|  |  |  |
| --- | --- | --- |
| **Design a moon football kit** | | |
| Designing a football kit for the first football team on the Moon | | |
| **Subject(s):** Design and Technology, Engineering  **Approx time:** 50-80 minutes |  | **Key words / Topics:**   * annotation * colour * design brief * design criteria * football kit * moon * new technologies * sketching |
| **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 the problems associated with playing football on the Moon * To be able to design a home football kit for the first football team to play on the Moon | | |
| **Introduction** |  |  |
| This is one of a series of resources that are designed to allow learners to use the theme of football on the Moon to develop their knowledge and skills in Design & Technology and Engineering. This resource focusses on learners designing a home kit for the Moon’s first football team – Moon United. | | |
| **Purpose of this activity**  It is likely in the future that mankind will be able to play football on other planets. In this activity learners will make use of the theme of football on the Moon to design a kit for the first Moon-based football team. They will discuss the problems associated with playing football on the Moon. They will then produce a labelled sketch of their design idea to meet the given design brief and criteria.  This activity could be used as a main lesson activity to teach about designing textile and graphics-based products in context, and the use of new technologies within designs. It could also be used as part of wider scheme of learning focussed on the design process. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Activity** |  | | **Teacher notes** |
| **Introduction (5-10 minutes)**  Teacher to use presentation slide 3 to introduce the theme of playing football on the Moon and discuss the problems that could be faced when doing this:   * How would you be able to breath? * How would you cope with much lower gravity? * What surface would you play on?   Can learners think of any others?  **Design brief and criteria (5-10 minutes)**  Teacher to use presentation slide 4 to introduce the design brief and explain the task to learners. Using slides 5 and 6, class to discuss the design criteria for the football kit and other issues to consider when producing the designs. For example, how will learners ensure their design is original and creative?  **Sketching kit design idea (30-40 minutes)**  Learners to sketch and label their design idea for a football kit that can be used by Moon United to play football on the Moon.  **Self/peer assessment of designs (10-20 minutes)**  Learners to self-assess their designs against the design criteria. They could then swap with a partner and peer assess each other’s designs, suggesting any improvements that could be made. |  | | This activity could be done as individuals or in pairs.  **Design brief and criteria**  Discuss the brief and criteria with learners. Ensure they understand what their design needs to include to be successful.  The context sets the scene for the design problem, the brief gives the problem itself that is to be solved. The design criteria is a list of design points that the finished solution must meet.  Teacher may need to explain the terms originality and creativity.  **Sketching kit design idea**  The Moon United worksheet (slide 7) can be used by learners to present their ideas, or these could be presented on blank A4 or A3 paper. Remind learners that their designs should aim to meet the design brief and criteria given. Encourage learners to use notes and labels to explain their idea and how it meets the design criteria.  The examples shown on slide 8 of the presentation can be used to help if needed.  **Self/peer assessment**  A check list could be provided to compare against, or the criteria given in presentation slide 5 could be used. |
|  |  | |  |
| **Differentiation** |  | |  |
| **Basic** |  | | **Extension** |
| * Produce outlines of the players/astronauts for learners to add detail and features to. * Provide sentence starters for labelling of sketches. |  | | * Design an away kit for Moon United. * Design a football pitch for Moon United to play on. |
|  |  | |  |
| **Resources** |  | | **Required files** icon-docicon-pdficon-ppt |
| * Pens, pencils and coloured pencils * A3 or A4 paper |  | | icon-ppt Primary Presentation Moon United  icon-pdf Primary worksheet Moon United |
| **Additional websites** |  | |  |
| * **Prezi – Football on the Moon:** A slideshow explaining some of the issues with playing football on the Moon. <https://prezi.com/wyf5demmfga2/football-on-the-moon/> * **YouTube – If the football World Cup was on the Moon:** A fun video that could be sued as an introduction to this activity. <https://www.youtube.com/watch?v=o5tD7eP8izE> * **IET Moon football kit 2023 competition winners:** Useful to show 2023 competition winners that were turned into actual kits. <https://eabw.theiet.org/kids-stem-competition/> | | | |
|  | | | |
| **Related activities (to build a full lesson)** |  | |  |
| **Starters** (Options)   * Discuss the problems that could be faced when playing football on the Moon with learners. How could they be overcome? * Watch the video ‘If the world cup was on the moon’: <https://www.youtube.com/watch?v=o5tD7eP8izE> | | **Plenary**   * Self/peer assessment or produced designs. * CLOZE (missing word/letters) questions to assess knowledge gained. * Anagrams of key words used. | |

|  |
| --- |
| **The Engineering Context** |
| * Travelling and potentially living on the Moon presents all sorts of challenges for engineers to overcome. For example, how will we breathe, how will we cope with much lower gravity, how will we play sports and keep fit?  |  |  | | --- | --- | |  | | | **Curriculum links** | | | **England: National Curriculum**  Design & 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. * KS2 generate, develop, model and communicate their ideas through discussion, annotated sketches. | **Northern Ireland Curriculum**  The World Around us   * KS2 – Science and Technology - How knowledge in science supports technological inventions, for example, robots in Space. | | **Scotland: Curriculum for Excellence**  Technologies   * TCH 2-04c * TCH 2-05a * TCH 2-11a | **Wales: National Curriculum**  Primary – Science and Technology   * I can produce designs to communicate my ideas in response to particular contexts. | |  | | |

|  |
| --- |
| **Assessment opportunities** |
| * Formal teacher assessment of completed design idea sketches. * Self/peer assessment of completed design idea sketches. |