



Queen Mary
University of London

MTH6110

Planning your Post-Graduation Steps

Dr Matthew Lewis

(matthew.lewis@qmul.ac.uk)

Plan for Today

1. Guest Speaker (Alex Mansbridge, Ark Teacher Training)
2. Updates
3. Research Article Summary & Group Presentation
4. Bloom's Taxonomy (Famous Studies, Part II)
5. Guest Speaker (Jane Wilkinson, Get into Teaching)

Guest Speaker

Alex Mansbridge (Ark Teacher Training)



Updates

- Focus Group Opportunity (see QMplus Page)
- Assignment 3 (Summary of Research Article)
Deadline: 17:00, Wednesday 27th March
- Assignment 4 (Group Presentation)
Deadline for Submission of Slides: 17:00, Monday 8th April

Plan for Today

1. Guest Speaker (Alex Mansbridge, Ark Teacher Training)
2. Updates
3. Research Article Summary & Group Presentation
4. Bloom's Taxonomy (Famous Studies, Part II)
5. Guest Speaker (Jane Wilkinson, Get into Teaching)

Assignments 3 & 4 – Research Article Summary & Group Presentations

- See Assessment Guide & Marking Criteria
- Give a 750-word summary of the Maths Education Research Article you have been assigned
- In Week 12, give a 10-minute **in-person** group presentation of the Maths Education Research Article you have been assigned.
- Your tasks, Weeks 8-12:
Read → Write → **Interact**, Practice, **Refine** → PRESENT!

Assignments 3/4 – Meet & Greet

- Check your emails to see which article you have been assigned
- **Meet your group members**
- Set a plan for the assignment. Budget for
 - Individual time for reading + group discussion
 - Individual time for drafting summary
 - Group time for reflecting, giving feedback on summary
 - Group time for drafting presentation and practising

Plan for Today

1. Guest Speaker (Alex Mansbridge, Ark Teacher Training)
2. Updates
3. Research Article Summary & Group Presentation
4. Bloom's Taxonomy (Famous Studies, Part II)
5. Guest Speaker (Jane Wilkinson, Get into Teaching)

Bloom's *Taxonomy* (1956)

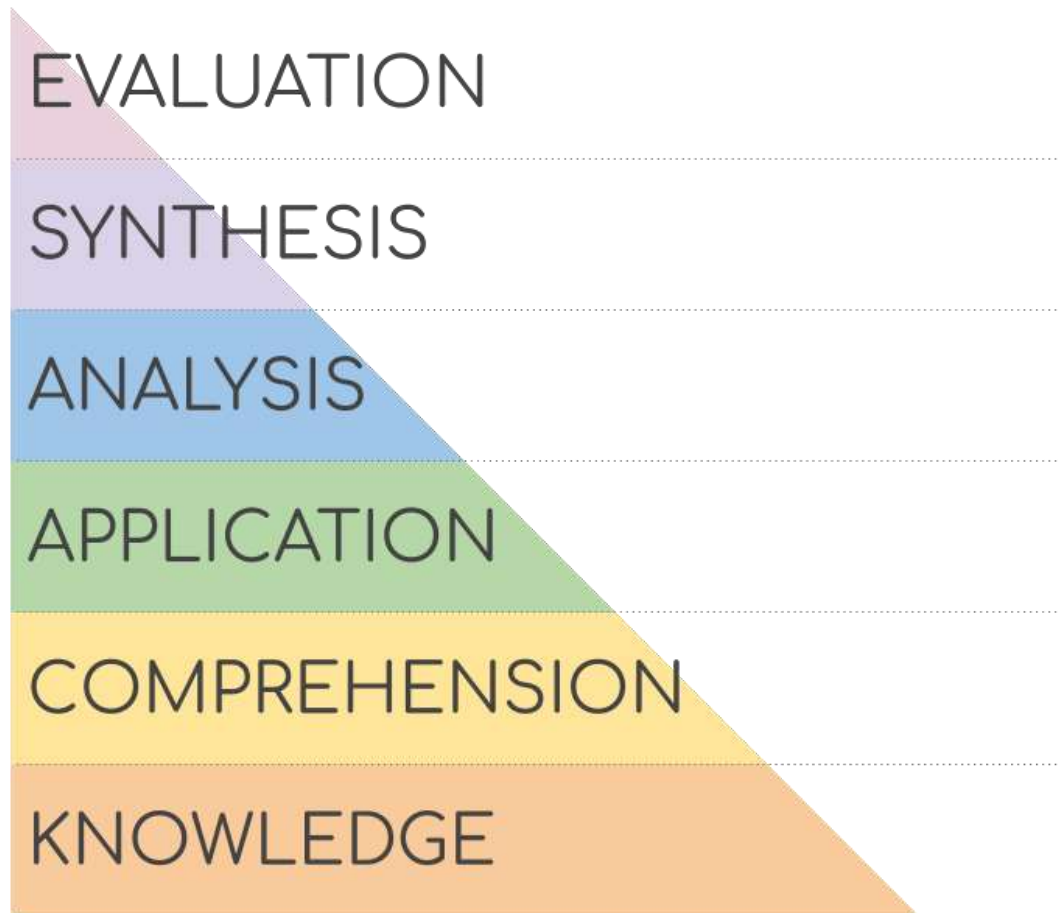


Benjamin Bloom
(Source: thoughtco.com)

“Bloom's taxonomy is a set of three hierarchical models used to classify educational learning objectives into levels of complexity and specificity

The three lists cover the learning objectives in cognitive, affective and sensory domains. The cognitive domain list has been the primary focus of most traditional education and is frequently used to structure curriculum learning objectives, assessments and activities.”

Bloom's *Taxonomy* (1956)



Bloom's Taxonomy of
the Cognitive Domain

(Source: Wikipedia)

Bloom's *Taxonomy* (1956)

← LOW LEVEL THINKING SKILLS →

Knowledge

Recall /regurgitate facts without understanding. Exhibits previously learned material by recalling facts, terms, basic concepts and answers.

Comprehension

To show understanding finding information from the text. Demonstrating basic understanding of facts and ideas.

Questions:

Can you list three ...?
Can you recall ...?
Can you select ...?
How did _____ happen?
How is ...?
How would you describe ...?
How would you explain ...?
How would you show ...?
What is ...?
When did ...?
When did _____ happen?
Where is ... ?
Which one ...?
Who was ...?
Who were the main ... ?
Why did ...?

Questions:

Can you explain what is happening . . . what is meant . . . ?
How would you classify the type of ...?
How would you compare ...?contrast ...?
How would you rephrase the meaning ...?
How would you summarise ...?
What can you say about ...?
What facts or ideas show ...?
What is the main idea of ...?
Which is the best answer ...?
Which statements support ...?
Will you state or interpret in your own words ...?

Bloom's *Taxonomy* (1956)

← HIGH LEVEL THINKING SKILLS →

Application

To **use** in a **new situation**. Solving problems by applying acquired knowledge, facts, techniques and rules in a different way.

Questions:

How would you use...?
What examples can you find to ...?
How would you solve _____ using what you have learned ...?
How would you organise _____ to show ...?
How would you show your understanding of ...?
What approach would you use to...?
How would you apply what you learned to develop ...?
What other way would you plan to ...?
What would result if ...?
Can you make use of the facts to ...?
What elements would you choose to change ...?
What facts would you select to show ...?
What questions would you ask in an interview with ...?

Analysis

To **examine** in detail. Examining and breaking information into parts by identifying motives or causes; making inferences and finding evidence to support generalisations.

Questions:

What are the parts or features of ...?
How is _____ related to ...?
Why do you think ...?
What is the theme ...?
What motive is there ...?
Can you list the parts ...?
What inference can you make ...?
What conclusions can you draw ...?
How would you classify ...?
How would you categorise ...?
Can you identify the difference parts ...?
What evidence can you find ...?
What is the relationship between ...?
Can you make a distinction between ...?
What is the function of ...?
What ideas justify ...?

Bloom's *Taxonomy* (1956)

— HIGH LEVEL THINKING SKILLS —

Synthesis

To *change* or *create* into something new. Compiling information together in a different way by combining elements in a new pattern or proposing alternative solutions.

Questions:

What changes would you make to solve...?
How would you improve ...?
What would happen if...?
Can you elaborate on the reason...?
Can you propose an alternative...?
Can you invent...?
How would you adapt _____ to create a different...?
How could you change (modify) the plot (plan)...?
What could be done to minimise (maximise)...?
What way would you design...?
Suppose you could _____ what would you do...?
How would you test...?
Can you formulate a theory for...?
Can you predict the outcome if...?
How would you estimate the results for...?
What facts can you compile...?
Can you construct a model that would change...?
Can you think of an original way for the ...?

Evaluation

To *justify*. Presenting and defending opinions by making judgements about information, validity of ideas or quality of work based on a set of criteria.

Questions:

Do you agree with the actions/outcomes...?
What is your opinion of...?
How would you prove/disprove...?
Can you assess the value/importance of...?
Would it be better if...?
Why did they (the character) choose...?
What would you recommend...?
How would you rate the...?
What would you cite to defend the actions...?
How would you evaluate ...?
How could you determine...?
What choice would you have made...?
What would you select...?
How would you prioritise...?
What judgement would you make about...?
Based on what you know, how would you explain...?
What information would you use to support the view...?
How would you justify...?
What data was used to make the conclusion...?

Bloom's *Taxonomy* (1956)

- As well as a classification Bloom's is often used to inform planning or assessment in various contexts
- Is your activity encouraging the use of the higher level thinking skills?
- How can you take an activity from "recall" to "application"?

How well does Bloom's work when applied to mathematics as a subject?

For each level, can you think of an appropriate task?

Reflect

How might you use effect sizes or Bloom's taxonomy in the following situations?

- You're planning to teach a classroom activity to a group of 10 students
- You're studying for your *Random Processes* module
- You are planning the first lecture to be given to 100 first year maths undergrads on the fundamentals of Set Theory

Plan for Today

1. Guest Speaker (Alex Mansbridge, Ark Teacher Training)
2. Updates
3. Research Article Summary & Group Presentation
4. Bloom's Taxonomy (Famous Studies, Part II)
5. Guest Speaker (Jane Wilkinson, Get into Teaching)

Guest Speaker

Jane Wilkinson (Get into Teaching)

Teaching 
Every Lesson Shapes a Life.



Queen Mary
University of London

Questions?

Thank you for your participation!