AeroBay Curriculum <> GRADE 3		
Session No.	**SessionTopic (Grade 3)**	**Objective**
Session 1	**STEAM Unlocked: Tools & Tech for tomorrow** Let's explore the world of STEAM education and the technology shaping our future! Get hands-on experience with advanced machinery like 3D printers and CNC machines, learn to use measuring tools, and work with mechanical and electronic tools to design, build, and innovate. **Lab tools included: Measuring Tools Hands on**	Students will understand the importance of STEAM education and its role in innovation. They will get hands-on experience with measuring tools like weighing machines, measuring tapes and explore advanced machinery such as 3D printers, CNC machines, and weather stations, and observe the working of mechanical and electronic tools
Session 2	**Mechanical Arm** Let's explore the world of forces and simple machines by building a scissor-shaped mechanical arm! Experience the power of mechanical advantage and see how engineers design machines to lift, grip, and move objects efficiently. **Kit included: X grip (Take away)**	Students will understand the principles of forces, levers, and linkages through the construction of a scissor-shaped mechanical arm. They will explore how simple machines make work easier by increasing mechanical advantage. Through hands-on building, they will develop problem-solving, critical thinking, and engineering skills, gaining insight into real-world applications of mechanical systems.
Session 3	**Energy Blaster** let's dive into the world of forces and energy by building a catapult cannon! Understand the principles of energy conservation, force, and motion while designing and testing your own powerful cannon. **Kit included: Catapult Cannon (Take away)**	Students will understand the concepts of forces, energy transformation, and conservation through the construction of a catapult cannon. They will explore how stored energy (potential energy) is converted into motion (kinetic energy) and how different forces impact the launch.
Session 4	**Magnetic Marvel: Pencil Levitation** Step into the fascinating world of magnetism by making a levitating pencil! Explore the invisible forces of magnets as you suspend a pencil in mid-air using the principles of magnetic repulsion and attraction. Understand how real-world applications, like maglev trains, use the same forces for frictionless movement. **Kit included: Floating Marvel (Take away)**	Students will build a levitating pencil model to understand how magnetic forces work. They will explore how like poles repel and opposite poles attract, experiment with balanced forces, and analyze how levitation can be used in transportation and engineering.
Session 5	**Logic** let's put our logic and number skills to the test with an exciting 9-square Sudoku challenge! Get ready to sharpen your mind and crack the code! **Kit included: Digit Hunt - 9 square (Take away)**	Students will develop a deeper understanding of numbers, sequences, and patterns through the 9-square Sudoku puzzle. They will enhance their logical thinking, problem-solving, and analytical reasoning by identifying number relationships and filling in missing digits.

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Session 6-8	**Robotic vibes: Build your own Robots** Command your own robot army with our small robot kits, where coding and creativity collide in an explosion of innovation and discovery! **Kit Included: War Bot (Student can choose any 1 take away from War Bot and Walk master)**	Students will gain a foundational understanding of electronics, circuits, and motor mechanisms through the construction of Military, Bug, and Walk Master robots. They will explore how electronic components work together to power and control robotic movements. Through hands-on building, they will develop problem-solving, engineering, and logical thinking skills, preparing them for future innovations in robotics and automation.
	Robotic Revelations: Build your small Robot Command your own robot army with our small robot kits, where coding and creativity collide in an explosion of innovation and discovery! **Kit Included: Walk Master (Student can choose any 1 take away from Military and Walk master)**	
Session 9-10	**3D Doodle** let's bring your ideas to life with a 3D pen! Get ready to draw, build, and create in three dimensions! **Lab tool included: 3D Pen (for hands on)** **3D Pen design (Take away)**	Students will understand the concept of 3D shapes and structures through hands-on experience with a 3D pen. They will explore how heated filament solidifies to form physical objects, enhancing their creativity.
Session 11	**Sky Soarers** let's explore the power of air and forces by building your own air balloon! Get ready to design, inflate, and watch your balloon take flight! **Kit included: Air Balloon (Take away)**	Students will understand the properties of air as matter and the principles of action and reaction forces through the creation of an air balloon. They will explore how compressed air enables lift and how forces interact in real-world.

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Session 12	**STEAM Mastery Challenge: Intra-Class Competition** Get ready for an exciting STEAM Mastery Challenge, put your learning to the test through an engaging intra-class competition! This session will bring together all the concepts explored in previous activities, allowing students to compete in hands-on challenges that assess their problem-solving skills, creativity, and conceptual understanding. **Lab materials included: Prop usage during presentation**	Students will be able to apply their knowledge to solve real-world challenges, demonstrate their understanding through hands-on tasks, and enhance their critical thinking and teamwork skills in a competitive environment. They will also evaluate their own proficiency, identify areas for improvement, and build confidence in practical problem-solving and innovation.
Session 13	**Smooth Craft: Shaping with Sanding** let's refine our woodworking skills by learning the art of sanding! In this hands-on session, you will work with Balsa wood to create smooth surfaces and precise airfoil shapes. Discover how sanding transforms rough materials into aerodynamic forms and master an essential skill in craft and engineering! **Lab tool included: Sanding Sticks (for hands on)**	Students will develop hand skills in woodworking by learning to sand and shape Balsa wood. They will understand the importance of smoothing surfaces for aerodynamic efficiency, particularly in airfoil design.
Session 14	**Aero Glide** let's dive into the world of aeromodelling by building a Styro-Balsa Glider! In this hands-on session, you will explore how gliders fly, understand the four forces of flight, and experience the thrill of crafting your own aircraft. Get ready to design, build, and launch! **Kit included: Styro Balsa Glider (Take away)**	Students will understand the fundamentals of gliders and aeromodelling by constructing a Styro-Balsa Glider. They will explore the role of lift, weight, thrust, and drag in flight and learn how design choices impact aerodynamics.
Session 15	**Glide Quest: Soar with your Glider** Come, let's take flight! In this exciting session, you will launch and test your Styro-Balsa Glider, experiencing firsthand how gliders soar through the air. Get ready to fly, analyze, and improve! **Ground activity: Glider flying by students**	Students will gain a deeper understanding of aeromodelling and gliding by flying the Styro-Balsa Gliders they built. They will observe how lift, weight, thrust, and drag interact in real-time and learn how adjustments affect flight performance.
Session 16 -17	**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, cells, Simulation cables**	Students will develop a practical understanding of flight control and aircraft manoeuvring 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.

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Session 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**	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 19-20	**Marble Run Model** let's set the marbles in motion! Watch as your marble navigates twists and turns, bringing physics concepts to life. **Kit included: Marble Rush (Take away)**	Students will understand the mechanics of motion by constructing a Marble Run model. They will explore how gears influence movement, tracks direct motion, and mazes create pathways, gaining insights into gravity and motion.
Session 21	**Rocket Blast: Paper Rocket Challenge** Build and launch your own paper rocket, exploring the science behind action and reaction forces. **Kit included: Paper Rocket (Take away)**	Students will gain a fundamental understanding of rocketry by designing and launching a paper rocket. They will explore how Newton's Third Law (action and reaction) powers a rocket's motion and identify key rocket components like the nose cone, fins, and body tube.
Session 22	**Rocket Blast: Launch Mission** Learn about air pressure-based launching and see how your rocket soars to new heights! **Ground activity: Air pressure Rocket launching**	Students will gain hands-on experience in launching their paper rockets, reinforcing their understanding of Newton's Third Law (action and reaction). They will explore how air pressure propels rockets, analyze the flight path, and observe the effects of stability and aerodynamics.
Session 23	**Turbo Thrust** Experience how thrust, friction, and aerodynamics shape speed and motion! **Kit included: Kinetic Cruiser (Energy Car) (Take away)**	Students will analyze how thrust propels the car forward, friction affects movement, and streamlined designs improve speed.
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.