AeroBay Curriculum <> GRADE 6		
Session No.	**Session Topic (Grade 6)**	**Objective**
Session 1	**Innovator's Mind: Exploring Design Thinking** Step into the world of innovation and problem-solving using the Design Thinking process! students will identify real-world problems, brainstorm creative solutions, prototype their ideas, and test their designs. **Lab machinery included: 3D Printer and filament (Hands on by Trainer)**	Students will understand and apply the Design Thinking process—empathizing with users, defining problems, ideating solutions, prototyping, and testing. They will develop creativity, problem-solving skills, and collaboration by designing and iterating their own solutions to real-world challenges.
Session 2-3	**Siege Striker: Build Your Own Trebuchet** Unleash the power of medieval engineering by constructing a working trebuchet! Discover how levers, counterweights, and projectile motion work together to launch objects over great distances. **Kit included: War Engine (Take away)**	Students will explore the principles of force, motion, and counter weight mechanism by designing and testing a trebuchet. They will understand how energy is transferred and optimized for maximum projectile distance, reinforcing concepts of physics and engineering.
Session 4-5	**Digital Creator: Design Your Own Product** Step into the world of digital design! Learn essential software skills to bring your product ideas to life, from 2D sketches to 3D models ready for prototyping. **Software included: Designing software -Sketchup**	Students will develop proficiency in design software, understanding key tools and techniques to create digital models. They will apply problem-solving and creativity to design functional products, preparing them for real-world engineering and innovation.
Session 6	**Shape & Create: Hands-on 3D Printing** Turn your imagination into reality! Explore the exciting world of 3D printing as you design, slice, and print your own 3D mode. **Lab machinery included: 3D Printer - Hands on by Trainer**	Students will understand the fundamentals of 3D printing, including design principles, material selection, and software. They will gain hands-on experience in creating 3D-printed objects, reinforcing concepts of precision, iteration, and prototyping in modern manufacturing.
Session 7	**Innovate & Print: Develop Your Own 3D Product** Transform your ideas into tangible creations! Learn to design and 3D print a unique product, bringing engineering and creativity together. **Lab machinery included: 3D Printer and PLA filament - Hands on by Student (3D printed product as Take away)**	Students will develop 3D modeling skills, understand product design principles, and explore the role of additive manufacturing in modern industries. They will apply problem-solving and iteration techniques to refine their designs and produce a functional 3D-printed object.
	Save & Automate: The Money Bank Robot Build a smart savings companion! Design and assemble a robotic money bank that combines mechanics and automation to make saving fun and interactive. **Kit included: Piggy Bot (Student can choose any 1 take away between Piggy Bot and Electra elevator)**	Students will explore basic robotics, simple circuits, electromagnetism and mechanical design while understanding the importance of saving money. They will develop problem-solving skills by integrating movement mechanisms and coin-collection systems into their robot.

Session 8-9	**Lift in Motion: The Electric Elevator** Build and operate your own electric elevator! Explore how pulleys, motors, and electrical circuits work together to lift loads effortlessly. **Kit included: Electra Elevator (Student can choose any 1 take away between Piggy Bot and Electra elevator)**	Students will understand the principles of pulley systems, electric circuits, and load balancing. They will apply engineering and problem-solving skills to design and construct a functional elevator model.
Session 10-11	**Power Lift: The Hydraulic Forklift** Harness the power of fluid mechanics to build a working hydraulic forklift! Discover how hydraulic pressure is used to lift and move heavy loads with ease. **Kit included: Cargo Master (Take away)**	Students will explore the principles of hydraulics, Pascal's law, and mechanical advantage. They will apply engineering skills to design and operate a forklift using syringes and fluid pressure.
Session 12	**Wings of Lift: Exploring Airfoils** Discover the science behind flight by designing and testing airfoils! Learn how shape and airflow work together to create lift and keep airplanes soaring in the sky. **Lab machinery included: Wind Tunnel and Sanding sticks** **Software included: AeroBay App**	Students will understand the principles of aerodynamics, including lift, drag, and airflow patterns. They will experiment with different airfoil shapes to analyze their effect on flight efficiency.
Session 13-14	**Soaring Wings: Build Your Pigeon Catapult Glider** Get ready to launch into the world of aerodynamics by building your own pigeon-inspired catapult glider! Design, test, and refine your glider to achieve the perfect flight. **Kit included: Catapult Glider - Pigeon (Take away)**	Students will explore the principles of flight, including thrust, lift, drag, and gravity. Through hands-on experimentation, they will understand how wing shape and launch technique affect the glider's performance.
Session 15-16	**Sky Sim: Master the Virtual Skies** Take control and fly like a pilot! Understand control surfaces, hand-eye coordination, and real-time flight mechanics as you navigate the virtual skies. **Software included: Simulation software** **Lab tools included: Transmitter, AA Batteries, Simulation cables**	students will develop a practical understanding of flight control and aircraft maneuvering through flying simulations using a transmitter. They will explore the functions of control surfaces, enhance their hand-eye coordination, and gain confidence in handling a virtual aircraft.
Session 17-18	**RC Takeoff: Pilot the Skies** Let's experience the thrill of real flight! In this action-packed session, you will take control of an RC plane using a transmitter, witnessing the principles of flight in action. **Ground activity: Ground flying by trainer** **Lab tools included: 3D Plane, Transmitter and Caddy Box equipment (Anemometer, Battery Checker, Tools)**	Students will gain first-hand experience in flying an RC plane using a transmitter. They will understand how control surfaces like ailerons, elevators, and rudders affect flight and develop precision and coordination through real-time piloting.

Session 19	**Blast Off: Build Your Own Chemical Rocket** Experience the thrill of rocketry by creating and launching a chemical-powered rocket! Witness the power of chemical reactions as your rocket soars into the sky. **Kit included: Chemical Rocket (Take away)** **Lab material included: Chemicals and launcher**	Students will explore the science behind chemical reactions, pressure buildup, and Newton's Third Law of Motion. Through hands-on experimentation, they will understand how different reactants create thrust and propulsion.
Session 20-21	**Dream Builder: Design Your Dream Home** Step into the world of architecture and creativity! Use design principles and 3D modeling to bring your dream home to life, balancing aesthetics, functionality, and sustainability. **Software included: Software for laser engraver**	Students will learn the fundamentals of architectural design, including spatial planning, measurement, and structural integrity. They will explore mathematical concepts like area, perimeter, and scale, while integrating real-world problem-solving skills to create a model of their ideal home.
	Innovator's Hub: Design Your Dream Workplace Create the ultimate workspace of the future! From ergonomic layouts to sustainable designs, craft an inspiring and functional workplace that enhances productivity and creativity. **Software included: Software for laser engraver**	Students will apply architectural and design-thinking principles to develop a workplace layout that balances efficiency, comfort, and aesthetics. They will explore spatial planning, measurement, and material selection while considering real-world workplace needs like collaboration, technology integration, and sustainability.
Session 22-23	**Home Visionary: Develop Your Dream Home** Turn your imagination into reality by designing your dream home! Explore architecture, functionality, and sustainability while creating a space that reflects your style and needs. **Lab machinery included: CNC machine and MDF** **Student can develop any one product between Dream Home and Dream workplace)**	Students will explore architectural design principles and digital fabrication by creating a scaled model of their dream home using CNC cutting. They will understand the role of CAD software, material properties, and structural integrity in modern construction, developing hands-on skills in precision manufacturing and spatial planning.
	Future Workspace: CNC-Cut Dream Office Design and build your ideal workplace using CNC cutting! Explore how architecture, ergonomics, and technology come together to create efficient and inspiring workspaces. **Lab machinery included: CNC machine and MDF** **Student can develop any one product between Dream Home and Dream workplace)**	Students will apply architectural design concepts and CNC fabrication techniques to create a scaled model of their dream workplace. They will learn about space planning, material selection, and structural design while developing hands-on skills in precision cutting and modern construction methods.
Session 24	**Spotlight: Exhibit with confidence** Learn how to engage your audience, structure your ideas, and deliver a powerful presentation with clarity and impact! **Lab materials included: Prop usage during presentation**	Students will choose any topic from the above sessions covered and prepare a complete presentation of the same. Students will develop public speaking, presentation, and communication skills by delivering a structured presentation on topics covered so far. They will learn how to organize their thoughts, express ideas clearly, and engage an audience with confidence.