DAY 4 9-12-53

RELEASED
DATE TIME: 3:35
BY DEC 06 2019

Department of Education
Region X-Northern Mindanao
DIVISION OF MALAYBALAY CITY
Purok 6, Casisang, Malaybalay City

DIVISION ADVISORY

This Division Advisory is issued in compliance with DepEd Order No. 8, s. 2013, this Advisory is issued not for endorsement per DO 28, s. 2001, but for the information of DepEd Officials, personnel/staff, and the public.

FIRST INTERACTIVE SCIENCE MOBILE MUSEUM

The **Avia Prime Eduvent Management** by **Xplorasi**, will be bringing the **First Interactive Science Mobile Museum** with the theme *"Curious Mind: Science Interactive Mobile Museum"* at the different venues in Region X from October 2019 – March 2020.

Participation of students and teachers to this activity is on voluntary basis. No teachers shall collect any amount from the students and the students will pay directly and voluntarily to the organizer or to the venue of Science Museum. And shall be subject to the *no-disruption-of-classes policy* stipulated in DepEd Order No. 9, s. 2005 entitled *Instituting Measures to Increase Engaged Time-on-Task and Ensuring Compliance Therewith*.

Enclosed is the letter from The Avia Prime Eduvent Management for your reference.

For the Schools Division Superintendent:

RALPH T. QUIROG
Chief Education Supervisor, CID

Encl: As stated
Copy furnished: Records Unit

TO BE POSTED IN THE WEBSITE

Avia Prime Eduvent Management

By Xplorasi Services

DEPED MALAYBALAY CITY DIVISION
RECEIVED
DATE: OCT 01 2019 TIME: 1:25
BY: gfw

September 1, 2019

DR. REBONFAMIL R. BAGUIO
Schools Division Superintendent
DEPED- Malaybalay

mobile # 0917 300 2
088-813-1246
088-314 0014
Lonella Taylo

Dear DR. BAGUIO

Greetings of peace!- **HAPPY SCIENCE!**

Avia Prime Eduvent Management by Xplorasi, is a group of Professional Educational Events Coordinator, Organizer and Exhibitor whose aim is to provide a more effective and enjoyable way of transmitting knowledge to its clientele. The group is well exposed to the various facet of education that will surely and productively guarantee total quality LEARNING.

For this season **AVIA PRIME** will be bringing in your Region, **the FIRST INTERACTIVE SCIENCE MOBILE MUSEUM** with a Theme **"CURIOUS MIND: SCIENCE INTERACTIVE MOBILE MUSEUM"**, a Travelling exhibit launched in 2013 designed to reach out to students in every corner of the archipelago, delivering exciting science exhibits to students and teachers alike.

Avia Prime, "CURIOUS MIND" have reached thousands elementary, high school and college students and toured to various regions throughout the country, including impoverished areas. With the mission of bringing the fun science to the classroom, the exhibits will be able to create a learning environment where science concepts are discovered in an entertaining way and imagination can capture the hearts of young minds and promotion of **K-12 STEM Strand (Science, Technology, Engineering and Mathematics)** that can develop the students' ability to evaluate simple to complex societal problems and be responsive and active in formulation of its solution.

"CURIOUS MIND, Interactive Science Mobile Museum" will Travel to Different Venues in REGION X-NORTHERN MINDANAO from October 2019- March 2020

In line with this, we implore your kind indulgence and request for an endorsement from your good office, for your students and teachers to visit our Science Mobile Museum where they can **discover and re-discover The World of Science.**

Rest assured, that we will abide by the DEPED GUIDELINES FOR THE OFF-CAMPUS ACTIVITY, no teachers shall collect any amount from the students and the students will pay directly and voluntarily to the organizer or to the venue of Science Museum.

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Email add: aviaprime_education@yahoo.com

RA_110_First Int...

DEPARTMENT OF EDUCATION
DepEd Region X – Northern Mindanao

Regional Advisory No. _____, s. 2019
November 15, 2019

DepED-X
Cagayan de Oro City

In compliance with DepEd Order No. 8, s. 2013,
this Advisory is issued not for endorsement per DO 28, s. 2001,
but for the information of DepEd Officials,
personnel/staff, and the concerned public.
(Visit deped10.com)

RELEASED

FIRST INTERACTIVE SCIENCE MOBILE MUSEUM

The Avia Prime Eduvent Management by Xplorasi will bring the First Interactive Science Mobile Museum with the theme " Curious Mind Science Interactive Mobile Museum" at the different venues in Region X, on October 2019 to March 2020.

The target participants are elementary, high school, and college students from both public and private schools of DepEd Region X

Participation of both public and private schools shall be subject to the *no disruption-of-classes policy* stipulated in DepEd Order No. 9, s. 2005 entitled *Instituting Measures to Increase Engaged Time-on-Task and Ensuring Compliance Therewith.*

For more information, please contact *Mr. Sylfred Serge Gonzales* at (02)697-6361/(02)799-0839/0915-286-3848/0928-390-8133 or through email at

Enclosed is the letter from the Avia Prime Eduvent Management, for your reference

Immediate and wide dissemination of this Advisory is desired

DR. ARTURO B. BATOCOT, CESO III
Regional Director

P.P
VICTOR G. DE GRACIA, JR, PhD, CESO V
Assistant Regional Director

Avia Prime Eduvent Management

September 1, 2019

Avia Prime Eduvent Management

By Xplorasi Services

September 1, 2019

2019-779
DEPED MALAYBALAY CITY DIVISION
RECEIVED
DATE: 9-4-2019 TIME: 1:25
BY:

DR. REBONFAMIL R. BAGUIO
Schools Division Superintendent
DEPED- Malaybalay

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Avia Prime Eduvent Management

By Xplorasi Services

"I Have no Special Talents. I am only passionately **CURIOUS**"
-Albert Eistein

Make a Difference... Visit

"CURIOUS MINDS, INTERACTIVE SCIENCE MOBILE MUSEUM

"GET INVOLVED IN CREATING OUR FUTURE SCIENTISTS".

We look forward to hearing from you with regard to this proposal. Should you wish to discuss details further, feel free to contact us: **(02) 697 6361 ; (02) 799 0839 ; 09152863848 ; 0928 3908133 ; 09063505088 ; 09289786248**

Thank you and God Bless!

Your education partner,

SYLFRED SERGE GONZALES
Marketing Executive for Education

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Avia Prime Eduvent Management

By Xplorasi Services

"CURIOUS MINDS: Interactive Science Mobile Museum

Creates Experiences and Opportunities for students to enjoy Science with more than 30 Educational Science Exhibits to Discover.
We created highly visual, colorful and well-crafted exhibits that employ graphics, computer software and the latest technology to present scientific phenomena in the best way possible.
Partnering with Science Communities and worked with Different Science Organizations

Avia Prime is a company composed of Professional Educational Events Coordinator/Organizer/Exhibitor whose aim is to provide a more effective and enjoyable way of transmitting knowledge to its clientele. The group is well exposed to the various facet of education that will surely and productively guarantee total quality learning.

Avia Prime envision itself as a group of professionals devoted and willing to take risk on the relevant innovations for the common good in the field of educational evolution, experience and expertise as means for socio-economic recovery.

Avia Prime missions is to inculcate contextualize Educational Tourism in the system of global competence applicable in all walks of life and to enhance a simplified learning process in response to the signs of the time.

Main Office:
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Email Add: aviaprime_education@yahoo.com
FB Page: CuriousMinds-Interactive ScienceMobile Museum

Avia Prime Eduvent Management

By Xplorasi Services

"CURIOUS MINDS: Interactive Science Mobile Museum

2 Hours of Full of Learning & Experience

The "ChemSequence"

Time Slots: 8:00am-10:00am | 10:00am-12:00nn | 1:00pm-3:00pm| 3:00pm-5:00pm

Mobile Science Museum Entrance

⇩

Welcome "the Future Scientist"

⇩

Distribution of Science & Technology Questionnaires

⇩

Scientist Orientation-House Rules

⇩

The Science Entertainment

⇩

I Know... You Know...

⇩

XXX: Experience Explore Excel

Discover & Re-Discover the World of Science

Guided Exhibit

⇩

The Scientist E=mc Q & A

⇩

Questionnaires must Submit to the Coordinator or Science Adviser

⇩

I LOVE SCIENCE! CURIOUS MINDS!

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Avia Prime Eduvent Management

By Xplorasi Services

"CURIOUS MINDS: Interactive Science Mobile Museum

The SCIE-xhibit Stations

The Curious Men & Women | The Future Scientist | Tree of Knowledge | Light of the Dark | Virtual Reality | Science of Life | Science Games | PhotoCLICKtensis | Experiment Room | Magic or Science | Evolution of Technology | The Technobot

The SCIE-xhibit

Plasma Sphere	**Fresnel Lens**	**Strobe Light Carousel**
Body Conductor	**Infinity Mirror**	**Time Freeze**
Human Battery	**Optical Mirage**	**Cloud Ring**
Magical Levitation	**Polarizing Filter**	**Head on a Plate**
Magnetic Sculpture	**Solar Cell**	**Bazzooka**
Bernoullis Blower	**Cycloid Racer**	**Circuit Racer**
Tornado	**Pythagorean Theorem**	**Energy Needs Work**
Vortex Racer	**Whirlpool Section**	**Illusionist**
Face Kaleidoscope	**Pin Screen**	**Body Paint**
Fiber Optics	**Stereo Vision**	**Light Mix**

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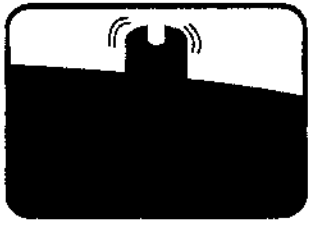
Exhibits on Electricity and Magnetism

thelearningspace

EXHIBITS ABOUT
Electricity & Magnetism

Magnetic Pendulum

Slowly rotate the black table and observe the movement of the pendulum.



What happens to the pendulum when it is over each group of magnets?

What's happening?

The magnet in the pendulum has its south and north poles marked by red and blue paint. The magnets on the table are colored according to the same convention. There are three sets of magnets, each set has a different combination of exposed poles. When the sets are moved under the pendulum, the pendulum starts to swing without you having to touch it. Since like poles repel and opposite poles attract, the pendulum behaves differently when each group of magnets are turned underneath it.

Electric motors, audio speakers

Body Conductor

Blow air into your forefingers to moisten them. Using one finger from each hand, touch the two metal strips at the same time.

Join hands with 1 or more persons and let each free hand touch one metal strip.

What's happening?

The human body can be a conductor of electricity as it is largely composed of water. When you touch both metal strips, you are in fact completing the electric circuit. A very small electric current flows through your body that is too weak for you to feel. When you join hands with another person and have each one touch the metal strips, the electric current is still able to pass through your bodies to complete the circuit.

Switches, Appliance Safety (Grounding)

Magnetic Pendulum

Body Conductor

Generator

Turn the crank slowly. Observe the gauge.

Turn the crank the other way.

What happens to the gauge needle when you turn the crank?

What's happening?

When one end of the horseshoe magnet turns towards the coil, its magnetic field induces electric current to flow through the wires, similar to a paddle wheel causing the water in a channel to flow. This setup is a very simple demonstration of how to turn mechanical energy (by rotating the magnet) into electrical energy and is the essence of all electric generators and motors.

Notice that when the other end of the magnet takes its turn to move along the coil, the needle in the gauge swings the other way and vice versa. This is because the two ends of the magnet have opposite magnetic field directions, causing the induced electric current in the wire to go back and forth. This current is called an alternating current.

Electric motors, power generators

Hand Battery

EXHIBITS ABOUT
Electricity & Magnetism

EXHIBITS ABOUT
Electricity & Magnetism

Energy Needs Work

Turn the crank and press one of the buttons.

What happens when you select a bigger light bulb?

Power generation and consumption.

What's happening?

Inside the generator is a coil of copper wire around a magnet. As you turn the crank, electricity is being induced to flow through the wires to power the light bulbs. Turning the crank faster induces more current to flow, thus making the light bulb glow brighter.

When you select a bigger bulb to turn on, it becomes harder to crank up the generator. The bigger bulb has a higher resistance to electric current. If you try to press all the buttons at the same time, the crank becomes even harder to turn because the total resistance of the bulbs add up to oppose the flow of electricity. In order to keep all the bulbs glowing, you need to produce more electricity by exerting more effort in turning the crank.

Energy Needs Work

EXHIBITS ABOUT
Electricity & Magnetism

Magnetic Lines of Force

Hold the bar magnet slightly above the table. Observe the compasses underneath.

What happens when you move the magnet across the compasses?

Navigation, Geology

What's happening?

A compass consists of a magnetized needle that is free to rotate and align itself with the Earth's magnetic field. The compasses all point towards north, the needles almost parallel to one another. When you bring the bar magnet closer, its magnetic force becomes a much stronger influence on the compasses than the Earth's magnetic field. The needles will then align themselves to the nearest magnetic lines of force from the bar magnet. Even if the magnetic fields are invisible, you can figure out their shape by observing the pattern of the compass needles.

When you quickly rotate the bar magnet, the needles begin to spin wildly as pointers are either being attracted or repulsed by the north and south poles of the magnet.

Magnetic Lines of Force

Plasma Sphere

Gently touch the glass globe with one finger.

What do you feel after touching the glass for a long time?

Astronomy, neon signs, modern TVs

What's happening?

The glass globe contains plasma – a hot, ionized gas. Plasma is also defined as being the 4th state of matter, as it does not consist of molecules like the other 3 states instead, a plasma is made up of ions.

A plasma is simply a gas-like cloud containing charged particles such as electrons and ions. The electrons are broken free from a parent atom or molecule, and that atom or molecule becomes an ion. The electron has a negative charge, and the ion has a positive charge. When these charged particles move about within the plasma, they are changing the local characteristics of the electro-magnetic field. This combined with the oscillating electro-magnetic field from the electrode will "excite" ions, molecules, and atoms. When these particles become excited, they very quickly radiate the energy in the form of a photon, or unit of light. This is what makes the plasma emit it's characteristic color, and the color will depend upon the gas that originated it, and its temperature. The characteristics of how these electro-magnetic fields combine is what determines the overall appearance of the plasma globe. The gases used in plasma spheres are usually argon, neon and nitrogen.

Plasmas are the most common phase of matter. Some estimates suggest that up to 99% of the entire visible universe is plasma!

Electron Bender

Exhibits on Forces

thelearningspace

EXHIBITS ABOUT
Forces

Vortex

Drop a coin at the top of the track. Try coins of different sizes.

Can you create the same effect without using the track?

Washing machines, Race tracks

What's happening?

Dropping a coin on the track gives it an initial velocity and guides it to travel around the top of the funnel. It develops a centrifugal force that keeps it from falling over. To keep the coin from slowing down, the parabolic shape of the funnel gives the coin a shorter and shorter distance around the funnel. The coin rolls faster, maintaining the centrifugal force needed to keep the coin rolling on its side. When the coin reaches the bottom of the funnel, the shape is no longer parabolic, so the coin immediately drops down.

Gyroscope

Hold the wheel up with one hand and spin it as fast as you can. Let go.

What happens to the wheel as it turns around the axle?

Airplanes, Rockets, Bicycles

What's happening?

When you spin the wheel fast enough, the forces that tends to make it fall down are continuously rotated, canceling themselves out. No matter what angle you hold the wheel up, it will try to maintain that angle without falling down. This is the main principle of gyroscopes.

But what makes the wheel revolve around the steel pole? The wheel revolves because of gravity. The gravitational force continuously acts upon the wheel as it spins on its axis. When this gravitational force, as it is rotated, acts on the sides of the wheel, there is no other force to balance it. This makes the wheel revolve around the pole.

Vortex

EXHIBITS ABOUT
Forces

Chaotic Pendulum

Try to make the two pendulums start at exactly the same position as possible. Release both handles at the same time.

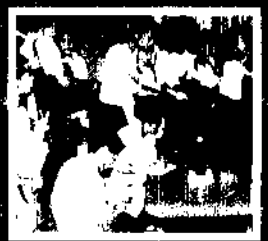
After some time, do the pendulums move the same way?

What's happening?

This exhibit shows what happens to a large pendulum when smaller pendulums are attached to it. Each of these pendulums influence the motions of others in the system, and this produces a complicated and unpredictable overall movement.

It would be very difficult to make the pendulum swing exactly the same. Just a tiny difference in the way you move and release the handle can make drastic changes in its later movements. This high sensitivity to starting conditions to influence future behavior is a characteristics of chaotic systems.

Weather, fires, stampede



Bernoulli Blower

Chaotic Pendulum

EXHIBITS ABOUT
Forces

Air Bazooka

Aim the air bazooka at a target. Pull hard on the handle inside the air bazooka. Release.

What do you feel when you put your hand in front of the air bazooka?

What's happening?

When you shoot the air bazooka, you are actually pushing billions of air molecules!

The air around us, although oftentimes invisible, is composed of molecules. Unlike solids and liquids, air molecules are spaced very far apart. Using machines like the air bazooka, you can compress air rapidly to make it transfer force or energy.

When you pull on the triggering mechanism of the air bazooka, you are storing potential energy. When you let go, this potential energy is released as kinetic energy to the air molecules directly in front of the bazooka. These air molecules in turn disturb the molecules directly in front of them, and so on until the energy is eventually dissipated and absorbed. You can feel this energy when you put your hand or face in front of the air bazooka when it is being operated.

Pneumatics

EXHIBITS ABOUT
Forces

Bernoulli Blower

Catch the floating ball in your hand. Put it back and try make it float in the air.

Why does the ball stay afloat? Why doesn't the ball get blown out of the air stream?

What's happening?

As the ball floats above the fast moving air, the air that is moving fast along the sides of the ball exerts less sideways pressure on the ball than the still air in the room. If the ball tries to escape, the higher pressure outside the airstream pushes it back. This is why the ball stays in the center of the airstream. Gravity and the force of the airstream balance each other out to make it float in midair.

Airplane flight, car design, perfume atomizers

EXHIBITS ABOUT
Forces

Newton's Laws

Slide one of the disks with your hand along the surface of the table and release.

What makes the disk slide across the table for a long time?

What's happening?

Isaac Newton's First Law of Motion:
An object will stay at rest or move at a constant velocity (constant speed in a straight line) unless acted upon by an unbalanced force.

Isaac Newton's Third Law of Motion:
To every action there is an equal but opposite reaction.

The table is a low friction table using air pumped from underneath. The disks are actually sliding not against the surface of the table, but on a thin cushion of air. This makes the table a good place to experiment Newton's first and third laws of motion. Rubber bands are stretched across the sides of the table to make the disks spring back and forth across the table.

Study of forces, hovercraft, printing, manufacturing

Polarized Light Mirror

Place one of the disks with regular transparent tape strips on its surface into the holder between the polarizing filters.

Look through the lens while slowly rotating the front polarizing filter.

What makes the colors you see in the disk with the tape?

Photography, eye protection, manufacturing

What's happening?

The colors that you see result from differences in the speed of polarized light as it travels through the transparent tape.

When polarized light enters the tape, its direction of polarization will be resolved into two perpendicular components. One of these components will be parallel to the length of the tape, and one will be perpendicular. As they travel at different speeds through the tape, they become out of step. When these out-of-step light waves emerge from the tape on the other side, they recombine, making light with a different polarization than the original light's.

The white light shining from the back is made up of light of all different colors or wavelengths. Since the index of refraction of the tape is different for each color of light, each color has its own unique pair of speeds as it passes through the tape. The result is that the polarization of each color is changed by a different amount for a given thickness of tape.

When a second piece of polarizer is placed over the tape and rotated, it transmits different colors at different angles. This accounts for the color combinations that you see at a given angle, and for the changes in color as the polarizer is rotated.

Infinity Mirror

Peep through the hole in the front mirror.

What do you observe? Try twisting the front mirror from side to side.

Lasers, visual effects, architecture

What's happening?

What happens when you place two mirrors in front of each other? You get an image of infinity! The image reflected by the first mirror is reflected off the second mirror towards the first and so on to infinity. What you see is an endless recession of reflections towards the center. According to the laws of light reflection, the angle of reflection is equal to the angle of incidence. When you twist the first mirror slightly, the reflection appears to bend because the angle of reflection increases with each repeated reflection.

Twist the mirror in different directions to see more interesting patterns of reflections. Observe also how successive reflections make the lights dimmer as they are progressively absorbed by the mirror.

Optical

Look at the object on top of the hole. Try touching it. What happens?

Are you able to find where the real object is?

Satellite dishes, antennae, reflectors

What's happening?

This exhibit demonstrates that light can be redirected and refocused to form virtual images that are not really there. The exhibit consists of two parabolic dish mirrors facing each other. This exhibit works because of the shape of the mirrors - a paraboloid of revolution. This shape concentrates light, radiation or sound coming from its front towards its focus. In this exhibit the image of the object gets reflected twice. First, the object is reflected all around by the top mirror. Second, this image is then reflected off the bottom mirror and gets concentrated on its focus just above the hole on top. The parabolic mirrors reflect the image from all around so that the image formed at the top is realistic enough to be mistaken as a real object.

Solar Cell

Push the yellow button for about 30 seconds.

Can you see the small light in the house model turn on when you release the switch?

What's happening?

Solar cells that collect sunlight are also called photovoltaic cells. Photovoltaics, as the word implies (photo = light, voltaic = electricity), convert sunlight directly into electricity.

Photovoltaic (PV) cells are made of special materials called semiconductors such as silicon. Basically, when light strikes the cell, the energy of the absorbed light is transferred to the semiconductor. The energy knocks electrons loose, allowing them to flow freely. This flow of electrons is a current, and by placing metal contacts on the top and bottom of the solar cell, we can use or store that current for future use.

The exhibit uses a rechargeable battery to store the electrical energy collected by the solar panel. When you turn off the light source, the exhibit automatically uses up the stored electricity to light up the model house.

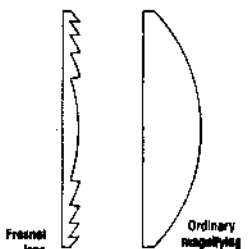
Longer exposure to the "sun" (main light source) means a longer time for the small light in the model house to stay on.

Applications

Power generation, calculators

Fresnel Lens

A lens can be as thin as a sheet of paper



CROSS SECTIONS

Place your hand on the other side of the lens and move it forward and backward. What do you notice?

Applications

Lighthouses, overhead projectors, theaters, vehicle headlamps, traffic lights

What's happening?

If you have ever looked at the lens of a magnifying glass, you know that it is thick in the middle and thinner at the edges. It would not be very easy to make a big magnifying glass lens because it would be thick, heavy and hard to mount.

The thin piece of plastic in the exhibit is called a Fresnel lens. It is flat on one side and ridged on the other. The basic idea behind a Fresnel lens is simple. It is basically a plastic magnifying glass lens sliced into a hundred concentric rings (like the rings of a tree). Each ring is slightly thinner than the next and focuses the light toward the center. Each ring is flat on one side and the same thickness as the others. To focus the light toward the center, the angle of each ring's face is different. With a design like this, you can make the lens extremely large if you like. Large Fresnel lenses are often used as solar concentrators.

The Inventor

The fresnel lens is named for its inventor, French physicist Augustin Jean Fresnel. Fresnel studied light and optics in the 19th century.

Fiber Optics

Choose a figure from the disk under the light by rotating it .

What can you see at the other side of the optic fibers?

What's happening?

Fiber-optic lines are strands of optically pure glass as thin as a human hair that carry digital information over long distances.

The light in a fiber-optic cable travels through its core by constantly bouncing along its length -- a principle called total internal reflection. Fiber optic cables are designed so that the sides of the cable do not absorb any light from the glass core. Because of this, the light wave can travel great distances.

Some important uses for fiber optics are for medicine (endoscopy) and for telecommunications (telephones and the world wide web).

Applications

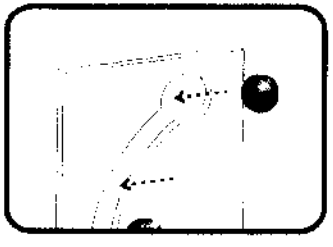
Medicine, telecommunications, Internet

Body Paint

EXHIBITS ABOUT
Perception

Straight Rod, Curved Hole

Can a straight rod pass through a curved hole?



Slowly turn the base and try to pass the rod through the curved slot.

Industrial design, Astronomy

What's going on?

Sometimes our minds can deceive us by jumping into conclusions. Yes, the straight rod can pass through the curved hole.

In this exhibit, the steel rod traces out the surface of two cones as it rotates on its vertical axis. The acrylic plate acts as a plane intersecting these cones through this vertical axis. Because the rod passes through the plate at an angle, the path that the edges of the rod makes through this plane is not straight but rather curved. This curve is called a hyperbola and is the exactly the same shape as the slots. This is why the straight rod is able to pass cleanly through even though the slot is curved.

EXHIBITS ABOUT
Perception

Pin Screen

Turn down the screen to reset the pins. Turn it up and press your face or hand gently on the pins.

Make impressions using other objects.

Manufacturing Industry, Computer Graphics

What's going on?

When you press your face on the screen, each pin is pushed as far as the contours of your face makes it. Each pin corresponds to a very small area of your face, when all the pins are viewed together they are able to make a three dimensional image of your face. The play of shadows also helps to enhance the 3D effect. You can easily recognize the image created because the human brain is very good at pattern recognition, in this case, a human face.

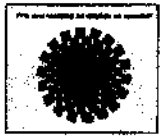
Straight Rod, Curved Hole

Pin Screen

EXHIBITS ABOUT
Perception

Parallel or Tapering Lines?

- The perception produced by this illusion occurs because of the way that neurons that detect dark and bright contrasts in the brain interact.
- Because of the way your brain processes visual information, the stepped patterns of the blocks seem to make horizontal lines taper to the right and left.
- This illusion only works when the blocks are shifted less than one-half the width of the blocks. The illusion completely disappears when the pattern is made into a checkerboard pattern.



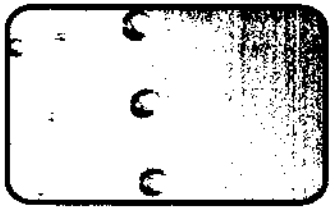
Circles or Spirals

Concentric circles with specific patterns can be perceived as spirals by our brains. Because of the patterns, and also because of the way our eyes move around the circle, the brain is tricked into thinking that it is seeing a spiral pattern, instead of unconnected concentric circles

EXHIBITS ABOUT
Perception

Time Freeze

Sometimes we need to freeze an event that is happening too fast to understand it.



- **Turn the strobe light on with the left switch.**
- **Use the knob to control the speed of the light flashes.**

Scientific visualization, photography

What's going on?

A quick flash of light can help us investigate scientific phenomena

This exhibit uses the phenomenon called *persistence of vision*, the ability of the human brain to retain a visual impression for a fraction of a second.

Scientists use many tools to help them understand how things work. One of these tools is photography. Using the strobe light, the exhibit simulates a succession of very fast photographs of the water gushing out of the shower faucet. Were you surprised of what you found out about the water drops? The strobe light helps us understand quick-moving phenomena by seemingly freezing time on its tracks.

EXHIBITS ABOUT
Perception

Head on a Plate

Our eyes can be easy to fool.

Have a friend go to the back of the exhibit to put his or head through the hole in the table. Looking from the front of the exhibit, what do you see?

Magic tricks, interior design

What's going on?

Many magicians use mirrors to make spectacular illusions. For this head-on-a-plate illusion, try to inspect the table to see how the illusion works.

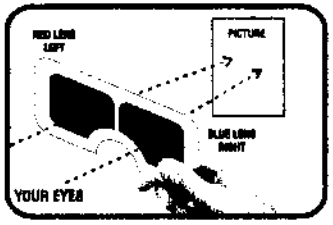
The table actually has mirrors placed strategically between the table legs. The mirrors reflect the floor tiles and the wall patterns beside it, making the illusion of a complete floor and wall behind and below the table. Of course, this hides the body of the person inside the table, making the magical illusion that his head does not have a body under the table.

In architecture and interior design, this illusion can be used to make cramped spaces seem bigger. Many interior designers use mirrors to create the illusion of a room being larger than it really is.

EXHIBITS ABOUT
Perception

Stereo Vision

Two eyes give us the ability to perceive depth.



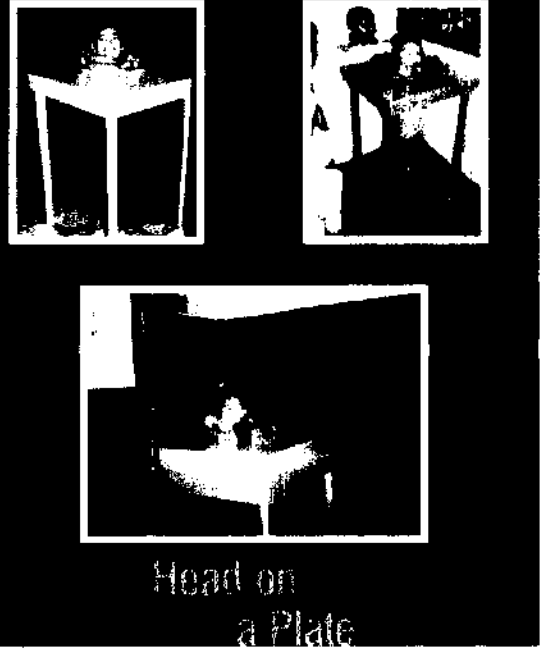
Use the colored glasses to look at the framed images. Be sure to have the red lens on the left and the blue on the right.

Geology, entertainment, sports

What's going on?

Humans have two eyes located side-by-side in the front of their heads. Thanks to the close side-by-side positioning, each eye takes a view of the same area from a slightly different angle. The two eye views have plenty in common, but each eye picks up visual information the other doesn't. The small differences between the two images add up to a big difference in the final picture! It is a 3-dimensional stereo picture. We need this ability to catch a ball, navigate streets, drive a car, etc.

In this exhibit, two slightly different images are superimposed over the other, representing two eye views. For the left view image, the red component of the image is filtered out. For the right view image, the blue component is filtered out. When you wear the glasses, your brain is tricked to seeing two views, and it combines the views to make a 3-D image that seems to have depth.



Stereo Vision

Exhibits on Mathematics

thelearningspace

EXHIBITS ABOUT
Mathematics

Hyperbolic Slot

Can a straight rod pass through a curved hole?

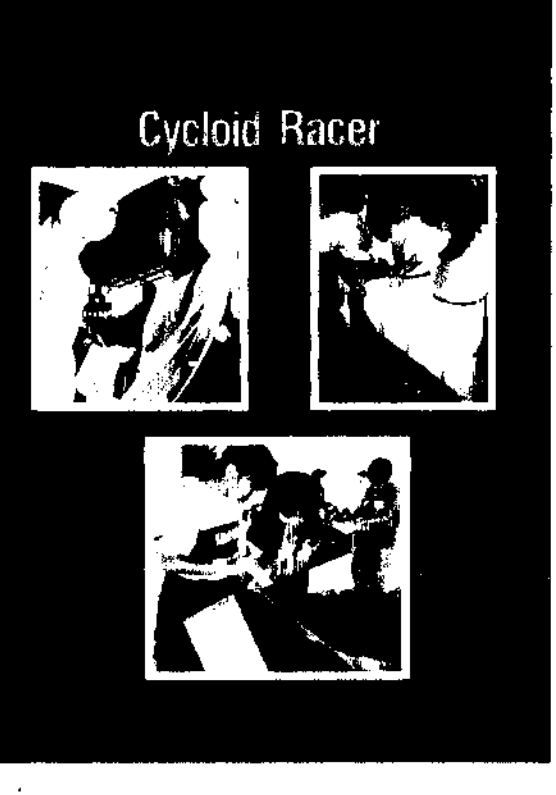
Slowly turn the base and try to pass the rod through the curved slot.

What's going on?

Yes, the straight rod can pass through the curved hole.

In this exhibit, the steel rod traces out the surface of two cones as it rotates on its vertical axis. The acrylic plate acts as a plane intersecting these cones through this vertical axis. Because the rod passes through the plate at an angle, the path that the edges of the rod makes through this plane is not straight but rather curved. This curve is called a **hyperbola** and is the exactly the same shape as the slot. This is why the straight rod is able to pass cleanly through even though the slot is curved.

Industrial design, Astronomy



Probability Machine

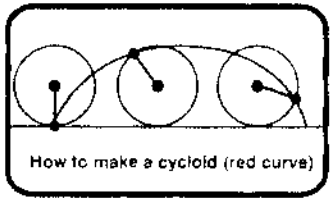
Thematic Exhibits

thelearningspace

EXHIBITS ABOUT
Mathematics

Cycloid Racer

Which marble will win, the one rolling down the shorter straight track or the one rolling through the longer curved track?



Put a ball into the launching pad of each track. Using the flap, release the balls to go down the slope.

What's going on?

A cycloid is the curve defined by a fixed point on a wheel as it rolls in a straight line. The curved track used in the exhibit is half of an upside-down cycloid.

The upside down cycloid is the curve of fastest descent under gravity.

Even with the cycloid track having the longer distance, the ball rolling down its slope beats the marble rolling down the shorter straight track.

The cycloid accomplishes this because it maximizes the acceleration of the marble. The steeper angle of entry imparts a greater acceleration than the straight slope.

Design of roller coasters, Atomic physics, Electronics

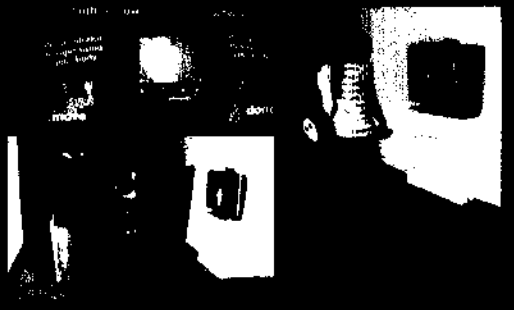
Children make doodles using light sources such as flashlight and colored penlights. A digital camera captures all the light movements and then displays them. A timer helps the kids know how long to make a doodle.

The water cycle is a vital cycle of nature that we need to preserve. Children draw up water from a well to use. The water flows into lakes and rivers. The children then make clouds using the cloud generator. By pulling on a string, they make rain, thus returning water back to the earth. The water table be seen being replenished by the rain.

In this exhibit, children can play and distort with images of their faces using a virtual funny mirror. They can make themselves look like a chipmunk, an ogre, atwo-headed monster or one without.

Children make stop-motion animations using letters, numbers and shapes. A camera controlled by a button takes a picture of whatever is in the stage. The software program then runs the pictures in sequence to make the animation.

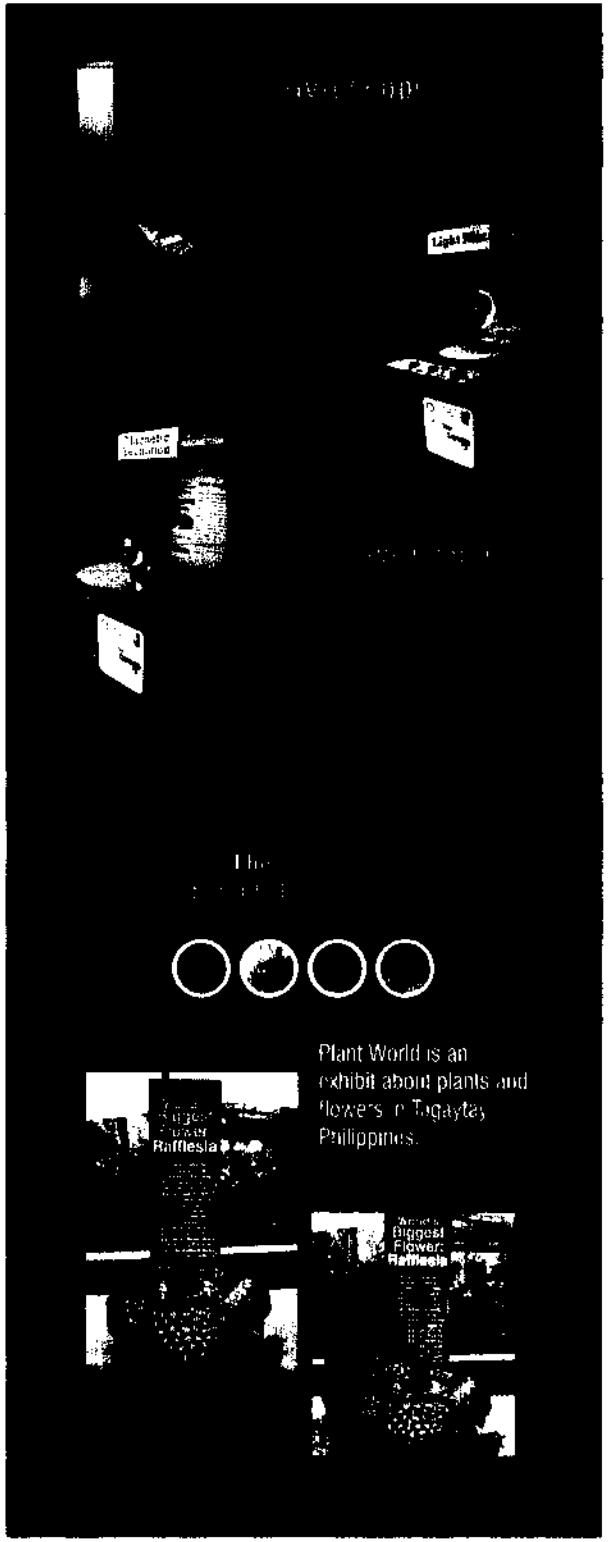
Using body movements, children can paint colorful pictures as silhouettes of their figures are captured over time.

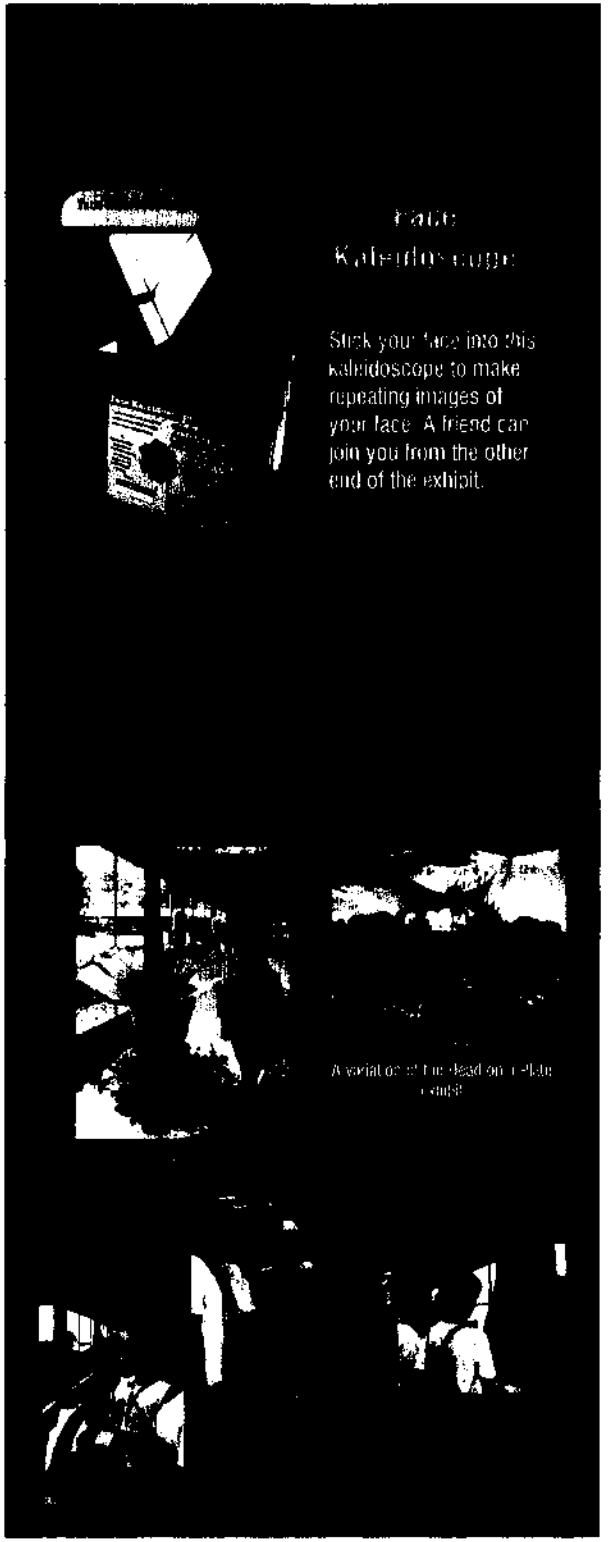


Children play with balls as they float on air provided by outlets embedded on the floor.

Ball Blaster

Children can blast balls into a target with the ball blaster. Balls are sucked into the cannon from below following Bernoulli's principle. A continuous flow of air flings the balls onto the targets.


Plant World is an exhibit about plants and flowers in Tagaytay Philippines.
Rafflesia
Rafflesia


Face Kaleidoscope
Stick your face into this kaleidoscope to make repeating images of your face. A friend can join you from the other end of the exhibit.