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| **Snow blizzard in a jar** | | | |
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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: ⚠ | | | |
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| **Age range: 3 - 8**  **Approx time: 20 minutes [+discussion/understanding]** |  | | **Key words / Topics:**   * Science experiment * Reactions * Liquid and gas |
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| **Equipment** ⚠ |  | |  |
| * A jar * A pot for mixing paint * Water * Baby oil (enough to fill ¾ of your jar) * A small amount of glitter |  | | * Bicarbonate of soda or an effervescent tablet * A small tube of white paint * Blue food colouring * A stick for stirring |
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| **Instructions** ⚠ |  | |  |
| **Step 1**  First of all, fill the jar until about ¾ full of baby oil.  **Step 2**  In the pot, mix water and a few tablespoons of white paint.  **Step 3**  Now go back to the jar of baby oil and add the glitter and blue food colouring.  You can add as much of these as you like – you are creating a magical winter scene!  **Step 4**  Add the paint and water mixture into the jar, filling it to the top.  **Step 5**  Lastly, add a teaspoon of bicarbonate of soda. By adding the bicarbonate of soda, this will start the blizzard! | | | |
| **Science** |  | |  |
| You may have learned a bit about this reaction in your science lessons.  **Oil is less dense than water**, less heavy. This means the water sinks to the bottom of the jar, and the oil floats on top, and as **they don’t mix**, there’s a separation between the two.  When you add the bicarbonate of soda, or effervescent tablet, it reacts with the water to produce **carbon dioxide** gas bubbles. These stick to the water droplets. The water and gas combination together is less dense than oil which makes them rise to the top of the jar and create pressure in an upward direction.  At the top, **the gas bubbles pop and escape into the air,** leaving the dense water behind to sink back down to the bottom again.  This reaction creates our **beautiful blizzard in a jar**! | | | |
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| **Related activities (to build a full lesson)** |  | |  |
| **Starters** (Options)   * additional [quick video](https://www.bbc.co.uk/cbeebies/makes/lets-go-club-fizzy-lava-lamp) example * Liquid, solid and gas [video](https://www.youtube.com/watch?v=JQ4WduVp9k4) | | **Extension** (Options)   * Try our lava lamp activity to examine the oil and water molecules and discuss polarity. * Chemical reactions [video](https://www.youtube.com/watch?v=37pir0ej_SE) and [density](https://www.youtube.com/watch?v=1HJkEVOZbTM) video | |
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| **The Engineering Context** film |
| * Understanding the way different materials work and the properties they all hold is key to creating and developing solutions to our world’s problems. Engineers are interested in the world around them, which is a fun and key spark to ignite from an early age. |

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| **Curriculum links** | | | | |
| **England: National Curriculum**   * **Understanding the World;** Understand some important processes and changes in the natural world around them, including changing states of matter. | |  | **Northern Ireland Curriculum**   * **Pre-School Education** * give children opportunities to build with construction materials; and ensure that learning is challenged as children explore their own ideas and use open-ended resources. * developmentally appropriate materials | |
| **Scotland: Curriculum for Excellence**   * **BGE Science; Materials – Early** * Through creative play, I explore different materials and can share my reasoning for selecting materials for different purposes. | |  | **Wales: National Curriculum**   * **Foundation phase;** Knowledge and understanding of the world | |
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