

Our Lady and St Edward's Knowledge Organiser	Year 2 - Design and technology	Spring	Aerodynamics
---	---------------------------------------	---------------	---------------------

Outcome: To explore aerodynamics and the forces that affect aircraft. To create aircraft (such as paper aeroplanes, helicopters, hot air balloons) and test their efficiency in flight using their prior knowledge of aerodynamics in a variety of ways. Design and make different types of aeroplanes using different materials.

Key Information	Key Vocabulary
------------------------	-----------------------

Aerodynamics: Aerodynamics is the study of how air moves around a solid object. The more aerodynamic a flying object is, the better it will fly. Aerodynamics is one of the most important objects of study because they provide the bases for flight and the designing of not only aircraft, but also cars, spacecraft, and buildings. Aerodynamics work through the combination of three forces, thrust, lift, drag, and weight.

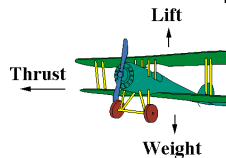
Aircraft: An aircraft is a vehicle (such as an aeroplane or hot air balloon) for travelling through the air. Not all aircraft use the same designs to enable them to fly. Some use heat to lift the craft into the air, some use propellers.

Aerodynamics; Aerodynamics is the study of how air moves around a solid object.
 Weight: The weight of an object is the force acting on the object due to gravity.
 Force: A force is an influence that can change the motion of an object.
 Thrust: The upward force that a liquid or gas exerts on an object.
 Flight: The action or process of flying through the air.
 Object: A material thing that can be seen and touched.
 Materials: The matter from which a thing is or can be made.
 Rotor blades: The four long, flat, pieces of metal which go around and lift a helicopter off the ground.
 Aircraft: An aeroplane, helicopter, or other machine capable of flight.
 Lift: The lift force is the sum of all the forces on an object that force it to move up into the air.
 Drag: A force which tends to slow the movement of an object.
 Propeller: A mechanical device for propelling a boat or aircraft, consisting of a revolving shaft with two or more broad, angled blades attached to it.
 Predict: Using what you already know to guess what may happen.
 Design: To draw an example of something you will make later.
 Create: To make something from your imagination.



Preparing Processes	Health and Safety
----------------------------	--------------------------

To understand how air moves around solid objects and how this can affect its ability to move.
 To explore materials and choose appropriate materials for aircraft.
 To predict the efficiency of different aircraft.
 To test and evaluate aircraft based on predictions.
 To contribute to group work.
 To design an aircraft
 To create a product using instructions and templates.



All children should be supervised when using equipment.
 Equipment: Scissors and different adhesive products.
 The children will need to be supervised during flight experiments to avoid collisions with aircraft.

What I should already know:	By the end of this unit, I will know:
------------------------------------	--

- Name some different types of aircraft
- What materials some aircraft are made out of

- What material is best for creating an aircraft
- What the term aerodynamics means
- How aircraft have changed over time.

