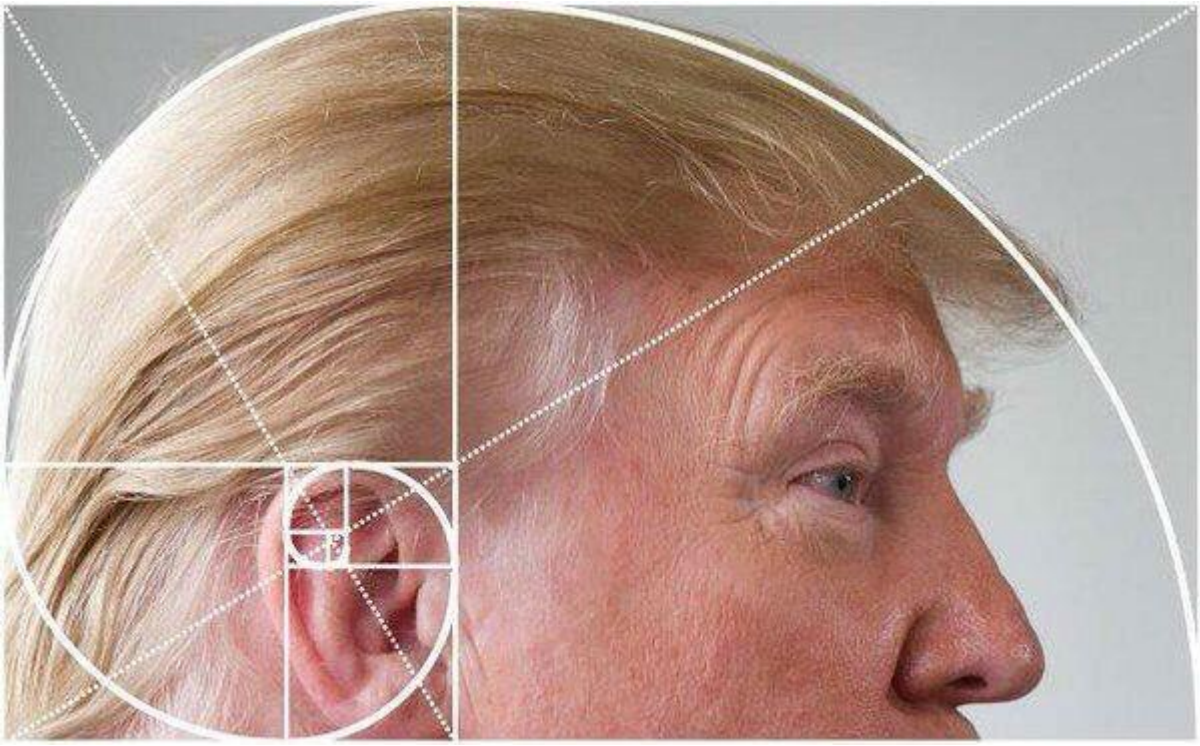

Course Title: Do you speak mathematics like a native?

Key Stage 4 Programme – 2016-2017

Teacher Name_Dr Danyal Farsani

Pupil Name_____

Timetable and Assignment Submission

Fill this in with your teacher.

Timetable – Tutorials

Tutorial	Date	Time	Location
1			
2			
3			
4			
5			
6			

Timetable – Homework Assignments

Homework Assignment	Description	Due Date
Tutorial 1		
Tutorial 2		
Tutorial 3		
Tutorial 4		
Tutorial 5		

Assignment Submission – Lateness and Plagiarism

Lateness	
Submission after 4.00pm on **10/02/2017**	10 marks deducted
Plagiarism	
Some plagiarism	10 marks deducted
Moderate plagiarism	20 marks deducted
Extreme plagiarism	Automatic fail

KS4 Programme 2016-17 – Pupil Feedback Report

Grade	Marks	What this means
1st	70+	Performing to an excellent standard at A-Level
2:1	60-69	Performing to a good standard at A-Level
2:2	50-59	Performing to an excellent standard at current key stage
3rd	40-49	Performing to a good standard at current key stage
Working towards a pass	0-39	Performing below a good standard at current key stage
Did not submit	DNS	No assignment received by The Brilliant Club

Lateness	
Any lateness	10 marks deducted
Plagiarism	
Some plagiarism	10 marks deducted
Moderate plagiarism	20 marks deducted
Extreme plagiarism	Automatic fail

Name of RIS Teacher			
Title of Assignment			
Name of Pupil			
Name of School			
ORIGINAL MARK / 100		**FINAL MARK / 100**	
DEDUCTED MARKS		**FINAL GRADE**	

If marks have been deducted (e.g. late submission, plagiarism) the teacher should give an explanation in this section:

Learning Feedback Comment 1 - *Enter Key Learning Priority Here*	
What you did in relation to this Key Learning Priority *Enter feedback here*	**How you could improve in the future** *Enter feedback here*
Learning Feedback Comment 2 – *Enter Key Learning Priority Here*	
What you did in relation to this Key Learning Priority *Enter feedback here*	**How you could improve in the future** *Enter feedback here*
Learning Feedback Comment 3 – *Enter Key Learning Priority Here*	
What you did in relation to this Key Learning Priority *Enter feedback here*	**How you could improve in the future** *Enter feedback here*
Resilience Comment	
How you showed learning resilience during the course *Enter feedback here*	**How you could build learning resilience in the future** *Enter feedback here*

Example

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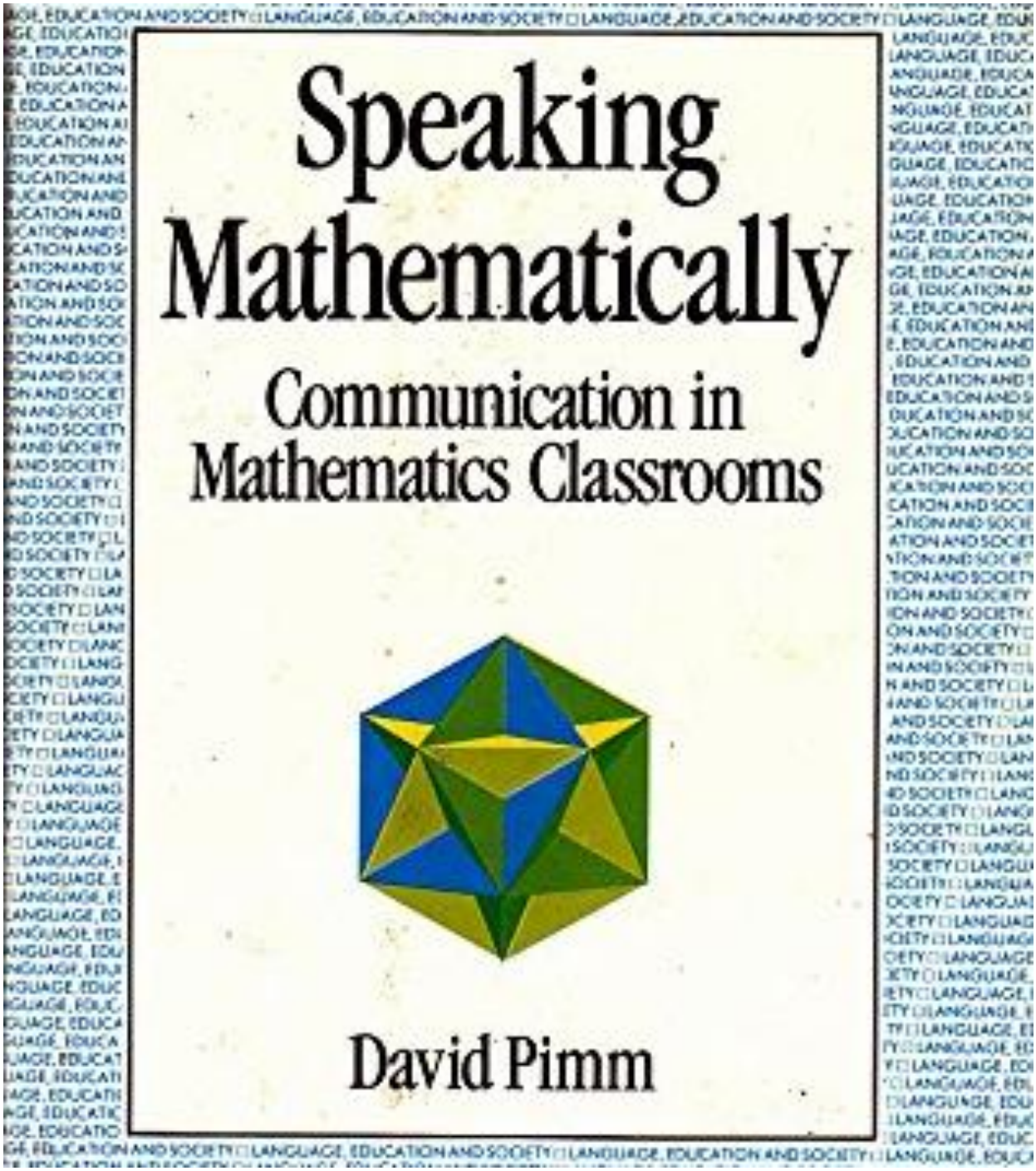
Course Rationale

Many people consider mathematics to be an everyday subject that is taught in schools from Monday to Friday. However, does mathematics have any links to the social world? In this course, students will learn to see and understand mathematics in everyday concepts, such as language, arts and music! It will enable students to think independently and have a different perception on the traditional view that mathematics is only used in school to new palpable perspectives of understanding the social world around us. Mathematics is indeed, a universal language that is not only the same across all cultures, but can be found everywhere.

It is also worth noting that, mathematics in north Germany and in Denmark was assessed orally until 1987! However, in the UK, we do not have a culture of verbal examination when in concerns mathematics. This course, will therefore, enable students to revitalise the language of mathematics, to express ideas and to connect with other social contexts.



Course Map

Is mathematics the same across different cultures?
Can we recognise aspects of mathematics in our everyday life?
Carrying out independent research
Speaking mathematically
Does mathematics appear the same in different languages?
Where is mathematics around us?

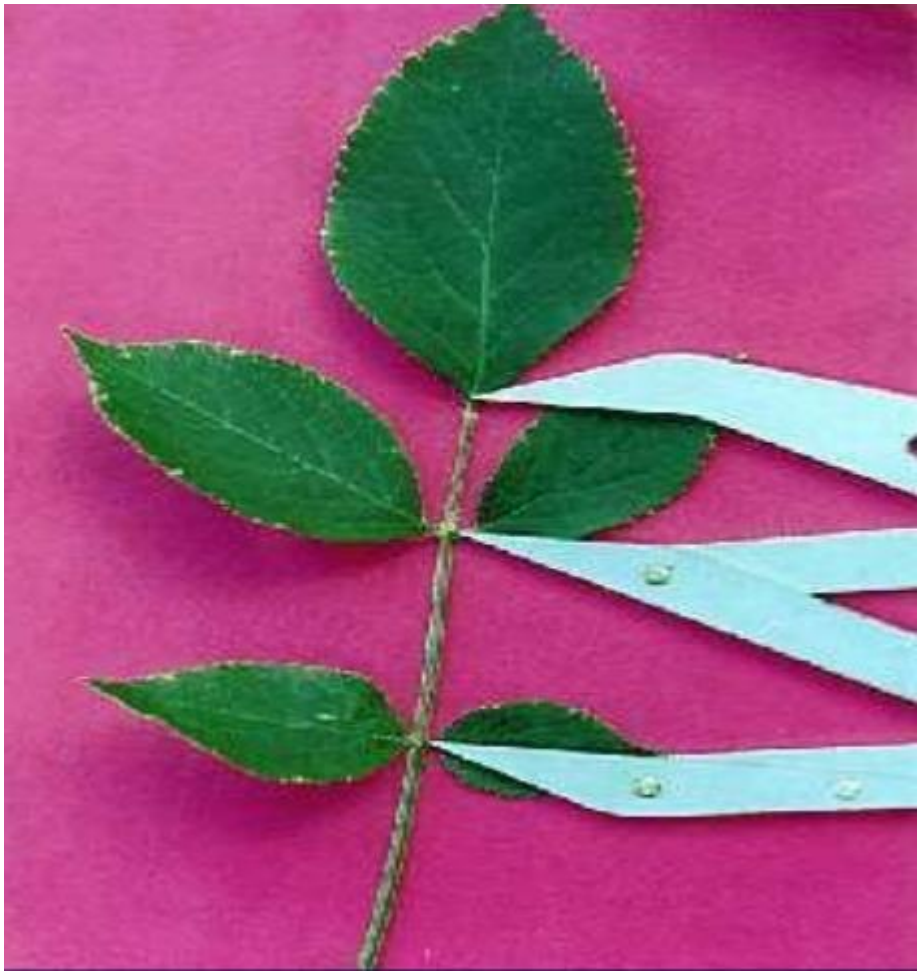
Mark Scheme

Key Skill	1st	2.2
Independent research	☐ Using extensive amount of literature ☐ Individual work ☐ Appropriate research	☐ Some evidence of literature ☐ Individual work
Data collection	☐ Collecting data on a relevant everyday task ☐ Showing progressive evidence of data collection	☐ Collecting data on a relevant everyday task ☐ Showing some evidence of data collection
Analysis	☐ In-depth analysis: Showing a detailed analysis of the task using appropriate mathematical methods and formulas	☐ Some analysis: Showing basic understanding of the problem using numerical analysis
Communication	☐ Using appropriate visual materials (such as graphs and images) to support their analysis ☐ There is a connection between the beginning and the end of presentation	☐ Clear and coherent presentation
Application	☐ Detailed links made to other examples in social life ☐ Discussing and evaluating the applicability of this research finding to other social contexts	☐ Showing some other links to other examples in everyday life ☐ Discussing the applicability of this finding to other social contexts activities ☐

Glossary of Keywords

Word	Definition	In a sentence…
Correlation		
Mathematical relation		
Social world		
Patterns		

Tutorial 1 – Title: *Carrying out independent research*



Today's Key Question:

- Is there a correlation between your height and shoe size, or your height and weight?

What is the Purpose of Tutorial 1?

- To be able to describe and evaluate the mathematical relation between our height and other factors

Today's Homework is:

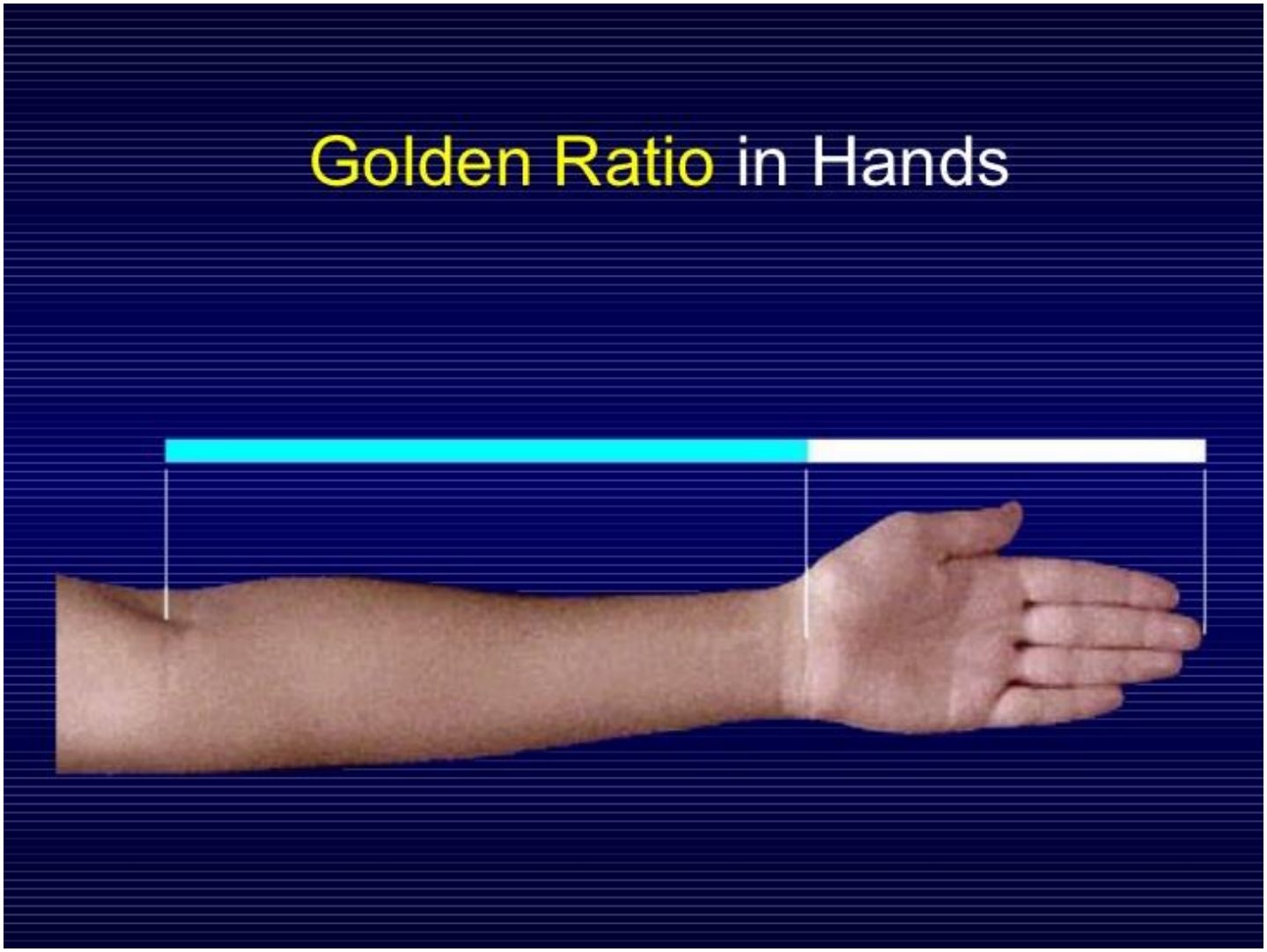
- Baseline Assessment

Homework 1 – Baseline Test

The homework assignment for the first tutorial is a baseline test to see your initial level of attainment in this subject area. The assignment will test for some or all of the subject specific skills that are required later in the final assignment. However, it is shorter than the final assignment and is will be an introduction to the subject as well as a challenge!

Do not worry too much about doing 'well' or 'badly' on the baseline test, it takes into account the fact that you may not be familiar with the subject area. It is designed to help you and your PhD tutor identify where you are at the start of the programme and to help you measure your progress along the way.

Tutorial 2 – Title: Golden ratio and its applicability in our social world.



Today's Key Questions:

- Question 1: Where can we see golden ratio?
- Question 2: Where golden ratio doesn't exist?

What is the Purpose of Tutorial 2?

- Objective 1: To be able to define Golden ratio
- Objective 2: To be able to relate Golden ratio to other real life examples
- Objective 3: To provide evidence of where this fundamental property does not exist in our social world

Today's Homework is:

- To Prepare a five minutes presentation analysing other examples of golden ratio. The presentation will require students to do their own research, analysis and data presentation.

Tutorial 3 – Title: Where is mathematics around us?

Today's Key Question:

- Question 1: What is the relation between our social world and mathematics?

What is the Purpose of Tutorial 3?

- Objective 1: To be able to think about where mathematics is visible in our physical world
- Objective 2: To be able to express our physical world mathematically
- Objective 3: To be able to talk about what we can express mathematically

Today's Homework is:

- To list as many every day concepts and how they can be linked to different aspects of mathematics such as geometry, statistics, number patterns etc.

Tutorial 4 – Title: Goldbach's conjecture

Today's Key Questions:

- Question 1: How do we proof a theory?
- Question 2: Is any even number bigger than two the sum of two prime numbers?

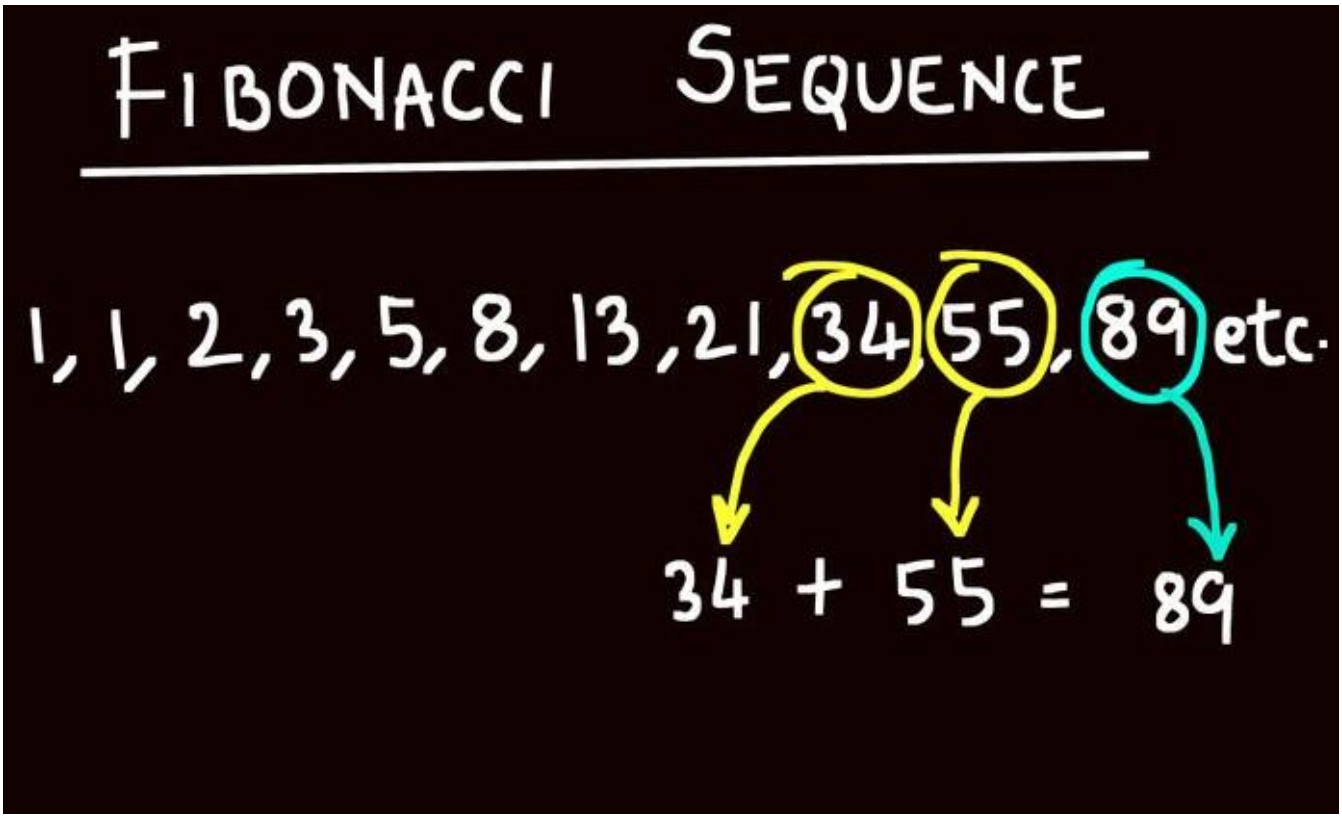
What is the Purpose of Tutorial 4?

- Objective 1: To be able to discuss Goldbach's conjecture
- Objective 2: To be able to evaluatin Goldbach's conjecture
- Objective 3: To be able to proof or disproof Goldbach's conjecture

Today's Homework is:

- Draft Final Assignment

Tutorial 5 – Title: **Learning to speak with numbers!**



Today's Key Questions:

- Question 1: How can we learn to work with numbers?
- Question 2: How can a simple change in arithmetic save us hours of time?

What is the Purpose of Tutorial 5?

- Objective 1: To be able to envision another how a brand of mathematics can be seen in everyday use
- Objective 2: To be able to envision another how a brand of mathematics can be applied in everyday use
- Objective 3: To be able to envision another how a brand of mathematics can be evaluated in everyday use

Today's Homework is:

- Final Assignment

The Deadline is:

Tutorial 6 – Feedback

What is the Purpose of Tutorial 6?

- Reflect on skills learned on the programme with a view to encouraging resilience
- Receive feedback on final assignment

What are the key questions?

- What strengths have I demonstrated in my work and what areas of development are there left for me to address?
- What steps do I need to take to improve my academic output?

Activity 1 – Marking your own

Using the mark scheme, identify three things you did well and three things you could improve.

What went well?

1.

2.

3.

What could be improved?

1.

2.

3.

Activity 2 – Responding to feedback

Read through your feedback sheet and highlight on your assignment where you received positive feedback (one colour) and areas for improvement (different colour). You might find it helpful to annotate this with a brief comment or two.

Activity 3 – Looking Forwards: Think, Pair Share

1. Think about how you can use this feedback in your future school work.
2. Talk to your partner about how you both plan to make changes to your school work in the future as result of this feedback
3. Share your ideas as a group.

Appendix 1 – Referencing correctly

When you get to university, you will need to include references in the assignments that you write, so we would like you to start getting into the habit of referencing in your Brilliant Club assignment. This is really important, because it will help you to avoid plagiarism. Plagiarism is when you take someone else's work or ideas and pass them off as your own. Whether plagiarism is deliberate or accidental, the consequences can be severe. In order to avoid losing marks in your final assignment, or even failing, you must be careful to reference your sources correctly.

What is a reference?

A reference is just a note in your assignment which says if you have referred to or been influenced by another source such as book, website or article. For example, if you use the internet to research a particular subject, and you want to include a specific piece of information from this website, you will need to reference it.

Why should I reference?

Referencing is important in your work for the following reasons:

- It gives credit to the authors of any sources you have referred to or been influenced by.
- It supports the arguments you make in your assignments.
- It demonstrates the variety of sources you have used.
- It helps to prevent you losing marks, or failing, due to plagiarism.

When should I use a reference?

You should use a reference when you:

- Quote directly from another source.
- Summarise or rephrase another piece of work.
- Include a specific statistic or fact from a source.

How do I reference?

There are a number of different ways of referencing, and these often vary depending on what subject you are studying. The most important to thing is to be consistent. This means that you need to stick to the same system throughout your whole assignment. Here is a basic system of referencing that you can use, which consists of the following two parts:

A marker in your assignment: After you have used a reference in your assignment (you have read something and included it in your work as a quote, or re-written it your own words) you should mark this is in your text with a number, e.g. [1]. The next time you use a reference you should use the next number, e.g. [2].

Bibliography: This is just a list of the references you have used in your assignment. In the bibliography, you list your references by the numbers you have used, and include as much information as you have about the reference. The list below gives what should be included for different sources.

Websites – Author (if possible), title of the web page, website address, [date you accessed it, in square brackets].

E.g. Dan Snow, 'How did so many soldiers survive the trenches?', http://www.bbc.co.uk/guides/z3kgjxs#zg2dtfr [11 July 2014].

Books – Author, date published, title of book (in italics), pages where the information came from.

E.g. S. Dubner and S. Levitt, (2006) *Freakonomics*, 7-9.

Articles – Author, 'title of the article' (with quotation marks), *where the article comes from* (newspaper, journal etc.), date of the article.

E.g. Maev Kennedy, 'The lights to go out across the UK to mark First World War's centenary', *Guardian*, 10 July 2014.