

Lesson Plan

NEUROHEADWAY

Neuroscience Into Education

Flight

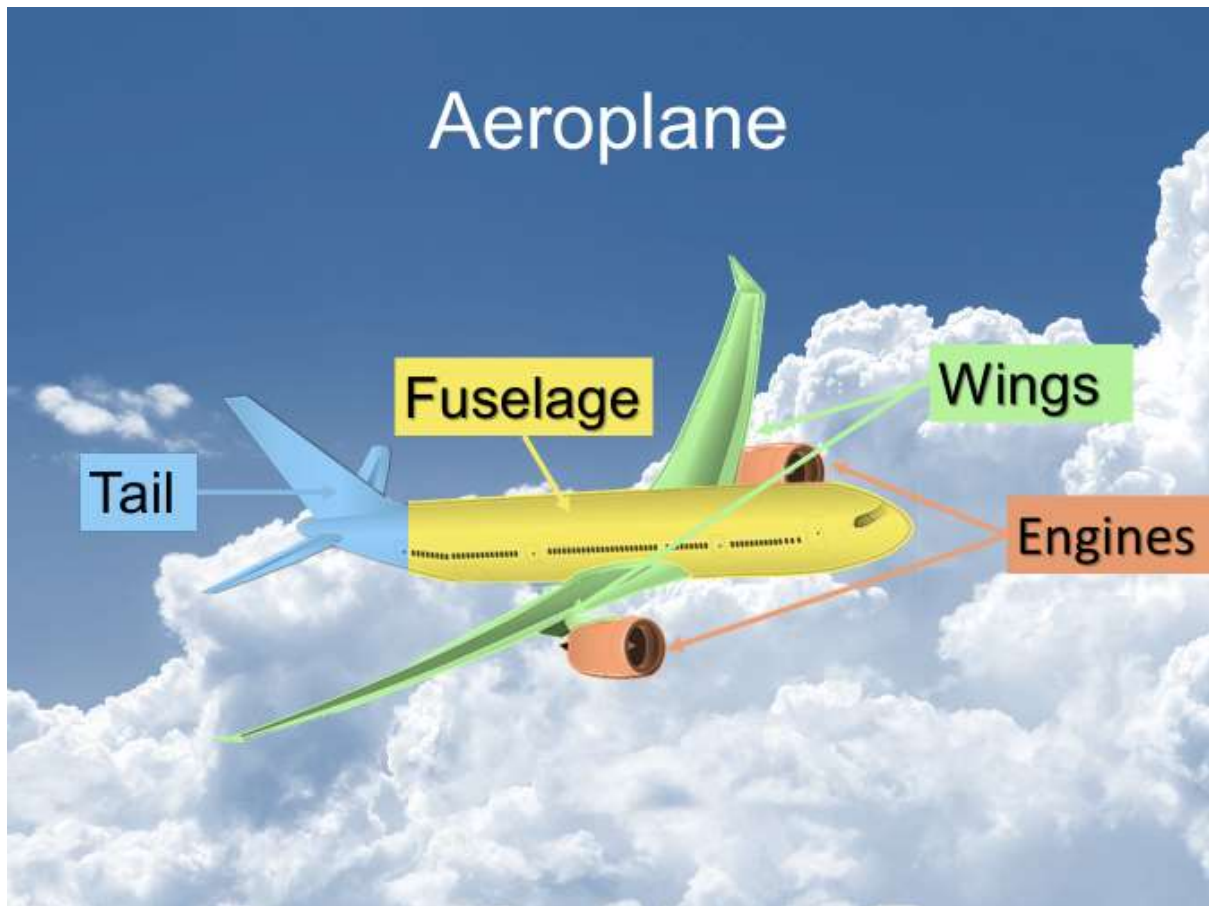
Lesson plan

Slide	Subject	Description	Timing, minutes
1	Introduce the lesson topic	Explain that in this lesson they will learn about flight and specifically how aeroplanes fly.	0.5
2	Explanation: Introduce Pete	Apart from Birds aeroplanes fly in the sky. However not all birds can fly. Although penguins are classified as birds, penguins can't fly Here you can see Pete the pilot penguin. He is a sad penguin as he cannot fly but he wants to. Therefore, he wants to learn to fly, let's explore the flight module with Pete.	1.5
3	Explanation: Main parts of an aeroplane	This is a large aeroplane. You can see it has wings, tail, fuselage and engines. Each component has a different colour. The fuselage is in yellow, the wings in green. The engines are red and the tail is coloured in blue.	1
4	Explanation: The wings and engines	The wing is used to generate lift, that is the force we need to fly. The engines, in this case two, are used to push the aeroplane forward. The engine is very big and has many blades, like a propeller that rotates. The engine uses fuel which is ignited, and the air is pushed away by the blades. That's why this engine is called jet engine.	1,5
5	Explanation: fuselage	The fuselage is the main part of an aeroplane. This is where passengers, baggage and pilots have space. Because passengers want to look outside, the fuselage has windows.	1
6	Explanation: Tail	Just like birds have a tail an aeroplane has a tail for stability and to steer. In the tail there is a rudder similar to a rudder of a ship. It can turn the aeroplane in a certain direction during flight	1
7	Explanation: Wheels	When an aeroplane is flying it needs wings, but on the ground, it needs wheels. The landing gears are therefore hidden during the flight and appear for landing. The wheels are necessary to taxi around the airport.	0,5
8	Example: Name the major components of an aeroplane	Example aeroplane	1,5

Power point Example

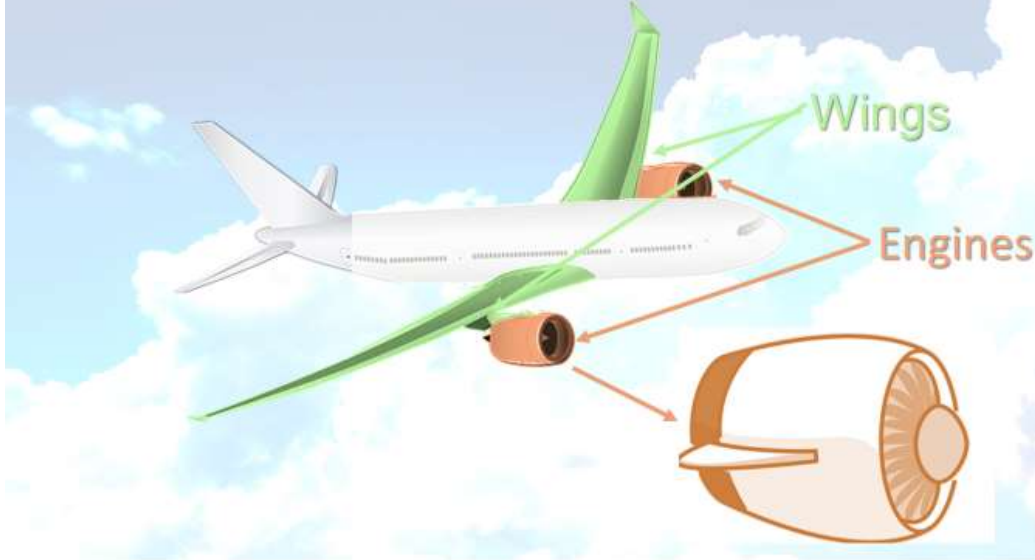
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This is a large aeroplane. You can see it has wings, tail, fuselage and engines. Each component has a different colour. The fuselage is in yellow, the wings are green. The engines are red and the tail is coloured in blue.

Aeroplane



The wing is used to generate lift that is the force we need to fly. The jet engines, in this case two, are used to push the aeroplane forward. This jet engine is very big and has many blades, like a propeller that rotates. The engine uses fuel which is ignited, and the air is pushed away by the blades. That's why this engine is called jet engine.

Aeroplane



The fuselage is the main part of an aeroplane. This is where passengers, baggage and pilots have space. Because passengers want to look outside, the fuselage has windows.

Ask children:

Who sits in the front of the fuselage?

Answer:

The pilots, they have a front window to look outside. The part of the fuselage where pilots sit is called a cockpit.

Teachers Evaluation and Handouts

Flight

This module:

- discusses the main components of an aeroplane.
- introduces the four forces of flight.
- explains the rotations of an aeroplane.
- introduces the 5 most important instruments of an aeroplane.

At the end of this module, students:

- will be able to distinguish the main components of an aeroplane
- will know the four forces of flight,
- will know the different motions of an aeroplane,
- will know the 5 most important instruments of an aeroplane

Available activities in this lesson:

- Slide 9: Main components of an aeroplane
 - A. Connect the dots
 - B. How to sketch an aeroplane?
 - C. What belongs where?
- Slide 19: The Forces of flight.
 - A. Forces of Flight
 - B. What is connected
- Slide 28: Aeroplane motion
 - A. Flight testing
 - B. Fly into the box – a group
- Slide 39 Cockpit instruments.
 - A. Find the difference (Level 1 and Level 2)
 - B. Find the instrument (Level 1 and Level 2)
 - C. Virtual cockpit (slide 40)

Bonus:

- A. Flight colouring page
- B. Interaction - Quiz Questions

Flight

Evaluation/Success criteria

“What we have learned in this module?”

At the end of this lesson a student:

1. Knows and can identify the 4 main components of an aeroplane.
2. Knows that there are 4 forces of flight: thrust, drag, lift and weight.
3. Understands that thrust and drag are opposite forces.
4. Understands that lift and weight are opposite forces.
5. Knows and identify the three axes of rotation of an aeroplane.
6. Knows and can name the control surfaces which control the pitch, roll and yaw rotation.
7. Knows and can identify the cockpit controls.
8. Knows and can identify the 5 most important instruments in the cockpit.