**Investigation – sugar in cake**

**Aim**: To test the function and suitability of different sugars and sweeteners in cake making.

Teacher instructions: Depending on class size, students should work individually or in pairs. Allocate each student or pair a sweetening ingredient. They should then make a batch of cakes using their allocated sweetening ingredient. The cakes should then be tasted and evaluated as a class. Remember to ensure that tasting is completed hygienically.

Note: All students/pairs must use the same basic ingredients, i.e. all use butter or all use soft spread.

Student instructions: Following the method below, make a batch of cakes using the sweeting ingredient you have been allocated. Once cooked and cooled, cut the cakes in half and complete the evaluation chart.

**Sweetening ingredient (per mixture)**

1. 50g caster sugar
2. 50g soft brown sugar
3. 2 x 15ml spoons honey
4. 50g granulated sugar
5. 50g icing sugar
6. 50g demerara sugar
7. Sugar alternative\*
8. Sugar alternative\*
9. Sugar alternative\*

\*Follow the instructions on the packet as the amount/weight required will vary.

**Basic ingredients**

1 egg

50g self-raising flour

50g butter or soft spread

9 paper cases

**Equipment**

Bun/patty tin, mixing bowl, mixing spoon or

electric whisk, 2 x metal spoons

# Method

1. Pre-heat oven to 170C°/Gas Mark 4.
2. Place the cake cases into the bun/patty tin.
3. Crack the egg and place in the bowl with the flour, soft spread or butter and sugar/alternative.
4. Mix until light and creamy with a mixing spoon or electric whisk.
5. Divide the mixture into the paper cases using two metal spoons.
6. Record the colour and consistency of the mixture and the number of cakes made.
7. Bake for 12–15 minutes until golden and well risen. Use a sharp knife to test if the cakes are cooked – the knife should come out clean. Alternatively, gently press the top of the cake. It should spring back if cooked.

This is known as the ‘all-in-one’ method and should be used for each investigation.

Once cooked test the cakes for colour, texture and flavour completing the sugar in cake evaluation chart in detail.

Sugar in cake evaluation

| **Type of sugar** | **Number of cakes made** | **Colour of mixture before baking** | **Consistency of mixture** | **Outside colour once baked** | **Inside colour once baked** | **Sensory evaluation, e.g. taste, texture, smell and appearance** | **Rate out of 5** | **Order of preference** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Caster sugar |  |  |  |  |  |  |  |  |
| Soft brown sugar |  |  |  |  |  |  |  |  |
| Honey |  |  |  |  |  |  |  |  |
| Granulated sugar |  |  |  |  |  |  |  |  |
| Icing sugar |  |  |  |  |  |  |  |  |
| Demerara sugar |  |  |  |  |  |  |  |  |
| Sugar alternative – |  |  |  |  |  |  |  |  |
| Sugar alternative – |  |  |  |  |  |  |  |  |
| Sugar alternative – |  |  |  |  |  |  |  |  |

Word bank:

*Pale, dry, spongy, light, springy, soggy, moist, gooey, tacky, soft, bland, open texture, air bubble, bouncy, sweet, plain, colour (e.g. golden brown), firm, bitter, well risen, bubbly, shiny, crisp, hard.*

Conclusion

What conclusions can you draw from the results? Here are some questions to help you.

* Which experiment was the most successful? Explain your reasons.
* Which experiment was the least successful? Explain your reasons.
* Why is sugar needed in cake mixtures?