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| **Handmade Christmas decoration** | | |
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| Making interesting Christmas tree decorations with simple materials | | |
| **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: ⚠ | | |
| **Subject(s):** Design & Technology  **Approx. time:** 40 - 50 minutes |  | **Key words / Topics:**   * aesthetics * Christmas * ornament * materials * strength * structures |
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| **Suggested learning outcomes** | | |
| * To understand how to construct a strong structure from weaker materials. * To be able to make a strong and visually attractive ornament that can be hung from a Christmas tree. | | |
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| **Introduction** | | |
| This is one of a series of resources designed to allow learners to use the theme of the Christmas period to develop their knowledge and skills in Design & Technology and Engineering. This resource focuses on the making of an ornament that can be hung from a Christmas tree.  Lots of people look forward to decorating their Christmas tree at the start of the festive period. Your challenge is to make an attractive ornament that can be hung from your tree! | | |
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| **Purpose of this activity** | | |
| In this activity learners will make a Christmas ornament that can be hung from their tree during the festive period. They will learn about what makes a strong structure and how to ensure that a structure has both strength and visual appeal. They will then apply this knowledge to produce their own ornament.  This activity could be used as a main lesson activity to teach about how to construct strong structures from weaker materials. It could also be used as part of a wider scheme of learning focussing on making and assembly skills within design and technology, and alongside the IET Education resource: Winter Mobile. | | |
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| **Activity** ⚠ |  | **Teacher notes** |
| **Introduction (10-15 minutes)**  Teacher to explain that learners are going to make a Christmas ornament and investigate how to make it both strong and visually appealing.  **Activity (20 – 25 minutes)**  Teacher to hand out resources (sticks and rubber bands). Learners to assemble their decoration as they proceed through the presentation:   * Step 1 – First joint (5 mins)   Connecting the sticks together to make the first joint.   * Steps 2 & 3 – Constructing the star (10 mins)   The learners gradually add the sticks to create the star shape; a total of five sticks and five rubber bands.   * Step 4 – Adding the final stick (5 mins)   The last stick is added to complete the star.  **Reflection and plenary (10 minutes)**  Share the ornaments produced with the group or as a class. What went well? What could be better? Encourage learners to self-assess their own work and peer assess that of others, giving feedback as appropriate. |  | A completed star would be useful to explain the process alongside the slides.  The sticks used in this presentation are craft sticks. This could prompt a class discussion about the sustainability of using wooden sticks.  The assembly activity can be tricky when attempted for the first time. The rubber band joint needs to be near the end of the two sticks, but not too near the end or it could ‘ping’ off. It is necessary to keep the rubber bands short otherwise they will need a lot of ‘loops’ to make a strong joint.  The learners are encouraged to experiment with testing the joints, but time should be kept fairly short for this. Care should be taken to avoid testing to destruction, as this will require repetition of the build steps.  Step 5 illustrates some of the ways in which learners can customise their ornaments. They could also use the sticks to make alternative shapes. |
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| **Differentiation** | | |
| **Basic** |  | **Extension** |
| * Provide an exemplar that learners can copy. * Provide some pre-wrapped joints so learners can copy these when making the additional joints. * Provide a template that learners can line the different sticks in their ornament up against to produce the final shape. |  | * Make other shaped ornaments with the sticks. e.g. a triangle, a square and/or a six pointed star. * Research and investigate methods of increasing the strength of the ornament. |
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| **Resources** ⚠ |  | | icon-doc**Required files** icon-pdficon-ppt |
| * 5 sticks of the same length * 5 rubber bands * String or twine for the hanging loops |  | | Handmade Christmas decoration |
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| **Additional websites** | | | |
| * **The Craft Patch blog and Best ideas for kids:** Ideas for other decorations that could be made using glue to assemble them. <https://www.thecraftpatchblog.com/popsicle-stick-christmas-crafts/> & <https://www.thebestideasforkids.com/popsicle-stick-christmas-crafts/> * **Activity Village – Christmas star decoration:** How to make a six-pointed star using glue. <https://www.activityvillage.co.uk/christmas-star-decoration> | | | |
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| **Related activities (to build a full lesson)** |  | |  |
| **Starters** (Options)   * Show and analyse examples of existing Christmas tree ornaments. How do you think they were made? What works well about them and what could be improved upon? | | **Extension** (Options)   * Make other shaped ornaments with the sticks. e.g. a triangle, a square and/or a six pointed star. * Research and investigate methods of increasing the strength of the ornament.   **Plenary**   * Share the ornaments produced with the group or as a class. What went well? What could be better? Encourage learners to self-assess their own work and peer assess that of others, giving feedback as appropriate. | |
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| **The Engineering Context** film |
| * Structural engineers need to understand how weaker materials can be used to create stronger structures, such as using rope to make bridges. |

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| **Curriculum links** | |
| **England: National Curriculum**  Design & Technology   * KS2 1b, 2a, 2b | **Northern Ireland Curriculum**  Technology & Design   * Manufacturing – selecting and using materials fit for purpose |
| **Scotland: Curriculum for Excellence**  Technologies   * TCH 1-04b * TCH 1-10a | **Wales: National Curriculum**  Design and Technology   * KS2 Skills: Designing 3 * KS2 Skills: Making 1, 3 |
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| **Assessment opportunities** | | |
| * Formal teacher assessment of the finished ornament. * Peer and/or self-assessment of completed ornaments. | | |
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