# The Emmbrook Sixth

# Year 13 Pre-Public Exams (PPE's)

# Subject summary

# 13th – 17th December 2021

The Emmbrook Sixth

JCQ

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  Biology**

**Number of exams:  One**

**Length of exam: 2 hrs 15 mins**

**Exam information:**

Paper 1 unit/topic content:

Practical skills

Cell structure

Biological molecules

Nucleic acids

Biological membranes

Exchange surfaces and breathing

Transport in plants

Classification and evolution

Neuronal communication

Photosynthesis

Respiration

**Remember   -   section A is multiple choice**

**-   section B consists of written answers**

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  Business**

**Number of exams:  One**

**Length of exam:** 2 hours

**Exam information:**

Paper 1 name: Business Marketing and people & Managing business activities with business strategy and global considerations
Paper 1 unit/topic content:  Hybrid Paper on Theme 1 & 2 with elements of 3 & 4 covered to date

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject: Chemistry**

**Number of exams: One**

**Length of exam: 2 hrs 15 mins**

**Exam information:**

Paper 1 unit/topic content:

      NMR, IR, Mass Spec analysis

      Alcohols, carboxylic acids, esters, carbonyls, % yield

      Polymers, reactions of phenol and benzene

      Ka and acids & buffers

      Kc equilibria calculations

      Rate equations, orders and rate constants

      Enthalpy of neutralisation calculation

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# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  Computer Science**

**Number of exams:  One**

**Length of exam: 2 hrs 30 mins**

**Exam information:**

Paper 1 name: COMPONENT 02

Paper 1 unit/topic content:

| 1.4.2 Data Structures | (a) Arrays (of up to 3 dimensions), records, lists, tuples. <br> (b) The following structures to store data: linked-list, graph (directed and undirected), stack, queue, tree, binary search tree, hash table. <br> (c) How to create, traverse, add data to and remove data from the data structures mentioned above. *(NB this can be **either** using arrays and procedural programming **or** an object-oriented approach).* |
|---|---|

Hash Tables will not appear on the paper.

| 2.1 Elements of computational thinking | |
|---|---|
| **Understand what is meant by computational thinking** | |
| 2.1.1 Thinking abstractly | (a) The nature of abstraction. <br> (b) The need for abstraction. <br> (c) The differences between an abstraction and reality. <br> (d) Devise an abstract model for a variety of situations. |

| 2.1.5 Thinking concurrently | (a) Determine the parts of a problem that can be tackled at the same time. <br> (b) Outline the benefits and trade offs that might result from concurrent processing in a particular situation. |
|---|---|

| 2.2.1 Programming techniques | (a) Programming constructs: sequence, iteration, branching. <br> (b) Recursion, how it can be used and compares to an iterative approach. <br> (c) Global and local variables. <br> (d) Modularity, functions and procedures, parameter passing by value and by reference. <br> (e) Use of an IDE to develop/debug a program. <br> (f) Use of object oriented techniques. |
|---|---|

| 2.2.2 Computational methods | (a) Features that make a problem solvable by computational methods.<br>(b) Problem recognition.<br>(c) Problem decomposition.<br>(d) Use of divide and conquer.<br>(e) Use of abstraction.<br>(f) Learners should apply their knowledge of:<br> • backtracking<br> • data mining<br> • heuristics<br> • performance modelling<br> • pipelining<br> • visualisation to solve problems. |
|---|---|

Abstraction and decomposition will be the focus for this section

| **2.3 Algorithms** |
|---|
| **The use of algorithms to describe problems and standard algorithms** |

| 2.3.1 Algorithms | (a) Analysis and design of algorithms for a given situation.<br>(b) The suitability of different algorithms for a given task and data set, in terms of execution time and space.<br>(c) Measures and methods to determine the efficiency of different algorithms, Big O notation (constant, linear, polynomial, exponential and logarithmic complexity).<br>(d) Comparison of the complexity of algorithms.<br>(e) Algorithms for the main data structures, (stacks, queues, trees, linked lists, depth-first (post-order) and breadth-first traversal of trees).<br>(f) Standard algorithms (bubble sort, insertion sort, merge sort, quick sort, Dijkstra's shortest path algorithm, A* algorithm, binary search and linear search). |
|---|---|

Big O notation will only be in the PPE if covered beforehand.

Dijkstra's and A* will not be covered and not in the PPE.

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  Criminology**

**Number of exams: One**

**Length of exam: 2** hours

**Exam information:**

**Paper 4 – Crime and punishment**

**Content:**

Revise AC1.1 to AC1.3 (inclusive)

Two questions both worth 25 marks.

These will range from 1 marks to 9 mark questions.

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  Economics**

**Number of exams:  One**

**Length of exam:**

2 hours

**Exam information:**

Paper 1 name: **Economics**

## Content:
### Section A – Macro
- Unemployment
- Macroeconomic objectives
- Supply-side policies

### Section B – Micro
- Market structures
- Monopoly power
- Consumer and producer surplus

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  English Literature**

**Number of exams:  One**

**Length of exam: 3 hours**

**Exam information:**

Paper 1 name: Love Through the Ages

Paper 1 unit/topic content:  Othello, Great Gatsby, Poetry Anthology, Unseen Poetry

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  Geography**

**Number of exams:  One**

**Length of exam: 1hr 45 mins**

**Exam information:**

Paper 1 name: Geography

Paper 1 unit/topic content:  Coastal Systems (8 marks); Changing Spaces (16 marks), Making places; Disease Dilemmas (12 marks); Hazardous Earth (33 marks)

# Year 13 – December 2021 PPE (pre-public exams)
## Key exam information

**Subject:  History**

**Number of exams:  One**

**Length of exam:** 2 hours 15 minutes

**Exam information:**

Paper 1 name: All units covered

Paper 1 unit/topic content:

**Question 1 – source question on GDR**

**Question 2 and 3 – essays of the Soviet Union – you select one essay to complete**

**Questions 4 and 5 – essays on The impact of warfare – you select one essay to complete**

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject: Mathematics**

**Number of exams:  One**

**Length of exam: 1 hr 50 mins**

**Exam information:**

Paper 1 name: Pure maths

Paper 1 unit/topic content: Binomial expansions, arc length and sector areas, modulus function, proof by exhaustion, integration rules, recurrence relations, modelling with trigonometry, partial fractions, summing series, implicit differentiation, functions, exponential functions.

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  Further Maths**

**Number of exams:  One**

**Length of exam: 2 hour duration**

**Exam information: Mechanics and Discrete papers both on desk for the two hours**

Paper 1 name: Mechanics and Discrete

Paper 1 unit/topic content:  Forces and Energy, Momentum, Circular Motion, Graphs and Networks, Critical Path Analysis, Linear Programming, Game Theory, Simplex, Abstract Algebra, Centres of mass and stability

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# Year 13 – Dec 2021 – PPE

# Key exam information

**Subject: Physical Education**

**Number of exams: One**

**Length of exam: 2 hours**

**Exam information:**

Paper name: Paper 1 - Factors affecting participation and physical activity and sport

Paper unit/topic content: Applied Anatomy and physiology / Skill acquisition / Sport Psychology

Paper revision materials/resources: **Student PLC and lessons by chapter and zigzag revision support on Teams / Student course companion / Exam papers and mark schemes**

**Any other information:**

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  Physics**

**Number of exams:  One**

**Length of exam: 2hrs 20 min**

**Exam information:**

Paper 1 name: Modelling and exploring physics

Paper 1 unit/topic content:

**Section A** – multiple choice questions covering:

SI base units

Equations of motion (SUVAT)

Simple harmonic motion

Resolving forces

Percentage uncertainties

Velocity-time graphs

Kinetic theory of matter

Photoelectric effect

Magnetic flux density

Waves and interference

Kirchoff's Laws

Resistance

**Section B** – written questions covering:

Forces and work done

Young Modulus

Kinetic theory of matter

Specific heat capacity

Specific latent heat

Equations of motion (SUVAT)

Simple harmonic motion and energy

Ideal gas and pressure

Archimedes principle and density

Magnetic fields

Electric fields

Resistance

Phase difference and Young's double slit

Quantum physics

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:** Politics

**Number of exams:  One**

**Length of exam: 2 hours**

**Exam information:**
Paper 1 name: Component 2 UK Government and Non-core ideas
Paper 1 unit/topic content:
**UK Constitution** – pros and cons, Should we have a codified constitution, pros and cons of key reforms (have they gone far enough?)
**UK Parliament** – key reforms. Powers of the HOC vs the HOL. PM vs Parliament – how can they control each other? Should we have further reforms to the HOC? And should we have further reforms to the HOL
**Prime Minister and Executive** – PM vs Parliament. PM vs Cabinet. How powerful are PMs? Are PMs 'presidential'?
**Relations between institutions –** Impact of EU on the UK. PM v Parliament. Judiciary vs Parliament and Judiciary vs PM. Location of sovereignty.

**Non core ideas – Feminism –** views of different 'branches' of Feminism on key areas (Human nature, State, society etc) Key areas of agreement and disagreement.

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  Psychology**

**Number of exams:  One**

**Length of exam:  2 hours**

**Exam information:**

**Title of Paper:  Paper 2 – PSYCHOLOGY IN CONTEXT**

Total marks for Paper 2 - 96

- **Approaches in Psychology - /24**

- **Bio-Psychology - /24**

- **Research Methods - /48**

**PLC's and Key revision questions can be found in Teams on the following link:**
https://teams.microsoft.com/_#/school/files/General?threadId=19%3A42QWdTkOYlClzAa9xEyZfQOjDKuCE
lb1uOaXhYCRaro1%40thread.tacv2&ctx=channel&context=PPE%2520REVISION&rootfolder=%252Fsites%
252FSection_2021-13D-Py1%252FShared%2520Documents%252FGeneral%252FPPE%2520REVISION

# Year 13 – December 2021 PPE (pre-public exams)
# Key exam information

**Subject:  Sociology**

**Number of exams: One**

**Length of exam:**  2 hours

**Exam information:**

**13B Sociology:**

**Paper 2 – Topics in Sociology**

**Content:**

Section A – Families and Households

- Revise all topics
- 2 x 10 mark question
- 1 x 20 mark question

Section B – Beliefs in society

Revise topics 1 – 4 (inclusive)

- 2 x 10 mark question
- 1 x 20 mark question

**13D Sociology**

**Topic in Sociology and Crime and Deviance**

Section A – Beliefs in society

Revise the theories of religion

- 2 x 10 mark question
- 1 x 20 mark question

Section B – Crime and deviance

Revision up to the realism topic

- 1 x 10 mark question
- 1 x 30 mark question

# Warning to Candidates

1. You **must** be on time for all your examinations.

2. **Possession of a mobile phone** or other unauthorised material **is not allowed** - even if you do not intend to use it. You will be subject to penalty and possible disqualification from the exam/qualification.

3. You **must not** talk to, attempt to communicate with or disturb other candidates once you have entered the examination room.

4. You **must** follow the instructions of the invigilator.

5. You **must not** sit an examination in the name of another candidate.

6. You **must not** become involved in any unfair or dishonest practice in any part of the examination.

7. If you are confused about anything, only speak to an invigilator.

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**NO MOBILE PHONES**
**SMARTWATCHES**
**MP3/4 PLAYERS**
NO POTENTIAL TECHNOLOGICAL/WEB
ENABLED SOURCES OF INFORMATION

NO UNAUTHORISED ITEMS

Possession of unauthorised items, such as a mobile
phone, is a serious offence and could result in

# DISQUALIFICATION

from your examination and your overall qualification.