



Activity: Virtual Wind Tunnel

Subject/s: Science, Computer Science/Computing Science	
Focus: <ul style="list-style-type: none">Understanding how air moves as a fluid through using a simulator	
Ages: 11-14	Time: 60 minutes
Prior Learning: <ul style="list-style-type: none">Students should be confident opening and using touchscreen apps on an iPadStudents should have some basic knowledge of forcesStudents should have some knowledge of the states of matter and know that liquids and gases both share fluid properties.	
Lesson Objectives: <ul style="list-style-type: none">Students will understand that computers and software can be used to simulate phenomena that are not visible or that would be impossible to test under normal classroom conditions. They will understand what a “simulator” is.Students will understand how air (or fluids) moves and flows around different shaped objects.Students will understand how the speed of a fluid and the rate it changes direction are linked to its pressure. They will understand the ideas of low and high pressure and how this links to the performance of their rocket cars.Students will know how to take a screen shot using an iPad for use in presentations and reports.	
Resources: iPads with Wind Tunnel Free app installed. Capacitive stylus for drawing (optional),	Vocabulary: simulation, simulator, airflow, computational fluid dynamics, aerodynamics, low-pressure & high-pressure zones, air resistance
Activities: <ul style="list-style-type: none">Ensure the app is installed and then distribute the iPads to students.Use the presentation to introduce the application interface. Explain how to take a screen-shot on an iPad.Use the Draw Wall function to draw various potential rocket car body shapes.Have the groups discuss and review what they have learned and how it might apply to their glider designs.	
Assessment opportunities: Discussion, application of ideas in project, presentations made using screen-shots they have taken	
Extension ideas: <ul style="list-style-type: none">Water, like air is a fluid. Can students use the app to model how water flows down a meandering river? Where does the water erode the sides of a river?	