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| **Make a snow globe** | | | |
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| Learn how to make a snow globe  **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, Science  **Approx. time:** 40 - 60 minutes |  | | **Key words / Topics:**   * Christmas * adhesive * assembly * snow globe * testing |
| **Suggested Learning Outcomes** |  | |  |
| * To be able to assemble a snow globe using a jam jar * To understand how a snow globe works | | | |
| **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 focusses on producing a home-made snow globe.  Snow globes are fun way of sharing the fun of Christmas with friends and family. Can you make your own snow globe with a few items from around your home? | | | |
| **Purpose of this activity**  In this activity, learners will make a snow globe using a jam jar, glitter and a few other items from around the home. They will assemble the snow globe and check how well it functions.  This could be used as a one-off main lesson activity to build knowledge and understanding of product assembly in Design & Technology. Alternatively, it could be used to introduce the concept of viscosity in Science. | | | |
| **Activity** |  | | **Teacher notes** |
| **1. Introduction to the task (5-10 mins)**  Teacher to introduce the task to the class and show an example of a snow globe and how it works. Teacher to hand out the resources and equipment that will be used.  **2. Making the snow globe (30 - 40 mins)**  Teacher to demonstrate how to make the snow globe using the slides on the teacher PowerPoint presentation.  Learners to make their own snow globe:   * Step 1 – Gather the equipment and resources needed. * Step 2 - Glue the bottom of the decoration or ornament to inside of the jam jar lid using a ⚠ hot glue gun, if available. * Step 3 - Fill the jam jar almost to the top with water, add a small amount of glycerine (from 5 ml to 250 ml), add a good-sized pinch of glitter and stir. The higher the proportion of glycerine, the slower the snow will fall, although too much will cause the snow to ‘clump’ together. * Step 4 - ⚠ Add glue around the rim of the jam jar and attach the lid, make sure that the lid is securely fitted and watertight.   **3. Testing the snow globe (5-10 mins)**  Teacher to discuss how the snow globe should work and how the effect is created.  Learners to turn the jam jar upside down. They should then shake their new snow globe, enjoy the effect and share with their friends/classmates.  Learners to discuss the expected results of testing and how well their product meets them. |  | | **Resources and equipment**  If a glue gun is not available other household glue can be used, as long as it is waterproof and can stick the ornament to the jam jar lid. It should be allowed to dry thoroughly before assembling the snow globe.  The Christmas decoration or ornament should be small enough to fit into the jam jar and be made from waterproof material, such as plastic.  **Making and testing the snow globe**  Glycerine is available from most pharmacies or supermarkets. It helps the glitter to suspend in the water, resulting in a better snow globe effect. If this is not available the snow globe can still be produced without it, but the effect will not be as pronounced or impressive! As an alternative to glycerine, corn syrup could be used in equal proportions with water.  The glue helps to create a watertight seal so that the liquid does not escape. A cheap, tube based clear silicone sealant could also be used. Ensure the seal is watertight before testing.  **Testing the snow globe**  Shaking the snow globe should result in the glitter spreading around inside and then slowly falling like snow! |
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| **Differentiation** |  | |  |
| **Basic** |  | | **Extension** |
| Provide the ornaments pre-attached to the jar lids.  Measure out the quantities of fluids in advance. |  | | Learners could create complex dioramas with multiple items inside the snow globe.  Learners could make and cut out wording or decorations for the outside of their snow globe using self-adhesive vinyl. This could be done using 2D CAD software and a CNC sticker cutter if available. |
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| **Resources** |  | | **Required files** icon-docicon-pdficon-ppt |
| * Projector/Whiteboard * A jam jar and lid * Plastic glitter * A Christmas decoration or ornament * Glue gun and glue stick * Access to water * Glycerine (or light corn syrup) |  | | icon-ppt Make a snow globe presentation |
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| **Additional websites** |  | |  |
| The following websites can be used for additional background information or to aid with the activity:   * **BBC – how the snow globe was invented:** video <https://www.youtube.com/watch?v=pm7YB749LOs> includes making of snow globes. * **BBC Good Food – How to make a snow globe:** Further instructions and information for making a snow globe using a jam jar. <https://www.bbcgoodfood.com/howto/guide/how-make-snow-globe> * **Hobbycraft – How to make a snow globe:** Visual instructions for making a snow globe. <https://www.hobbycraft.co.uk/ideas/decor-hobbies/how-to-make-a-snow-globe> * **Martha Stewart – making snow globes from jar jars:** pictures of examples <https://www.marthastewart.com/276346/how-to-make-a-snow-globe?slide=6f22e17b-340c-4db3-a868-bd7b2581bf18#6f22e17b-340c-4db3-a868-bd7b2581bf18>. | | | |
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| **Related activities (to build a full lesson)** |  | |  |
| **Starters**   * Watch the video about how snow globes were invented <https://www.youtube.com/watch?v=pm7YB749LOs> * Analyse examples of existing snow globes   **Main**   * ACTIVITY: Make a snow globe | | **Plenary**   * Review of results of testing * Discussion of how the snow globe works | |
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| **The Engineering Context** film |
| Design and manufacturing engineers must be able to make prototypes for their products using appropriate tools, equipment and techniques. |

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| **Curriculum links *[example of layout, font details in section for English National Curriculum]*** | |
| **England: National Curriculum**  Design & Technology   * KS3 2a, 3c | **Northern Ireland: Curriculum**  Technology & Design   * KS3 Knowledge, understanding and skills: 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 3-09a | **Wales: National Curriculum**  Design and Technology   * KS3 Skills: Making 1, 2 |
| **GCSE D&T**  AQA D&T   * 3.2.8, 3.3.4, 3.3.6   Edexcel D&T   * 1.13   Eduqas D&T   * 2.2 Core: 1, 9   OCR D&T  7.2, 7.3, 7.5 | **GCSE Engineering**  AQA Engineering  3.2.5, 3.4.2, 3.6 |
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| **Assessment opportunities** | | |
| Regular questioning throughout the activity, formal teacher assessment of completed snow globes and visual observation whilst learners are completing each step of making/assembly. | | |
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| **Personal, learning & thinking skills (PLTS)** | | |
| * Self-manager * Effective participator * Reflective learner. | | |
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