Stage 2 Research Project

Assessment Type 2: Outcome

**Research Project outcome**

For my research project I chose Molecular Gastronomy because I think it will benefit me in the future as I would like to be a chef. Molecular Gastronomy is the science that changes the chemical and physical appearance of food. I chose to research "To what extent is Molecular Gastronomy practical in the home kitchen". This was because I wanted to see if it was possible to recreate Molecular Gastronomy in the home kitchen and if it is really worth the trouble. The research methods I used were interviews, surveys, internet articles, books, you tube and experiments.

Synthesis (S3)

A well worded, open-ended and refined question promotes a coherent answer or resolution.

After researching "what is Molecular Gastronomy "I found that it is a scientific approach to cooking1. Peter Barham physicist describes it as "The application of scientific principles to the understanding and improving of domestic and gastronomic food preparation"2 " The term molecular gastronomy was coined in 1992 by Nicholas Kurti, an Oxford Physicist and renowned gourmet who discovered how to make meringue in a vacuum pump "3Molecular Gastronomy can also be referred to as the deconstruction of food, as it takes traditional dishes and changes the textures, structures and taste combinations. For example a solid can be manipulated into foam. To give me a better understanding of this I researched Ferran Adria of elBulli and Heston Blumenthal arguably two of the most renowned molecular gastronomy chefs, I was surprised to find out that Heston resents the term 'molecular gastronomy' and finds it elitist4 and Adria closed his restaurant in" 2012 turning it into a cooking school and think-tank ". 5During an informal interview with the chef at the …….restaurant (the ……. is shaping up to be the next regional star6 and is also the location of my part time job) he told me that "molecular gastronomy is really cool, but it requires so much knowledge. “You have to be able to poach an egg before you can make eggs benedict" Overall my research has shown that, molecular gastronomy is a very intriguing method of cooking that uses and requires a great level of skill, and creativity. It is the adjustment of elements and requires an open mind in order to be successful

Synthesis (S2)

Evidence of insightful and thorough substantiation. Refers to a variety of sources including websites and interviews with experts.

Question *2 "Who uses molecular gastronomy as a cooking method"* After researching this question I found that it is most common in Europe, although there are some molecular restaurants in Australia such as Celsius7 in Adelaide and Quay8 in Sydney. The S

Synthesis (S1)

Each guiding question (e.g. who uses molecular gastronomy) is answered in a logical way demonstrating key findings and a practical resolution to the question.

1 Martin Lersch, khymos, *definitions of Molecular Gastronomy,* (January 9th, 2013) date accessed May, 5,

2012 <http://blog.khymos.org>

2 Peter Evens, Lifestyle Food, *Molecular Gastronomy,* (April, 8, 2009) date accessed March. 9, 2013 <<http://www.li>festylefood.com.au/articles/molecular-gastronomv.aspx>

3 Peter Evens, Lifestyle Food, *Molecular Gastronomy,* (April, 8, 2009) date accessed March, 9, 2013 <http://www.lifestylefood.com.au/articles/molecular-gastronomy.aspx>

4 Heston Blumenthal, Heston at Home, (Bloomsbury Publishing PLC, great Britain. 2011)

5 Peter Evens, Lifestyle Food, *Molecular Gastronomy,* (April, 8, 2009) date accessed March, 9, 2013 <http://www.lifestylefood.com.au/art ic lest molec ular-gastronomv.aspx>

6 Wilkinsons, S., [Taste.com.au](http://Taste.com.au), *,* Date Accessed 12/02/2013 <http://www.taste.com.a/news+features/articles/3916/tje+elbow+room>

7 Celsius restaurant and bar, Adelaide 95-97 Gouger street Adelaide Australia, date accessed 28, 8, 2012 8 Quay restaurant, Sydney, date accessed 4, march, 2013

Pellegrion Worlds 50 best9 (the most recognised international ranking system for restaurants) ranked Ferrari Adria's elBulli number one five times in the past decade and Restaurants magazine named him Chef of the Decade. Heston Blumenthal's The Fat Duck was ranked number three in the world 10"In 2012, Quay was named Best Restaurant in Australasia on the World's 50 Best for the third year in a row and ranked 29th. 11"The Gourmet Traveller 2013 Australian restaurant guide listed Quay as the number 1 restaurant in Australia and Celsius number 54. Ayhan Erkoc Chef and owner of Celsius also spent some time training at Noma, Croenhagen 12which was ranked world's best restaurant in 2010. 13Overall I have found that the chefs who use Molecular Gastronomy are among the best in the world creating a whole new level of cooking and eating experiences.

When researching why is Molecular Gastronomy used. I found that it tries to" capture the imagination of both the chefs and their customers".14 Molecular Gastronomy is used for a number of reasons, it stimulates all the senses, with foods that use unusual textures like foam and jellies, different flavours like egg and bacon iced cream and now there are even shells that have ocean noises coming from them as you eat a sea food delight.15 Another reason that Molecular Gastronomy is used is for fun, many chefs who practice it do it for the creativity and enjoyment. Physicist Peter Barham said "The idea that we can scientifically understand ways to make us really enjoy our food and apply that to be able to prepare, both in restaurants and at home, food that is increasingly satisfying". 16it is also used to get a good understanding how food works because in order to create the changes in the food you need to understand the chemistry and physics behind the particular food. Molecular Gastronomy is used to create a thrilling and exciting dining experience, this method of cookery needs a lot of prior knowledge of food and processes, if you did not enjoy creating or even eating the food it would not be used. Molecular Gastronomy is growing rapidly over the cooking community.

Synthesis (S3)

Some paragraphs begin with incomplete sentences, and misplaced punctuation in the text detracts from the fluency. The use of full stops and commas is problematic in parts.

When researching what specialist equipment and chemicals are required in Molecular Gastronomy. I found many different kinds of equipment and chemicals from T   
 to centrifuges, Agar Agar to Sodium Alginate all equipment and chemicals have a

9 John Lethleasn, The Australian, *Gastronomy is the Quay.* (April, 27, 2010) date accessed August, 15, 2012 <http://www.theaustralian.com.au/executive-living/food-drink/gastronomy-is-the-quay/story-e6frg9jo-1225858617534>

10John Lethleasn, The Australian, *Gastronomy is the Quay,* (April, 27, 2010) date accessed August, 15,

2012 <<http://www.theaustralian.com.awexecutive-livingifood-drinktgastronomv-is-the-coavistorv-e6frai> o­1225858617534>

Synthesis (S2)

Footnoting is generally consistent and accurate, providing clear substantiation of ideas.

11 Peter Gilmore, Quay home page, *our people,* (March, 26, 2010) date accessed December, 4, 2011 <httu://[www.quay.com](http://www.quay.com).auipaniour peOrde.ht111/>

12 Nigel Hopkins, Qantas, *Source Qantas the Australian way,* (May, 2011) date accessed January, 5, 2012

13 John Lethleasn, The Australian, *Gastronomy is the Quay.* (April, 27, 2010) date accessed August, 15, 2012 <[http://www.theaustralian.com.auiexecutive-livingifood-drinktastronomv-is-the-quavistorv-e6freto­1225858617534](http://www.theaustralian.com.auiexecutive-livingifood-drinktastronomv-is-the-quavistorv-e6freto-1225858617534)>

14 Brendan Hill, Victoria the place to be, *Molecular Gastronomy research and experience,* (June, 18, 2008) date accessed February, 7, 2013 <htto://issinstitute.ora.auiwp-contentimedia'2011:05/ISS-FEL-REPORT-B­HILL-low-res.ndf5

15 Heston Blumenthal, Heston at Home, (Bloomsbury Publishing PLC, great Britain, 2011)

16 John Lethleasn, The Australian, *Gastronomy is the Ouay.* (April, 27, 2010) date accessed August, 15, 2012 <[http://www.theaustralian.cotn.autexecutive-livingilood-drinkgastrononiv-is-the-quavistory-e6fm8io­1225858617534](http://www.theaustralian.cotn.autexecutive-livingilood-drinkgastrononiv-is-the-quavistory-e6fm8io-1225858617534)>

specific use. All the equipment and most of the chemicals are available to the home cook but are expensive. The most popular is T it allows you to cook, measure, weigh, chop, blend and purée. It is found in the home kitchen a lot and getting more popular, this is not because it can be used for molecular gastronomy but because it is an easy alternative of cooking.17 The only down side is it cost around $2000 that brings you to the question, is it really worth it? Chemicals are a vital part of molecular gastronomy; it is what turns a liquid into a solid or making foam. Chemicals are available to purchase online in kits, 18if you where to buy them individually it starts to cost more. The normal chemicals such as Agar Agar (thickening agent) and Guar Gum (binding agent) are fairly easy to get even available in some supermarkets but chemicals like Methyl Cellulose (forms a solid when heated and liquid when cooled) is a lot harder to get. 19Like the equipment the chemicals are not really needed for the home kitchen, as they are expensive and would not be used often in every day cooking.

Synthesis (S3)

Communication is clear and makes appropriate use of subject specific words (e.g. agar agar, methyl cellulose, centrifuge, meringue) to clarify ideas.

During my research I discovered that there are many different skills required in Molecular Gastronomy such as the ability to understand and use cooking techniques, ability to plan menus and organise the kitchen, understanding of food flavours and textures and knowledge of science. 20Without these skills you would not be able to create Molecular Gastronomy dishes. Organisation is a very important skill because there are so many steps requiring many different methods. Getting dishes out on time is essential this shows how vital organisation is. Presentation is also a big part of Molecular gastronomy because the dishes are meant to look amazing because you eat with your eyes first, it needs to be colourful bright and appealing. In an interview with the Home Economics co coordinator at my school when asked if she thought home cooks would have the skills she replied "Some cooks might .... But it's more about the passion when you have the passion you seek it out. "But in general she thought the “most home cooks would not have the skills…..”21

Synthesis (S3)

The piece is mostly coherent as it is logically ordered and paragraphed appropriately.

The question 'how can I use the skills to create my own Molecular Gastronomy dish? This was the most vital question and the one that would answer my main question the best. It allowed me to try and make some dishes and put into practise what I had found out in my research. In relation to my main question this helped me a lot.

Synthesis (S3)

Although a formal tone is adopted there are lapses into a more personal tone in parts.

For my main outcome I decided to do a 4 course meal for my family, the dishes I created were:

17 Peter Evens, Lifestyle Food, *Molecular Gastronomy,* (April. 8, 2009) date accessed March, 9, 2013 <http://www.lifestylefood.com.au/articles/molecular-gastronomy.aspx>

18 Brendan Hill, Victoria the place to be, *Molecular Gastronomy research and experience,* (June, 18, 2008) date accessed February, 7, 2013 <http://issinstitute.org.au/wp-content/media/2011/05/ISS-FEL-REPORT-BHiLL-low-res.pdf>

19 Brendan Hill, Victoria the place to be. *Molecular Gastronomy research and experience,* (June, 18, 2008) date accessed February, 7, 2013 <http://issinstitute.org.au/wp-content/media/2011/05/ISS-FEL-REPORT-BHILL-low-res.pdf>

20 Brendan Hill, Victoria the place to be, *Molecular Gastronomy research and experience,* (June, 18, 2008) date accessed February, 7. 2013 <http://issinstitute.org.au/wp-content/media/2011/05/ISS-FEL-REPORT-B HILL-low-res.pdf>

21 Interview with , date accessed 23 March 2012

Smoked Salmon Crotons with lemon cloud,

|  |  |
| --- | --- |
| _Pic1 | This is the lemon cloud on crotons and salmon. To make this I needed to put Soy lecithinand blend it causing foam to form, this took about 10 minutes to fully form the foam.  Synthesis (S2)  Evidence of thorough substantiation includes the bibliography, photographs and descriptions of trial and error experimentation in the kitchen. |

Tomato and Buffalo Mozzarella with Balsamic Pearls and Basil Spaghetti,

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| --- | --- |
| _Pic2 | The main Molecular parts to this dish are the balsamic pearls that made by boiling balsamic vinegar and agar agar in a pan and then placing drops in cold oil, and the basil spaghetti made by putting agar agar and blended basil together and pushing it through a tube. |

Rack of Lamb incrusted with mustard and herbs topped with beetroot foam on a bed of pea and leek pure with deep fried purple carrot,

|  |  |
| --- | --- |
| _Pic3 | This rack of lamb has beetroot foam on to and it is made the exact same way as the lemon cloud but with beetroot juice. |

Spiced Orange and Ruby Grape Fruit wrapped in Honey with Strawberry Ravioli.

|  |  |
| --- | --- |
| _Pic4 |  |
| This was the stand out dish of the night mainly because of the honey pancake with fruit inside, I did this by boiling honey, water and agar agar in a pan and spreading it on a plate, I then put it in the fridge for 20 minutes and pealed it off. |

This showed a number of technical and presentation skills as well as a good understanding of how flavours work. The molecular kit that I brought included the chemicals and equipment like syringes a DVD and small recipe book explaining the techniques. It did not include the actual recipes or how to serve them. I had to come up with the dishes myself I found this the most enjoyable part of my research project.

Synthesis (S1)

The resolution to the question “To what extent is molecular gastronomy practical in the home kitchen” is briefly addressed in this final paragraph.

From doing my research I came to the conclusion that molecular gastronomy is not all that practical in the home kitchen. Because it is expensive and time consuming many of the techniques need two people. This is probably why restaurants like The Fat Duck and el Bulli have more staff in the kitchen than seats in the restaurant

**Bibliography:**

Books:

Synthesis (S2)

The bibliography does not include the whole range of sources quoted in the text of the outcome.

Richard Schlagman, ElBulli, (Phaidon press limited, New York, 2008)

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Heston Blumenthal, Heston at Home, (Bloomsbury Publishing PLC, great Britain, 2011) Peter Gilmore, Quay, Food inspired by nature, (Murdoch books, Australia, 2010)

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http ://www.theaustralian.com .au/executive-living/food-drink/ gastronomy-is-the­quay/story-e6frg8jo-1225858617534

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Wilkinsons, S., [Taste.com.au](http://Taste.com.au),  *,* Date Accessed 12/02/2013 <[http://www.taste. coin. au/news+features/arti cles/3916/tje-elbow+room](http://www.taste.coin.au/news+featuresiarti)

Videos/DVD:

Cuisine R-Evolution, Molecular Gastronomy Kit, (3, may, 2010) date accessed 8 March 2013

Hestons feast, Channel 4, SBS (http://www.channel4.com/programmes/how-to-cook-like-heston)

SACE Number:

Stage 2 Research Project B Performance Standards

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Planning | Development | Synthesis | Evaluation |
|  | Assessment Type 1: Folio | | Assessment Type 2: Research Outcome  Assessment Type 3: Evaluation | |
| A | P1 Thorough consideration and refinement of a research question.  P2 Thorough planning of research processes that are highly appropriate to the research question. | D1 Thorough and highly resourceful development of the research.  D2 In-depth analysis of information and exploration of ideas to develop the research.  D3 Highly effective development of knowledge and skills specific to the research question.  D4 Thorough and informed understanding and development of one or more capabilities. | S1 Insightful synthesis of knowledge, skills, and ideas to produce a resolution to the research question.  S2 Insightful and thorough substantiation of key findings relevant to the research outcome.  S3 Clear and coherent expression of ideas. | E1 Insightful evaluation of the research processes used, specific to the research question.  E2 Critical evaluation of decisions made in response to challenges and/or opportunities specific to the research processes used.  E3 Insightful evaluation of the quality of the research outcome |
| B | P1 Consideration and some refinement of a research question.  P2 Considered planning of research processes that are appropriate to the research question. | D1 Considered and mostly resourceful development of the research.  D2 Some complexity in analysis of information and exploration of ideas to develop the research.  D3 Effective development of knowledge and skills specific to the research question.  D4 Informed understanding and development of one or more capabilities. | S1 Considered synthesis of knowledge, skills, and ideas to produce a resolution to the research question.  S2 Substantiation of most key findings relevant to the research outcome.  S3 Mostly clear and coherent expression of ideas. | E1 Considered evaluation of the research processes used, specific to the research question.  E2 Some complexity in evaluation of decisions made in response to challenges and/or opportunities specific to the research processes used.  E3 Considered evaluation of the quality of the research outcome |
| C | P1 Some consideration of a research question, but little evidence of refinement.  P2 Satisfactory planning of research processes that are appropriate to the research question. | D1 Satisfactory development of the research.  D2 Satisfactory analysis of information and exploration of ideas to develop the research.  D3 Satisfactory development of knowledge and skills specific to the research question.  D4 Satisfactory understanding and development of one or more capabilities. | S1 Satisfactory synthesis of knowledge, skills, and ideas to produce a resolution to the research question.  S2 Substantiation of some key findings relevant to the research outcome.  S3 Generally clear expression of ideas. | E1 Recount with some evaluation of the research processes used.  E2 Some evaluation, with mostly description of decisions made in response to challenges and/or opportunities specific to the research processes used.  E3 Satisfactory evaluation of the quality of the research outcome |
| D | P1 Basic consideration and identification of a broad research question.  P2 Partial planning of research processes that may be appropriate to the research question. | D1 Development of some aspects of the research.  D2 Collection rather than analysis of information, with some superficial description of an idea to develop the research.  D3 Superficial development of some knowledge and skills specific to the research question.  D4 Basic understanding and development of one or more capabilities | S1 Basic use of information and ideas to produce a resolution to the research question.  S2 Basic explanation of ideas related to the research outcome.  S3 Basic expression of ideas. | E1 Superficial description of the research processes used.  E2 Basic description of decisions made in response to challenges and/or opportunities specific to the research processes used.  E3 Superficial evaluation of the quality of the research outcome |
| E | P1 Attempted consideration and identification of an area for research.  P2 Attempted planning of an aspect of the research process. | D1 Attempted development of an aspect of the research.  D2 Attempted collection of basic information, with some partial description of an idea.  D3 Attempted development of one or more skills that may be related to the research question.  D4 Attempted understanding and development of one or more capabilities. | S1 Attempted use of an idea to produce a resolution to the research question.  S2 Limited explanation of an idea or an aspect of the research outcome.  S3 Attempted expression of ideas. | E1 Attempted description of the research process used.  E2 Attempted description of decisions made in response to a challenge and/or opportunity specific to the research processes used.  E3 Attempted evaluation of the quality of the research outcome |