

Details of Hands-on Sessions on offer at National Science Centre, Delhi
(Only for 6th to 12th class students)

Name of activity	Eligible Class	Max intake
<u>Biotechnology</u>		
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
<u>General Science</u>		
6. 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
7. 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
8. 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
9. Speaker and Mike Out of Waste: Students will make a low cost speaker and mike using bottle head, magnet and small coil. Students will listen their voice and also learn the science behind it.	9 th to 10 th	40
10. Simple Electric motor: Student will make simple electric motor and will learn about law of electromagnetic induction.	9 th to 12 th	40
11. Fun with Mathematics: Basics activities to clear concepts of area, volume calculations will be organized. Students will be given mathematical puzzle to solves.	6 th to 8 th	40
12. Maths and Computer Thinking: The basics concepts of Computational Thinking will be explained through interesting activities and puzzles.	11 th to 12 th	40
13. 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
14. 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	50
<u>Robotics</u>		
15. 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
16. 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
17. 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