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| **Pop-up Airport** |
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| Providing disaster support for a famine hit country |
| **Subject(s):** Design and Technology, Geography**Approx time:** 55-90 minutes |  | **Key words / Topics:** * airport
* famine
* future of flight
* mind map
* runway
* supplies
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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 understand what is meant by famine and how it affects people from across the world
* To be able to design a pop-up airport that would help to deliver supplies to a famine affected area
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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 Mathematics. This resource focusses on designing a pop-up airport to help deliver food supplies to people in famine affected areas.Famine is a huge problem that affects many countries in the world. Often there is no easy way to get food supplies to these areas. Can you design a pop-up airport that can help to solve this problem? |
| **Purpose of this activity**In this activity learners will design a pop-up airport to allow the delivery of food supplies to people in famine affected, remote areas. They will consider the requirements of the airport and how it can be made quickly using readily available resources. They will then produce a sketch of their idea ready for implementation.This activity could be used as a main lesson activity to teach about identifying design needs and research skills, through an aviation theme. It could also be used as part of a wider scheme of learning to teach about the use of the design process within Design and Technology. |
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| **Activity** |  | **Teacher notes** |
| **Introduction (15-20 minutes)**Teacher to introduce the activity. Teacher to discuss with learners the causes of famine, where it is happening and the possible ways in which this issue could be resolved. Teacher to explain how a pop-up airport could help and what is meant by this.**Researching the context (10-20 minutes)**Teacher to direct students to research what is needed for a pop-up airport using the internet. Teacher to discuss the basic requirements e.g. runway, control tower place to unload etc. Learners to share ideas and suggestions.**Mind mapping ideas (10-20 minutes)**Teacher to demonstrate how to add findings of research to a mind map. Learners to complete the mind map on their activity sheet.**Designing the airport (20-30 minutes)**Using the research and the mind map, learners to apply their gained knowledge and information to produce their design for the pop-up airport. This could be completed on the activity sheet or on A4 paper. Learners to add notes and labels to explain their designs. |  | **Researching**Learners could be directed to Google (or any other appropriate search provider) and to search for “what is needed for an airport”.Supporting discussion could follow on how to narrow down search results or how to focus directly more on appropriate searching techniques.Emphasise that as a ‘pop up’ airport this should be easy and quick to put both together and take down again once finished, so it should be as simple as possible whilst both working effectively and being safe.**Mind mapping**Learners should be shown how to add their findings and thoughts onto a mind map and how to elaborate and expand on the points made.The mind map could also be created verbally via class discussion, with support writing it for weaker learners.The tips in the presentation could be used to help weaker learners or as a prompt for discussion of ideas.**Producing the design**Instead of hand drawing the final design, students could cut shapes from paper to create their solution. |
| **Differentiation** |  |  |
| **Basic** |  | **Extension** |
| * Provide examples of weblinks to use during the research activity.
* Provide learners with a pre-populated mind map.
* Provide templates of different airport features for the design activity. These could be glued or taped onto the airport map.
 |  | * Make a 3D card or paper model of the airport design layout.
* Discuss how the design be altered to take to a country affected by other natural disasters, such as an earthquake or flooding. What adaptations would be needed?
* Produce alternative versions of the design based on the above discussions.
* Investigate how the design of the aircraft that will be used could be changed to make the airport easier to use.
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| **Resources** |  | **Required files** icon-docicon-pdficon-ppt |
| * Access to word processing or desktop publishing software (if using ICT)
* Paper
* Card
* Pencil and pens
* Ruler
* Tape and/or glue
 |  |  Presentation – Pop-up airporticon-doc Pop-up airport activity sheet |
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| **Additional websites** |  |  |
| * **United Nations – Famine:** UN briefing warning about the possible effects of famine in various different countries. <https://press.un.org/en/2022/sgsm21288.doc.htm>
* **YouTube - Building China’s new airport:** Video explaining the construction of the new ‘mega airport’ in Beijing, China. <https://www.youtube.com/watch?v=-aWJ5p3X-Yo>
* **What facilities do airports need** – although the text is high level, there are useful lists of the facilities needed: <https://www.airport-consult.com/en/center-of-excellence/business-areas/airside-facilities/> and https://www.airport-consult.com/en/center-of-excellence/business-areas/special-airport-systems/
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| **Related activities (to build a full lesson)** |  |  |
| **Starters** (Options) * Discuss the causes and effects of famine.
* Research what is meant by a ‘pop-up’ airport and the advantages/uses of these.
 | **Plenary*** Present ideas produced to the class.
* Discuss what went well and what could be improved.
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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 and travel industry presents! For example, designing, making and maintaining aircraft and airports.
* Designers and engineers must be able to understand and apply the research and design process when producing products and/or systems. This helps to ensure that the designs are fit for purpose and meet the needs of the user.
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| **Curriculum links** |
| **England: National Curriculum**Design and technology * KS2 use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
 | **Northern Ireland Curriculum**Geography * KS2 research and manage information effectively to investigate geographical issues, using Mathematics and ICT where appropriate.
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| **Scotland: Curriculum for Excellence**Technologies* I can extend and enhance my design skills to solve problems and can construct models
* TCH 2-09a
 | **Wales: National Curriculum** Design and technology* KS2 identify and use appropriate sources of information to help generate and develop their ideas for products.
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| **Assessment opportunities** |
| * Formal teacher assessment of completed activity sheets and designs.
* Peer and/or self-assessment of completed activity sheets and designs.
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