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| **Aircraft chic** |
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| Creating a presentation suggesting how a company could re-use aircraft or parts of aircraft |
| **Subject(s):** Design and Technology, Engineering**Approx time:** 40-60 minutes |  | **Key words / Topics:** * aeronautical engineering
* aircraft parts
* future of flight
* presentation skills
* recycling
* re-use
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| **Stay safe** Whether you are a scientist researching a new medicine or an engineer solving climate change, safety always comes first. An adult must always be around and supervising when doing this activity. You are responsible for:• ensuring that any equipment used for this activity is in good working condition• behaving sensibly and following any safety instructions so as not to hurt or injure yourself or others Please note that in the absence of any negligence or other breach of duty by us, this activity is carried out at your own risk. It is important to take extra care at the stages marked with this symbol: ⚠ |
| **Suggested Learning Outcomes**  |  |  |
| * To know the different parts of an aircraft and their purpose
* To understand the issues faced when disposing of aircraft that are no longer used
* To be able to create a presentation suggesting ways in which parts of old aircraft could be recycled or re-used
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| **Introduction** |  |  |
| This is one of a series of resources designed to allow learners to use the theme of the future of flight to develop their knowledge and skills in Design & Technology and Engineering. This resource focusses on producing a presentation about how aircraft parts can be recycled or re-used.An airline company wants to improve on how they dispose of aircraft and have asked for your help. Can you create a presentation suggesting how they could re-use parts of aircraft being retired from their fleet? |
| **Purpose of this activity**In this activity learners will make use of the theme of the future of flight to create a presentation for the board of the company suggesting how they could re-use aircraft, or parts of aircraft, being retired from their fleet. They will research the different parts of an aircraft and existing products that make use of their old parts. They will use this information to create ideas for their own products.This activity could be used as a main lesson activity to teach about research and design skills within an aviation theme. It could also be used as part of a wider scheme of learning to teach about aeronautical engineering concepts within Engineering, about career opportunities within the aviation engineering sector, or about sustainability and the concept of a circular economy in general. |
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| **Activity** |  | **Teacher notes** |
| **Introduction, context and brief (10-20 minutes)**Teacher to introduce and discuss the context and brief shown in the presentation. Teacher to explain and discuss the issues faced when retiring old aircraft.**Producing the presentation (30-40 minutes)**Teacher to explain the key requirements of the presentation, which should include:* An introduction to the problem and why it is an issue.
* A list of all the different aircraft parts that could be recycled or re-used.
* Research into the types of products that could be made from old aircraft parts, including existing products. E.g. lamps, furniture, shelter, items for transport or play grounds or even tourist attractions.
* Sketches, drawings or models of possible new products that could make use of the different parts.

Learners to log onto computers, access presentation software and produce their presentations. |  | This task could be completed as individuals, in pairs or in small groups.This activity could be significantly expanded by creating a research phase, where learners identify all of the parts of an aircraft. This could be carried out as a homework activity in advance of the lesson.**Introduction and brief**Aircraft scrapyards are often nicknamed boneyards or graveyards, so learners may have heard these terms before. Discuss the environmental issues with sending aircraft here rather than re-using more of their parts.**Producing presentations**Encourage learners to consider both the larger and smaller parts of the aircraft. E.g. what could they do with seats, instruments, trolleys, food trays etc. as well as the big parts like wings, fuselage and engines. For example, the top deck of a retired British Airways Boeing 747 is to be used as part of a tourist attraction in Salford, Greater Manchester. This could be a useful discussion or starting point. <https://www.manchestereveningnews.co.uk/whats-on/whats-on-news/british-airways-boeing-747-arriving-24712658> It may help learners to sketch some ideas for what these products could look like or produce simple models. |
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| **Differentiation** |  |  |
| **Basic** |  | **Extension** |
| * Provide sentence starters and/or prompts for information in presentations.
* Provide examples or photos of existing products made from re-used aircraft parts.
 |  | * Make a scale prototype of their best idea for a new product.
* If an airport terminal building is being refurbished, research ways in which the discarded items (e.g. chairs, check in desks, lighting, information screens, security scanners etc) could be re-used or recycled.
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| **Resources** |  | **Required files** icon-docicon-pdficon-ppt |
| * Internet access for research
* Access to computers or tablets
* Access to presentation software
 |  |  Presentation – Aircraft chic |
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| **Additional websites** |
| * **Manchester Evening News – Boeing 747:** Article discussing the use of an old Boeing 747 top deck as a tourist attraction in Salford. <https://www.manchestereveningnews.co.uk/whats-on/whats-on-news/british-airways-boeing-747-arriving-24712658>
* **Old aircraft parts:** Selection of websites showing examples of products made from old aircraft parts: <https://www.planeindustries.com/>,<https://www.skyart.com/aviation-furniture>**,** <https://www.aerotiques.co.uk/>**,** <https://www.smithersofstamford.com/aviator-furniture.html>**,** <https://aeroplanefurniture.com/>
* **Aircraft graveyards:** Websites showing different aircraft graveyards:[https://www.airportspotting.com/10-of-the-worlds-best-aeroplane-graveyards/](https://www.airportspotting.com/10-of-the-worlds-best-aircraft-graveyards/), <https://www.kathmanduandbeyond.com/visiting-bangkok-airplane-graveyard/>
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| **Related activities (to build a full lesson)** |  |  |
| **Starters** (Options) * Identify the main parts of a commercial jet aircraft (slides 5 and 6 in the presentation).
* Look at examples of aircraft ‘graveyards’ and discus the environmental issues caused by these.
* Analyse existing products made from old aircraft parts.
 | **Plenary*** Deliver the key findings of each presentation to the class.
* Self/peer assessment and learner questioning of presentations.
* Evaluation and user testing of design ideas/models produced.
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| **The Engineering Context** film |
| * The future of flight is a great context to explore the opportunities that working in the aeronautical engineering industry presents! For example, designing, making and maintaining aircraft and spacecraft, and all their different parts.
* Understanding how the different parts of an aircraft work is essential for aeronautical engineers to be able to complete their roles safely and effectively.
* Designers and engineers have a responsibility to ensure that the work they do does not negatively impact on the environment. For example, designing for recycling and re-use.
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| **Curriculum links** |
| **England: National Curriculum**Design & Technology * KS3 1a, 1b
* KS3 3a

**Scotland: Curriculum for Excellence**Technologies* TCH 3-01a
* TCH 3-05a
* TCH 3-06a
* TCH 3-07a
* TCH 3-11a
 | **Northern Ireland Curriculum**Technology & Design* KS3 being creative
* KS3 communication

**Wales: National Curriculum** Design and Technology* KS3 skills: Designing 4, 5, 6, 7
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| **Assessment opportunities** |
| * Informal and formal teacher assessment of completed presentations.
* Self/peer assessment of presentations produced.
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