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| **Snowmen Rice Krispie treats** | | |
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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:** 11-14-year-olds or younger with adult supervision  **Approx time:** 45 minutes – 1 hour (plus 30 minutes cooling) |  | **Key words / Topics:**   * ingredients * exact/accurate * chemical change * measuring * scales |
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| **Introduction** |  |  |
| It does not always snow at Christmas, but that doesn’t have to mean people can’t build a snowman! In this activity learners are going to make and decorate some delicious Rice Krispie snowmen. | | |
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| **Equipment** ⚠ |  |  |
| * 90g puffed rice cereal * 150g mini marshmallows (normal-sized marshmallows could be used, but additional time will be required for them to melt during making) * 22g butter * A tub of readymade butter icing * For decoration: chocolate buttons, chocolate chips, sprinkles and fruit loops * Kitchen scales * Saucepan and cooker (or bowl and microwave) | | |

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| **Instructions** ⚠ |  | |  |
| **Step 1**  Learners use kitchen scales to weigh out the ingredients into separate small bowls: 150g of mini marshmallows, 22g of butter, 90g of puffed rice cereal.  **Step 2** ⚠  Learners melt the butter in the saucepan on a medium-low heat, then add the marshmallows – keep stirring so the mixture does not burn until the marshmallows have all melted. Learners could alternatively use a microwave to heat the butter and marshmallows.  **Step 3** ⚠  Turn off the heat and stir in the puffed rice cereal. Mix it all together so the cereal is well coated then leave the mixture for around 30 minutes until it has cooled down but is still sticky.  **Step 4**  Learners should lightly grease their hands (using the left-over paper from the butter is an effective way to do this), then scoop up some of the mixture and roll it into balls.  **Step 5**  Construct snowmen by placing two balls together. The mixture should be sticky enough to hold them, if not a dab of butter icing can help.  **Step 6**  Learners can make a scarf for the snowman with lengths of the fruit loop and decorate with the chocolate chips, sprinkles and anything else desired – and get ready to enjoy! | | | |
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| **Science and maths** |  | |  |
| For some recipes like soup, the exact amount of **ingredients** might not matter too much. One person might prefer a vegetable soup with lots of lentils, but someone else might prefer plenty of peas – the ingredients for recipes like these depend on preferences. However, for other recipes such as cakes and bread it is particularly important to get the amounts right. That’s because to create a fluffy sponge or a risen loaf a **chemical change** has to take place and the change depends on there being the right amounts of each ingredient.   * Too much butter in a cake and it will be flat instead of fluffy. * Too much flour and your cookies will be too crumbly. * Not enough yeast in bread will mean it just won’t rise. * In this challenge, too much butter or not enough sticky marshmallows would mean that the Rice Krispies wouldn’t stick together, so couldn’t be moulded into ball shapes. | | | |
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| **The Engineering Context** | | | |
| Baking is engineering. It is using science, maths and technology skills to engineer and create solutions and new tasty ‘products. So engineers need all these skills – precision in weighing out ingredients, the safety required in the kitchen and product design and quality engineering to test, taste and improve with each bake! | | | |
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| **Curriculum links** | | | |
| **England: National Curriculum**   * **Science: lower KS2** * observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). * **Science; upper KS2** * making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. | | **Northern Ireland Curriculum**   * **Primary: the world around us** * KS1 The effect of heating and cooling some everyday substances. * KS2 changes that occur to everyday substances, for example, when dissolved in water or heated and cooled. | |
| **Scotland: Curriculum for Excellence**   * **Science; Materials – Properties and uses of substances: Second**   By contributing to investigations into familiar changes in substances to produce other substances, I can describe how their characteristics have changed. | | **Wales: National Curriculum**   * **Science KS2** use standard measures and S.I. units, e.g. kg, s, N, m. * **Science KS3** use a range of apparatus and equipment safely and with skill, taking action to control the risks to themselves and others. | |