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| **How to make a crown** | | |
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| Making and assembling a crown from card strips | | |
| **Subject(s):** Mathematics and Design and Technology  **Approx time:** 50 – 80 minutes |  | **Key words / Topics:**   * Card * Crown * Template * 3D shape * Assembly |
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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 what a 3D shape is * To understand how structures are made using separate parts * To be able to make and assemble a crown structure from card strips | | |
| **Introduction** |  |  |
| This is one of a series of resources designed to allow learners to use the theme of a celebration, such as the coronation of King Charles III, to support the teaching of the primary national curriculum. They are designed to support the delivery of key topics within maths and science. This resource is a structure-making activity which involves using graphics media to make and assemble a crown. Parts of this activity may be challenging to some learners as it requires good manual dexterity. | | |
| **Purpose of this activity**  In this activity, learners will learn about 3D structures within a graphics context. Learners will have an opportunity to use a template to help them cut out the parts for a crown.  This activity could be used as a main lesson activity to teach learners about simple structures made from separate parts. | | |
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| **Activity** |  | | **Teacher notes** |
| **Introduction (10-15 minutes)**  Teacher to explain that learners are going to make and assemble a crown using card strips from a template.  Teacher to hand out equipment and worksheet needed for the task to learners.  **Making the crown (30-50 minutes)**  Teacher to demonstrate the steps shown in the teacher presentation and listed below:   * Step 1⚠ – Measure and safely cut out the headband that is 40 mm wide and long enough to fit snuggly on the head. * Step 2 ⚠– Hand out the **crown activity sheets**, highlighting the solid and dotted folding lines on sheet 1 and 2. Safely cut out the templates. On black card draw around the head strap template. Learners to cut out **two** straps. * Step 3 – Glue the first head strap across the headband. Then glue the second head strap into place. Add sticky tape to reinforce the straps to the headband. * Step 4 ⚠– Draw around the crown strap template, then cut out **six** straps. Make the **six** holes by using a sharp pencil with sticky tack underneath the card. * Step 5 – Glue the crown straps in place at 12, 2, 4, 6, 8, and 10 o’clock. * Step 6 ⚠– Safely cut out the crown lining template. On red crepe paper, draw around the crown lining template and then cut out **four** crown linings. Glue the linings onto the black head straps, so they form a dome shape. * Step 7 ⚠– Draw around the cross template on folded card. Safely cut out the cross and fold the tabs. Glue the cross together and make a hole in **one** of the tabs with a sharp pencil with sticky tack underneath the card. Place a paper fastener through **one** of the tab holes. * Step 8 – Insert the paper fastener through the holes on the crown straps. Push through the crepe paper lining and head straps. For safety, attach sticky tape to cover the ends of the paper fastener. * Step 9 – Decorate the crown.   Learners to complete each step to conduct the activity for themselves. The teacher presentation could be left on the whiteboard as a supporting guide as they do this.  **Discussing the results of the activity (10-15 minutes)**  Teacher to discuss the results of the activity with learners. What went well and what could be improved? Teacher to explain how nets are used to make objects and how separate parts are used to make a larger structure. |  | | **Making a crown activity**  Print the activity sheet onto thin card and distribute to the learners.  Step 1 - Take time to ensure that the head band fits snuggly before final taping. The overlap is necessary to allow the ends to be glued together.  Step 3 – The first head strap will define the crown’s fit and should follow the head’s contour. Learners should try on the crown to adjust the strip’s position while the glue hasn’t quite dried. Glue on the second strip and secure both with sticky tape to reinforce the join.  Step 4 – foam could be used as an alternative to the sticky tack.  Step 5 - Use the clockface on the teacher presentation to visualise the correct positions.  Step 9 - Learners may decorate the crown as time allows. They could use, for example, paper fasteners, beads, glitter glue, sequins, tinsel paper, gem-style stickers, paint etc. |
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| **Differentiation** |  | |  |
| **Basic** |  | | **Extension** |
| * Provide pre-cut parts from the template sheet * Omit the internal lining (step 6) |  | | * Learners add their own design to the crown |
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| **Resources** |  | | **Required files** icon-docicon-pdficon-ppt |
| * Glue sticks * Coloured card * Coloured crepe paper * Scissors * Paper fasteners * Decoration materials |  | | icon-ppt Presentation – How to make a crown  icon-doc How to make a crown - activity sheets |
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| **Additional websites** |  | |  |
| * **The official royal website for the coronation:** https://www.royal.uk/coronation * **BBC Bitesize** – [3D Shapes](https://www.bbc.co.uk/bitesize/topics/zjv39j6/articles/zcsjqty) | | | |
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| **Related activities (to build a full lesson)** |  | |  |
| **Starters** (Options)   * Watch the video: **BBC Bitesize –** [3D Shapes](https://www.bbc.co.uk/bitesize/topics/zjv39j6/articles/zcsjqty) | | **Extension** (Options)   * Learners add their own design to their crown.   **Plenary**   * Discuss the outcome of the activity and share the crown designs with the class. What went well and what could be improved? | |
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| **The Engineering Context** |
| * Engineers use nets to allow them to make scale models of their design ideas. Nets are also used to make almost all the card-based packaging we use. |

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| **Curriculum links** | |
| **England: National Curriculum**  Mathematics  KS2 Geometry   * recognise, describe, and build simple 3-D shapes, including making nets. | **Northern Ireland Curriculum**  KS2 – Mathematics and Numeracy  Shape and Space   * build and make models with 3D shapes; create pictures and patterns with 2D shapes. |
| **Scotland: Curriculum for Excellence**  Numeracy and Mathematics  Shape, position and movement  MTH 2-16   * through practical activities, I can show my understanding of the relationship between 3D objects and their nets. | **Wales: National Curriculum**  Mathematics  KS2 – Using geometry skills   * construct solids from given nets. |
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| **Assessment opportunities** | | |
| * Formal teacher assessment of activity results. * Informal teacher assessment of practical skills through observation of learners. | | |
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