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| **Light up Rudolph’s nose** | | |
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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: ⚠ | | |
| **Age range:** 3 - 6  **Approx time:** 45 minutes |  | **Key words / Topics:**   * EYFS * Primary * Electricity |
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| **Equipment** ⚠ |  |  |
| * Rudolph template * Stiff piece of card same size as the template * Block of wood * 2 crocodile leads |  | * 1.5V or D size battery * A 2.5 bulb with holder * Sticky tape * Blu-tac |
| **The challenge** |  |  |
| Rudolph is very sad. His nose is not lighting up and Santa and the rest of the reindeer can’t find their way to all the houses. Can you help him?  Get the children to experiment with holding the free end of each crocodile lead onto different parts of the battery to see if they can light it up.  ⚠ Be careful here of making short circuits. If the bulb does not light up immediately then take the lead off and try something else.  Once the children have got the idea of a circuit, take the crocodile leads off the bulb holder and ask them to connect the circuit to light up Rudolph’s nose.  Now all sing Rudolph the red nose reindeer very loudly and brightly! See if the children can work out how to make his nose flash! | | |
| **Instructions** |  |  |
| **Step 1**  Print off the Rudolph template and stick it onto a stiff piece of card.  **Step 2**  Make a hole (large enough to put the bulb through) where the nose would be, keeping the bulb holder at the back. Tape the bulb holder to the cardboard to hold it in place. You can colour the bulb red with a felt tip pen or put some red acetate over it. Sweet wrappers work well for this!  **Step 3**  Stick the block of wood to the bottom of the card so that the Rudolph template stands up.  **Step 4**  Attach the crocodile leads to the metal part, each side of the bulb holder. Stick the battery down on top of the piece of wood at the back with a piece of Blu-tac. You are now ready. | | |
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| **Science** |  |  |
| **Electricity will only flow when there is a source of power within a complete circuit of conductive material with no breaks.**  There is no need, at this stage, to explain what electricity is or how it works but children can begin thinking what electricity does.  Encourage the children to look around the room to find other things which work on electricity.  They could cut out pictures from magazines of things which work on electricity and then sort them into those which work on mains electricity and those which work on battery power. | | |

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| **Curriculum links** | |
| **England: National Curriculum**   * Early Years Foundation Stage, Understanding the world | |
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Extended learning and discussions around circuits would match up to the below:

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| **England: National Curriculum**  Design and Technology   * KS2: 1b, 2a, 2b, 4c   Science  KS2 Electricity:   * construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers * identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery | **Northern Ireland Curriculum**  Science and Technology   * Movement and energy: The causes and effect of energy, forces and movement |
| **Scotland: Curriculum for Excellence**  Technologies   * TCH 2-09a, TCH 2-12a,   Sciences   * SCN 1-09a, SCN 2-10a | **Wales: National Curriculum**  Design and Technology   * KS2 Designing: 5 * KS2 Making: 2, 3, 4, 6 * KS2 Systems and control: 14   Science:   * KS2 How things work: 1 |