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Mana Tohu Mātauranga o Aotearoa  
New Zealand Qualifications Authority

## Level 2 Technology 2024

**91359 Demonstrate understanding of the role of  
material evaluation in product development**

# EXEMPLAR

**Merit**

**TOTAL 06**

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**1.Issue:** The issue is that when baking, one of the biggest challenges that we (bakers) encounter is the measuring of ingredients. Baking requires accurate measurement as it is a most important process for achieving good results. Only a few beginner bakers might use measurements like cups instead of weighing their ingredients. This could result in too little or too much flour or sugar, causing cookies to be either too dry or too moist. Another issue is the temperature of the ingredients. Butter at room temperature is frequently suggested for mixing with sugar because it helps in adding air to the dough, leading to a fluffier texture. If the butter is too chilled, it will not blend well and result in dense cookies. And if the butter is too warm or melted, the cookies might expand too much while baking. It's important to allow butter to soften at room temperature for the right amount of time. While baking a chocolate chip cookie can be a joyful and satisfaction, there are still difficulties to overcome like the amount of time spent baking and cooling method are important to achieve a perfect cookie because baking cookies for too long can make them dry and hard, while not baking them enough can lead to be gooey. The cookies should be removed from the oven when they are slightly underbaked, as they will continue to firm up while cooling on the baking sheet. It is important to cool cookies properly; leaving them to cool for too long can result in them becoming hard.

**1.1 Conceptual statement:** Achieving a perfect cookie is both an art and science. This must begin by selecting high-quality ingredients, measuring accurately, mastering the baking process. I will test different ingredients to add to the original basic chocolate chip cookie recipe. My ingredients should be able to keep the cookie with the same texture throughout.

**1.2 Hypothesis:** I predict that the cookies will be chewier because substituting butter with vegetable oil will affect the spread and texture of the cookies, possibly making it chewier than soft cookies. I also predict that the cookie will be darker and chewier if I put brown sugar instead of white sugar.

**1.3 Specifications-** cookies should smell, taste, look like:

Flavour (a blend of sweet and rich flavour)

Texture (perfect balance between chewiness and crispiness)

Size and shape(not too flat, should be rounded in the middle)

Appearance(golden brown)

Aroma (irresistible, mouthwatering)

Sweetness(sweet but not overwhelming sweet)

**2. The expected performance of the ingredients**

**2.1 Butter** – Butter is a dairy product made by churning cream, which separates the fat from the buttermilk. It typically consists of about 80% fat, 16% water, and 4% milk solids. Butter adds a rich, creamy flavour to the cookies, tenderness, and flakiness to baked goods. The dairy fats add to the overall flavour by increasing



the sweetness of the sugars and the richness of the chocolate. The fat in butter plays an important role in the spread of the cookies. When cookies bake, the butter melts, causing the dough to spread out. The balance of the butter to flour affects how the cookies spread, which is important for achieving the right shape and thickness. It can also bring structure and rise. For example, a chocolate chip cookie dough incorporates butter and sugar to incorporate air into the result. We alter the way butter works in a recipe by changing its temperature and choosing when to combine it with the other. The fat and moisture in butter can enhance or inhibit gluten development which directly impacts the shape, spread and texture of cookies. The texture of cookies is greatly impacted by the type and temperature of the butter used. When butter is mixed with sugars, it becomes soft and traps air, leading in a light and delicate crumb. This procedure is important to achieve the desired chewy texture in cookies. It's important to carefully select the type and temperature of butter use so that bakers can improve the overall quality of their cookies, making perfect delicious cookies. Room temperature butter, typically around 65°F (18°C), is the ideal choice for creaming with sugars. This step is important for incorporating air into the mixture, which leads to a dough that is light and fluffy. Creaming sugar and softened butter together create small air pockets that expand while baking, leading in a soft texture in the cookies. It also results in evenly spread cookies. On the other hand, melted butter, usually warmed to at least 90°F (32°C), or higher. When making a cookie with melted butter typically has a denser and chewier consistency. The dough spreads more while baking due to the melted fat, resulting in thinner cookies. The benefits of using melted butter include a more consistent spread flavour in the dough. However, it compromises some of the airiness that the room temperature offers. Additionally, If air is not added during mixing, cookies made with melted butter may have not the same delicate crumb as traditional chocolate chip cookies. Cold butter usually at 40°(4°C) and straight from the fridge, provides a different cookie texture option. Using cold butter in cookie usually results in thicker and tend to spread less during baking. More mixing time is needed when using cold butter in order to completely blend it into the dough. Butter at room temperature is perfect for making a light and fluffy cookie that spreads evenly, whereas melted butter results in cookies that are denser and chewier.

**2.2 Flour-** Flour helps to provide structure to cookies due to protein, gluten, that is formed when the flour becomes hydrated. When flour's proteins (primarily gluten and gliadin) come together with wet ingredients, they create gluten. This structure of gluten provides cookies with their form and strength, enabling them to stay intact while baking. This means that the flour can be responsible for making cookies: chewy, dry, and crumbly. This helps to absorb any excess moisture and gives the chips something to grip onto, helping them to stay suspended in the batter during baking. All-purpose flour, this flour is the most popular when making chocolate chip cookies. it contains a moderate amount of protein (around 10-12%),

offering a nice mix of chewiness and tenderness. Bread flour contains more protein, can result in a chewier cookie. This is perfect for individuals who like a more compact consistency. Cake flour, with less protein, leads to softer and more tender cookies. It is not frequently seen in traditional chocolate chip cookie recipes but can be utilized to achieve a lighter texture. Flour soaks up moisture from the butter and eggs in the dough. This absorption is important in order to achieve the ideal combination of moist and dry components. Adequate hydration is important to prevent the cookies from becoming too dry or excessively greasy. Choosing the right type of flour and using the correct amount, can significantly influence the outcome of cookies, achieving the perfect balance of chewiness and tenderness.

**2.3 Caster Sugar-** Caster Sugar is a popular sugar for baking as its fine texture means that it dissolves when mixed with other ingredients. For example, when butter and caster sugar are creamed together for a cookie, the caster sugar will dissolve into the creamy butter mixture, resulting in perfectly crunchy, sweet cookies. The main advantage of using caster sugar in chocolate chip cookies is that it dissolves quickly and evenly. This fine consistency makes blending in the dough than regular sugar, which can have a grittier texture if not fully dissolved. Creaming caster sugar with butter more incorporates air, making a lighter and fluffier cookie. This step is important to achieve the perfect texture, as the addition of air assists in forming a soft crumb for a high-quality cookie. Additionally, the quick dissolving property of sugar affects the spread of the cookie while it bakes. Due to its ability to mix perfectly with other components, caster sugar helps the mixture maintain a consistent texture. This results in an even distribution in the oven, leading to a cookie that is both pleasing to the eye and satisfying to taste.

**2.4 Vanilla extract-** The purpose of vanilla extract is to add flavour to baked goods. If there's no vanilla extract, baked goods tend to have a bland and boring taste. Vanilla extract can also contribute moisture to create a soft and fluffy texture. Vanilla extract is an important component in chocolate chip cookies, serving an important purpose that goes beyond just adding flavour. It improves by its fragrance, richness of taste, and balancing sweetness. The mild floral aroma and warmth of vanilla help to soften the sweetness of sugary flavours and create a balanced taste in cookies, preventing them from being overly sweet. In chocolate chips, it is important to balance between the sugars, chocolate, and butter to prevent them from becoming overly sweet, which is where vanilla comes in to provide a necessary contrast.

**2.5 Egg-** eggs play an important role in everything from cakes and cookies to meringues and pastry cream – they create structure and stability within a batter, they help thicken and emulsify sauces and custards, they add moisture to cakes and other baked goods, and even act as glue or glaze. To create cookies, you typically use whole eggs and their proteins for flavor, leavening, structure, and color. Eggs promote puffiness and spread in cookies while also holding the cookie together during baking. Eggs in chocolate chip cookies



create a delicate yet firm texture that helps the cookies maintain their shape. The moisture in eggs moistens the dry components, making sure the dough mixes easily. Maintaining a soft and chewy texture in cookies relies heavily on retaining moisture. Additionally, the high-fat content in egg yolks contributes to the richness of the flavor, improving the overall taste of the cookie. This richness enhances the sugary sweetness and chocolate's richness, leading to a balanced taste. When egg is mixed in, air is added to the dough, resulting in a light and soft texture. This rising impact is especially advantageous for cookies that strive for a softer, cakier or consistency.

**2.6 Baking soda-** Sodium bicarbonate, also known as baking soda, plays an important role in many cookie recipes, such as the popular chocolate chip cookie. It allows baked goods to rise and become light and fluffy. Baking soda promotes browning through the Maillard reaction, which is a chemical reaction between amino acids and reducing sugars. This reaction contributes to the rich, caramelized flavor and golden-brown color of the cookies. This could enhanced browning adds to the flavour profile and visual appeal of the cookies. One main purpose of baking soda is to act as a leavening agent. Mixing baking soda with ingredients like brown sugar, yogurt, or vinegar causes a chemical reaction that results in the production of carbon dioxide gas. During baking, this gas creates bubbles in the dough, leading to its expansion and rise. The presence of leavening is essential to create a soft and fluffy texture in cookies. If there is not enough leavening, cookies may end up dense and heavy, missing the desired light and airy texture. The soft and chewy texture of chocolate chip cookies is achieved through a chemical reaction between baking soda and acidic ingredients. Good leavening ensures that the cookies will rise uniformly, resulting in an attractive shape and texture that is visually enticing and delicious when consumed. Baking soda not only helps dough rise but also contributes significantly to the browning of baked goods. The Maillard reaction causes sugars and proteins to create the golden-brown colour and rich Flavors in baked goods by reacting under heat. Baking soda elevates the pH of the dough, improving the Maillard reaction and encouraging a darker shade when baked. This leads to cookies that not only appear more appealing but also possess a more complex, enhanced taste. In conclusion, baking soda plays an important role in baking where it has many important purposes. It helps create soft and delicate texture, while also adding to the browning and flavour enhancement for a better overall taste of the cookie. Its effects on the texture and spread also continues to reach the desired consistency, improving the appearance and taste of cookies.

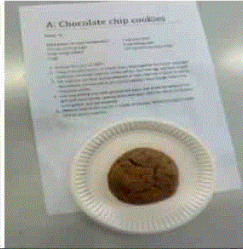
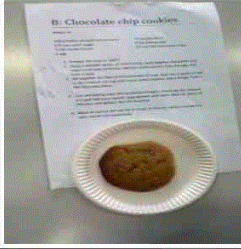
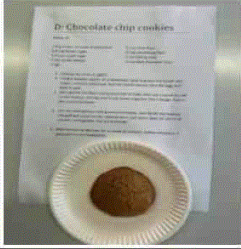
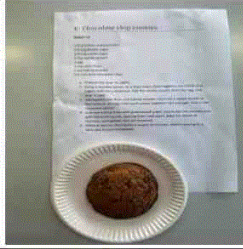
**2.7 Chocolate chips-** A chocolate chip cookie plays an important role especially when you want to make a chocolate chip cookie, it is the main ingredient for a chocolate chip cookie. It also adds a rich flavour to a chocolate chip cookie. The purpose of the chocolate chip cookie is to add flavour to the cookies. This is probably a good temperature if you like chewy and gooey cookies in the middle. The main function of

chocolate chip cookies in cookies is to enhance the taste. Many kinds of chocolate chips like dark, milk, or even white chocolate. Every kind of chocolate has unique flavour that impacts the overall sweetness and richness of the result. For example, using chocolate chip in a chocolate chip cookie is a classic choice providing just the right amount of sweetness to complement the cookie's taste without being too overwhelming. When cooked, they melt slightly, creating pockets of gooey chocolate that contrast perfectly with the cookie soft, chewy texture. This melting improves the texture, improving the eating experience with every bite. Smaller chocolate chip can be spread out more evenly in the dough, leading to a more perfectly chocolate taste in every bite.

### 3. Table of trials, photos, ingredients, and method

Ingredients		Procedure			
120g butter, meted butter 1/3 cup brown sugar 1/3 cup caster sugar ½ tsp vanilla extract 1 egg 1 cup plain flour ½ tsp baking soda ½ cup dark chocolate chips		Preheat the oven to 180°C. Using a wooden spoon, or a food mixer, beat together the butter and sugars until just combined. Add the vanilla extract, then the egg, and beat in well. Sift together the flour and bicarbonate of soda, then use a spoon to add to the mixture, stirring until it just comes together into a dough. Fold in the chocolate pieces. Line two baking trays with greaseproof paper and divide the mixture into golf-ball sized rounds, spacing them well apart. Bake for about 15 minutes, until golden, but not browned. Allow to cool on the tray for a couple of minutes, before moving to a wire rack to cool completely.			
	Trial one	Trial two	Trial three	Trial four	
Ingredient changed	a.120g butter, at room temperature, 2/3 cup coconut sugar	b. 120g melted butter, 2/3 cup caster sugar	d. 120g butter, at room temperature, 1/3 cup brown sugar, 1/3 cup caster sugar, ½ cup plain flour, ½ cup whole meal flour	e.120 g butter, melted butter 1/3 cup brown sugar, 1/3 cup caster sugar	
Tan/ color	Tan	Very tan	Tan	Very tan	
Texture	Soft, chewy in the inside	soft, chewy in the inside	Soft, crispy on the outside	Soft, chewy on the inside	
Flavor	Wasn't sweet	Sweet (was not that strong)	Sweet, soft and chewy in the middle	sweet	
Procedure taken place	Creaming and sifting	Creaming and sifting	sifting	Beating and sifting	



<b>Photos</b>				
<b>Richness</b>	Had a rich chocolatey taste	Had a rich chocolatey taste	Had a rich chocolatey taste	Had a rich chocolatey taste

4. Explain the process undertaken, decide the suitability of the ingredients in the cookie and outcome of the process:

**4.1 Sifting:** sifting a flour will break any lumps in the flour, which means you can get a more accurate measurement. Sifted flour is also much lighter and airer compared to not sifted flour. Sifting a flour is important because it will break any lumps in the flour which means you can get an accurate measurement. It also helps make the cookies lighter and more tender. A main goal of sifting is to allow dry ingredients to be aerated. Sifting flour or other dry ingredients introduces air into the mixture, which helps break up clumps and results in a lighter, fluffier texture. This aeration is important in recipes that depend on achieving a delicate and fluffy texture, like cakes and cookies. Sifting aids in preventing the final product from becoming dense or heavy by mixing air with the dry ingredients. When making chocolate chip cookies, sifting the flour helps create a consistent dough, leading to even baking and a desirable texture. Adding air can also enhance the dough's capacity to expand, resulting in a superior final structure of the product. Sifting is also used to get rid of impurities and larger particles from dry ingredients. For example, flour may occasionally have tiny pieces of bran, husks, or other undesired substances that could impact the overall consistency of baked goods. By passing the flour through a sieve, the undesirable elements are removed, guaranteeing that only the best particles are utilized while baking. This leads to a more perfect dough or batter, which is important in delicate recipes with a focus on texture. Sifting can improve the blending procedure during baking. Sifting dry ingredients together ensures even distribution, resulting in improved mixing with wet ingredients. This consistency helps in avoiding clumps of flour or other powdered ingredients in the batter, resulting in a more even texture. In the case of baked goods such as cakes or cookies, this same distribution helps create a more unified dough, resulting in a steady texture in the final product.

**4.2 Melting:** Melting plays an important role when making cookies. Using a melted butter changes the texture of the cookies dough. Melted butter helps to spread more and have a chewier texture. This is because the melted butter mixes more thoroughly with sugar, creating a smoother dough that results in



cookies with a different texture compared to those made with softened or solid butter. It also leads to more consistent flavour throughout the cookies. When butter is melted, it results in cookies that are denser and chewier, whereas when it is softened, it produces cookies that are lighter and fluffier. Melted components boost taste by effectively releasing natural flavors, enhancing caramelization, and forming a unified flavour profile. Adding melted butter to cookie dough provides the necessary moisture to achieve the ideal texture, leading to softer and more moist cookies. It enables complete mixing, resulting in perfect baking. Melted butter affects how cookies spread while baking, resulting in thin and crispy cookies.

**4.3 Folding:** Folding is a gentle mixing method that helps incorporate ingredients without overworking the dough. This is particularly important for maintaining a light and tender texture. Overmixing can lead to tough cookies because it develops the gluten in the flour too much. Folding minimizes the risk of overmixing, which can occur if you use a more vigorous mixing method. Overmixing can lead to cookies that are dense and tough rather than soft and chewy. Folding is key to achieving the right texture and consistency in cookies, ensuring that ingredients are evenly mixed while keeping the dough light and tender. One of the main advantages of folding is the ability to gently combine ingredients, especially when dealing with fragile mixtures. This is particularly important when mixing dry ingredients with wet ones, like flour with butter and sugars creamed together. Bakers can incorporate ingredients without removing any air from the creaming process by employing a folding technique. This assists in upholding the composition of the dough, guaranteeing that the cookies possess a delicate, fluffy consistency instead of a heavy or resilient one. Overmixing can cause gluten to form in flour, leading to tough and chewy cookies instead of soft and tender ones. Folding reduces the chance of overmixing by delicately mixing the ingredients instead of vigorously stirring or beating them. This is especially important in cookie recipes aiming for a delicate texture, as it enables bakers to strike a perfect equilibrium between structure and tenderness.

**4.4 Creaming:** Creaming is a fundamental step in many cookie recipes, and it plays a crucial role in achieving the right texture and flavour. Creaming butter and sugar together introduces air into the mixture. This air gets trapped in the fat, helping to leaven the dough and giving cookies a light and tender texture. The air bubbles expand during baking, contributing to a desirable cookie crumb. Creaming helps to evenly blend the fat and sugar, which is essential for the consistent distribution of sweetness and fat throughout the dough. This uniform mixing ensures that cookies bake evenly and have a balanced flavour. Proper creaming results in tender cookies with a smooth dough, even baking, and enhanced flavour. It also facilitates the mixing of ingredients and controls cookie spread during baking. Mastering the creaming process is essential for achieving delicious, consistently perfect cookies.

**5. Trial 1(coconut sugar)** In Trial 1, I used coconut sugar instead of caster sugar. I chose coconut sugar for its subtle caramel flavour, which can add a richer taste to the cookies compared to the neutral sweetness of caster sugar. Cookies made with coconut sugar may turn out darker due to its natural brown colour, giving them a more rustic appearance. However, the texture of cookies made with coconut sugar can be less fine than those made with caster sugar, resulting in a slightly coarser texture and a different crumb structure. Additionally, since coconut sugar is less sweet than caster sugar, the cookies might have a milder sweetness unless I adjust the quantity or add other sweeteners. Another modification I made was using room-temperature butter instead of melted butter. Room-temperature butter, while solid, is softened enough to incorporate air into the dough during the creaming process. This can help create a lighter, more cake-like texture. In contrast, melted butter results in denser cookies because it does not trap air in the dough. Cookies made with room-temperature butter usually spread less, as the creaming process helps the dough hold its shape better. Both forms of butter contribute to flavour, but they affect the cookies differently. Room-temperature butter often yields a more complex flavour because the creaming process enhances the dough's flavour over time. Melted butter, on the other hand, can lead to a richer, sometimes more caramelized flavour due to its even distribution of fat. During the process of creaming, I combined coconut sugar and room-temperature butter. I opted for coconut sugar because it can add a rich taste compared to caster sugar, making it suitable for cookies that are less sweet. The combination of brown sugar and butter should be beaten together until the mixture is light in colour, which is important for creating air that contributes to the cookies' tenderness and lightness. After creaming the butter and coconut sugar, I sifted the flour into the mixture to ensure there were no lumps. Sifting allows for more accurate measurements and contributes to a lighter, airier texture in the cookies. This step was crucial to achieving a suitable outcome.

**5.1 Justification and Sustainability:** In Trial 1, my goal was to create a cookie that was rich in flavour, had an appropriate level of sweetness, appeared golden brown, and had a chewy texture.

**5.2 Evaluation:** The outcome of the cookies from Trial 1 (using coconut sugar and room-temperature butter) was visually appealing, but they were not as sweet as expected. If you prefer cookies with a milder sweetness, I highly recommend using coconut sugar, as it is less processed than table sugar. Coconut sugar also imparts a golden colour to the cookies, resulting in a darker appearance (as seen in the photo above). The texture was well-balanced, with a soft, chewy interior and crispy edges.



## 6. Trial 2 (caster sugar)

In trial 2 I used caster sugar, the fundamental properties of sugar, will create a chewier and denser cookie. Brown sugar is the same as normal caster sugar, but it's unrefined, so it has more caramel flavours. Cookies made with caster sugar will create light colour (as you can see in the picture) and much deeper rich sweet taste to the cookie. Another modification I made is instead of melted butter I used room temperature butter. The fundamental properties of room temperature butter in general will contribute to the cookie's richness and tenderness. Room temperature butter is much easier to beat in with sugar than cold butter. It can absorb more air than cold butter, which results to a more tender cookie. Melted butter also adds more richness to a cookie and allows ingredients to blend easily. During the process of creaming caster sugar and room temperature butter were combined. Why? I choose this experiment with brown sugar instead of caster sugar or another type of caster sugar is because it was suitable. When Caster sugar and butter are creamed together for a cookie recipe caster sugar will dissolve into the creamy butter mixture, which results to perfectly crunchy, and sweet cookies. Using brown sugar instead of caster sugar will give the cookie a nice appearance (golden brown colour) a chewier, texture richer flavour, and overall better tasting cookie. Combining the butter and sugar is meant to incorporate air to aid in the rise of baked goods. The reason why room temperature is important is because room temperature is soft enough to incorporate air, but not so soft that it will melt immediately in the oven and result in super-thin cookies. Ingredients of the outcome: the cookies for the trial 2 came out very flat (spread out) this is because the sugar and the amount of room temperature butter the cookies had to expand. The cookies had a rich chocolatey taste, this is because the vanilla essence enhances the cookie flavour and chocolate chip. The cookies had a soft and crispy on the outside texture, the reason for this is the brown sugar and process of creaming the butter with brown sugar results to had a good amount of sweetness.

**6.1 Justification of sustainability of ingredients:** in trial 2 I wanted to create a cookies that was crispy on the outside and soft and chewy on the inside, had a good amount of sweetness.

**6.2 Evaluation:** the outcome/result of the cookies for trial 2 (using brown sugar and room temperature butter) with the controlled recipe, the appearance was slightly flat, but had a light tan colour. The flavour was a bit too sweet. The texture of the cookies was very balanced it had a soft, chewy inside and crispy outer pieces. When you use caster sugar the texture of the cookie has a soft inside and crispy on the outsides. It was flatter than trial 1(coconut sugar) the cookies, in comparison to trial 1, the trial 1 was not overly sweet than trial 2. Trial 2 was much pale than trial 1, trial 2 had a nice texture and but it was too sweet for me.

**7. Trial 3 (plain flour, whole meal flour)** In trial 4 I began sifting the half wholemeal flour and half plain flour. I whisk together the wholemeal flour, baking soda, and salt. The use of wholemeal flour adds a nutty flavour and a healthier texture compared to plain flour, making the cookies more satisfying. The fundamental properties of plain flour, it's contains from natural kernel proportions of bran, endosperm and germ. Since whole meal flour is significantly heavier than plain flour, it is often combined with other types of flour. It is made from hard red wheat. The fundamental property of plain flour include emulsification, hydration, foaming, solubility, and gelation. Baking chocolate chip cookies with wholemeal flour not only adds a wholesome twist to this classic treat but also enhances nutritional value. Wholemeal flour provides additional fibre and nutrients compared to plain flour, making these cookies a healthier option.

**Ingredients outcome:** the cookies were tan (light brown colour) this is because of the whole meal flour gives the cookie a darker colour due to its natural pigment. Whole meal flour compared to plain flour is much darker in colour and that plain flour is artificially whitened. The cookie had a rich chocolatey taste due to the chocolate chips and vanilla essence. The cookies had a small spread and had a much larger compared to the other cookies, this is because whole meal flour absorb more moisture than plain flour due to its high fibre content.

**7.1 Justification of suitability of ingredients:** in trial 4 I wanted to make a cookie that is healthier than normal cookies, so I choose whole meal flour. The cookies texture was soft and chewy on the inside and had a good right amount of sweetness.

**7.2 Evaluation:** the whole meal flour affected the texture, appearance, taste and more nutrition of the cookie. Because of the change in the flour the recipe need to balance everything.

**8. Trial 4 (butter)** In trial 4 I began by placing room-temperature butter and caster sugar in a mixing bowl. I beat the mixture on medium speed until it became light and fluffy, which typically takes about 3-5 minutes. This process is important as it allows air to be incorporated into the mixture, contributing to the cookie's texture. Once the butter and sugar were well combined, I added the eggs one at a time, beating well after each addition. This ensures that the eggs are thoroughly incorporated and helps create an emulsion, which contributes to the cookies' structure and moisture. After mixing in the eggs, I added vanilla extract for flavour. After the wet ingredients were beaten together, I sifted the flour, baking soda, and salt into a separate bowl to ensure there were no lumps. Sifting these dry ingredients not only improves texture but also allows for more accurate measurements. I then gradually added the sifted dry ingredients to the wet mixture, using a spatula to fold them in gently. This step is important to avoid overmixing, which can lead to tough cookies. Finally, I folded in the chocolate chips, ensuring an even distribution throughout the dough.



**8.1 Justification and sustainability:** In this trial, my objective was to create cookies that were light, tender, and rich in flavour. Beating the butter and sugar until fluffy is essential for achieving the desired texture. By using room-temperature butter, I aimed to ensure that the creaming process would effectively incorporate air, resulting in a better rise during baking.

**8.2 Evaluation:** The result of the cookies in this experiment showed great potential. The colour was golden brown and the consistency was airy and soft with a little bit of chew. Even distribution of the cookies while baking is a result of the successful creaming of the butter and sugar. The eggs and vanilla were mixed well to create a rich flavour, while the chocolate chips provided a pleasant sweetness. In general, the method of mixing was crucial in making a successful batch of cookies. The importance of this process in making cookies was highlighted by the light and airy texture and balanced flavour.

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## Merit

**Subject:** Technology

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**Total score:** 06

Q	Grade score	Marker commentary
One	M6	<p>The candidate starts the report by identifying the performance specifications for the cookies and aligns the properties of flours and other materials to these. These material properties are explained early in the report and the impact of the ingredient on the recipe is also explained.</p> <p>Later in the report the candidate conducts some trials to test the performance of the ingredients and the impact of process on these ingredients and explains the outcome of these trials.</p>