



Design and Technology

GCSE

D&T: Food Technology: Support Modelling and Prototyping

Topic Exploration Pack

September 2015

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This Topic Exploration Pack should accompany the OCR resource ‘Modelling and Prototyping’ learner activities, which you can download from the OCR website.



Introduction

Students will be required to develop skills in modelling and prototyping in various aspects of the specification, including in their controlled assessment and in the written examination.

This pack is intended to provide you with some resources and activities that can support students learning which will help them succeed in both the controlled assessment and the written examination. For Unit A521-Introduction to designing and making and A523-Making quality products students are required to produce creative and innovative designs. This means that they should be adapting recipes to meet the needs of their identified users, design brief and specification. For Unit A523-Making quality products students are also required to develop their products as a result of sensory analysis and to complete two further developments.

The resources in this pack will enable students to develop the skills required to complete these elements of their controlled assessments.

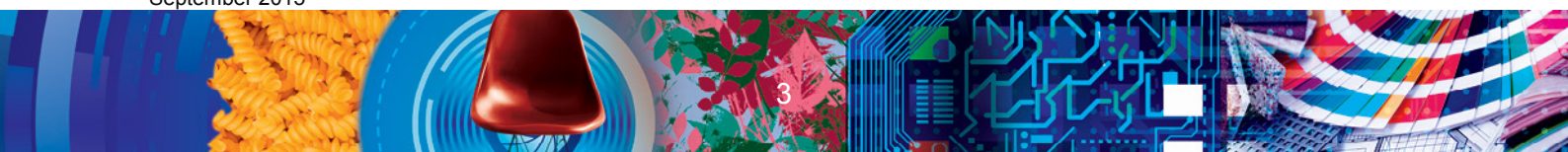
Activity 1 - Creative designs - adapting the ingredients

The assessment criteria for Unit A521-Introduction to designing and making and A523-Making quality products requires the students to produce creative dishes. This means that the students need to be able to develop a dish that is original.

This activity is going to focus on adapting the ingredients to make the dish different to the original product. At this point there is not a focus on the nutritional element of the product being changed however this could be added as a challenge for more able students. A later pack in this resource will focus on this.

The suggested dish for this activity could be changed to suit the school and it's students, and the resources adapted substituting a different recipe. However as an example this activity is to be modelled using a Cottage Pie recipe.

Students to work in groups to look at how the product could be adapted to make the product more attractive / colourful. The need to consider both the topping and the filling (**Resource sheet 1 and 2**).



Depending on the students experiences possible practical activities could include:

- looking at how the topping could be arranged on top e.g. piped or layers
- looking at the ingredients used in the topping - what could be added to the potato e.g. onion, spring onions, carrot, sweet potato etc
- Tasting of different vegetables to see which are preferred for the topping
- Looking at additional ingredients which could be added to the base / meat to change the flavour e.g. herbs, spices, additional vegetables for colour.

Depending on prior work completed and the stage the students are at in the course; they could complete the first part of the design sheets that they have to produce for Unit 1 or Unit 3 where they explain their adaptations. The resource sheet included is for unit A521-Introduction to designing and making as it also asks the students to list their skills (Resource sheet 3).

Objectives

- To understand how a recipe can be adapted to make it interesting and individual.
- To be able to produce a new / adapted version of a product.

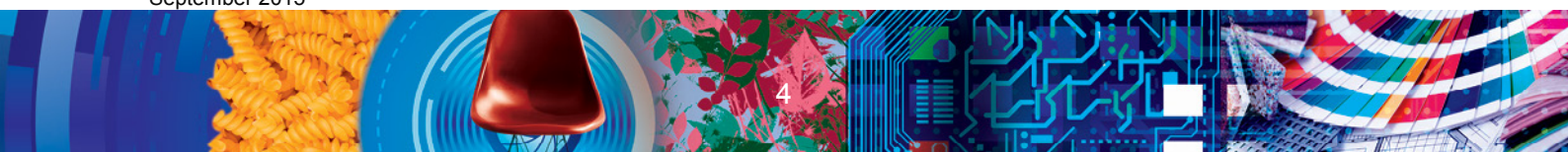
Resources

- **Resource sheet 1** - Cottage Pie Recipe.
- **Resource sheet 2** - Mind map / diagram to show possible adaptations.
- **Resource 3** - Blank tasting charts.
- **Resource 4** - Blank Tasting.

Activity 2 - Adapting a recipe to meet a nutritional target

In Unit A521- Introduction to designing and making students are required to have one nutritional focus for their work. Many students choose to either reduce the fat content or increase the fiber content as these are perhaps the easiest ones for them to meet. It must be remembered if they choose to have a focus on reducing the salt content they should be making savory products and likewise if they choose to reduce the sugar content they should be making sweet products.

This activity could be continued using the Cottage Pie given in activity 1 or a different product could be used e.g. lasagna for reducing the fat content or increasing the fiber content or a fruit pie for reducing the fat content or increasing the fiber content. Students would begin with a basic recipe and a nutritional focus and decide which ingredients could be changed. This could be done as a group activity or individually. If doing as a group activity it might be useful to have four different products which could be adapted (depending on the size of the group) and each group to report back.



Resource sheet 5 is blank and could be completed by students as a starting point. A completed exemplar one is included for the lasagna. There is also a blank sheet which could be used by students if a different product was being adapted.

Once the students have got some ideas they can then compare the nutritional content for the focus nutrient e.g. the fat or the fiber. Students can then prepare a presentation to share with other members of the group explaining what they have found out. This could include them showing the following:

- Actual figures to show the difference in nutrient content for individual foods - this information could then be used by all students when adapting recipes.
- Information comparing the nutritional content for dishes when adapted or as a stretch activity for the most able they could show several combinations and give detailed explanations of their decisions.
- The adapted recipes that the students have individually produced with explanations for the changes linked to the nutritional focus

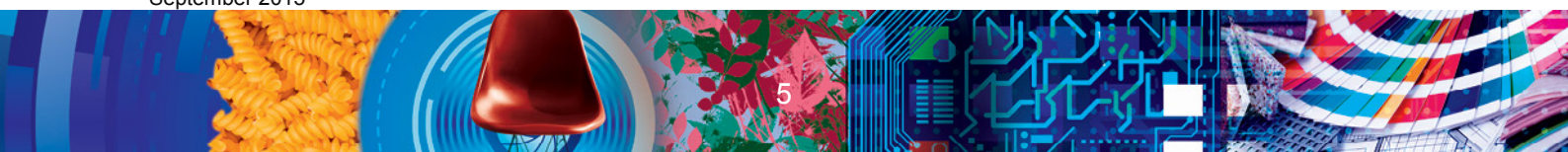
The activity does not necessarily have to conclude with the students making the product it could be an ICT focus with the students looking at possible changes in ingredients and how their nutritional profile changes with the use of different ingredients. If the students went on to make the dishes paired work could be done to compare the sensory properties of the foods.

Objectives:

- To understand which foods are high in specific nutrients and how to adapt the ingredients to change the nutritional profile
- To be able to select appropriate ingredients to meet a specific nutritional requirement.
- To develop skills in using nutritional software.

Resources:

- Access to a nutritional programme
- **Resource sheet 5** - Changing the Fat or Fibre Content (Lasagna)
- **Resource sheet 6** - Changing the Fat or Fibre Content (Blank copy)
- **Resource sheet 7** - Exemplar Changing the Fat or Fibre Content



Activity 3

Students will need to be able to adapt recipes and ideas in light of other people's opinions and to be able to explain the reasons for this. This can be examined in the written examination when students will be given either dishes which need adapting to suit different needs or data from sensory analysis to suggest improvements. Exemplar questions can be found on past papers. Students will also be able to adapt their ideas based on tasting results when they are completing Unit A523-Making quality products.

The aim of this resource is to give students the opportunity to look at a recipe and the tasting results and to be able to adapt it further based on all the information they are given. There is not a requirement for them to make the product, however this could be added to the activity if they wanted to do a practical activity. Students could also cost the development as this is a requirement when completing unit A523-Making quality products.

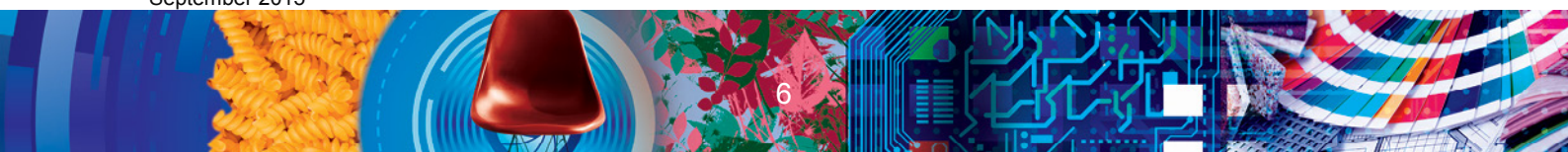
Students are to be given a ingredients list, evaluation against the design specification, testing results and comments from the first trialing of the product. From the information given students are required to decide on how the product could be developed further to meet the design specification. Coloured pens could be used to highlight the strengths of the products and use a different colour to identify improvements / developments. Students can then build on the first development for the product to identify the changes to the recipe, and give reasons for the development. Students should give reasons for their changes and these should link back to the data given to them. Extension task could be to cost the developments - this is a requirement for the Unit A523-Making quality products.

Objectives:

- To be able to use data tasters comments to identify improvements
- To be able to suggest improvements based on other peoples comments
- To be able to give reasoned decisions for the adaptations
- To be able to accurately cost the new recipe

Resources

- **Resource 8** - information context, product and results



Activity 4 - Exam Questions

Students will be required to be able to show that they understand how to adapt recipes in their exam papers. These types of questions can be found on previous exam papers which are on OCR's website. On the website there is also a resource which requires students to design food products with a nutritional focus. The link to this resource is below.

<http://www.ocr.org.uk/qualifications/gcse-design-and-technology-food-technology-j302-from-2012/>



Resource Sheet 1 - Cottage Pie Basic Recipe

Ingredients

4 - 5 medium potatoes

1 large onion

2 tablespoons milk

25g butter

salt and pepper

300g minced beef

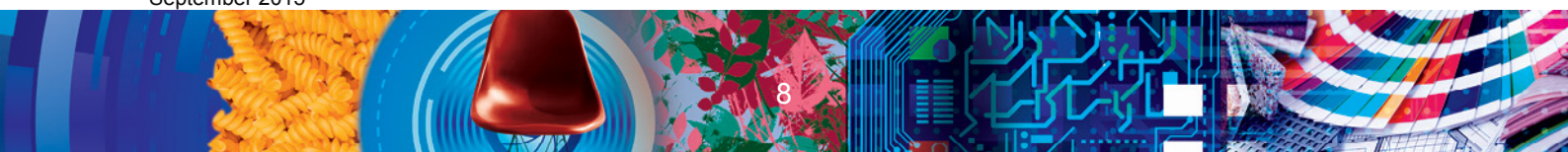
1 level tablespoon flour

1 oxo cube

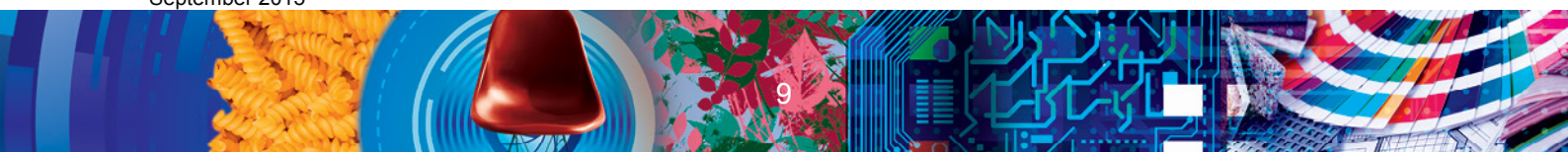
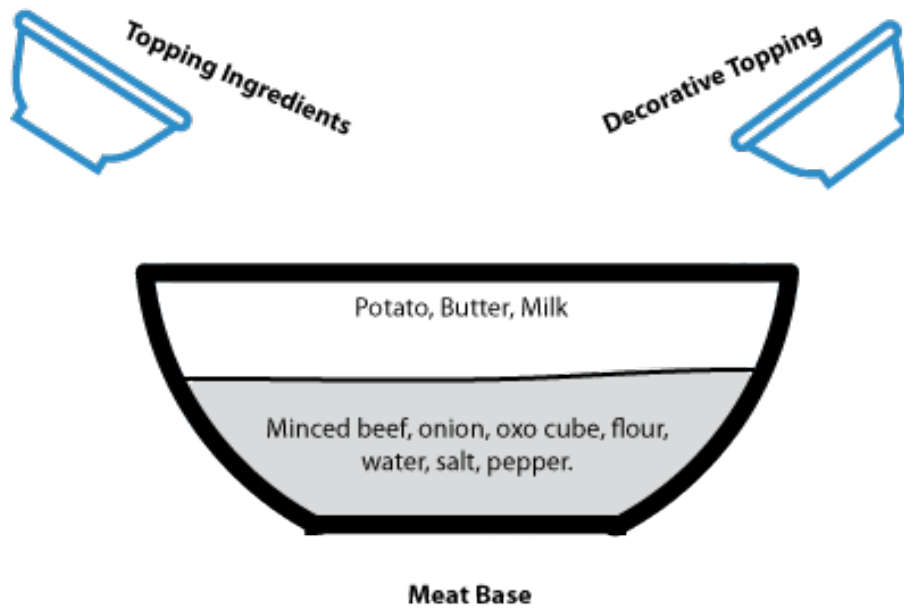
250ml water

Method

1. Peel potatoes, cut in to even sized pieces. Boil for 20 minutes until soft.
2. Peel onion and chop in to small pieces.
3. Dry fry the onion and meat in a pan until evenly brown. Remove from the heat.
4. Sprinkle in the flour and crumbled oxo cube, and stir well.
5. Gradually add the water, stirring well until thoroughly mixed.
6. Season with salt and pepper.
7. Simmer the meat mixture for 20 minutes.
8. Drain the potatoes, mash with the milk and butter.
9. Pour meat mixture into the dish.
10. Carefully spoon the potato mixture on to the top. Smooth the surface with a knife and mark it with a fork.
11. Put under the grill or in an oven 200C or Gas 6 until brown.



Resource Sheet 2 - Mind Map of ideas

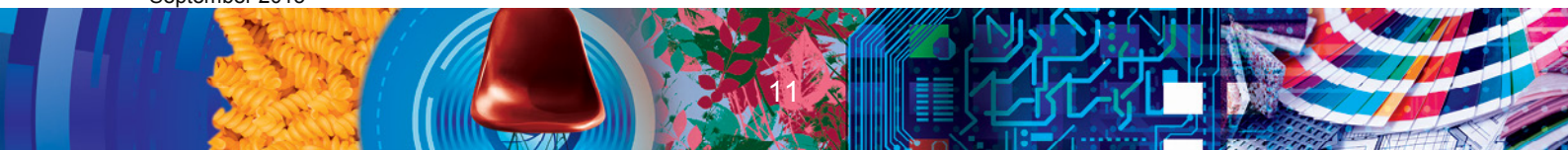
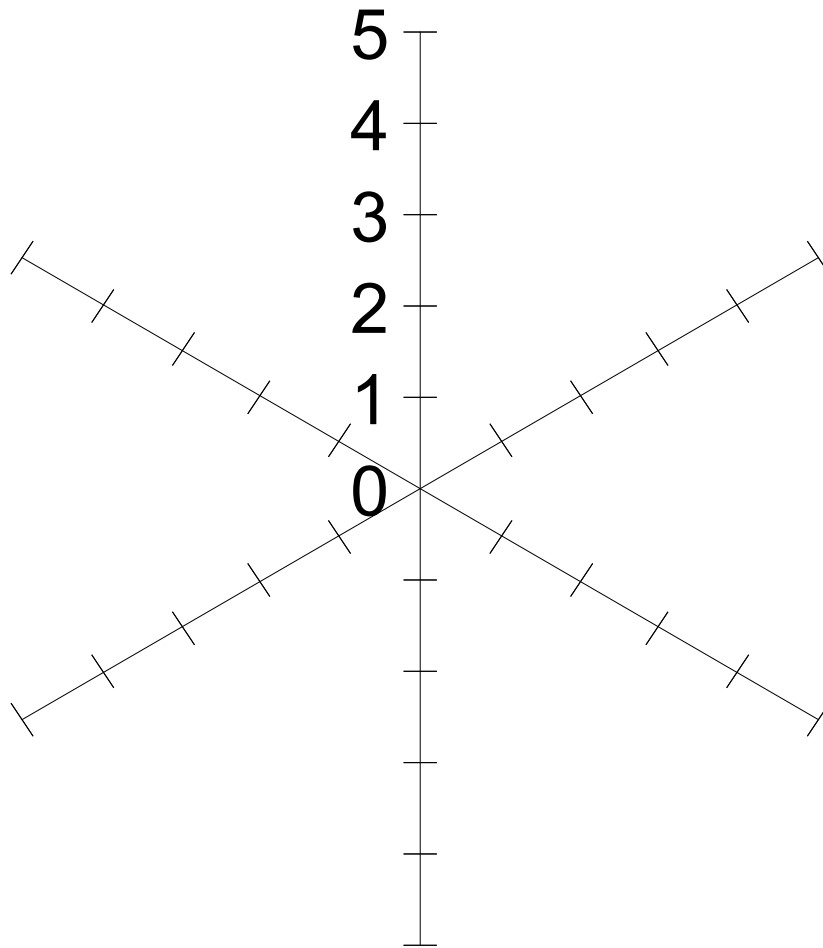


Resource Sheet 3

Original Recipe	Adapted Recipe	Skills
<ul style="list-style-type: none">• 4 - 5 medium potatoes• 1 large onion• 2 tablespoons milk• 25g butter• salt and pepper• 300g minced beef• 1 level table spoon flour• 1 oxo cube• 250ml water		
Reasons for making the changes		
I have chosen to make these changes to the recipe because:		

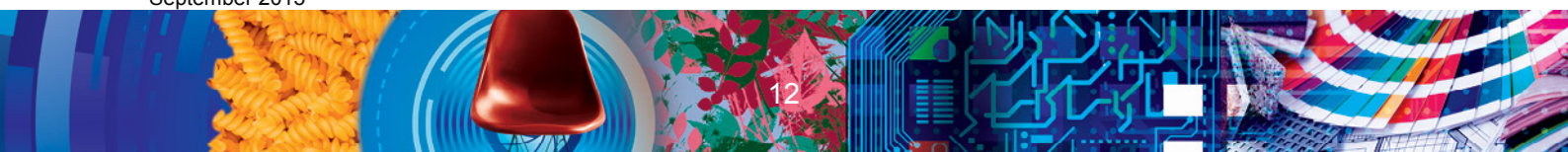


Resource sheet 4 - Tasting Chart



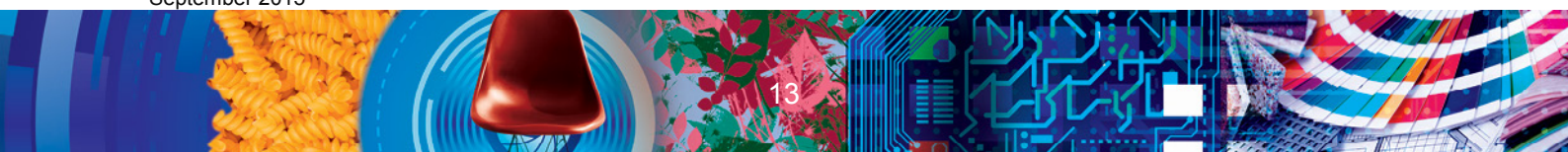
Resource sheet 5 - Changing the fat or fibre content

Reducing Fat Ideas	Original ingredients	Increasing Fibre Ideas
	<p style="text-align: center;">Lasagne</p> <p>250 minced beef small tin tomatoes 1 onion mixed herbs 375ml full fat milk 40g flour 40g butter salt and pepper 100g cheese 6 sheets lasagne</p>	



Resource sheet 6 - Changing the fat or fibre content

Reducing Fat Ideas	Original ingredients	Increasing Fibre Ideas



Resource 7 - Example of adapting a recipe

Reducing Fat Ideas	Original ingredients	Increasing Fibre Ideas
<p><i>Use Quorn, reduce the amount of meat and add veg</i></p> <p><i>Buy reduced fat mince</i></p> <p><i>Use Minced Turkey</i></p> <p><i>Change to skimmed or semi skimmed milk</i></p> <p><i>Reduce the amount</i></p> <p><i>Just sprinkle on top, not in sauce</i></p> <p><i>Use a smaller amount of strong cheese</i></p>	<p>250 minced beef</p> <p>small tin tomatoes</p> <p>1 onion</p> <p>mixed herbs</p> <p>375ml full fat milk</p> <p>40g flour</p> <p>40g butter</p> <p>salt and pepper</p> <p>100g cheese</p> <p>6 sheets lasagne</p>	<p><i>Use Quorn</i></p> <p><i>Reduce amount and add veg which have good fibre content i.e. baked beans, kidney beans</i></p> <p><i>Add more onion, carrots or sweetcorn</i></p> <p><i>Use wholemeal lasagne</i></p>

Resource sheet 8 - Developing a product

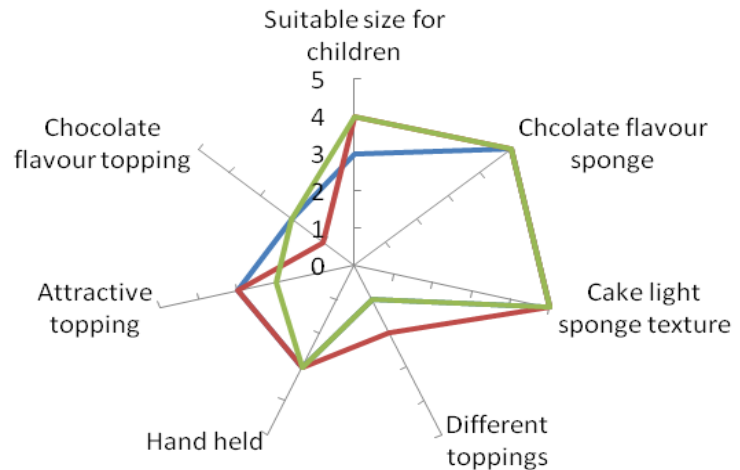
Design Brief: To design and make a suitable sweet baked product for a party for children of Primary school age
Ingredients used in the original product

Cake ingredients:

- 100g butter
- 100g sugar
- 80 g SR Flour
- 29 g cocoa
- 2 eggs

Icing for the cakes

- 100g butter
- 190g icing sugar
- 10 g cocoa
- coloured sprinkles



Number made: - 6 in large muffin cases

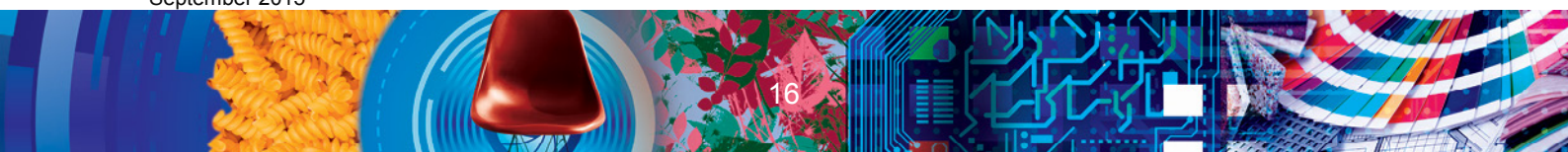
Comments

Taster 1 - Good flavour for the cakes but they are too big for the young children, I think you should use smaller cake cases. The topping needs to be improved to make them more special.

Taster 2 - Fantastic flavour and texture to the sponge. I think they should be slightly smaller and the topping needs to be changed to make them more suitable for children.

Taster 3 - These are too big for young children and the toppings need to be improved. I did think the texture and flavour of the cake part was excellent and does not need changing.

Specification Point	Evaluation Against Specification
Suitable for a party for a 5 or 6 year old	The buns were suitable for 5 to 6 year olds, however there were some negative points made by the clients in that they were not really attractive enough for a party. The children said that they wanted different colours. Parents also said that the buns were too big and that not all of them were eaten.
To be attractive to boys and girl	The buns were attractive, and the colours used meant that they were suitable for boys and girls. The piped butter cream on the top was suitable for boys and girls. There was not a particular theme so they were suitable.
To be a sweet product	They were sweet products as there was sugar in the cake mixture. The butter cream contained sugar and the sprinkles on the top are also sweet.
To be able to be hand held	As the buns were in individual muffin cases they were able to be hand held, though the some parents thought they were too big for their children
To be attractively decorated	The piping and the sprinkles on the top made them attractive.
To include chocolate	Chocolate was included in both the cake mixture and the topping, though tasters did comment that the topping did not have a lot of chocolate flavour.
To be creative and innovative - cannot buy it in a shop at the moment	They were not very creative and similar products can be bought in supermarkets. The topping needs to be changed to make them different to others and more suitable for the children.
To have a variety of different designs included on the topping	This specification was not met at all as all the products were the same, with the same design on the topping.
To serve at least 6 people	There were 6 cakes made, although they were very big, there was a lot of waste.
To be of a high quality	They were high quality products, however there are improvements which need to be made to meet the specification fully.





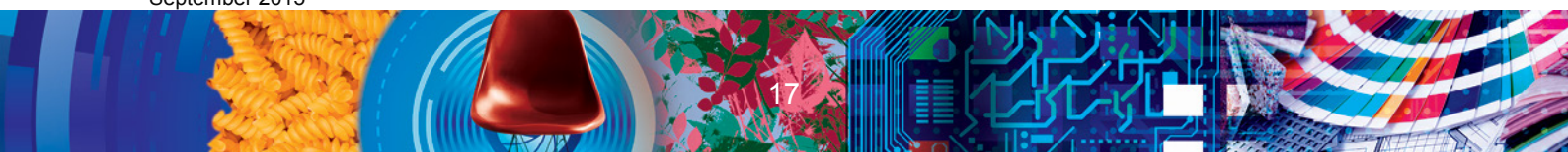
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