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| **Make a spider’s web** | | | |
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| Making an elegant trap for a spider in Halloween | | | |
| **Subject(s):** Design & Technology, Engineering  **Approx timings:** 60-80 minutes |  | | **Key words / Topics:**   * cobweb/spiders’ web * Halloween * knots * spiders * spirals * structures * threads |
| **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 origins of Halloween and how it is celebrated today. * To know how a spider makes its web. * To be able to use thread and knots to construct a spiders’ web. | | | |
| **Introduction** |  | |  |
| This is one of a series of resources that are designed to allow learners to use the theme of Halloween to develop their knowledge and understanding in Design & Technology and Engineering. This resource focusses on learners making their own spiders web decoration for Halloween. | | | |
| **Purpose of this activity**  In this activity learners will make use of the theme of Halloween to make a spider’s web decoration. They will learn about the history of Halloween and why spiders and spiders’ webs are an important part of it. They will then use threads to make their own spiders web on a card backing.  This activity could be used as a main lesson activity to teach about threading and simple textiles hand-making skills. It could also be used as part of wider scheme of learning focussed on designing and making products within a Halloween-themed context, alongside other IET Halloween themed resources. | | | |
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| **Activities** |  | | **Teacher notes** |
| **Introduction (5-10 minutes)**  Teacher to use presentations slides 3 and 4 to introduce the aim of the activity and the Halloween theme.  Teacher to outline the health and safety considerations given on slide 2.  **Spiders and spiders’ webs (5-10 minutes)**  Teacher to use presentation slides 5-7 to explain why spiders are used as part of Halloween and show examples of different webs that they make.  **Making a spider’s web (50-60 minutes) ⚠**  Teacher to introduce the task of making a spiders’ web.  Teacher to demonstrate, and learners to follow, the steps shown on presentation slides 10-18.   * Step 1 - spiders work by making a strong fixing for their web - to do this cut notches out of the edge of the cardboard as shown on slide 10. * Step 2 - make a loop in the end of the thread to give a nice knot that will hold in the notch. * Step 3 - go backwards and forwards across the card to make a set of framework threads that cross in the middle. * Step 4 - tie a knot with a new piece of thread, in the middle of the place where the threads cross. * Step 5 - start working round the web, tying knots to keep the threads in place. How to tie the knots is shown on slides 15 and 16. * Step 6 - keep going round and round until a web shape is made. |  | | **Introduction**  Explain the theme and origins of Halloween to learners.  Learners could be asked what they already know about Halloween and what they would like to learn about it during this activity.  If the group has some serious arachnophobes in it, it would be a good idea to pre-warn them as there are some pictures of real spiders’ webs in the presentation.  **Spiders and spiders’ webs**  Ask learners why spiders make webs – to catch flies and other prey to eat.  The best time to see spiders’ webs is in the morning, when they might have dew on them like the ones shown on slide 5.  **Making a spider’s web**  The activity must be carried out in line with the school’s risk assessment for using scissors.  Rough textured yarn is best to use as the knots do not slip. Spider cut out templates are given on presentation slide 21.  Step 1 - Corrugated card is the best for this (or corrugated plastic such as corriflute if available). The support needs to be rigid. Knitting yarn works very well and comes in a wide variety of colours. Luminous colours on a black background looks good for Halloween.  Step 2 - This might be the first time the students have worked with thread and tying knots might be a challenge.  Step 3 - The suggested layout of cuts will give four crossing threads but the example has 5. This is not critical.  Step 4 - Make sure all the threads are caught in the knot.  Steps 5/6 – Teacher could emphasise the new word spiral as the learners work round and round. Spread the threads out - they shouldn’t be too close together.  The suggested knot is not the only knot that works but they must be tight to stop them slipping about.  Tie the end of the thread off at one of the notches.  This web can be used as a decoration just like this, on the card.  A finished example is shown on slide 18. |
| **Differentiation** |  | | **Teacher notes** |
| **Basic** |  | | **Extension** |
| * Cut out the spiders for learners to stick onto their webs – printable from presentation slide 21. * Pre-cut the notches on the cardboard in step 1. |  | | * Cotton thread could be used to make the webs more delicate (although this can be quite fiddly to handle and knot). * Take the web off the card and hang it up in a window. * Make a large web as a group to catch friends in. |
| **Resources** |  | | **Required files** icon-docicon-pdficon-ppt |
| * String or wool (or cotton for the extension) * Scissors and/or craft knife * A large piece of corrugated cardboard e.g. from the side of a box   Optional   * Spider cut-outs * Googly eyes * Glue gun or superglue |  | | icon-ppt Primary Presentation – Make a spider’s web |
| **Additional websites** |  | |  |
| * **History.com – Halloween:** <https://www.history.com/topics/halloween/history-of-halloween> * **Learn more about spiders:** <https://www.youtube.com/watch?v=F6AokkH7sEI> * **A cartoon series that might help those who are, potentially, afraid of spiders:** <https://www.youtube.com/watch?v=LD_WvcLi95I> * **A video of a spider making a web, but contains a part where the spider catches a fly:** <https://www.youtube.com/watch?v=zNtSAQHNONo> * **A low level video that shows that a spider ‘tunes’ its web:** <https://www.youtube.com/watch?v=0EkEsTafD38> | | | |
| **Supporting starter and plenary ideas** |  | |  |
| **Starters** (Options)   * Discuss the theme of Halloween and how it links into this activity. * Create a group mind map of scary ideas for Halloween * Show and discuss one of the videos given in the websites above. | | **Plenary**   * Discuss what we can learn from how spiders make their webs and uses of this in engineering – e.g. suspension bridges. * Evaluate the outcomes of the making activity. What went well (WWW) and even better if (EBI). * Make a display of the webs (and spiders). | |

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| **The Engineering Context** |
| * Engineers can learn a lot from nature in terms of how to design and make products and structures. For example how spiders’ webs influence the design of suspension bridges. |

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| **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 * generate, develop, model and communicate their ideas through discussion, prototypes * select from and use a wider range of tools and equipment to perform practical tasks | **Northern Ireland Curriculum**  The World Around us KS2   * Manufacturing – selecting and using materials fit for purpose; safe use of a range of tools and processes appropriate to materials, demonstrating accuracy and quality of outcome. |
| **Scotland: Curriculum for Excellence**  Technologies   * TCH 2-05a * TCH 2-09a, TCH 2-12a | **Wales: National Curriculum**  Primary – Science and Technology   * Design thinking and engineering offer technical and creative ways to meet society’s needs and wants. * The world around us is full of living things which depend on each other for survival. |

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| **Assessment opportunities** | | |
| * Formal teacher assessment of webs made. * Self/peer assessment of webs made. * Informal assessment of practical skills used. | | |
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