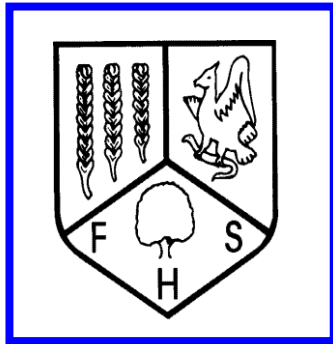


Featherstone High School



Mathematics Department

Core 1 Scheme of Work

| Unit | Lessons |
|--|----------------------------|
| (Autumn) | |
| 1 Algebra and Functions | 2 |
| 2 Quadratic Functions | 3 |
| 3 Equations and Inequalities | 2 |
| 4 Sketching Curves | 2 |
| 5 Coordinate Geometry in the (x,y) plane | 2 |
| Assessment | 1 |
| 6 Sequences and Series | 3 |
| 7 Differentiation | 3 |
| 8 Integration | 2 |
| Assessment | 1 (21 used, 7 left) |
| (Easter) | |

One Lesson is considered as **1.5 hours**.

Homework should be set **every lesson** – exam questions should be selected from the Review Exercises. Students complete on lined paper (questions with * students should be provided with resources) and self-marked before handing in.

1 Algebra and Functions

| | | | | |
|---|---|---|--|---|
| Autumn Term | <p><u>Previously...</u></p> <ul style="list-style-type: none"> GCSE Algebraic Manipulation Rules of Indices Factorising and Expanding Expressions | | | |
| | <ul style="list-style-type: none"> Simplifying expressions and collect like terms Know and Apply the rules of indices Expand brackets Factorise expressions including quadratics Manipulate surds | | | |
| | <p><u>Next...</u></p> <ul style="list-style-type: none"> Factorising would help with solving equations and sketching graphs – Chapters 2, 3 Indices will help with differentiating and integrating – Chapters 7, 8 Surds help with solving quadratic equations – Chapter 2 | | | |
| | CORE 1 BOOK | Homework | Examiner Report | Teaching Resources |
| | <p>Core 1 Book</p> <ul style="list-style-type: none"> Ex: 1A, Odd Questions Ex: 1F, Q1&2 (odd questions) Ex: 1C, Odd Questions Ex: 1D Ex: 1E Ex: 1G, odd questions Ex: 1H, odd questions | <p>Ex: 1D and 1E, Q14 - 24</p> <p>Review Ex: 1, Q8</p> | <p>http://www.edexcel.com/quals/gce/gce08/maths/Pages/default.aspx</p> | <ul style="list-style-type: none"> P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C1 SOW and Resources\Resources |
| <p>KEYWORDS</p> <ul style="list-style-type: none"> | | | | |
| <p>FHS SKILLS/WRL</p> <ul style="list-style-type: none"> Use of memory (use of maths facts), be logical (do things step by step), plan (solving multi stage problems) | | | | |

2 Quadratic Functions

| | | | | |
|---|---|--|--|---|
| Autumn Term | <p><u>Previously...</u></p> <ul style="list-style-type: none"> Chapter 1 – Factorising expressions | | | |
| | <ul style="list-style-type: none"> Plot the graph of a quadratic function Solve a quadratic function using factorisation Complete the square of a quadratic function Calculate the discriminant of a quadratic expression Sketch the graph of a quadratic function | | | |
| | <p><u>Next...</u></p> <ul style="list-style-type: none"> Chapter 3 – Solving equations and inequalities | | | |
| | Core 1 Book | Homework | Examiner's Report | Teaching Resources |
| | <p>Core 1 Book</p> <ul style="list-style-type: none"> Ex: 2B - Odd Questions Ex: 2C - Odd Questions Ex: 2D – Odd Questions Ex: 2E – Odd Questions Ex: 2A – Odd Questions Ex: 2F – Q1 (Odd Questions), Q2 & Q3 | <ul style="list-style-type: none"> Review Ex:1 - Q9, 10, 11 & 13 Review Ex:1 – Q12, 14, 15 | <p>http://www.edexcel.com/quals/gce/gce08/maths/Pages/default.aspx</p> | <ul style="list-style-type: none"> P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C1 SOW and Resources\Resources |
| <p>KEYWORDS</p> <ul style="list-style-type: none"> | | | | |
| <p>FHS SKILLS/WRL</p> <p>Be creative (using keywords), use of memory (maths facts), be logical (step by step thinking)</p> | | | | |

3 Equations and Inequalities

| | | | | | |
|------------------------------|--|--|--|---|---|
| Autumn Term | <p>Previously...</p> <ul style="list-style-type: none"> • Chapters 1 & 2 | | | | |
| | <ul style="list-style-type: none"> • Solve simultaneous equations by elimination • Solve simultaneous equations by substitution • Solve linear and quadratic inequalities | | | | |
| | <p>Next...</p> <ul style="list-style-type: none"> • Chapters 5&6 | | | | |
| | Core 1 Book and Mymaths | | Homework | Examiners Report | Teaching Resources |
| | <p>Core 1 Book</p> <ul style="list-style-type: none"> • Ex: 3A • Ex: 3B • Ex: 3C <p>Mymaths</p> <ul style="list-style-type: none"> • http://www.mymaths.co.uk/tasks/library/alevel/lib/loadLesson.asp?title=alevel/core1/algebra/alg3linearInequalities&taskID=2008 • Ex: 3E, Q1 (odd), Q2(all), Q3(odd) | | <ul style="list-style-type: none"> • Ex: 3F, Q1 – 4 | <ul style="list-style-type: none"> • http://www.edexcel.com/quals/gce/gce08/maths/Pages/default.aspx | <ul style="list-style-type: none"> • P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C1 SOW and Resources\Resources |
| | <p>KEYWORDS</p> | | | | |
| <p>FHS SKILLS/WRL</p> | | | | | |

4 Sketching Curves

| | | | | |
|--|--|---|--------------------|--|
| Autumn Term | <p><u>Previously...</u></p> <ul style="list-style-type: none"> • Sketching straight line graphs • Sketching quadratic graphs | | | |
| | <ul style="list-style-type: none"> • Sketch cubic graphs • Sketch the graph of the reciprocal function $y=k/x$ • Find where curves intersect • Understand how the transformations $f(x + a)$, $f(x) + a$, $f(ax)$ and $af(x)$ affect the graph of the curve $y = f(x)$ | | | |
| | <p><u>Next...</u></p> <ul style="list-style-type: none"> • Sketching more complex graphs including transforming them | | | |
| | Core 1 Book and Mymaths | | Homework | |
| | Examiners Report | | Teaching Resources | |
| <p>Core 1 Book</p> <ul style="list-style-type: none"> • Ex: 4A, Q1&2 (a&e), Q3 (a, c, e, i) • Ex: 4C, Odd Questions <p>Mymaths</p> <ul style="list-style-type: none"> • http://www.mymaths.co.uk/tasks/library/alevel/lib/loadLesson.asp?title=alevel/core1/graphs/graphs5Transform&taskID=2024 | | <ul style="list-style-type: none"> • Ex: 4D, Q3, 5, 7, 9, 11, 13 • Ex: 4H, Q4 -7 | | |
| <p>KEYWORDS</p> | | <ul style="list-style-type: none"> • http://www.edexcel.com/quals/gce/gce08/maths/Pages/default.aspx | | |
| <p>FHS SKILLS/WRL</p> <p>Organise information (sequence), be logical (look for patterns and use them), research and explore and be creative (sequences in nature)</p> | | <ul style="list-style-type: none"> • P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C1 SOW and Resources\Resources | | |

5 Coordinate Geometry in the (x,y) plane

Previously...

- Coordinates
- Understand the link between the equation of a line, and its gradient and intercept
- Calculate the gradient of a line joining a pair of points
- Find the equation of a line in either the form $y=mx+c$ or $ax+by+c = 0$
- Find the equation of a line passing through a pair of points
- Determine the point where a pair of straight lines intersect
- Know and use the rule concerning perpendicular gradients

Next...

- Differentiation – Chapter 7

Core 1 Book

Core 1 Book

- Ex: 5A, Q5, 7, 9
- Ex: 5B, Q1 (LHS) then the rest of Odd Questions

- Ex: 5C, Q (LHS), then remaining Odd Questions
- Ex: 5D, Q (LHS), then remaining Odd Questions
- Ex: 5E, Q (LHS), then remaining Odd Questions

KEYWORDS

FHS SKILLS/WRL

Homework

<http://www.mymaths.co.uk/tasks/library/alevel/lib/loadTask.asp?title=alevel/core1/geometry/geom3y=mx+cOH&taskID=2003>

- Ex: 5F, Odd Questions

Examiners Report

- <http://www.edexcel.com/quals/gce/gce08/maths/Pages/default.aspx>

Teaching Resources

- P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C1 SOW and Resources\Resources

Autumn Term

| | | |
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| Assessment | | |
|-------------|-------------------------|--|
| Autumn Term | Topics Covered | |
| | Chapters 1, 2, 3, 4, 5. | |

| 6 Sequences and Series | | | |
|--|--|--|--|
| Autumn Term | <p>Previously...</p> <ul style="list-style-type: none"> Indices – Chapter 1 GCSE – Number patterns and Sequences | | |
| | <ul style="list-style-type: none"> Generate a sequence from the nth term, or from a recurrence relationship Know how to find the nth term of an arithmetic sequence, $U(n)$ Know how to find the sum to n terms of an arithmetic series, $S(n)$ Solve problems on arithmetic series using the formulae for $U(n)$ and $S(n)$ Know the meaning of the symbol Σ | | |
| | <ul style="list-style-type: none"> Core 2 – Chapter 7 | | |
| | Core 1 Book and Mymaths | Homework | Examiners Report |
| <p>Core 1 Book</p> <ul style="list-style-type: none"> Ex: 6B, Q1 & 2 (LHS), Q4, 5 Ex: 6C, Q1, 2, 3 (LHS), Q5 Ex: 6D, Q2(LHS), Q3, Q4(LHS) Ex: 6E, Q3-7 Ex: 6F, Q1&2(LHS), then the rest of Odd Questions | <ul style="list-style-type: none"> Ex: 6H, Q1-3 Ex: 6H, Q11, 12, 15 | <p>http://www.edexcel.com/quals/gce/gce08/maths/Pages/default.aspx</p> | <ul style="list-style-type: none"> P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C1 SOW and Resources\Resou rces |

| | | | |
|--|--|--|--|
| | <p>KEYWORDS</p> <ul style="list-style-type: none"> | <ul style="list-style-type: none"> Ex: 6H, Q8, 10, 14, 16, 18 | |
| | <p>FHS SKILLS/WRL</p> <ul style="list-style-type: none"> Use of memory (maths facts), plan and be logical (solving multistep problems) | | |
| | | | |

| 7 Differentiation | | | |
|-------------------|---|----------|--------------------|
| Autumn Term | <p><u>Previously...</u></p> <ul style="list-style-type: none"> Chapter 5 | | |
| | <ul style="list-style-type: none"> Calculate the sine, cosine and tangent of any angle Know the exact trigonometrical ratios for 30°, 45° and 60° Sketch the graphs of the sine, cosine and tangent functions Sketch simple transformations of these graphs | | |
| | <p><u>Next...</u></p> <ul style="list-style-type: none"> Core 2 – Chapter 9 | | |
| | CORE1 BOOK | Homework | Examiners Report |
| | | | Teaching Resources |

| | | | | |
|--|---|---|--|--|
| | <p>Core 1 Book</p> <ul style="list-style-type: none"> • Ex: 7B, LHS • Ex: 7C, Q1&2 (a&c), Q3, Q5 • Ex: 7D <ul style="list-style-type: none"> • Ex: 7E, Q1(odd parts), Q2 • Ex: 7F <ul style="list-style-type: none"> • Ex: 7G, LHS • Ex: 7H, Q1(LHS), then Q3-5 | <ul style="list-style-type: none"> • Ex: 7I, Q1, 3, 5, 7, 9 • Ex: 7I, Q6, 8, 10, 11 | <p>http://www.edexcel.com/quals/gce/gce08/maths/Pages/default.aspx</p> | <ul style="list-style-type: none"> • P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C1 SOW and Resources\Resou rces |
| | <p>KEYWORDS</p> <ul style="list-style-type: none"> • | | | |
| | <p>FHS SKILLS/WRL</p> <ul style="list-style-type: none"> • | | | |
| | | | | |

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|----------------------|---|----------|------------------|--------------------|
| 8 Integration | | | | |
| Autumn Term | <p><u>Previously...</u></p> <ul style="list-style-type: none"> • N/A | | | |
| | <ul style="list-style-type: none"> • Integrate simple functions • Understand the symbol $\int dx$ • Find the constant of integration by substituting in a given point (x,y) | | | |
| | <p><u>Next...</u></p> <ul style="list-style-type: none"> • Core 2 – Chapter 11 | | | |
| | Core 1 Book | Homework | Examiners Report | Teaching Resources |

Core 1 book

- Ex:8A, LHS
- Ex: 8B, Q1, 2(LHS)
- Ex: 8C, LHS

- Ex: 8D, Q1, 2, 3 (odd parts)
- Ex: 8E, Q1(odd parts), then Q3, 4, 5

KEYWORDS

-

FHS SKILLS/WRL

-

- Ex: 8F, Q1, 3, 4, 6
- Ex: 8F, Q2, 5, 7, 8, 9

<http://www.edexcel.com/quals/gce/gce08/maths/Pages/default.aspx>

- P:\Departments\Maths\A Level\SOW and Resources ALL MODULES\C1 SOW and Resources\Resou rces

Assessment

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Topics Covered

Mock Exam Paper – All Topics Included!