

Details of Hands-on Sessions on offer at National Science Centre, Delhi

Only for 6th to 12th class students

Biotechnology

S N	Name of activity	Highlights	Class for which the activity is designed.	Max intake per session
1	Isolating the Stuff of Life	Extraction and precipitation of DNA from living cells, centrifugation technique, estimation of DNA, building a model of double helix	9 th to 12 th	30
2	Racing of Molecules	Gel electrophoresis techniques, micro pipetting techniques, casting an agarose gel, loading and running dyes on agarose gel, separation of different dyes, determining composition of dye samples	9 th to 12 th	30
3	Investigating DNA	Agarose gel electrophoresis, loading and running DNA samples on agarose gel, visualization of DNA bands under gel documentation system, analysis of gel and estimation of DNA molecules size	11 th and 12 th	30
4	Molecular Scissors	Digestion of lambda DNA with different restriction enzymes, loading and running digested DNA on agarose gel, determining the number of restriction sites for various enzymes, analyzing length of DNA fragments	11 th and 12 th	30
5	Peep inside Cells	Microscopic observation of different prokaryotic and eukaryotic cells like bacteria, live paramecium, animal cells etc, identification of cell organelles, staining and identifying bacteria from cell shape, size measurement of cells and organelles using microscope, use of stereomicroscope	8 th & 9 th	40

General Science

S N	Name of activity	Highlights	Class for which the activity is designed.	Max. Number of students/ batch
1	Make your own bridge and test	Participants will design their bridge using given material and will test its load bearing capacity. The aim of the session is to acquaint with various type of bridge's structure and other parameter involved.	9 th -12 th	40
2	Make your own flute	Student will make their own Flute. They will also learn how different musical notes are produced by varying length of air column.	8 th to 10 th	40
3	Tesla Coil	Student will make their own tesla coil using transistor, resistance copper wire etc. Tesla coil is an electrical resonant transformer circuit used to produce high-voltage.	9 th -12 th	40
4	Speaker and MIKE	Students will make a low cost speaker and mic using bottle head, magnet and small coil. Students will listen their voice and also	9 th to 10 th	40

	Out of Waste	learn the science behind it.		
5	Make your Innovative Top	Students will make their own Innovative Top using cardboard and pencil etc. They will learn about symmetry and concept of moment of Inertia.	6 th to 8 th	40
6	Simple Electric motor	Student will make simple electric motor and will learn about law of electromagnetic induction.	9 th to 12 th	40
7	Static Electricity	Will learn about Static Electricity and its nature. Students will make Van de Graff generator. Added feature of this package is "Science on Sphere" Show on relevant topic.	9 th and 10 th	40
8	Air & Water	Student will learn about properties of air and water, atmospheric pressure, water borne diseases, safe drinking water etc . Added feature of this package is "Science on Sphere" Show on relevant topic.	6 th to 8 th class	40
9	Design your Roller Coaster	Students will make their own Roller Coaster for a marble ball using different type of paper. The aim will be to design a coaster for maximum time of travel by the ball. This activity will foster Student's creativity and will teach them concepts of mechanics.	9 th to 12 th	40

Robotics

Sr. No.	Name of activity	Highlights	Class for which the activity is designed.	Maximum intake
1	Hand generator and Castor Boat	Students will assemble their own robotic car using LEGO kits and power the motor using their own hand generated electricity. Using LEGO kits the students will also assemble Castor bot and do their own programming using NXT brick	6 th to 8 th	30
2	Reaction car	Will make a small robot car out of waste bottle which runs on the principle of Newton third law.	6 th to 8 th	40
3	Line follower Robot	Using LEGO kits the students will assemble Castor bot and do their own programming using NXT brick. Using sensors they will make line follower robot and learn basic concepts of maze solving.	9 th to 12 th	30

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Innovation Space in your service

Membership of Innovation Space

The facility of Innovation Space membership is available to Institution or Individual students for one year.

Individual membership

Individual membership is available to student of school or Science / Engineering College. It is available to student of Class VI onwards. The present fee is Rs. 1000/- for one year commencing from date of becoming member. Please refer to term and condition of Individual membership for more details.

Institutional Membership

Institutional Membership is available for schools and engineering college whereby they can send their students to carry out their Innovative project at the Centre. School and colleges can become Institution members by paying annual membership fee of Rs. 6000/- (For Schools) and Rs.10000/- (For Colleges).To start with ,Institutional Membership will be granted to 10 Institutes only on first cum first serve basis. For further details please refer to term and conditions of Institutional.

Sessions of Innovation Space

Duration and Charges

These sessions are on offer from **Monday to Friday** (Durations: Two to three hours)on 'first come first serve' basis. Please note that the Centre will charge a lump sum amount of Rs. 4000/- per session. On a single day four sessions will be conducted simultaneously (one from each column below).The school can book sessions (Maximum four in a day) for students on prescribed format available at Website. They are requested to proceed only after confirmation email.

Column1	Column2	Column3	Column4
Bio-Tech: Peep inside Cells	Periscope Making	Air & Water	Hand generator robotic car
Isolating the stuff of life	Make your own flute	Geography	Castor bot
Racing of Molecules	Measuring Gravitational Pull		
Investigating DNA	Speaker Out of Waste		
Molecular Scissor	Make your Innovative Top		
	Simple Electric motor		
	Reaction car		
	Static Electricity		

Session code	Name of activity	Highlights	Class for which the activity is designed.	Maximum allowed student
BPIC	Bio-Tech: Peep inside Cells	Microscopic observation of different prokaryotic and eukaryotic cells like bacteria, live paramecium, animal cells etc, identification of cell organelles, staining and identifying bacteria from cell shape, size measurement of cells and organelles using microscope, use of stereomicroscope	8 th and 9 th	50
BISL	Bio-Tech: Isolating the stuff of life	Extraction and precipitation of DNA from living cells, centrifugation technique, estimation of DNA, building a model of double helix	10 th to 12 th	30
BRM	Bio-Tech: Racing of Molecules	Gel electrophoresis techniques, micro pipetting techniques, casting an agarose gel, loading and running dyes on agarose gel, separation of different dyes, determining composition of dye samples	10 th to 12 th	30
BID	Bio-Tech: Investigating DNA	Agarose gel electrophoresis, loading and running DNA samples on agarose gel, visualization of DNA bands under gel documentation system, analysis of gel and estimation of DNA molecules size.	11 th and 12 th	30
BMC	Bio Tech: Molecular Scissors	Digestion of lambda DNA with different restriction enzymes, loading and running digested DNA on agarose gel, determining the number of restriction sites for various enzymes, analyzing length of DNA fragments	11 th and 12 th	30

Physics

Session code	Name of activity	Highlights	Class for which the activity is designed.	Maximum allowed student
PPM	Periscope Making	Students will make their own periscope using Mirrors papers. They will also be taught about light and its behavior.	6-8 th	50
PMF	Make your own flute	Student will make their own Flute. They will also learn how different musical notes are produced by varying length of air column.	8 th to 10 th	50.
PMGP	Measuring Gravitational Pull	Students will measure the Gravitation pull of earth by dropping stone from high place. They will repeat Galileo experiment	8 th to 10 th	50
PSW	Speaker Out of Waste	Students will make a low cost speaker using bottle head, magnet and small coil which actually works. Students will listen their own voice and also learn the science behind it.	9 th to 10 th	50

PMIT	Make your Innovative Top	Students will make their own Innovative Top using cardboard and pencil etc. They will learn about symmetry and concept of moment of Inertia.	6 th to 8 th	50
PSIM	Simple Electric motor	Student will make simple electric motor and will learn about law of electromagnetic induction.	9 th to 12 th	50
PRC	Reaction car	Will make a small robot car out of waste bottle which runs on the principle of Newton third. The students have lots of fun when they compete with friends. Added feature of this package is Science on Sphere Show on relevant topic.	6 th to 9 th	50
PSE	Static Electricity	Will learn about Static Electricity and its nature. Flow of charges, current, lightning, franklin bell, Van de Graaff generator, Tesla Coil and Jaccob's ladder demo etc. Students will make their own static electricity generator/ Van de Graff generator	9 th and 12 th	50

General Science

GAW	Air & Water	Student will learn about properties of air and water, atmospheric pressure, water borne diseases, safe drinking water etc . Added feature of this package is "Science on Sphere" Show on relevant topic.	6 th to 10 th class	50
GRE	Geography	Students will learn about concept of date line, GMT, longitude latitude etc They will also witness Foucault pendulum, the direct proof of rotation of the Earth. This session is loaded with lots of hands on activities related to Geography. Added feature of this package is Science on Sphere show	6 th to 10 th	50

Robotics

Session code	Name of activity	Highlights	Class	Maximum allowed student
RHGC	Hand generator robotic car	Students will assemble their own robotic car using LEGO kits and power the motor using their own hand generated electricity. The working of electrical motor and generator is there by explained. Basic feature of Robotics and their role in society will also be discussed.	6-9 th	30
RCB	Castor bot	Using LEGO kits the students will assemble Castor bot and do their own programming using NXT brick	9-12 th	30

Working hours

For Individual /Institutional members

Saturdays & Sundays (Except second Saturday & National Holidays)

Morning Session: 10.30AM to 1.30PM

Afternoon Session: 02.00PM to 05.00PM

School Groups (On prior booking)

Monday to Friday (Except National Holidays)

Morning Session: 10.30AM to 1.30PM

Afternoon Session: 02.00PM to 05.00PM

Contact Officer In Charge, innovation Space for more details