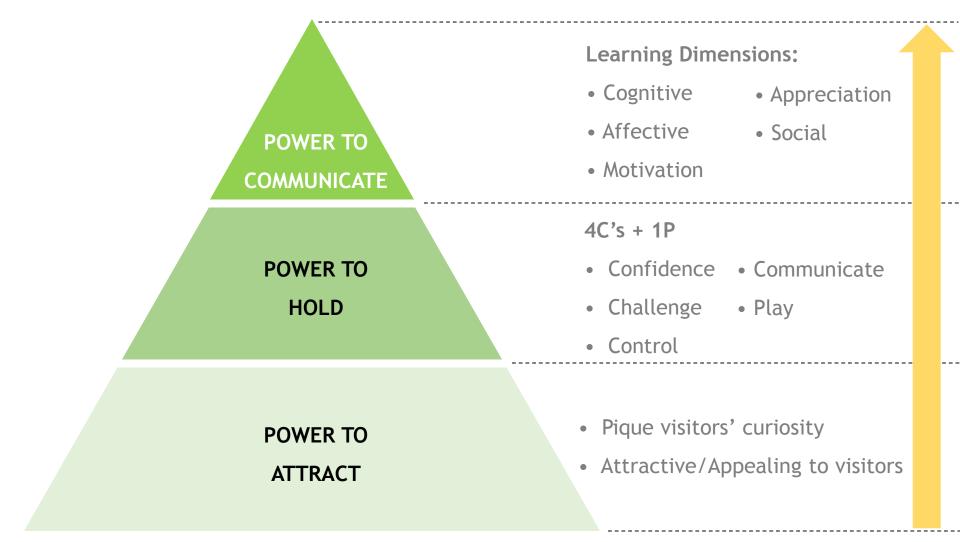
Days	Hours	
Tuesday – Friday	9:30am – 5:30pm (Last Admission: 4:00pm)	
Saturday, Sunday & Public Holiday	9:30am – 6:30pm (Last Admission: 5:00pm)	
Monday	CLOSED (except on Public Holidays and School Holidays)	

Admission Rates	With MyKad	Non-MyKad
Senior Citizen (56 years & above)	RM 10.00	RM 15.00
Adult (13 – 55 years)	RM 20.00	RM 30.00
Child (3 – 12 years)	RM 8.00	RM 18.00
Child (2 years & below)	Free Admission	

Price is inclusive of GST at 6%.

# PETROSAINS Exhibits Design Framework







#### **Public: THEMATIC CAMPAIGNS**

Petrosains thematic campaigns are a showcase of awesome science discoveries and experiments that carry special themes which have been designed to impress and educate. With mini science shows and other exciting activities, there's always something fresh and new at Petrosains, The Discovery Centre. Be prepared for a fascinating collection of eye-catching displays, thrilling interactive exhibitions and most important of all, an exciting and immersive learning experience.





19 January - 31 March 2013 Petrosains, The Discovery Centre





#### Public: Exhibit Facilitation

Assisting visitors to interact with exhibits.





#### **Public: Science Shows**

Science Shows is a science demonstrations that utilize everyday items such as plastic bottles, paper, straws, spoons, coins and much, much more to demonstrate various scientific principles. These activities encourage visitors' participation and also help them link these principles to our daily routines





#### **Public: Mini Shows**

Simple science demonstration according to the thematic campaign that used daily available items to explain various science concepts in fun ways.





#### Public: World Day

Activities to commemorate special days to encourage people to be aware & appreciate

the world around them











Нарру Father's Day











A good teacher helps us learn effectively and creatively. Watch the Video by Petrosains Staff and volunteers on their classroom memories at *Petrosains YouTube Channel*.

#### Public: School Holiday Program









# PETROSAINS

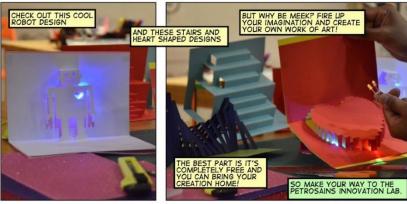
#### Public: Tinkering@Innovation Lab







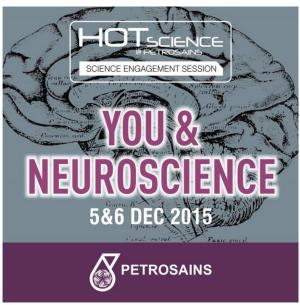




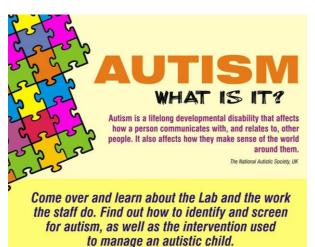


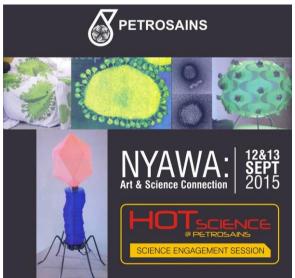
#### Public : Science Engagement















SCIENCE ENGAGEMENT SESSION



ROF. DR. LEE CHAI PENG

llam-lpm

3pm-5pm

DATE: 11 APRIL 2014 (FRIDAY) TIME: 12.00PM-1.30PM



# **School Programs**

#### Support Teachers, Develop Students

The activities under Petrosains School Programs are specially designed to complement and support science and math subjects taught in the national school curriculum from pre-school right up to secondary level. Among the activities available under this program are the Camp-in Program, Visit to Schools and the Creative Science for Schools.

Through the Creative Science for Schools Program(CSS), Petrosains brings science to life with activity based science discovery program for students visiting Petrosains. School groups visiting Petrosains can select and sign up in advance for their students from variety of age appropriate activities covering a range of disciplines. Besides adding value to their visit in Petrosains, these activities enable school children to further understand key scientific principles learnt in schools by participating in hands-on sessions facilitated by qualified and trained Science Communicators at Petrosains.

### Petrosains INREACH and OUTREACH Programs

#### Schools: Creative Science for Schools

Curriculum related activities for students using science center approach.





Schools: Visit to School









Schools: SAHABAT

SAHABAT Petrosains is one example of Petrosains' outreach program. The program is a collaboration between Petrosains and Jabatan Kemajuan Orang Asli (JAKOA)\*. This initiative was first introduced in 2002 and the program is a four-day three-night educational camp conducted by Science Communicators of Petrosains with 100 selected Orang Asli settlement. To date, SAHABAT Petrosains has been to 13 sites of the Orang Asli settlements in Malaysia. The objective of this program is to nurture the interest in and stress the importance of learning especially in science and mathematics as well as to assists the teachers in the settlements to access alternative resources for teaching and learning science.





Schools: EDUCamp





# **Educators Programs**

#### Be a better Teacher

To further nurture the spirit of learning, Petrosains tailors programs for the educators of our country. Teachers Professional Development Programs are created to inspire teachers through Petrosains learning philosophy of encouraging creativity, promoting enquiry-based learning and layering elements of play in educating. Workshops and knowledge sharing sessions are organised several times a year by Petrosains and topics include **Elements of Inquiry- Comparing Approaches to Hands-on Science**, **Process Skills and Raising Questions**. The workshops provide a hands-on approach that enriches the learning process and nurtures 'Higher Order Thing Skills' (HOTS) via utilisation of a wide range of tools and techniques.



#### **Petrosains Educators Programs**

#### **Creative Teaching Workshop**

Improvise teaching method creatively by attending this workshop.





#### **Petrosains Educators Programs**

# PETROSAINS

#### **Inquiry Workshop**





This is a workshop on Fundamental of Inquiry adopted from the Institute of Inquiry, Exploratorium in San Francisco. Participants consists of teachers, lecturer, pre-service teachers and staff from MOSTI and MOE

#### Modules conducted are:

- Comparing Approaches to Hands-on Science
- Process Skills
- Raising Questions
- Hands-on Application of Inquiry : Shadow Inquiry Investigation
- Subtle Shifts: Adapting Activities for Inquiry



#### **Petrosains Educators Programs**

#### Teachers' Professional Development Workshops







The main objective of this program is to inspire teachers through Petrosains learning philosophy which promotes fun, creative and inquiry based learning and helps them to share these valuable experiences to their students.

The teachers will be our ambassadors to conduct in-house training for other teachers in their district.

### Signature Offerings



### **Petrosains Science Show Competition**



An annual competition organised by Petrosains, this national level science competition was first introduced in 2009 as an initiative to promote effective and informal learning methods, and popularise science amongst secondary school students. Open to students from Forms 1 to 6 nationwide, hundreds of entries were received every year. After a stringent selection process by a panel of judges, shortlisted teams will compete in the state-level competition before competing in the grand finals held in Kuala Lumpur. Besides receiving cash, Petrosains' merchandise, plaque and trophy, the winning teams will also receive incentives for their school in the form of purchase of educational equipment..

This signature program sees record number 900 teams in 2015. (600 in FY2014)









### Signature Offerings



### Petrosains Science Festival (PSF)



The first ever Petrosains Science Festival was held in October 2013 and is a defining moment in Petrosains' history, as a new initiative in Petrosains' goal to create wonder and inspire the learning of science through engaging and imaginative experiences. The festival pools together and provides a unified platform for private corporations, public institutions, scientist academicians, environmentalist, artists, personalities and Petrosains to work together and storm up a funfest of science activities in the hope of inspiring and attracting Malaysians to the wonders of science. Visitors are treated to interactive exhibitions, workshops, talks, science shows, health and fitness sessions, celebrity appearances, games, contests, and many other interesting and educational activities during the weeklong celebration of science held at Petrosains, The Discovery Centre®, in the Suria KLCC Centre Court and the KLCC Esplanade.



## PSF 2014: Esplanade, KLCC Park



### **Special Projects**

### Petrosains Volunteer Program



Petrosains award-winning 'Volunteer Program' started in October 1999 with the objective of providing a learning platform for Malaysians in the field of science and technology. To date, more than 3,000 volunteers between the ages of 18 to 65 years old have participated in the program. The presence of volunteers has added value to Petrosains by providing inspiring and impactful engagement for the visitors as well as providing a platform for Malaysians to be involved in the spirit of volunteerism. With a structured training program, most of the volunteers were able to enhance their self-confidence, communication skills and become the ambassadors of science in their respective communities.









To extend the science centre experiences to communities outside of the Klang Valley, the Petrosains PlaySmart satellite centre was first set up in 2003. These Petrosains PlaySmart are placed within the community to allow easy accessibility for families and children to visit the centres. Petrosains PlaySmart features interactive exhibits and offers engaging and scientific-based activities as well as live science demonstrations similar to the activities organised at the main centre in KLCC but on a smaller scale. Petrosains PlaySmart satellite centres are currently located at Perbadanan Perpustakaan Awam Negerl Johor , Johor Bahru ; Kompleks Yayasan Pahang , Kuantan and Perpustakaan Negeri Sabah , Kota Kinabalu.



### Petrosains Playsmart: Kota Kinabalu

#### Petrosains PlaySmart Kota Kinabalu,

Perpustakaan Negeri Sabah Jalan Tasik, off Jalan Maktab Gaya, 88300 Luyang, Kota Kinabalu Sabah.





Petrosains Playsmart : Johor Bharu



### Petrosains PlaySmart Johor,

Perbadanan Perpustakaan Awam Johor, Lot 197,45 Jalan Yahya Awal, 80100 Johor Bahru, Johor Darul Takzim.

Tel: 07 224 5498 I Fax: 07 226 2109





Petrosains Playsmart : Kuantan



### Petrosains PlaySmart Kuantan,

Kompleks Yayasan Pahang, Tanjung Lumpur, 26060 Kuantan, Pahang





### PETRONAS StreetSmart



In the interest of road safety education and awareness, PETRONAS StreetSmart is a travelling exhibition brought to the public by Petrosains to present the **science behind road safety.** The exhibition showcases interactive exhibits and activities to immerse and engage visitors in learning. It aims to educate youth and children to be responsible and caring road users. At this exhibition, simulated road systems and traffic situations are set up for better learning experiences as well as to deliver the message of road safety in a fun and interesting way. The PETRONAS StreetSmart exhibition has travelled to most states in Malaysia. The first PETRONAS StreetSmart exhibition opened in Ipoh, Perak in 2001.

### Petrosains Dinotrek2







The awesome world of dinosaurs roars to life at Petrosains DinoTrek travelling exhibition. This exhibition provides a host of amazing facts and offers visitors an out of this world experience of being with the pre-historic creatures in a huge and in-your-face environment. Petrosains DinoTrek exhibition has nine animatronic dinosaurs, over a dozen interactive exhibits and offers hands-on activities to allow visitors to discover and learn about pre-historic creatures and the field of palaeontology. The DinoTrek exhibition first opened in 2003 and has travelled to many states in Malaysia including Sabah, Sarawak, Kedah, Terengganu, Pahang and Penang. It was upgraded in 2009 and renamed Petrosains DinoTrek2.

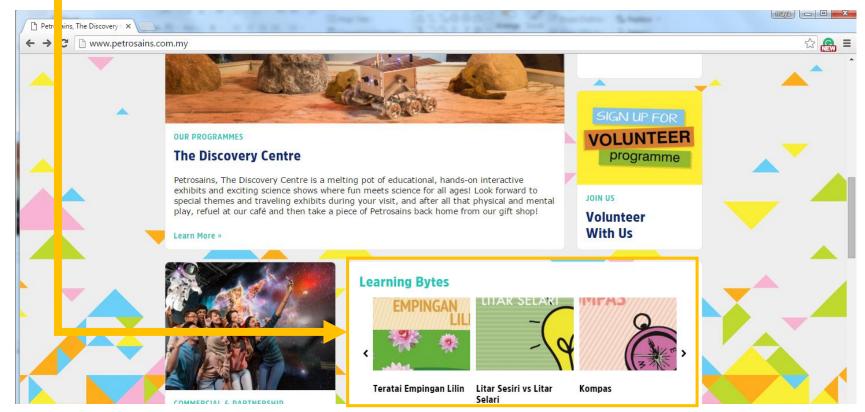




### Online Learning Platforms: Learning Bytes

Extend the learning adventure on STEM with Petrosains Learning Bytes. It consists of:

- 1. Wonderbites
- 2. Science Around Us
- 3. Blog
- 4. Citizen Science
- 5. Youtube Series

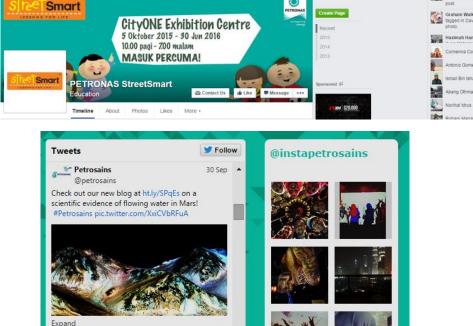




## Social Media Platforms Facebook/ Twitter/ Instagram







ANGKASA Malaysia

Tweet to @petrosains

@angkasamalaysia

@WorldSpaceWeek / Minggu Angkasa Sedunia 4-10/10/15 @ Planetarium Negara, Maklumat lanjut





### 5 Areas of Measure

- 1. SPI Research
- 2. CSI Research
- 3. Human
  Development Value
- 4. Key Achievements Anecdotes
- 5. Free Media Coverage





### Introduction

Preschool program is an interactive program offered by Petrosains Sdn Bhd to preschool students age from 4 to 9 years old.

Children will experience hands-on science and mathematics through practical experience of scientific discovery.

It is an outside classroom environment which hopefully will spark their interest in learning by doing and satisfying curiosity.



### **Objectives**

- To promote Higher Order Thinking Skills (HOTS) among pre-school students through science exploration, handson activities and problem solving.
- To provide platforms and opportunities for children to apply the psychomotor skills that are suitable with children's development (Developmentally Appropriate Practice).
- To provide an exciting outdoor experience for the preschool students to discover science through interactive activities and exhibitions.







### 1 Creative Science for Pre-Schools



## PETROSAINS

# Creative Science for Pre-schools 2014 –2016 | Activities

All About The Beats

**Leafy Day** 

Magnificent Magnets

**Animal Track** 

**Colour Play** 









The modules involves the young children in hands-on, sensory experience, science process skills as well as problem solving skills.



## CSP #PhotoGallery







More than 3000 students engaged since 2014

More than 300 teachers involved since 2014

More than 30 sessions conducted yearly



### 2 Visit to Pre-Schools





## Visit to Pre-schools | Activities

Plant in the Bottle

Cheeky Chicken Clucking Cup

Fish

Tie-dye









The modules involves the young children in hands-on, sensory experience, science process skills as well as problem solving skills.



More than 1500 students engaged since 2014

More than 20 schools engaged since 2014

20 sessions conducted yearly



**PETROSAINS** 





3 Seminar Sains Prasekolah





This seminar is the first time of its kind been offered FY2016

70 pre-school teachers, educators and parents attended.

Received overwhelming feedback | SPI#1: SPI#2:



4 School Holidays Program





4

### **School Holidays Program**



AGE 5-9

### **PRESCHOOLERS**

Set little artists free to explore colorslight and bright.

ANIMAL TRACK

30 MAY 2016 1 JUNE 2016

COLOURFUL

BATIK

BUY NOW!



A half-day program for young children during school holidays

petrosains.com.my



Various contents are offered

- Colourful Batik
- 2. Animal Tracks

## **PETROSAINS**

### School Holidays Program

Holiday! Buy your tickets now at www.petrosains.com.my/programmes/

≥3,608 · Like · 7 Comments · Share ·





A half-day program for young children during school holidays

Various contents are offered

- Colourful Batik
- **Animal Tracks**



### 5

### Playdates - An Added Value to Visit Experience



Sorting food for Healthy Food Pyramid



Homemade Ice cream activity

#### Various of STEAM-based activities are offered

- 1. Food Pyramid game
- 2. Home-made Ice cream
- 3. Storytelling
- 4. Colour Play
- 5. Tie-dye



5 Playdates - An Added Value to Visit Experience







Promote "Do-it-Together" science among family members

More than 1000 visitors engaged with Playdates offerings within 6 months operations







6

### **Engagement Sessions for Pre-school Teachers**



Engagement sessions with teachers and officers from Kuala Langat

Teachers and officers from Kuala Langat tried out "Clucking Cup" experiment



# Staff Professional Development in Early Childhood Education



Early Childhood Education Workshop by Dr Hjh Saayah Abu, IPG Kampus Bangi



## THANK YOU

Saiful Bahri Baharom Director, Strategic Planning and Science Advisory