BACK on TRACK

Year 11 Support Pack

Kesteven and Sleaford High School

BACK on TRACK

Welcome to Back on Track!

The Back on Track programme is a focused four-week intervention designed to help you strengthen your understanding of key topics, build confidence, and make progress towards outcomes that more closely reflect your potential. It has been put in place to support you in getting firmly *back on track* as you prepare for your examinations.

Over the next four weeks, you will be provided with subject-specific tasks and materials that have been carefully selected by your class teachers. These are based on your current progress and identified areas for development. This short, targeted programme is designed to help you feel more confident in lessons and better prepared for the upcoming examinations.

On the following page, you will find a tracker that allows you to monitor your progress in the subjects you have been nominated for. This will also support meaningful discussions with your class teachers about how you are progressing and where further support may be helpful.

The work in this booklet has been organised alphabetically by subject. Some departments have included workbooks for you to complete, while others require access to online resources. Your class teachers will talk through your Back on Track work with you and will support you in completing it.

Please note that in subjects where you can be entered for either *Foundation* or *Higher* tiers, the work provided may differ. Additionally, the work set for Biology, Chemistry and Physics will vary depending on whether you are studying *Combined Science* or *Triple Science* GCSEs.

BACK on TRACK

Progress Tracker

Subject 1: _____

Week	Student Signature	Parental Signature	Teacher Signature (plus comments if applicable)
1			
2			
3			
4			

Recommendation: extra support needed Y/N

Subject 2: _____

Week	Student Signature	Parental Signature	Teacher Signature (plus comments if applicable)
1			
2			
3			
4			

Recommendation: extra support needed Y/N

BACK on TRACK

Progress Tracker

Subject 3: _____

Week	Student Signature	Parental Signature	Teacher Signature (plus comments if applicable)
1			
2			
3			
4			

Recommendation: extra support needed Y/N

Subject 4: _____

Week	Student Signature	Parental Signature	Teacher Signature (plus comments if applicable)
1			
2			
3			
4			

Recommendation: extra support needed Y/N

Biology

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This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Work somewhere quiet
- Use www.bbc.com/bitesize/subjects/zrkw2hv and kerboodle to help

Work to be completed:

1. By the end of this week you need to have listened to or read the podcast on topic B8 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257071)
and produced a mind map or revision notes containing the key points.
2. By the end of this week you need to have listened to or read the podcast on topic B9 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225785)
and produced a mind map or revision notes containing the key points.
3. By the end of this week you need to have listened to or read the podcast on topic B10 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257075)
and produced a mind map or revision notes containing the key points.
4. By the end of this week you need to have listened to or read the podcast on topic B11 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257077)
and produced a mind map or revision notes containing the key points.
5. Assessment of progress (mocks)

Biology

BACK on TRACK

Combined Science

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Work to be completed:

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3. By the end of this week you need to have listened to or read the podcast on topic B10 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225717) and produced a mind map or revision notes containing the key points.
4. By the end of this week you need to have listened to or read the podcast on topic B11 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225782) and produced a mind map or revision notes containing the key points.
5. Assessment of progress (mocks)

Business

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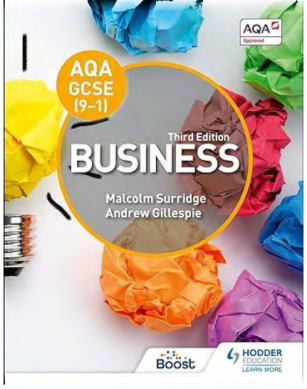
There will be an assessment at the end of this where you can show your teacher the progress you have made.

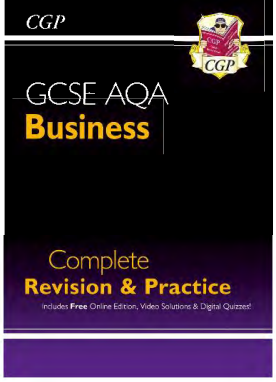
Top Tips:

- Work somewhere quiet
- Don't leave the work to the last minute

Work to be completed:

1. - Unit 1 'Business in the Real World' Tasks
2. - Unit 2 'Influences on Business' Tasks
3. - Unit 3 'Business Operations' Tasks
4. - Unit 4 'Human Resources' Tasks
5. Assessment of progress (mocks)





Revision Resources

The following are all great sources for revision and can be accessed from the school homepage under student tab and online learning.

- **Tutor 2 U** (very useful live/replays of livestreams)

https://www.tutor2u.net/business

- **BBC Bitesize**

https://www.bbc.co.uk/bitesize/examspecs/zvwb382

- **Seneca Learning**

https://app.senecalearning.com/classroom/course/154d6ec0-32ac-11e8-84d9-f7b314e82c3a/section/6ca868a0-32ac-11e8-84d9-f7b314e82c3a/session

- **Two Teachers**

https://www.twoteachers.co.uk/freebusinessstudiesresources

Read through the following review questions for each unit. These are the first four units studied (Unit 5 and Unit 6 aren't included in this pack).

Identify any areas that you are unsure of and use all resources available to revise/make notes/write out answers to those questions.

General Prompts/Notes/Questions for your teacher/Doodles/Diagrams:

Unit 1

3.1.1 The Purpose and Nature of Business

1. State two possible sources of new ideas for a business.
2. What is meant by an 'entrepreneur'?
3. Explain one reason why someone might want to start their own business.
4. What is meant by 'opportunity cost'?
5. What is meant by the 'primary sector'?
6. State two possible characteristics of an entrepreneur.
7. State two examples of businesses in the tertiary sector.

3.1.2 Business Ownership

1. State two reasons why an entrepreneur might want to be a sole trader.
2. State two possible problems of being a sole trader.
3. What is meant by 'limited liability'?
4. State two differences between a private limited company and a public limited company.
5. What is a 'shareholder'?
6. State two advantages of a partnership compared to being a sole trader.
7. What is a 'partnership'?
8. State two possible problems of a partnership.

3.1.3 Setting Aims and Objectives

1. What is an 'objective'?
2. State two advantages for a business of setting an objective.
3. State two possible objectives of a business.
4. State two reasons why a business might change its objectives.
5. What is meant by 'market share'?
6. How can objectives be used to measure performance?
7. Why might a business have environmental targets?

3.1.4 Stakeholders

1. What is meant by a 'stakeholder'?
2. State two stakeholders in a business.
3. Are all stakeholders also shareholders? Explain your answer.
4. Explain, with an example, how stakeholders might have the same objectives.
5. Explain one way in which a stakeholder might influence a businesses objectives.
6. Explain one possible objective of the local community around a business.
7. Explain, with an example, how stakeholders might have different objectives.

3.1.5 Business Location

1. Explain one reason why the labour market might affect the location of a business.
2. Explain one reason why the infrastructure might affect the location of a business.
3. State two businesses that would need to locate close to their customers.
4. Explain one factor that might influence the location of a retail outlet.
5. Explain one factor that might influence the location of a coal mining business.
6. Explain one factor that might influence the location of a computer games design business.
7. State two types of business that need to be located near their supplier.

3.1.6 Business Planning

1. The selling price of a product is £25. The variable costs per unit are £10. The fixed costs are £150,000. *What are the profits of the business if it sells 3000,000 units?*
2. Explain two elements of a business plan.
3. Explain one reason why a business might produce a business plan.
4. Explain one reason why things may not work out the way the plan forecast.
5. How can a business reduce the risk of a business plan failing?
6. State two stakeholders who might be interested in the business plan.
7. Explain one reason why a business plan needs reviewing regularly.

3.1.7 Expanding a Business

1. State two ways the growth in the size of a business can be measured.
2. What is meant by 'internal growth'?
3. What is meant by 'economies of scale'?
4. What is meant by 'unit cost'?
5. State two benefits of expansion.
6. State two types of diseconomies of scale.
7. Explain the difference between a merger and a takeover.

Unit 2

3.2.1 Technology

1. What is meant by the term 'information and communication technology'?
2. Give two examples of information that a business might want to exchange with its customers using ICT.
3. Explain one reason why a business might decide to use software robots as a form of business technology.
4. State two reasons why a business might decide to use cloud computing services such as those offered by Google.
5. State two reasons why increasing numbers of retailers are using e-commerce.
6. What is meant by the term 'digital communication'?
7. Explain one reason why a business might use social media websites to communicate with its customers.
8. State two reasons why a large company might decide to hold meetings with shareholders online.

3.2.2 Ethical and Environmental Considerations

1. What is meant by the term 'ethics'?
2. State two questions that might be asked to decide whether a firm is ethical or not.
3. Explain one way in which a business could engage in ethical marketing.
4. Explain one reason why ethical decisions may reduce a business's profits.
5. What is meant by the term 'environment'?
6. What is meant by the term 'sustainable production'?
7. Give two examples of environmentally responsible decisions that consumers can take.
8. Give one example of a renewable resource.

3.1.3 The Economic Climate

1. What is meant by the term 'economic climate'?
2. Which of the following is most likely to be a sign of an improving economic climate?
   - *A rise in the number of people who do not have jobs but are looking for one*
   - *A rise in the number of businesses that are forced to cease trading as they cannot repay loans*
   - *A rise in the number of people in employment*
   - *A rise in the number of people moving overseas for work*
3. What is meant by the term 'interest rates'.
4. Explain one possible effect of falling interest rates on a business.
5. Which of the is most likely to be the result of rising interest rates?
   - *Rising sales of expensive foreign holidays*
   - *Rising production of all goods and services*
   - *Rising levels of employment*
   - *Rising levels of saving by consumers*
6. Explain one possible effect of falling levels of employment on UK businesses.
7. What is meant by the term 'consumer spending'?
8. Explain why a bakery's sales of bread may not be affected significantly by a fall in consumers' incomes.

3.1.4 Globalisation

1. What is meant by the term 'globalisation'?
2. Which of these business is a multinational company?
   - *A UK manufacturer that exports its products to 12 countries*
   - *A UK business that imports raw materials and components from Asia and Africa*
   - *A UK business that competes against overseas companies in the UK market*
   - *A UK manufacturer with factories in the UK, France and the USA*
3. Explain one reason why a UK company might want to engage in international trade.
4. Which of the following is not a result of globalisation?
   - *Higher prices for products in international markets*
   - *Higher levels of migration between countries*
   - *Greater flows of finance between countries*
   - *Increased numbers of multinational companies*
5. What is meant by the term 'inward investment'?
6. Explain one benefit of globalisation to UK businesses.
7. Explain one drawback of globalisation to UK businesses.
8. State two reasons why a fall in the value of the pound may not increase the profits of a UK business.
9. If the exchange rate of the pound rises, which of the following will be true, assuming no other changes?
   - *The price of UK exports in foreign currencies will fall*
   - *The price of imported products in the UK will fall*
   - *The sales of UK exports overseas will rise*
   - *The sales of imports into the UK will fall*

3.1.5 Legislation

1. What is meant by the term 'legislation'?
2. Which of the following factors is not covered by employment laws relating to discrimination?
   - *Gender*
   - *Race*
   - *Sexual Orientation*
   - *Body Art (such as tattoos)*
3. Explain one way employment laws in the UK might affect the profits of a coffee shop chain such as Starbucks.
4. Explain one way in which employment laws in the UK might affect the types of people employed by a supermarket.
5. Explain one way in which a business might benefit from the existence of the UK's employment laws?
6. State one example of a business's activities which are covered by the Health and Safety at Work Act.
7. Explain one way in which consumer laws might increase a businesses costs.
8. State two ways in which a business can treat its customers illegally.
9. Explain how the Data Protection Act helps to protect consumers.

3.1.6 Competitive Environment

1. What is meant by the term 'market'?
2. Explain, using an example, why most markets in the UK are competitive.
3. Explain one way in which businesses may compete in markets made up of a few large firms.
4. Explain one reason why selling products that are similar or identical to those sold by rivals makes prices an important form of competition.
5. Identify one market supplied by businesses facing little or no competition.
6. Explain the difference between risk and uncertainty.
7. State one internal risk and one external risk that a business may face.
8. Explain one way in which a business might minimise the risks it faces.

Unit 3

3.3.1 Production Processes

1. What is meant by job production?
2. Explain one advantage of job production.
3. Explain one disadvantage of job production.
4. What is meant by flow production?
5. Explain one advantage of flow production when compared with job production.
6. Explain one disadvantage of flow production when compared with job production.
7. What is meant by efficiency?
8. Describe one way in which improved efficiency can lead to lower unit costs for a business.
9. What is meant by lean production?
10. What is just-in-time production?
11. Explain one risk to a business of operating with just-in-time production.
12. What is meant by the term kaizen?

3.3.2 The Role of Procurement

1. What is meant by procurement?
2. State two factors a business might consider when choosing a supplier.
3. Explain one way in which suppliers affect the quality of a business.
4. What is meant by logistics?
5. Why might there be a trade-off when choosing suppliers?
6. Explain two ways suppliers might affect the performance of a business.
7. State two types of supplies a car manufacturer might buy.
8. Explain what is meant by purchasing 'economies of scale'.
9. What is the difference between just-in-time and just-in-case approaches to managing stock?
10. Explain one benefit of a just-in-time production system.

3.3.3 The Concept of Quality

1. What is meant by quality?
2. State two ways quality may be measured in a hospital.
3. State two ways quality may be measured in a car manufacturer.
4. State two problems caused by poor quality.
5. State two costs of improving quality.
6. State two benefits of having good quality.
7. What is meant by 'Total Quality Management'?
8. Explain one reason employees might resist the introduction of Total Quality Management.
9. State two ways in which a business might measure the level of quality it is achieving.
10. Why might McDonald's be described as a high-quality food provider?

3.3.4 Good Customer Service

1. What is meant by the term 'customer service'?
2. State two ways in which a business might offer good customer service.
3. What is meant by customer engagement?
4. What is meant by the term 'post-sales service'?
5. Give two benefits of good customer service.
6. What is meant by 'm-commerce'?
7. State two dangers of poor customer service.
8. Explain one way in which ICT has allowed businesses to improve their customer service.
9. What is meant by the term 'e-commerce'?
10. Give two benefits to a business of using e-commerce.

Calculations - Unit/Average Cost

1. A business has fixed costs of £200,000 and variable costs of £120,000. They have produced 16,000 units. What is the cost of producing one unit?
2. A year later, the same business produced 18,000 units. Their fixed costs remained the same, but their variable costs increased to £135,000. What is their new unit cost?
3. Dixons have total costs of £42,000 and a unit cost of £3.50. How many items have they produced?
4. "I'll Chairish It Always" produce top of the range armchairs, in a range of quality fabrics.

Complete the table with the three missing figures, stating in each case whether unit costs increase or decrease as total output rises.

Total Output (Chairs)	Total Costs (£'s)	Unit Costs (£'s)
20	10,000	
30	12,000	
40	14,000	
50	20,000	

5. RUSTic Cookers produce top of the range cast iron cookers, which sell for over £3,000 each. Calculate:

a) the unit cost last year
b) the unit cost this year
c) the percentage change in unit costs between this year and last year, stating whether this is a percentage increase or decrease.

Unit 4

3.4.1 Organisational Structure

1. What is an 'organisational structure'?
2. A business has four levels of hierarchy: a CEO, four directors, sixteen managers and sixty-four team leaders. Which of the following is the CEO's span of control?
   (a) 64 (b) 20 (c) 4 (d) 5
3. Analyse one benefit to a business of a manager delegating responsibility.
4. Explain the difference between a narrow and a wide span of control.
5. Explain the difference between a tall and a flat organisational structure.
6. A business has moved from a tall to a flat organisational structure. Which of the following statements will be true?
   - *Its typical span of control will be wider.*
   - *Its typical span of control will be narrower.*
   - *It will have more levels of hierarchy.*
   - *It will have more employees.*
7. Explain one reason why a business with a tall organisation structure might have a narrower span of control.
8. Explain why the use of delegation is more likely within a flat organisation structure.
9. Explain the difference between centralisation and decentralisation.
10. State two benefits of decentralisation.
11. State two challenges that might be faced by a business that is decentralising.
12. Explain the term 'delayering'.
13. Analyse a consequence to a business of delayering it's organisational structure.

3.4.2 Recruitment and Selection

1. What is meant by the term 'recruitment'?
2. State two circumstances in which a business might need to recruit new employees.
3. Which of the following is a benefit of the use of internal methods of recruitment?
   - *It allows the business to recruit from a wider pool of applicants.*
   - *It offers the business new ideas.*
   - *The business likely to have an employee with the right skills immediately.*
   - *It offers employees opportunities for promotion.*
4. Describe a situation in which a business may choose to use external recruitment.
5. State two pieces of information that a business is likely to include in a job advert.
6. The use of which of the following is a method of selection?
   (a) Job analysis (b) Assessment centres
   (c) Person specifications (d) Job descriptions
7. Which document used in the recruitment and selection process lists the qualifications and skills required by an applicant for a job?
8. State one advantage and one disadvantage of using interviews as a method of selection.
9. Explain one reason why a business might use psychometric tests as a method of selection.
10. State two benefits a business may receive from operating an effective recruitment and selection process.
11. What is the difference between a job share and a zero hours contract?
12. State one advantage and one disadvantage of using zero hours contracts.

3.4.3 Motivating Employees

1. What is meant by the term 'motivation'?
2. What is meant by the term 'piecework'?
3. State two types of needs that employees can meet through work.
4. State two benefits to a new business of having well-motivated employees.
5. What is meant by the term 'job enrichment'?
6. Which of the following is a financial method of motivation?
   - *Commission*
   - *Job Enrichment*
   - *Training*
   - *Delegation*
7. Which of the following is not a fringe benefit?
   - *Health Insurance*
   - *A company car*
   - *Discounts when buying company products*
   - *Piecework*
8. Explain one reason why training can improve the motivation of a workforce.
9. Explain the difference between salaries and wages.
10. Explain how a business uses financial rewards to motivate its employees.
11. How might a democratic management style motivate workers?
12. James works for Audi and earns commission on cars he sells. How much commission does he earn if his commission rate is 4% and he sells £164,500 worth of cars in one month?

3.4.4 Training

1. What is meant by the term 'training'?
2. Explain why training might help to improve the level of productivity of a business's workforce.
3. Explain one reason why training might help to improve a business's employee retention rates.
4. Using examples, explain the difference between on-the-job and off-the-job training.
5. Which of the following is an example of off-the-job training?
   - *Work shadowing a colleague*
   - *Complete a computer-based training course at home*
   - *A session bed by an external training provider in the factory*
   - *A talk in the office by a senior manager*
6. Explain one benefit of induction training.
7. Which of the following is not a benefit of on-the-job training?
   - *It brings new ideas into the business*
   - *It is relatively cheap way of providing training*
   - *It can be designed to meet the business's exact needs*
   - *It avoids the need to pay for traveling for employees*
8. Explain one benefit of on-the-job training.
9. Explain why providing off-the-job training might be a risk for the business.
10. Which of the following businesses if most likely to offer its employees only on-the-job training?
    - *A business that is growing very quickly and whose employees are overworked*
    - *A business that is not in a strong financial position*
    - *A business that does not have employees with the skills to train others*
    - *A business whose employees need long-term training and have to pass national examinations..*
11. Explain why businesses may be reluctant to invest in training for their workers.
12. In which type of training is the following likely to be be true? Justify your answer. *Workers can pick up bad habits.*
13. In which type of training is the following likely to be be true? Justify your answer. *Interruptions may impact on the quality of the training..*

Now that you have revised these units you can see your Business teacher to collect the

Exam Style Assessment

on Units 1 to 4

Good luck

Hand back in for marking

Teacher Feedback:

Chemistry

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Top Tips:

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Work to be completed:

1. By the end of this week you need to have listened to or read the podcast on topic C3 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225823)
and produced a mind map or revision notes containing the key points.
2. By the end of this week you need to have listened to or read the podcast on topic C4 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225783)
and produced a mind map or revision notes containing the key points.
3. By the end of this week you need to have listened to or read the podcast on topic C8 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225774)
and produced a mind map or revision notes containing the key points.
4. By the end of this week you need to have listened to or read the podcast on topic C10 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225828)
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5. Assessment of progress (mocks)

Chemistry

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Combined Science

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1. By the end of this week you need to have listened to or read the podcast on topic C3 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225723)
and produced a mind map or revision notes containing the key points.
2. By the end of this week you need to have listened to or read the podcast on topic C4 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225838)
and produced a mind map or revision notes containing the key points.
3. By the end of this week you need to have listened to or read the podcast on topic C8 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225749)
and produced a mind map or revision notes containing the key points.
4. By the end of this week you need to have listened to or read the podcast on topic C9 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/225781)
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5. Assessment of progress (mocks)

Computing

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Top Tips:

Work somewhere quiet
Don't leave the work to the last minute
Use adacomputerscience.org to help you complete questions and to revise.

Work to be completed:

1. Complete week one in the BoT workbook.

2. Complete week two in the BoT workbook.

3. Complete week three in the BoT workbook.

4. Complete week four in the BoT workbook.

5. Complete the week five assessment at the end of the workbook

This series of tasks focus on the areas in the exam in which students have commonly lost marks on.

Each week is broken into three **20-minute power sprints**.

Week 1: The "Must-Knows" of Paper 1 (Systems)

- **0:00–0:20 | The CPU (Von Neumann)**
  - **Task:** Draw the **Von Neumann Architecture** from memory.
  - **Checklist:** Did you include: *Control Unit (CU), Arithmetic Logic Unit (ALU), Cache, Registers (MAR, MDR, PC, Accumulator)?*
  - **The Killer Question:** Write one sentence explaining exactly what the **Program Counter (PC)** does versus what the **MAR** does. (Confusing these is a common error).
  - **Answer:**

- **0:20–0:40 | Data Representation**
  - **Task:** Complete these three specific calculations (show working):
    1. Convert Hexadecimal 2B to Denary.
    2. Perform a **Binary Left Shift** of 2 places on 00001101 and explain the mathematical result.
    3. Add 0110 + 0111 in binary. Identify if an **Overflow Error** occurred.

- **0:40–1:00 | Network Security**
    - Define **Phishing** vs. **Pharming.**
    - **Prevention:** List one *physical* prevention method and one *software* prevention method for keeping a network safe.

Week 2: Protocols & Data Representation

Focus: How computers talk and how they store data.

- **0:00–0:20 | The Protocol Stack**
    - **Task:** Write down the meaning of the acronym **TCP/IP**.
    - **Memorize:** What do the the 4 Layers each do: **Application, Transport, Internet, Link.**
    - **Match-up:** Assign these protocols to their layer: *HTTP, FTP, IP, Ethernet, Wifi.*
- **0:20–0:40 | Image & Sound Maths**
    - **Formula Practice:** Calculate the file size in bytes of an image that is 20 x 20 pixels with a colour depth of 4 bits.

- **0:40–1:00 | Storage Scenarios**
    - **Scenario:** "A video editor needs high capacity and high speed but doesn't move their PC."
    - **Choice:** Recommend **Magnetic (HDD)** for capacity or **SSD** for speed.
    - **Justification:** Write 3 bullet points justifying your choice using the keywords: **Cost, Durability, Capacity, Speed.**

Week 3: Algorithms & Logic (Paper 2 Section A)

- **0:00–0:20 | Searching & Sorting**
    - **Trace:** Write the list [3, **1**, **4**, 2]. Perform a **Bubble Sort** on paper, showing the list after *each pass* until sorted.

- **0:20–0:40 | Logic Gates**
    - **Draw:** Sketch the symbols for **AND, OR, NOT** logic gates.
    - **Truth Table:** Create a truth table for the expression P = A OR (NOT B).

- **0:40–1:00 | Search Algorithms**
    - Using a **binary search** write down the steps to find the number 7 in this list:
      [**1**, 3, 5, 7, 9, **11**, 13]

Week 4: Code & Robustness (Paper 2 Section B)

Focus: The hardest programming questions (Arrays and SQL).

- **0:00–0:20 | Iterating Arrays (The #1 Exam Skill)**
  - **Pseudocode:** Write a for loop that iterates through an array called scores.
  - **Task:** Inside the loop, check IF the score is > 50. If it is, output "Pass".
  - *Tip: Use for i = 0 to scores.length*

/

- **0:20–0:40 | SQL Statements**
  - **Template:** Memorize: SELECT ... FROM ... WHERE ...
  - **Task:** Write a query to find the Username from table Users where Age >= 18.

- **0:40–1:00 | Defensive Design**
  - **Sanitisation:** Explain how removing special characters prevents **SQL Injection.**

Week 5: The "One Hour" Mock

Attempt this in strict exam conditions. 10 Questions, 60 Minutes.

Q1: Draw the Von Neumann architecture, specifically showing the data flow between the RAM and the CPU. [4]

Q2: Convert the binary number 11010110 to Hexadecimal. [2]

Q3: Explain the difference between a MAC address and an IP address. [3]

Q4: Calculate the file size (in bytes) of a 10-second sound recording with a sample rate of 10Hz and a bit depth of 8 bits. [3]

Q5: Draw a logic circuit for $P = (A \text{ AND } B) \text{ OR } C$. [4]

Q6: Explain why a "Merge Sort" is known as a recursive algorithm. [2]

Q7: Write a SQL query to select all ItemNames from the table Stock where Quantity < 5. [3]

Q8: Write a snippet of Python/Pseudocode that asks a user for a password and loops until they enter "secret". [5]

Q9: Define "Input Sanitisation" and give one example of why it is used. [2]

Q10: Perform a binary search for the letter 'D' in the list ['A', 'B', 'C', 'D', 'E']. Show your steps. [4]

Total: /32

Use extra paper, to write answers to these questions and hand into Mr McVey when complete.

English

BACK on TRACK

English Language

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks.
Each week you should complete the Progress Tracker sheet.
Show your work to your teacher and they can sign off the week for you.
There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Use your English folders to recall the requirements for each question
- Revisit your targets from the previous language papers and DIRT time you have undertaken.

Work to be completed:

1. With your teacher discuss your mock targets, your foci for Back on Track and reflect on your mock DIRT time.
2. If using the Language Paper 1 resource ('Silk Factory'), complete the sections suggested by your teacher.
3. For section A Questions— aim to allow 15 minutes for reading th eextract, 2 minutes for question 1, 10 minutes for question 2, 10minutes for question 3 and 20 minutes for question 4.
4. For Section B tasks. Aim to do this in between 45-50 minutes.
5. Bring the completed answers to your English teacher or Mr Cassidy on a Friday lunch timed during English Clinic

English DLiterature

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks.
Each week you should complete the Progress Tracker sheet.
Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Use your English folders to recall the requirements for each question
- Revisit your targets from the previous language papers and DIRT time you have undertaken.

Work to be completed:

1. With your teacher discuss your mock targets, your foci for Back on Track and reflect on your mock DIRT time.
2. If using the Literature Paper resource complete the sections suggested by your teacher.
3. For section 1 Questions— aim to do this in between 50-55minutes (or more if you have extra time).
4. Bring the completed answers to your English teacher Mr Cassidy on a Friday lunch timed during English Clinic

BACK on TRACK

Food Preparation & Nutrition

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:
Chunk your work into no more than 30 mins at a time, take a break and then continue

- Work somewhere quiet
- Don't leave the work to the last minute

Work to be completed:

1. - Revisit **Topic 1** pages 2-9, check your notes. Use the key points as reminders and check the key words are clearly understood. Complete the test yourself questions

2. -Complete the above section – pages 10-12. Make flash cards forthis section.

3. **-Major diet related health issues pages 13- 20** read and check against notes from group presentations. Complete test yourself questions and refresh knowledge of key words**.**

4. - Use your notes and textbook to revisit Proteins – use the index at the back to check the different sections as this covers Nutrients and Food Science. Be clear about the different functions making them versatile.

5. Practice questions page 85- 86 – answer in exercise book, relate to the marks attached to each question.

MFL - French

BACK on TRACK

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Work somewhere quiet
- Repeat Language Nut tasks if necessary to improve further
- Don't leave the work to the last minute
- Revise vocabulary on a regular basis
- Try attending French Revision club every fortnight – it really helps!

Work to be completed:

1. Attend French Revision Club on Thursday 22nd January (12.50pmin L3) for some translation practice.

2. Complete the listening practice assigned to you on Language Nut.

3. Attend French Revision Club on Thursday February 5th (12.50pmin L3) for some 90-word task practice.

4. Complete the reading practice assigned to you on Language Nut.

5. Assessment of progress – March mock exams in Reading, Listening and Writing.

Geography

BACK on TRACK

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Try the questions first before reviewing your notes to help with any you are finding difficult
- Work somewhere quiet
- Don't leave the work to the last minute

Work to be completed: GCSE questions
Please ask Mrs Livingstone for printed copies

1.Revise the Urban topic and complete the questions on Urban Issues and Challenges in your pack

2. Revise the Coasts topic and complete the questions on Coasts in your pack

3.Revise the Rivers topic and complete the questions on Rivers in your pack

4. Complete the questions on Skills in your pack

5. Assessment of progress (mocks)

Urban Issues and Challenges:

Name: Class teacher: Mark: /26

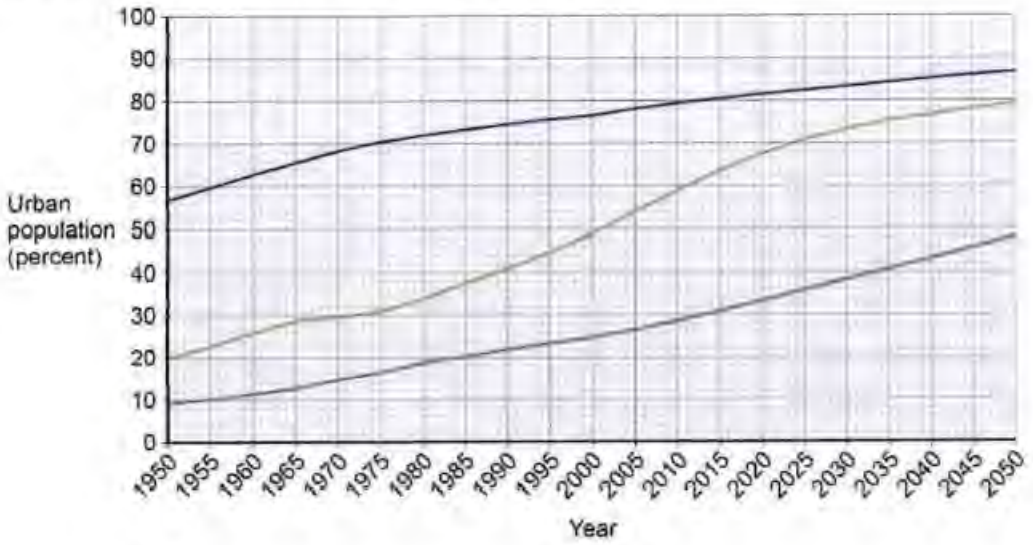
1 Which term is best defined by the phrase, 'the increasing percentage of the population living in towns and cities'?

Put an X in **one** box only.

A	Urban sprawl	☐
B	Urbanisation	☐
C	Migration	☐
D	Urban regeneration	☐

(Total 1 mark)

2 Study the graph below showing the percentage of the population living in urban areas in different parts of the world 1950–2050 (projected).



Complete the following paragraph to describe the changes shown in the graph above.

Choose the **three** correct answers from this list:

HICs	**doubled**	**NEEs**
slow down	**trebled**	**speed up**

The smallest increase in percentage of urban population 1950–2050 is expected

to be in [ ].

From 2020 the rate of increase is expected to [ ] in NEEs.

Between 2000 and 2050, lower income countries are projected to have almost [ ] in the percentage living in urban areas.

(Total 3 marks)

3 Suggest two reasons for the slow rate of urban growth in many higher income countries (HICs).

Reason 1:

Reason 2:

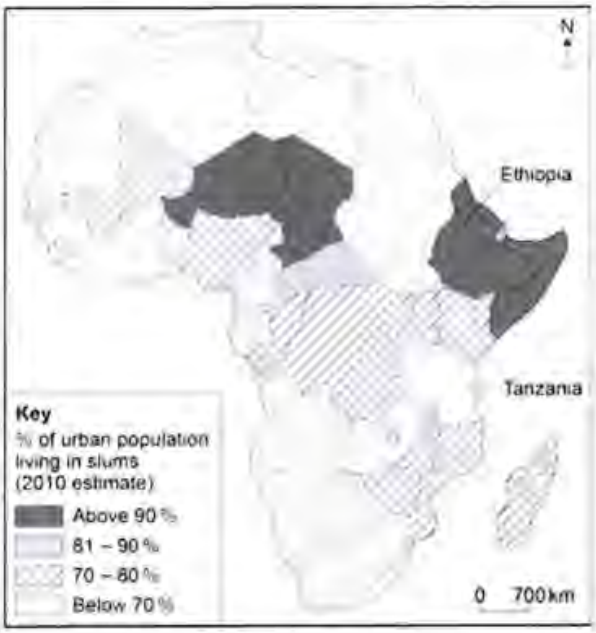
(Total 2 marks)

4 Study the photograph of a rubbish dump in the Payatas slum in Manila, a city in the Philippines.

Suggest **one** opportunity for people shown in the photograph.

(Total 2 marks)

5 Study the choropleth map showing the percentage of the urban population living in slums in African countries (2010 estimate).



(a) What shading should be used to complete the map?

Estimated percentage (%) of urban population living in slums:

Tanzania – 80%

Put an X in **one** box only.

A ☐

B ☐

C ☐

D ☐

(1)

(b) What is the estimated percentage of urban population living in slums in Ethiopia?

Put an X in **one** box only.

A Above 90% ☐

B 81 – 90% ☐

C 70 – 80% ☐

D Below 70% ☐

(1)

(c) In how many countries shown on the map is it estimated that between 81–90% of the urban population live in slums?

(1)

(Total 3 marks)

6 Study the photograph below showing part of a squatter settlement.

(a) List **three** characteristics of this squatter settlement that are visible in the picture above.

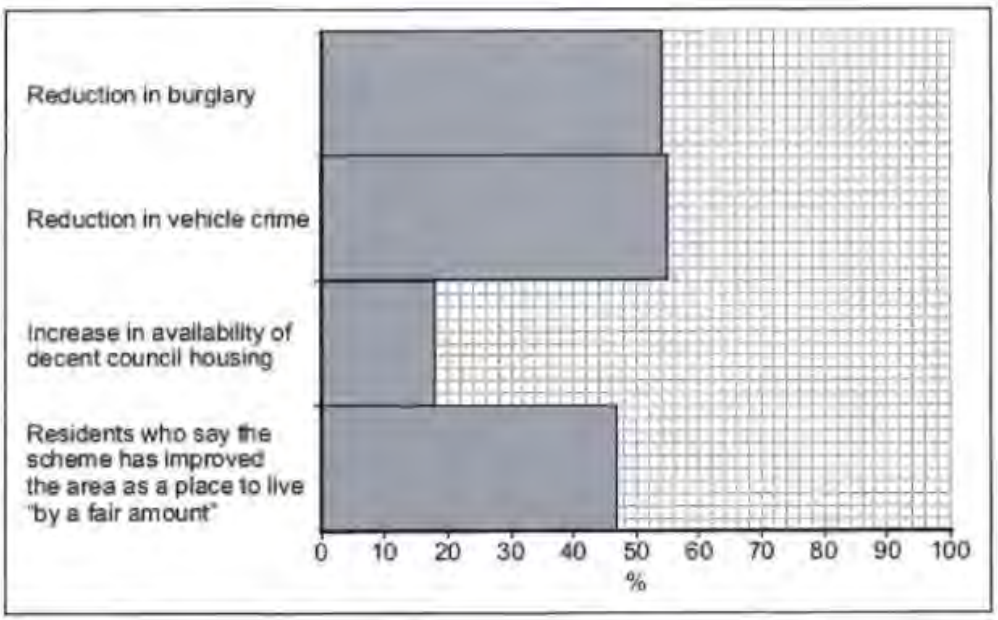
(3)

(b) Suggest how **one or more** of the conditions shown in the figure above affects the lives of the people living there.

(4)

(Total 7 marks)

7 Study the figure below, a graph showing some improvements resulting from one government inner city scheme.



Use the figure above to explain how residents have benefited from the scheme.

(Total 3 marks)

Coasts:

GCSE GEOGRAPHY

Name: Class teacher:

Mark /30

1 The following statements are about the different types of weathering.

Write the correct type of weathering (**mechanical**, **chemical** or **biological**) in the box next to each statement. Each answer may be used once, more than once or not at all.

A change in both the appearance and the mineral composition of rock. ☐

The effects of plant roots or burrowing animals on rock. ☐

The breaking of rock into smaller pieces without changing its composition. ☐

(Total 3 marks)

2 The following statements are about processes that affect the coast.

Write the correct process (**weathering**, **mass movement**, **erosion** or **transportation**) in the box next to each statement. Each answer may be used once, more than once or not at all.

Material slides down a slope ☐

Particles of sand are bounced along the beach ☐

Temperatures rise above and fall below 0 °C causing ice to thaw and water to freeze ☐

(Total 3 marks)

3 The sea erodes the coast in a variety of ways.

Match each process to the correct definition.

Process	Definition
1 Erosion is	A sand and pebbles being thrown against the coast.
2 Hydraulic power is	B the dissolving of some rocks by sea water.
3 Abrasion is	C the wearing away of the land.
4 Attrition is	D the force of the water against the coast.
5 Solution is	E the colliding of rock fragments into each other.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

(Total 4 marks)

4 The following paragraph describes how coastal processes are linked.

Complete the paragraph. Choose the correct words from the list below.

deposition **transported** **weathering**

Erosion and [ ] break down rocks in coastal areas.

Sediment is [ ] by the action of waves and tides.

Once the waves and tides have lost energy [ ] takes place.

(Total 2 marks)

5 Study the photograph of part of a coastline

Using the photograph, identify the landform marked Z.

[ ]

(Total 1 mark)

6 Explain how a coastline of headlands and bays forms and changes over time.

(Total 4 marks)

7

Feature **Z** labelled on the photograph above is a spit.

Explain the formation of a spit.

(Total 4 marks

8 Study the photograph showing sea defences at Beesands in Devon.

Suggest how the sea defences help to protect the coastline.

(Total 4 marks)

9 Explain how soft engineering might be used to manage the coastal zone.

(Total 4 marks)

10 Suggest one environmental advantage of managed retreat.

(Total 1 mark)

RIVERS:

GCSE Geography

Name: Class teacher: Mark /28

1. River channels are affected by different erosion processes.

Match each of the statements to the correct erosion process.

Erosion process	Statement
1 Hydraulic action	A occurs when some types of rock are dissolved in the river
2 Abrasion	B occurs when material carried by the river knocks into other pieces of load
3 Attrition	C occurs when the force of the water hits the bed and banks
4 Solution	D occurs when the load carried by the river hits the bed and banks

1 ☐ 2 ☐ 3 ☐ 4 ☐

(Total 3 marks)

2. Describe how a river transports its load.

(Total 3 marks)

3. Study the photograph below of High Force waterfall on the River Tees in the north of England.

(a) List **three** characteristics of the waterfall that are visible in the picture above.

1.

2.

3.

(3)

(b) Explain the formation of a waterfall.

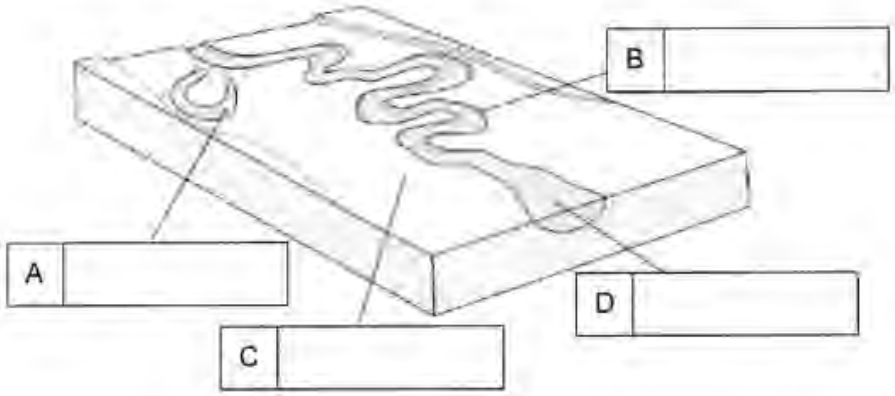
(4)

(Total 7 marks)

4. Study the diagram showing features of a lowland river valley.

Complete the diagram using the following terms:

Meander **Estuary** **Flood plain** **Ox-bow lake**

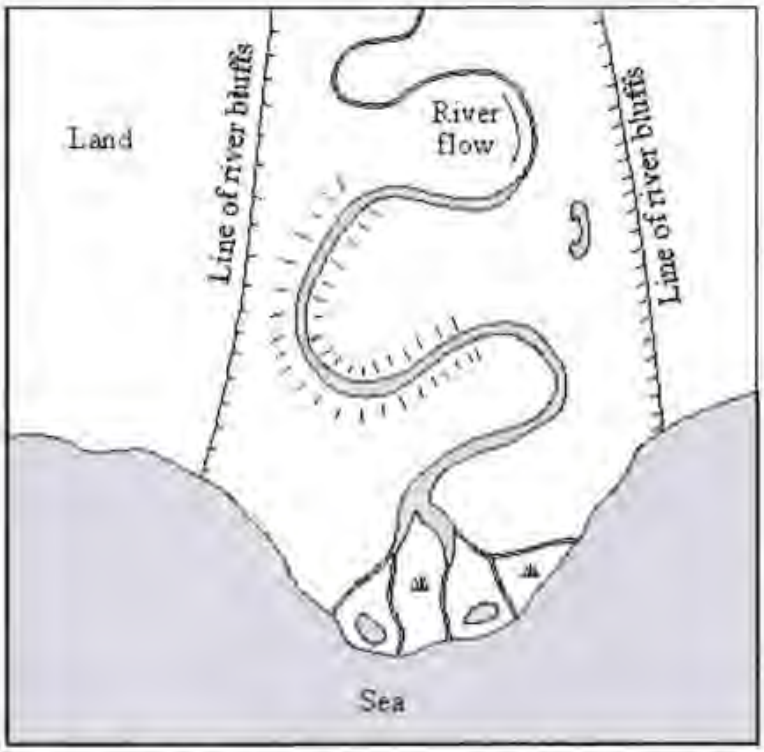


(Total 3 marks)

5. Explain the formation of a flood plain.

(Total 4 marks)

6. Study the diagram below which shows some features of the lower course of a river.



Complete the paragraph below to explain how levées are formed.

Choose the correct words from this list.

valley	**deposit**	**channel**	**velocity**
fences	**level**	**erode**	**banks**

When a river overflows, the _____ decreases and it begins to _____ its load, the largest material first. After repeated floods, high _____ called levées are formed at the sides of the river. If the river floods in the future, the effects could be severe as the water cannot drain back into the _____.

(Total 4 marks)

7. Study the diagram of a flood management scheme.

Suggest how the flood management scheme shown in the diagram helps reduce the risk of flooding.

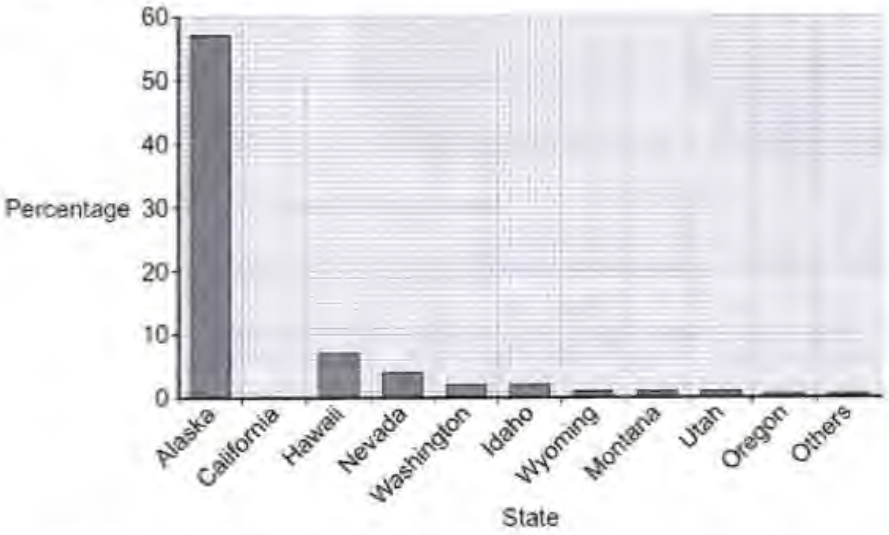
(Total 4 marks)

Skills Practice:

GCSE GEOGRAPHY

Name: Teacher: Mark: /30

1 Study the graph below. It shows the percentage of earthquakes that occurred in states of the USA (1974–2008).



(a) Complete the graph. Use the information below.

California = 24%

(1)

(b) What percentage of the earthquakes occurred in Hawaii?

Put an X in **one** box only.

5% ☐

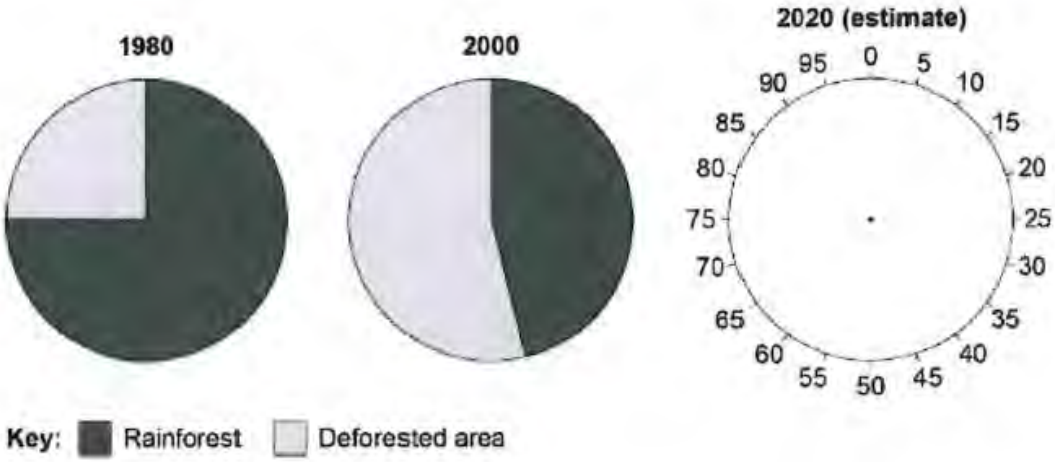
7% ☐

15% ☐

(1)

(Total 2 marks)

2 Study the pie charts showing deforestation in Borneo, a country in south east Asia between 1980 and 2020 (estimate).

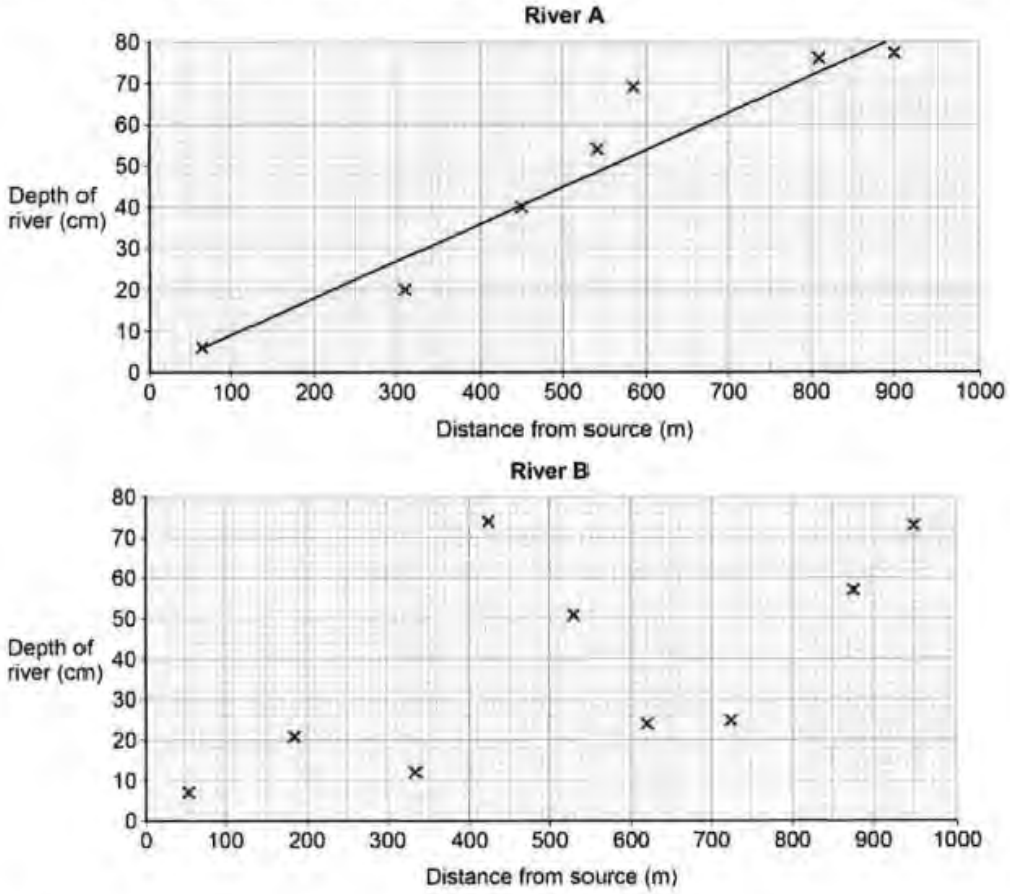


Complete the pie chart for 2020 (estimate).

Use the following information: **Rainforest = 35%** **Deforested area = 65%**

(Total 1 mark)

3 Students studied two different rivers over a distance of 1000 metres. For each river they measured the depth at a number of sites. The results are shown in the graphs below.



(a) Complete the scattergraph for **River B** by plotting the following data.

Distance from source – 450 m

Depth of river – 22 cm

(1)

(b) Draw a line of best fit on the scattergraph for **River B**.

(1)

(c) Compare the relationship between distance from source and depth of river for the two rivers.

(4)

(Total 6 marks)

4 As part of a geographical enquiry, students carried out an environmental quality survey in one part of a town centre. The results are shown in the table below.

	-2	-1	0	+1	+2	
Lots of traffic pollution				✔		No traffic pollution
Lots of litter	✔					No litter
Unattractive buildings					✔	Attractive buildings
Lots of vandalism		✔				No vandalism
No landscaping					✔	Good landscaping

What is the total environmental quality score for the area shown in the table above?

(Total 1 mark)

5 Students measured the flow of water in two different rivers over 7 days. The table shows the results, in rank order, for the two rivers.

	River A (Flow in cubic metres / second)	River B (Flow in cubic metres / second)
	6.2	11.8
Upper quartile →	6.0	10.4
	5.6	8.7
	5.2	5.1
	5.0	2.1
Lower quartile →	4.5	1.4
	3.7	1.2
Median	**5.2**	**5.1**
Interquartile range	**1.5**	

Complete the table by calculating the interquartile range for River B.

(Total 1 mark)

6 Study the information about urban change.

Living in an urban world

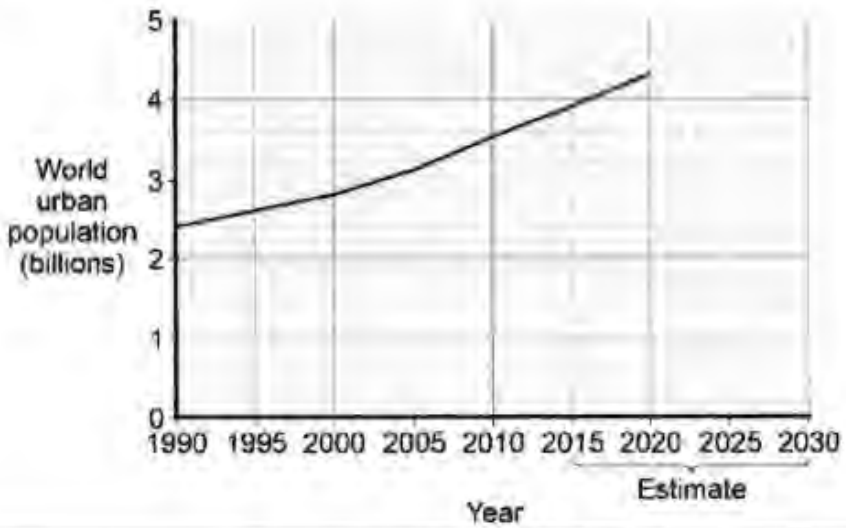
In 1930, only one person in four lived in a town or city. By 2006, as many people lived in urban areas as in rural areas. By 2030, it is estimated that three out of every four people will live in an urban area.

In 1950, New York was the only city with more than 10 million people. Today there are at least 25 cities with 10 million people or more, mostly in LICs and NEEs where the urban population is growing rapidly. In these continents the urban population is expected to double by 2030.

Top five megacities, 2010
(at least 10 million people)

1	Tokyo	35 million
2	Mexico City	19 million
3	Mumbai	19 million
4	New York	18 million
5	São Paulo	18 million

(Figures are approximate)



(a) Complete the graph. Use the information below.

Estimated world urban population:

2025 = 4.8 billion

2030 = 5.0 billion

(2)

(b) How many people lived in urban areas in 2000?

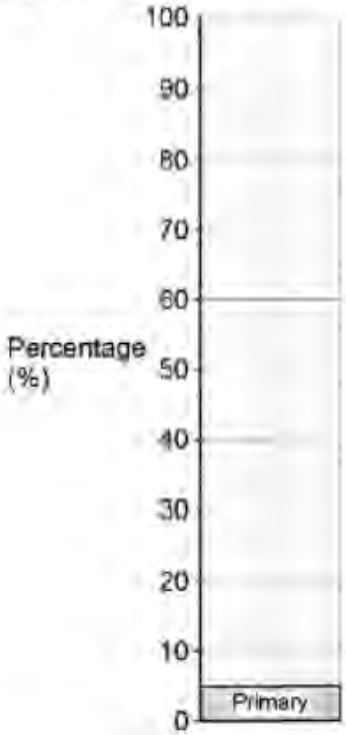
(1)

(Total 3 marks)

7 Study the data collected by means of a questionnaire about the employment structure of a town.

Primary (%)	5
Secondary (%)	25
Tertiary (%)	70

(a) Complete the divided bar graph below by plotting the data shown.



(1)

(b) Suggest **one** other method that could be used to present the employment structure data.

(1)

(Total 2 marks)

8 Study the data collected for a river enquiry.

River enquiry, April 2015 Stream flow

Date of the month	Flow (cumecs, approx.)
4	4
5	4
6	5
7	3
8	7
9	9
10	6

Date of the month	Flow (cumecs, approx.)
11	5
12	4
13	4
14	3
15	5
16	6

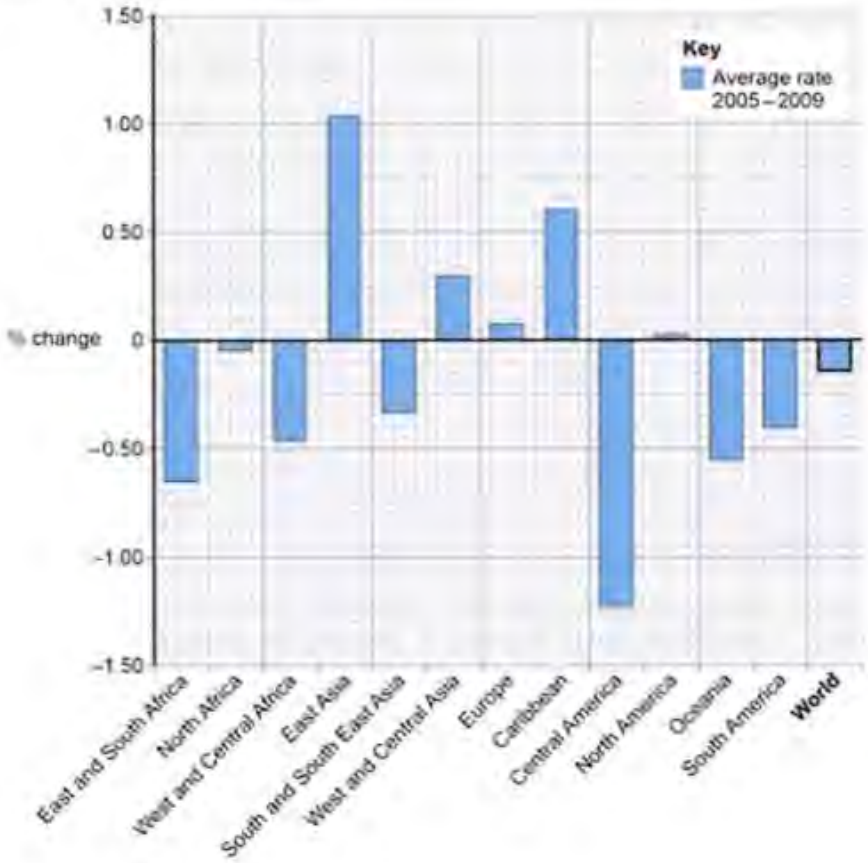
Cumecs = cubic metres per second

Complete the following table by using the stream flow data.

Stream flow	Mean	5.0
	Median	
	Mode	

(Total 2 marks)

9 Study the graph, which shows how the forested regions of the world changed between 2005 and 2009.



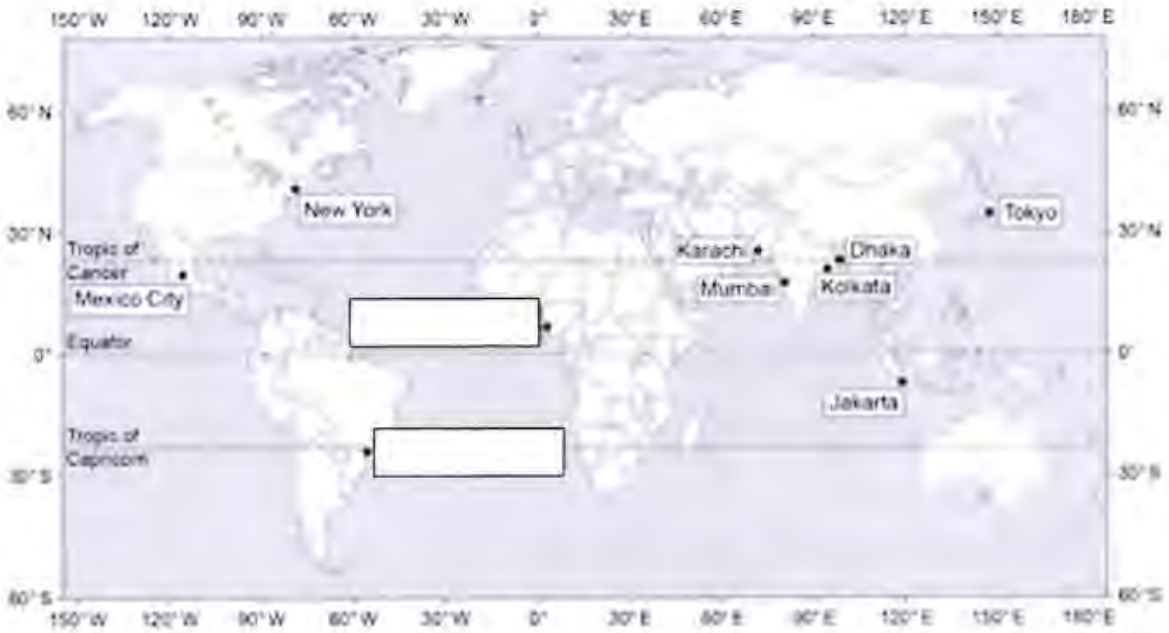
(a) Which region of the world had the greatest rate of deforestation between 2005 and 2009?

(1)

(b) State the number of regions of the world where the rate of deforestation was greater than the world average rate of deforestation between 2005 and 2009.

(1)
(Total 2 marks)

10 Study the map below showing the location of ten of the world's top ten megacities (2014).



(a) On the map, add the names of the **two** megacities to the correct boxes.

Use the information in the table below.

Megacity	Latitude	Longitude
Lagos	6 °N	3 °E
Sao Paulo	24 °S	46 °W

(1)

(b) Which **one** of the following is the correct latitude and longitude for Jakarta?
Put an X in **one** box only.

A 21 °N 52 °E ☐

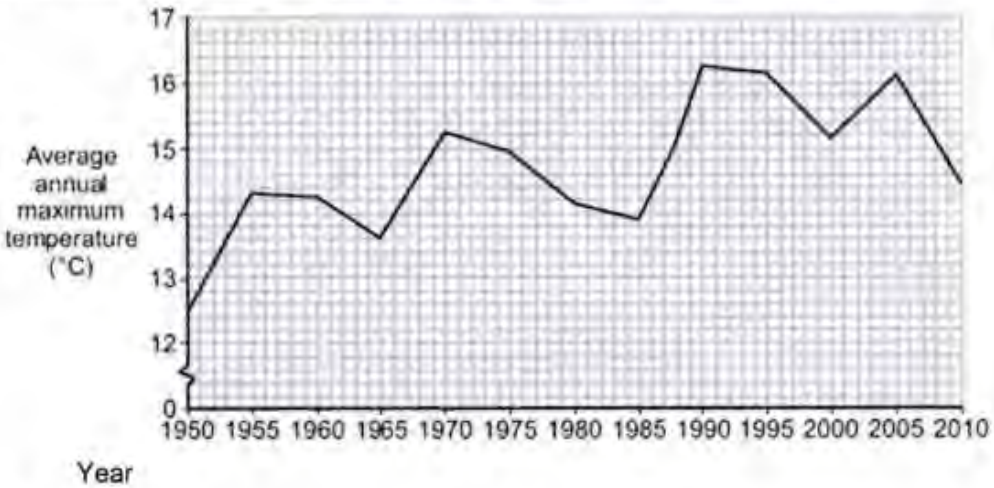
B 30 °S 157 °E ☐

C 6 °S 106 °E ☐

D 33 °N 75 °E ☐

(1)
(Total 2 marks)

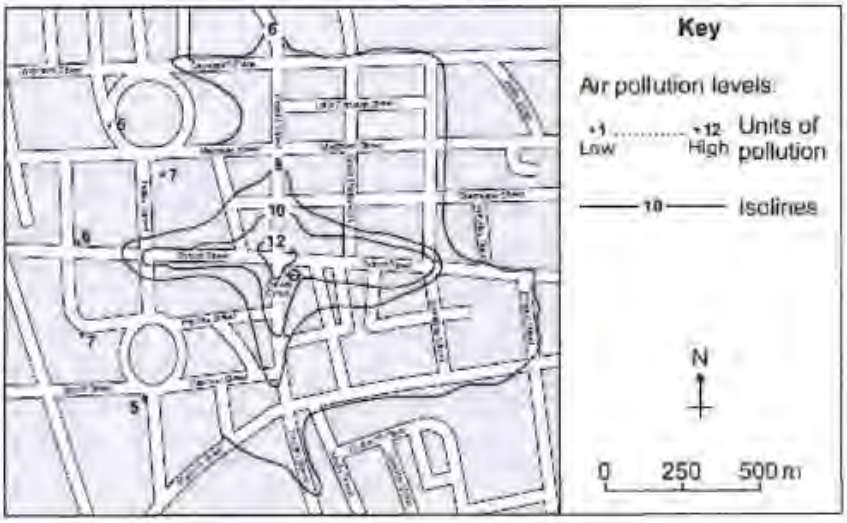
11 Study the figure below, a graph showing average annual maximum temperatures at Heathrow Airport, London from 1950 to 2010.



Describe the trends shown in the graph above.

(Total 4 marks)

12 Study the figure below, an isoline map of air pollution levels. The map was produced for a GCSE Controlled Assessment investigation on traffic pollution levels in Central London.



(a) Complete the isoline for air pollution level 6 on the figure above.

(2)

(b) Give **two** features of the distribution of air pollution shown on the completed map.

1.

2.

(2)

[Total 4 marks]

MFL - German

BACK on TRACK

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Work somewhere quiet
- Repeat Language Nut tasks if necessary to improve further
- Don't leave the work to the last minute
- Revise vocabulary on a regular basis
- Try attending German Revision club every fortnight – it really helps!

Work to be completed:

1. Complete the listening practice assigned to you on Language Nut.

2. Attend German Revision Club on Thursday 29th January (12.50pmin L2) for some translation practice.

3. Complete the reading practice assigned to you on Language Nut.

4. Attend German Revision Club on Thursday February 12th(12.50pm in L2) for some 90-word task practice.

5. Assessment of progress – March mock exams in Reading, Listening and Writing.

History

BACK on TRACK

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Work somewhere quiet
- Utilise the revision time before attempting the skills practice.
- Don't leave the work to the last minute
- Come and find a member of Team History if you are stuck!

Work to be completed:

1. Create a timeline of 10 key events from the 'fortress' period of Lincoln Castle. Using your timeline to help – complete one paragraph in response to the question on pp.2 of your booklet.

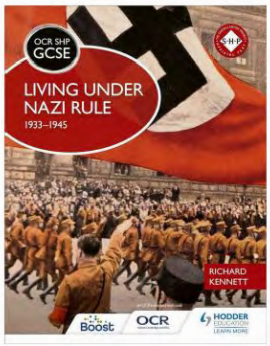
2. Create a timeline of 10 key events from the 'prison' period of Lincoln Castle. Using your timeline to help – complete one paragraph in response to the question on pp.3 of your booklet.

3. Create a revision mindmap about propaganda using chapter 2 of the Living Under Nazi Rule textbook. Complete the source question on pages 4-5 of your skills booklet.

4. Select your preferred question from pp.6 of your booklet.
   Plan your response (what will you include in each paragraph) – you can use your book/textbook to help you plan. Have a go at one PEEL paragraph in response to your chosen question on pp.7 of your booklet.

5. Assessment of progress (mocks)

Year 11 Back on Track 2026



General Advice – a reminder

Always read the question several times

BUG the question – box the command word, underline the key terms, glance back.

Plan your answers – people who do this have been statistically proven to get better marks

Stick to the question! – do not ramble or go off on a tangent, be analytical

Re-read every paragraph you have written to see if it actually answers the question

You can answer the questions in any order so start with the 18/20 mark questions to ensure you get the best answer possible – they are worth 50% of the marks for each topic.

DO NOT MISS QUESTIONS OUT!!! If in doubt guess. No answer =0 marks

Week One – Task One

1) Create a timeline of 10 key events from the 'fortress' period of Lincoln Castle.

2) Using your timeline to help – complete one paragraph in response to the below question.

1067

2 Choose **one** period in your site's history.

Explain what a study of your site reveals about the lives of different types of people at that time.

Use physical features of the site as well as your knowledge to support your answer. **[20]**

Spelling, punctuation and grammar and the use of specialist terminology **[5]**

This question means you need to consider who was at the site during one period – for our task the 'fortress' period. SO, we could talk about:
- The original prisoners housed in places like Cobb Hall
- The guards for these prisoners
- The soldiers who fought in battles to protect the castle
- The nobility i.e Nicola De La Haye

Think about the physical remains you can use to support your knowledge of these groups to help you answer the question.

A study of the _____ at Lincoln Castle can tell us a lot about the lives of _____ at Lincoln Castle. For example….. This tells us that….. Additionally…… This tells us that……

Week Two – Task Two

1) Create a timeline of 10 key events from the 'prison' period of Lincoln Castle.

2) Using your timeline to help – complete one paragraph in response to the below question.

1788

1 Explain how the physical features of your site could be used by someone to produce an **interpretation of the site** that **shows how it was used** at a significant point in its history.

Use physical features of the site as well as your knowledge to support your answer. **[20]**

Spelling, punctuation and grammar and the use of specialist terminology **[5]**

TOP TIPS

The key parts of this question are highlighted. The use of 'interpretation' here just means something to show how it was used – this could be a painting / model / recreation etc….

It wants you to talk about how the physical features show how it was used at a **significant point.**

Someone studying Lincoln Castle could use the _____ in order to show how the site was used during the time it was used as a prison. For example, someone could draw….. This would show…. Additionally, someone could draw…. This would help to show…..

TOP TIPS

Week Three – Task Three

1) Create a revision mindmap about propaganda using chapter 2.

2) Complete the source question below on pages 4-5.

Question 6 – Nazi Germany – 7 Marks

What can source A tells us about XXXXXXXX?

Infer – what is the source trying to tell you

Purpose - why something was produced.

Provenance – information about where the source came from

Source A can tell us that ..... *(support with own knowledge)*
Source A reveals that .... *(support with own knowledge)*
Source A tells us..... *(support with own knowledge)*
Source A infers that .... *(support with own knowledge)*

Source A's purpose/intended impact was... which tells us that .....
(then add in own knowledge)

A final thing we can learn from Source A about ***(focus of Q)*** **is... because...**(then add in own knowledge)

Use content of source and the information of where the source came from

1. What can **Source A** tell us about Nazi propaganda?
Use the source and your own knowledge to support your answer.

[7]

Source A

An announcement in a German newspaper, 16 March 1934

Attention! The Führer will be speaking on the radio. On Wednesday 21 March, the Führer is speaking on all German stations from 11am to 11.50am. The district Party headquarters have ordered that all factory owners, department stores, offices, shops, pubs and blocks of flats put up loudspeakers an hour before the broadcast of the Führer's speech so that the whole workforce and all national comrades can participate fully in the broadcast.

Source A tells us that.....

Teacher Feedback:

Week Four – Task Four

1) Select your preferred question from below.

2) Plan your response (what will you include in each paragraph) – you can use your book/textbook to help you plan.

3) Have a go at one PEEL paragraph in response to your chosen question.

Essay Questions – Nazi Germany

GCSE Essay Questions – 18/ 20 marks

Essay Structure

Introduction – 1-2 sentences state your opinion in relation to the question
Paragraph 1 – PEE - Agree with Question
Paragraph 2 – PEE - Disagree with Question
Paragraph 3 – PEE - Agree or Disagree with Question
Paragraph 4 – PEE - Agree or Disagree with Question
Conclusion – State your opinion again and explain it

Point - Always use the wording of the question for the point
A (significant) cause / consequence of...
A (Another) key factor that .....
One of the main features of ....

Evidence
Evidence that support this is .....
For example .....
This can be seen .....

Explanation
This suggests .....
This emphasises
This means that .....
This indicates..... therefore.....

Connectives:

Similarly...
On the other hand...
Alternatively...
Moreover...
Furthermore...
Additionally...

Answer **either** question 8 **or** question 9.

8* 'The Second World War had a negative impact on the German people between 1939 and 1945.' How far do you agree with this view? **[18]**

9* "There was little effective opposition to the Nazis." How far do you agree with this view of Germany between 1933 and 1939? [18]

Plan:

Essay Questions – Nazi Germany

Teacher Feedback:

Mathematics

BACK on TRACK

Foundation Tier

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Work somewhere quiet
- Don't leave the work to the last minute
- Use Maths Watch if you're stuck
- Seek help from the teacher if Maths watch doesn't help you.

Work to be completed:

All work referenced is in the booklet.

1. Complete the section on multiplying and dividing decimals.

2. Complete the section on fraction problems, and the first half of the section on solving equations.

3. Finish off the section on solving equations and complete the section on perimeter and area.

4. Complete the section on Pythagoras' Theorem

5. Assessment of progress

Y11 Mathematics Back on Track Booklet

Foundation

Contents

Multiplying and Dividing with Decimals

Do this page <u>without a calculator</u>.

Q1 Carry out the following multiplications:

a) 3.2×4 **b)** 263×0.2 **c)** 5.7×0.31 **d)** 2.4×3.3

= ..... = ... = ... = ...

e) 0.8×6.14 **f)** 2.06×1.4 **g)** 3.27×1.9 **h)** 4.32×2.7

= ..... = ... = ... = ...

Q2 Work out the following divisions:

a) $15.6 \div 4$ **b)** $21.6 \div 9$ **c)** $20.8 \div 8$ **d)** $73.5 \div 3$

e) $0.42 \div 0.06$ **f)** $5 \div 0.25$ **g)** $1.56 \div 0.12$ **h)** $2.91 \div 0.006$

Q3 A joiner drills six equally spaced holes in a length of wood.
The centres of the first and last holes are 6.95 m apart.
What is the distance between the centres of each hole and the next?

.....

Q4 Ailsa is ordering some new garden fencing online. She knows what size she wants in yards, feet and inches, but the website gives sizes in centimetres.
Using the information in the table, work out:

a) The number of centimetres in 3 inches.

.....

b) The number of centimetres in 6 feet.

.....

c) The number of centimetres in 45 yards.

.....

Conversions
1 inch = 2.54 centimetres
1 foot = 12 inches
1 yard = 3 feet
1 metre = 3.28 feet

Fraction Problems

These questions are similar to the ones on the last two pages — just a bit more wordy. Remember to underline the important stuff and work out what the question is actually asking.

Try these questions **without a calculator**, giving any fractions in their simplest form.

Q1 A return car journey from Lancaster to Stoke uses $\frac{5}{6}$ of a tank of petrol.
How much does this cost, if it costs £54 for a full tank of petrol?

.....

Q2 What fraction of 1 hour is:

a) 5 minutes? ..... b) 15 minutes? ..... c) 40 minutes? .....

Q3 If a TV programme lasts 40 minutes,
what fraction of the programme is left after:

a) 10 minutes? ..... b) 15 minutes? ..... c) 35 minutes? .....

Q4

A café employs eighteen girls and twelve boys to wait at tables. Another six boys and nine girls work in the kitchen.

a) What fraction of the kitchen staff are girls? .....

b) What fraction of the employees are boys? .....

Q5 In the diagram on the right, the area of the circle is $\frac{2}{3}$ the area of the square. The area of the triangle is $\frac{1}{5}$ the area of the circle.

a) Work out $\frac{2}{3} \times \frac{1}{5}$ .....

b) What fraction of the square is shaded? .....

Use a **calculator** for the questions below.

Q6 If I pay my gas bill within seven days, I get a reduction of an eighth of the price. If my bill is £120, how much can I save? .....

Q7 The amount of sugar in Corn Crispies cereal has been reduced by $\frac{1}{4}$. There is now 4.8 g of sugar in every 50 g of cereal. Work out the original amount of sugar in 50 g of the cereal.

..... g

Q8 Onika gives money to a charity directly from her wages, before tax. One sixth of her monthly earnings goes to the charity, then one fifth of what's left gets deducted as tax. How much money goes to charity and on tax, and how much is left, if she earns £2400?

Charity ..... Tax ..... Left over .....

Solving Equations

Top Tip When you're asked to solve an equation, you just have to find the value of the letter in the equation. If the letter is 'x', you need to rearrange the equation to get 'x = a number'.

Q1 Solve these equations:

a) $a + 6 = 20$ b) $h + 12 = 30$ c) $k - 14 = 11$

d) $3 + f = -7$ e) $t - 38 = 46$ f) $k - 6.4 = 2.9$

Q2 Solve these equations:

a) $4m = 28$ b) $15p = 645$ c) $6r = -9$

d) $\frac{t}{5} = 11$ e) $\frac{w}{12} = 9$ f) $\frac{s}{8} = 14$

Q3 Solve these equations:

a) $3x + 2 = 14$ b) $5x - 4 = 31$ c) $8 + 6x = 30$

d) $\frac{x}{3} + 4 = 10$ e) $4 + \frac{x}{9} = 6$ f) $\frac{x}{10} - 11 = 9$

Q4 Solve these equations:

a) $x + 2 = 2x - 3$ b) $2x - 1 = 3x - 4$ c) $5x - 12 = 2x + 6$

d) $10x - 5 = 3x + 9$ e) $7x - 8 = 9x - 16$ f) $11x + 3 = 4x + 10$

Q5 Solve these equations:

a) $2(x + 1) = 6$ b) $5(x - 3) = 2x + 15$ c) $4(x + 5) = 2(3x + 1)$

Q6 Solve these equations:

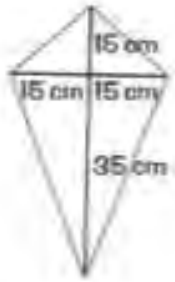
a) $x^2 = 25$ b) $2y^2 = 32$ c) $8w^2 = 72$

Remember to find both the positive and negative square roots.

Perimeter and Area

Right... getting tougher now, so concentrate...

Q6 Faryad is making a kite. He has made a frame from wooden poles. What is the minimum area of fabric he needs to buy to cover the kite?



Think of the fabric he needs as four right-angled triangles

Q7 This parallelogram has an area of 4773 mm². How long is its base?

Use the formula A = b × h

Q8 A metal blade for a craft knife is in the shape of the trapezium on the right. Calculate the area of the metal.

Use the formula A = ½(a + b) × h

Q9 A lawn is to be made with an area of 48 m².

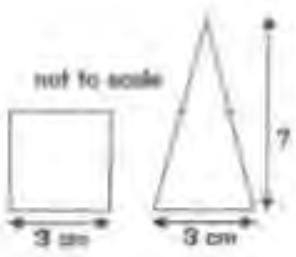
a) If its width is 5 m, how long is it?

b) Rolls of turf are 50 cm wide and 11 m long. How many rolls need to be ordered to grass the lawn?

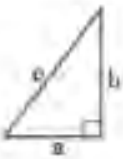
Start by finding the area of 1 roll. Then work out how many rolls fit into the area of the lawn

Q10 Find the perimeter of a rectangle with an area of 40 m² and a length of 10 m.

Q11 The square and the isosceles triangle shown have the same area. Find the height of the triangle.



Pythagoras' Theorem



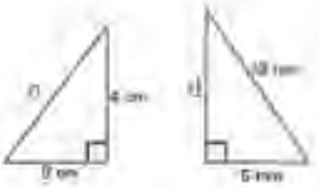
Pythagoras' theorem is $c^2 = a^2 + b^2$, where c is the longest side. To use it:

1) Square the two sides that you know.
2) Add the squared numbers (if you're finding c) or subtract (if you're finding a or b).
3) Take the square root to get your answer.

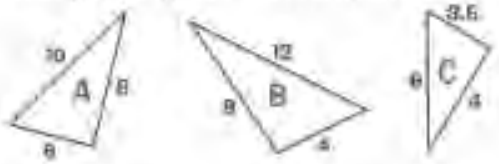
Q1 Using Pythagoras' theorem, calculate the length of the third side in these triangles.

$c^2 =$ ..... + ... = ..., $c =$ .....

$d^2 =$ ..... − ..... = ..., $d =$ .....



Q2 Using Pythagoras' theorem, work out which of these triangles have right-angles.



If they don't have right-angles Pythagoras' theorem won't work

.....

.....

Q3 Calculate the missing lengths in these quadrilaterals. Give your answers to 3 sig. figs.

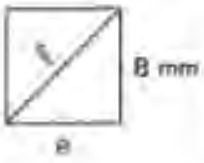
e = ...

f = ...

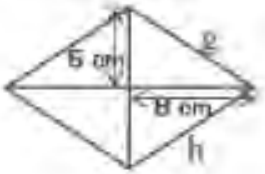
g = ...

h = ...

Square



Rhombus



Q4 A window cleaner needs to clean the upstairs windows of an office. He has a ladder 10 m long, but for safety reasons he can only put the bottom of it a minimum of 3 m away from the wall.

What is the maximum height in m that the top of the ladder can reach when used safely? Give your answer to 1 d.p.

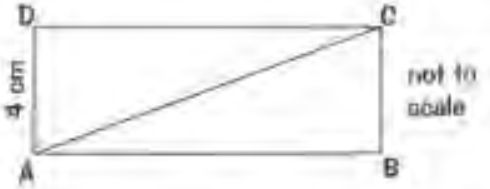
.....

.....

.....

Q5 The area of the rectangle ABCD is 20 cm². Find the length of the line AC to 1 d.p.

.....



Mathematics

BACK on TRACK

Higher Tier

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Work somewhere quiet
- Don't leave the work to the last minute
- Use Maths Watch if you're stuck
- Seek help from the teacher if Maths watch doesn't help you.

Work to be completed:

All work referenced is in the booklet.

1. Complete the section on straight line graphs and the section on expressions, formulas and functions

2. Complete the sections box plots and cumulative frequency as well as on rounding estimation and bounds

3. Complete the section on percentages and compound interest

4. Complete the sections on inequalities and simultaneous equations

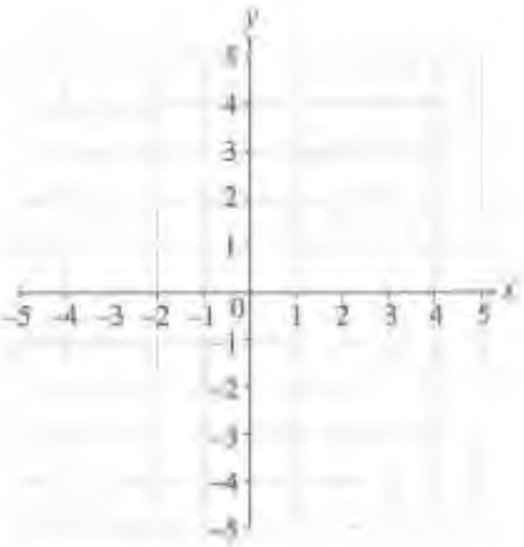
5. Assessment of progress

Y11 Mathematics Back on Track Booklet

Contents

Straight-Line Graphs

1 Use the grid for the questions below. (GRADE 3)



a) Draw and label the following lines.

$y = 3$

$x = -2$

$y = x$

[3]

b) What are the coordinates of the point where the lines $y = 3$ and $y = x$ meet?

(.....)

[1]

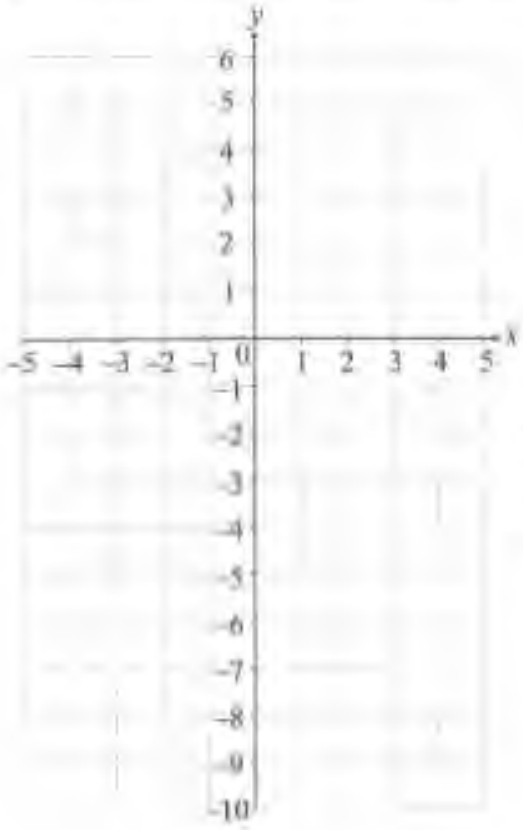
[Total 4 marks]

2 Answer each question below. (GRADE 3)

a) Complete this table of values for the equation $y = 3x - 2$.

x	-2	-1	0	1	2
y		-5			

[2]



b) Use your table of values to plot the graph of $y = 3x - 2$ on the grid.

[2]

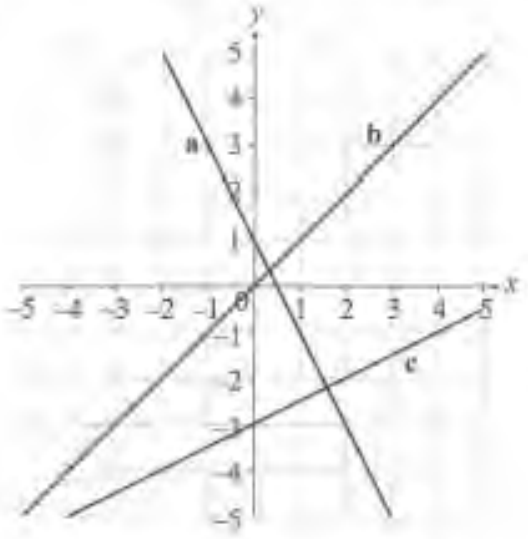
c) On the same grid, plot the graph of $y = -2x + 2$ from $x = -2$ to $x = 2$.

In the exam you might not always be given a table of values to help you plot a graph — but it's a good idea to draw your own.

[3]

[Total 7 marks]

3 The graph below shows 3 lines — **a**, **b** and **c**. (3)



For each line, circle the correct gradient.

a) **a**

2 $-\frac{1}{2}$ $\frac{1}{2}$ -2

[1]

b) **b**

-1 $\frac{1}{3}$ 0 1

[1]

c) **c**

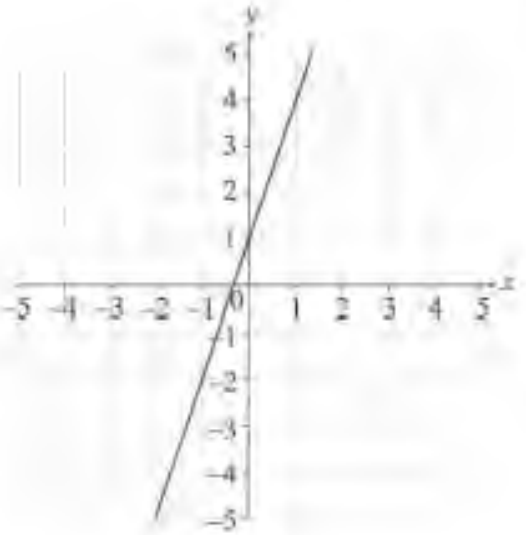
5 $\frac{1}{2}$ -3 -2

[1]

[Total 3 marks]

4 Look at the graph on the right. (4)

Find the equation of the straight line.
Give your answer in the form $y = mx + c$.



.....

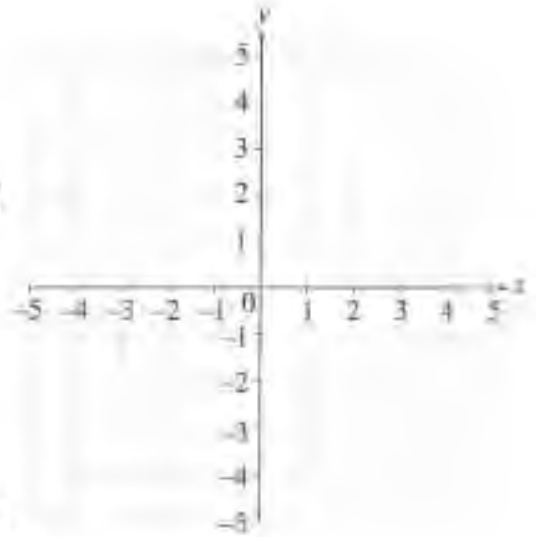
[Total 3 marks]

5 Use the grid for the questions below. (4)

a) Draw the line $y = x + 1$.

[2]

b) By drawing a second line, find the equation of the line parallel to $y = x + 1$ which passes through the point (2, 1).



.....

[2]

[Total 4 marks]

Expressions, Formulas and Functions

1 $S = 4m^2 + 2.5n$ (2)

a) Calculate the value of S when $m = 2$ and $n = 10$.

$S = (4 \times \_\_\_\_ \times \_\_\_\_) + (2.5 \times \_\_\_\_)$

$S = \_\_\_\_ + \_\_\_\_$

$S = \_\_\_\_$

.....

[2]

b) Calculate the value of S when $m = 6.5$ and $n = 4$.

.....

[2]

[Total 4 marks]

2 Select the correct words from the box to complete the statements below. (2)

a formula	an equation	an expression	a function

a) $4g - 5$ is .....

[1]

b) $x^2 + 3x = 0$ is .....

[1]

[Total 2 marks]

3 The function machine below shows the function 'add 7 and divide by 5'. (2)

a) Find the value of y when $x = 23$.

$y =$ .....

[1]

b) Find the value of x when $y = 3$.

$x =$ .....

[2]

[Total 3 marks]

Score: ____

9

Warm-Up and Worked Exam Questions

Without a good warm-up you're likely to strain a brain cell or two. So take the time to run through these simple questions and get the basic facts straight before plunging into the exam questions.

Warm-Up Questions

1) Round these numbers to the level of accuracy indicated:
   a) 40.218 to 2 d.p. b) 39.888 to 3 s.f. c) 27.91 to 2 s.f.
2) By rounding to 1 significant figure, estimate the answer to $\frac{94 \times 1.9}{0.328 + 0.201}$.
3) A distance is given as 14 km, to the nearest km.
   Find the upper and lower bounds for the distance.
4) $r = 6.3$ and $s = 2.9$, both to 1 d.p. Find the maximum and minimum possible values for:
   a) $r + s$ b) $r - s$
   c) $r \times s$ d) $r \div s$

Worked Exam Questions

With the answers written in, it's very easy to skim these worked examples and think you've understood. But that's not going to help you, so take the time to make sure you've really understood them.

1 Work out an estimate for $\sqrt{\frac{2321}{19.673 \times 3.81}}$ (4)

Show all of your working.

Round each number to an easier one before doing the calculation.

$$\sqrt{\frac{2321}{19.673 \times 3.81}} \approx \sqrt{\frac{2000}{20 \times 4}}$$
$$= \sqrt{\frac{100}{4}} = \sqrt{25}$$
$$= 5$$

5
[3 marks]

2 The width of a rectangular piece of paper is 23.6 centimetres, correct to 1 decimal place.
The length of the paper is 54.1 centimetres, correct to 1 decimal place.

a) Write down the lower bound for the length of the paper. (5)

Lower bound for length = 54.1 cm − 0.05 cm
= 54.05 cm

54.05 cm
[1 mark]

b) Calculate the lower bound for the perimeter of the piece of paper. (6)

Lower bound for width = 23.6 cm − 0.05 cm
= 23.55 cm
Lower bound for perimeter = (2 × 54.05 cm) + (2 × 23.55 cm)
= 108.1 cm + 47.1 cm = 155.2 cm

155.2 cm
[2 marks]

Warm-Up and Worked Exam Questions

Have a go at these warm-up questions and see how you get on — the exam questions will be a bit more tricky, so it's important that you can do these first.

Warm-Up Questions

1) Find 15% of £90.
2) A watch is bought for £96 and sold at 135% of its original price. How much did it sell for?
3) Write 36 out of 80 as a percentage.
4) £200 is put in a bank account paying 2% simple interest (per year).
   Find the total amount in the account after 2 years if no money has been withdrawn.
5) £3000 is invested at 3% compound interest (per year).
   Work out how much money is in the account at the end of 4 years, to the nearest penny.

Worked Exam Questions

Another couple of worked exam questions for you. Study them well — they might just help.

1 Ian makes and sells lobster pots. He sells them for £32 per pot which is a 60% profit on the cost of the materials. He wants to increase his profit to 88%. (5)

How much should Ian start charging per lobster pot?

£32 is a 60% profit so £32 = 160% of cost price

1% of cost price = £32 ÷ 160
= £0.20

He wants an 88% profit = 188% of cost price

188% = £0.20 × 188 = £37.60

£ 37.60
[3 marks]

2 The population of fish in a lake is estimated to decrease by 8% every year. (5)

a) How many fish will be left after 15 years if the initial population is 2000?

Use the formula: Multiplier = 1 − 0.08 = 0.92

Population after 15 years = $2000 \times (0.92)^{15}$
= 572.59...

You need to round up, as it'll take more than 15 years for the population to fall to 572 fish.

573
[2 marks]

b) How many years will it take for the population of fish to be less than $\frac{3}{4}$ of the initial population?

$\frac{3}{4}$ of the initial population = $2000 \times \frac{3}{4} = 1500$

n = 1: $2000 \times 0.92 = 1840$

n = 2: $2000 \times 0.92^2 = 1692.8$

n = 3: $2000 \times 0.92^3 = 1557.376$

n = 4: $2000 \times 0.92^4 = 1432.78592 < 1500$

So the population is less than $\frac{3}{4}$ of the initial population after 4 years.

4 years
[2 marks]

Exam Questions

3 The ratio of grapes to cherries in a fruit salad is 2 : 5. (3)
Circle the correct statement below.

There are 50% more cherries than grapes.

There are 80% more cherries than grapes.

There are 20% as many grapes as cherries.

There are 40% as many grapes as cherries.

[1 mark]

4 A hairdresser recorded some details about her customers one day. (5)
The ratio of children : adults was 3 : 7.
60% of the children had blond hair and 20% of the adults had blond hair.

What percentage of all the customers had blond hair?

..... %
[4 marks]

5 A conservation company plants pine trees in a forest to increase their number by 16% each year. At the end of each year, a logging company is permitted to cut down up to 75% of the number of new trees planted that year. (5)

At the start of 2013 there were 5000 pine trees in the forest.

What was the minimum number of pine trees in the forest at the end of 2014?

.....
[4 marks]

6 The value of a football player decreases at a rate of 25% each year after the age of 30. At the age of 35 a player was valued at £2 000 000. (7)

What was the player's value when he was 31 years old?
Give your answer to the nearest £100 000.

£ .....
[3 marks]

Inequalities

1 Write down the inequality shown on the number line below. (3)

.....

[Total 1 mark]

2 n is an integer. List all the possible values of n that satisfy the inequality $-3 \leq n < 2$. (3)

.....

[Total 2 marks]

3 p and q are integers. $p \leq 45$ and $q > 25$. (4)

What is the largest possible value of $p - q$?

.....

[Total 2 marks]

4 Solve the following inequalities. (5)

a) $2p + 4$

.....

[1]

b) $4q - 5 < 25$

.....

[2]

c) $4r - 2 \geq 6r + 3$

.....

[2]

[Total 5 marks]

Score: ☐

10

Simultaneous Equations

1 Solve this pair of simultaneous equations. (5)

$4x + 3y = 16$
$4x + 2y = 12$

$x =$ _____ $y =$ _____

[Total 2 marks]

2 Solve this pair of simultaneous equations. (5)

$3x + 4y = 26$
$2x + 2y = 14$

$2x + 2y = 14 \xrightarrow{\times 2}$ $4x +$ _____ $=$ _____

$-\ 3x + 4y = 26$

$x =$ _____

_____ $+ 4y = 26$

$4y = 26 -$ _____ $=$ _____

$y =$ _____

$x =$ ..... $y =$ .....

[Total 3 marks]

3 Solve this pair of simultaneous equations. (5)

$x + 3y = 11$
$3x + y = 9$

$x =$ ..... $y =$ .....

[Total 3 marks]

4 Solve this pair of simultaneous equations. (5)

$2x + 3y = 12$
$5x + 4y = 9$

$x =$ ..... $y =$ .....

[Total 4 marks]

Exam Practice Tip

Watch out — you might not actually be told they're simultaneous equations in the exam. But if you're told to solve two equations that look like the ones on this page (i.e. something x + something y = a number), you can be pretty sure you have to solve them simultaneously — you need to find values for x and y.

Score

Music

BACK on TRACK

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Have your set works to hand when you are working
- Don't leave the work to the last minute

Work to be completed:

1. Sit with your set work scores (Badinerie and Africa). Listen to the music and follow on your score. Then choose an element of music, for example texture. Practise writing a descriptive answer about texture for both of the set works.
    - Identify the musical element (e.g. melody / harmony / texture)
    - Choose 2 keywords to embed into your answer.
    - Explain the effect of these features on the music.

2. - Working on teaching gadget, complete major/minor listening tasks. Complete dictation, both pitch and rhythm, tasks.

3. - Working on teaching gadget, complete cadence recognition tasks. Remember -
Finished → Perfect / Plagal
Unfinished → Imperfect / Interrupted

4. - Think about the first task you completed, revisit this. Think about the examination style question 'Describe and explain two musical features in this extract'. Now apply this to another piece of your choice that isn't one of your set works.

5. We will complete an assessment in class based on the examination paper.

Physical Education

BACK on TRACK

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Work somewhere quiet
- Don't leave the work to the last minute
- Use SENECA learning for additional support and practice
- Use 2 different coloured pens: – first what you remember without your booklet/revision guide, second to add extra information with your booklet/revision guide.

Work to be completed:

1. Complete the mind map worksheets using Physical Education key vocabulary

2. Complete the workbook pages included in the booklet

3. Complete the AO1 and AO2 examination questions in the booklet

4. Complete the AO3 extended answer examination questions in the booklet

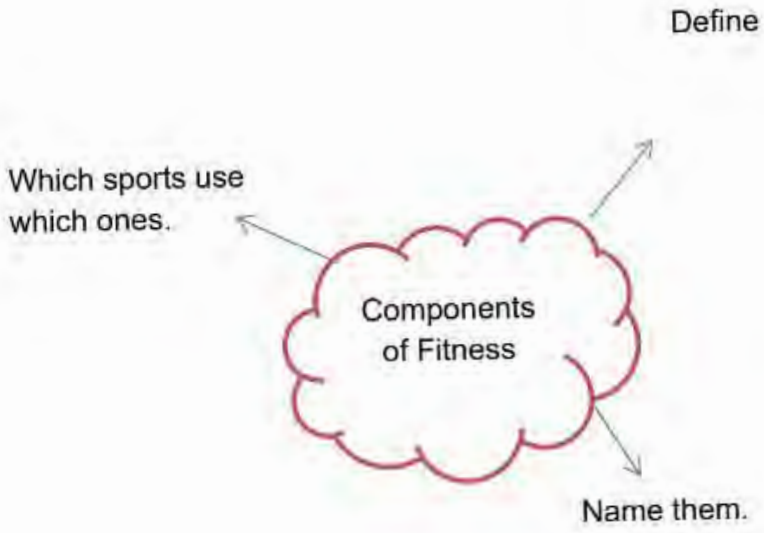
5. Assessment of progress (mocks)

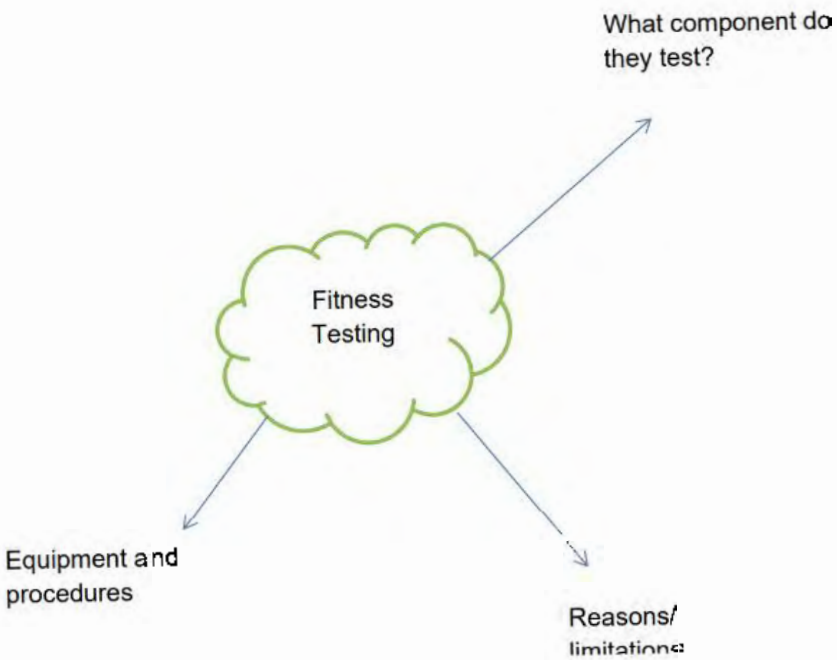
Back on Track Physical Education

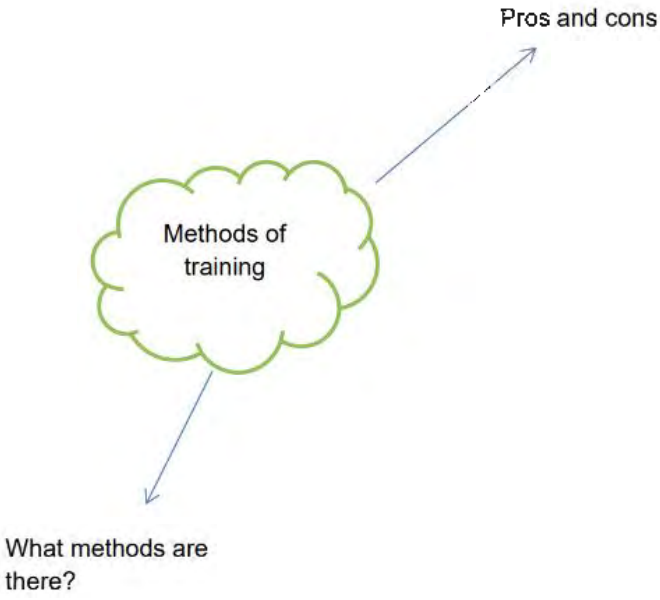
Physical Training

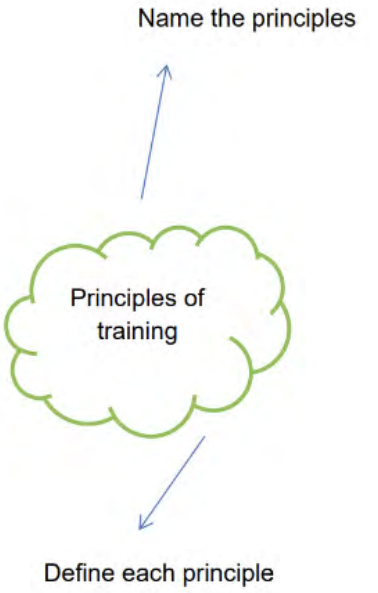
Session 1 – Key Terminology & Definitions

Complete mind maps using key terminology and definitions – give as much detail as you can


Define
Which sports use which ones.
Components of Fitness
Name them.


What component do they test?
Fitness Testing
Equipment and procedures
Reasons/ limitations


Pros and cons
Methods of training
What methods are there?


Name the principles
Principles of training
Define each principle

Back on Track Physical Education

Physical Training

Session 2 – Workbook Tasks

Had a go ☐ Nearly there ☐ Nailed it! ☐

Principles of training 1

1 Identify the correct description of the principle of training specificity.

A Matching the training to the particular requirements of an activity ⬭

B Matching the training to the requirements of the individual person ⬭

C Matching the training to the requirements of the group ⬭

D Matching the training to the requirements of the coach ⬭ **(1 mark)**

Guided

2 The performers listed below all apply the principles of training to their training programmes. State the training method these performers would be **most** likely to use if applying the principle of specificity to their training.

Links Look at pages 51–58 of the Revision Guide on methods of training.

(a) 100 m sprinter

Interval training .....

(b) Long-distance runner

.....

(c) Shot putter

.....

(d) Games player

..... **(4 marks)**

3 Identify the four key principles of training included in SPORT.

(i) .....

(ii) .....

(iii) .....

(iv) ..... **(4 marks)**

4 Two GCSE PE students were using fartlek training to improve their performance in their activities. One of the students played football; the other was a cross-country runner. Describe how each would adapt their use of this training method to follow the principle of specificity.

Think about the different requirements for each activity and how fartlek training could be adapted to reflect the specific activity.

.....

.....

.....

.....

Principles of training 2

1 The data in the table below shows student resting heart rates over an eight-week period at the start of a weekly training session.

Note: All students had their heart rate recorded, even if they were unable to participate physically in the session that week.

	Week							
	1	2	3	4	5	6	7	8
Student A	87	85	85	83	82	82	80	80
Student B	80	78	76	74	74	74	78	78
Student C	75	75	74	74	72	70	70	68

Think about what will happen to resting heart rate after several weeks of aerobic training and then look at each set of figures to see if one is different from what you would expect.

Explain which of the students has been affected by reversibility.

.....

..... **(2 marks)**

2 Explain how you could tell if progressive overload had been successfully applied in a training programme by looking at an individual's fitness test results.

If I looked at the results of the first set of tests and compared these to the second, I would see an .....

.....

.....

.....

.....

..... **(4 marks)**

3 Identify the statement that shows the principle of progressive overload is being applied.

A I trained for a few weeks before increasing the amount I lifted and I was careful to increase it only slowly so that I didn't get injured ⬭

B A friend of mine waited a week before they increased the workload, then they went from 15 kg to 30 kg in one go ⬭

C After the injury I couldn't workout at all for 4 weeks ⬭

D The following list shows the amounts I lifted on a week-by-week basis: 5 kg; 6 kg; 7 kg; 8 kg; 7 kg ⬭ **(1 mark)**

4 Explain the principle of training tedium.

.....

.....

..... **(3 marks)**

Had a go ☐ Nearly there ☐ Nailed it! ☐

Principles of training 3

1 State the element of FITT being applied.

Remember: FITT = frequency, intensity, time and type.

(a) I increased the length of time at each circuit station: .....

(b) I increased the weight lifted in each repetition during my weights class: .....

(c) I increased the number of sessions I attended each week: ..... **(3 marks)**

2 State **one** other principle of training that has the same meaning as **type** from the FITT principle.

..... **(1 mark)**

Guided

3 Applying the principles of training can help you plan a training programme to improve fitness.

Describe how a performer would apply each aspect of the FITT principle to improve their fitness and level of performance when participating in physical activity.

F = frequency. The performer would apply frequency by .....

.....

.....

.....

.....

.....

.....

..... **(4 marks)**

Training types: pros and cons

Guided

EXAM ALERT

1 State **one** advantage and **one** disadvantage of weight training.

An advantage of weight training is that it is easy to adapt to improve .....

.....

.....

(2 marks)

With this type of question, make sure it is clear which point you are saying is an advantage and which is a disadvantage.

2 Explain why circuit training could be considered a better method of training for a games player than fartlek training.

.....

.....

.....

.....

.....

(3 marks)

3 Explain **one** advantage and **one** disadvantage of continuous training for a football player.

Advantage

.....

.....

(2 marks)

Disadvantage

.....

.....

(2 marks)

4 Fartlek training can be used to practise running at different paces and over different terrains.

Explain **one** other advantage of fartlek training over interval and continuous training.

.....

.....

.....

.....

.....

(3 marks)

Training intensities

1 Explain the terms **target zone (training zone)** and **training thresholds**, and how they should be used.

.....

.....

.....

.....

.....

..... **(4 marks)**

2 (a) Riana is helping her younger sister, who is 16 years old, with her fitness programme, as she realises the importance of exercise to health.

State how Riana would calculate her sister's target zone to improve her aerobic fitness.

Maximum heart rate is 220 – .....

.....

.....

..... **(3 marks)**

(b) Jed is a long-distance runner and Mike is a sprinter. Explain why they would use different heart rate target zones within their training.

.....

.....

..... **(3 marks)**

(c) Mike is 18. Calculate the training zone Mike should work within during training. Show your calculation in the box below.

lower limit	upper limit
220 – 18	.....
= 202	.....
80 × 202	.....
divided by 100	.....
= 161.6	.....
rounded to nearest whole number	.....
Lower limit: 80% is 162 bpm	

Remember: you could get credit for showing your calculation as well as the correct answer. Do not just put the final answer.

(4 marks)

Seasonal training

1 Which **one** of these states the aim of the transition season?

A To work on specific skills ☐

B To rest and carry out light aerobic training ☐

C To develop specific fitness needs ☐

D To maintain fitness levels ☐ **(1 mark)**

Guided

2 Describe, using examples, **two** types of training a games player would undertake in pre-season training.

During pre-season training they would develop techniques specific to their sport, for example .....

.....

.....

.....

.....

.....

(4 marks)

There is a lot of information in this question. Sometimes it helps to break the question down to make sure you don't forget anything. Remember to:
- focus on pre-season training
- talk about two types of training
- give examples.

3 Identify the missing training season from **Figure 1**.

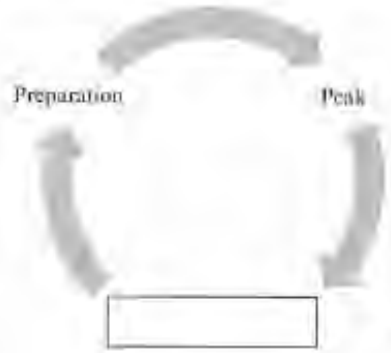


Figure 1

(1 mark)

4 State one reason why pre-season is an important part of the training year.

.....

.....

(1 mark)

Back on Track Physical Education

Physical Training

Session 3 – AO1 and AO2 Examination Questions

Q1.

Define 'health'.

_____

_____

(Total 1 mark)

Q2.

(a) What is 'reaction time'?

_____

_____

_____

_____

(1)

(b) Name **and** describe a test that can be used to measure reaction time.

_____

_____

_____

_____

_____

_____

_____

_____

(4)

(c) Explain how a decrease in reaction time may allow a sportsperson to improve his / her performance in a named physical activity.

_____

_____

_____

_____

(2)

(Total 7 marks)

The Illinois Agility Test is a maximal test that measures agility.

Describe how to carry out this test.

(Total 2 marks)

Q4.

With reference to a named fitness test for cardiovascular endurance, explain how you could evaluate your test performance quantitatively **and** qualitatively.

(Total 3 marks)

Q5.

Components of fitness are important for sports performers.

(a) What is meant by the term 'balance'? Give **one** example from a physical activity.

(2)

(b) What is meant by the term 'co-ordination'? Give **one** example from a physical activity.

(2)

Q6.

State **two** components of physical fitness that an athlete would need when taking part in a cross country race **and** describe how each component could improve their performance.

1. _____

_____

_____

_____

2. _____

_____

_____

_____

(Total 4 marks)

Q7.

(a) What is 'dynamic strength'?

_____

_____

_____

_____

(1)

(b) Explain how an increase in dynamic strength may lead to an improved performance in a named physical activity.

_____

_____

_____

_____

_____

_____

(3)

(Total 4 marks)

It is important to lift and carry equipment safely.

Describe the technique that you should use when doing this.

(Total 3 marks)

Q9.

Justify why reaction time is important for a cricketer.

(Total 3 marks)

Q10.

(a) State **one** benefit to fitness which can be achieved by the use of weight training.

Benefit _____

(1)

(b) In relation to weight training, what is the difference between 'repetitions' and 'sets'?

(2)

(Total 3 marks)

Back on Track Physical Education

Physical Training

Session 4 – AO3 Extended Answer Examination Questions

Q1.

Using a team sporting activity of your choice (e.g. football, hockey), evaluate how appropriate it would be for a performer to use a mixture of interval training **and** weight training.

(Total 9 marks)

Plan:

Q2.

Using your knowledge of agility and reaction time, evaluate the importance of these components of fitness for performers in the 100m sprint.

(Total 6 marks)

Plan:

Q3.

Explain a thorough warm up a sportsperson could complete and how this could improve their performance in a named physical activity.

(Answer in continuous prose)

(Total 8 marks)

Plan:

Now read back through your answers. In each answer highlight and annotate the AO1, AO2 and AO3 parts of your answer. See the example from another topic below for guidance:

A gymnast may develop static strength (AO1) to improve their performance. Static strength is force applied to an immoveable object (AO1) or holding the body in a still position. This could be seen in a handstand (AO2) for example. Developing static strength would improve the performance of the gymnast as they would be able to hold the handstand for longer in their routine which would score them more style marks in competition. (AO3)

Using another coloured pen have a go at developing your answer or extend it to show greater understanding? Again check it contains AO1, AO2 and AO3 information.

Q1.

[AO1 = 2 AO2 = 2 AO3 = 5]

Level	Marks	Description
3	7-9	Knowledge of interval and weight training is accurate and generally well detailed. Application to a named team sporting activity is mostly appropriate, clear and effective. Evaluation is thorough, reaching valid and well-reasoned conclusions for both training types. The answer is generally clear, coherent and focused, with appropriate use of terminology throughout.
2	4-6	Knowledge of interval and weight training is evident but is more detailed for one than the other. There is some appropriate and effective application to a named team sporting activity, although not always presented with clarity. Any evaluation is clear but reaches valid and well-reasoned conclusions for one training type more than the other. The answer lacks coherence in places, although terminology is used appropriately on occasions.
1	1-3	Knowledge of interval and weight training is limited. Application to a named team sporting activity is either absent or inappropriate. Evaluation is poorly focused or absent, with few or no reasoned conclusions for either training type. The answer as a whole lacks clarity and has inaccuracies. Terminology is either absent or inappropriately used.
	0	No relevant content.

Possible content may include:

AO1 – Knowledge of interval training and weight training, e.g.

- Knowledge of the two training types
- Interval training involves periods of work and rest
- Interval training can be altered / manipulated to meet specific fitness aims
- Often called High Intensity Interval Training
- Weight training can be used to develop muscular strength or endurance
- Weight training involves sets and reps

AO2 – Application to a team sporting activity, e.g.

- Application to an appropriate named sport, e.g. volleyball, football, netball
- Volleyball – Intermittent training that involves periods of work / rest, thus mimicking the demands of volleyball, i.e. not continuous
- High intensity periods can mimic the intensity of a rally
- Weight training can work on muscular endurance and / or muscular strength. Volleyball player would be more likely to work on both muscular strength / power, e.g. to jump and muscular endurance to match muscular demands from a long match
- Muscles worked / weights / weight training can be tailored to target training on the muscles required for volleyball

AO3 – Analysis / evaluation of the appropriateness of a performer using a mixture of interval training and weight training in a team sporting activity, e.g.

- Tedium / boredom may be prevented by using two types of training thus increasing motivation levels to train

- Both types of training can be adapted / tailored to the demands of the activity so therefore both appropriate
- Most team sports are played for a long duration and therefore cardiovascular endurance may be more beneficial
- HIIT requires intense periods of work and this is not always mimicked within the sport, e.g. volleyball setter
- There has to be a suitable balance between HIIT and weight training, i.e. over use of weight training may result in a loss of speed (or equivalent) due to excess bulk
- Reasoned conclusions could judge that both are appropriate but other methods may also be required, e.g. plyometric training for power

Credit other suitable response relevant to the question.

Max 9 marks

[9]

Q2.

[AO1 = 1 AO2 = 2 AO3 = 3]

Level	Marks	Description
3	5 – 6	Knowledge of agility and reaction time is accurate and generally well detailed. Application to performers in the 100m sprint is mostly appropriate, clear and effective. Evaluation is thorough, reaching valid and well-reasoned conclusions for both components of fitness. The answer is generally clear, coherent and focused, with appropriate use of terminology throughout.
2	3 – 4	Knowledge of agility and reaction time is evident for both agility and reaction time but is more detailed for one than the other. There is some appropriate and effective application to performers in the 100m sprint, although not always presented with clarity. Any evaluation is clear but reaches valid and well-reasoned conclusions for one component of fitness more than the other. The answer lacks coherence in places, although terminology is used appropriately on occasions.
1	1 – 2	Knowledge of agility and reaction time is limited. Application to performers in the 100m sprint is either absent or inappropriate. Evaluation is poorly focused or absent, with few or no reasoned conclusions for either component of fitness. The answer as a whole lacks clarity and has inaccuracies. Terminology is either absent or inappropriately used.
	0	No relevant content.

Possible content may include:

AO1 – Knowledge of agility and reaction time, e.g.
- Agility – changing direction at speed, whilst maintaining control
- Reaction time – time taken to initiate response to a stimulus

AO2 – Application to the 100m, e.g.
- 100m sprint does not need agility because it is run in a straight line and therefore changing of direction is not required

- 100m does need reaction time because runners start in a stationary position and have to react to the gun (stimulus) at the start

AO3 – Analysis/evaluation of the importance of agility and reaction time in 100m, e.g.

- Agility – any changes in direction could result in leaving a lane and being disqualified
- Agility – need to change direction is unlikely. However, athlete may change their positioning within their own lane
- Reaction time – 100m is the shortest outdoor sprint event and therefore reaction time at the start of the event is usually crucial to success
- Reaction time – is a major component impacting on overall time taken to complete the 100m sprint
- Reaction time – it is possible to win a race with a poor reaction time start
- Neither agility nor reaction time is as important as speed

Credit other suitable responses relevant to the question.

Q3.

Marking instructions

Read the **whole response** and use the following grid to select the level that **best** describes the student's work. If you feel that there is not quite enough content to raise the mark awarded **within** the level, you should consider a mark for QWC.

Level 3	**Detailed and accurate** Demonstrates detailed knowledge and a thorough understanding of a thorough warm up a sportsperson could complete before the named physical activity. Applies this knowledge to explain in detail how this will improve a sportsperson's performance. Answers should include explanations of **three** different parts of the thorough warm up and how they will improve a sportsperson's performance, **two** of which must be detailed. **NB Two** detailed explanations only (maximum 6 marks). Candidates spell, punctuate and use the rules of grammar accurately and use a wide range of specialist terms precisely.	**6-8 marks**
Level 2	**Sound and generally accurate** Demonstrates sound knowledge and an understanding of a thorough warm up a sportsperson could complete before the named physical activity. Applies this knowledge to explain how this will improve a sportsperson's performance. Answers should include sound explanations of **two** different parts of the thorough warm up and how they will improve a sportsperson's performance. **NB One** detailed explanation only (maximum	**3-5 marks**

	3 marks). Candidates spell, punctuate and use the rules of grammar with reasonable accuracy and use a range of specialist terms appropriately.	
Level 1	**Basic** Demonstrates basic knowledge and understanding of a thorough warm up a sportsperson could complete before the named physical activity. Applies this knowledge in a basic way to explain how this will improve a sportsperson's performance. **NB** A list of parts of a warm up with no explanation (maximum 1 mark). Candidates spell, punctuate and use the rules of grammar with some accuracy and use a limited number of specialist terms.	**1-2 marks**
	No creditworthy material.	**0 marks**

Indicative content

Pulse raisers

- Activities to raise heart rate slowly and increase blood flow to the working muscles. This would raise core / muscle temperature.
- Increase to intensity of run to get body at level to immediately run at desired pace. This would decrease their time taken for the run as body prepared to run immediately from the start.

Stretching

- Dynamic – stretching while moving replicating actions to be used in run.
- Static stretching – to take muscles through the full range of movement required for the activity.
- Body can cope immediately from the start with movements required as muscles are ready for the required actions.
- Avoid injuries which will slow body down or even force them to stop.

Joint mobilisation

- Increase the range of movement and flexibility which could increase stride length which would decrease time taken.

Mental preparation

- Visualise how they are going to complete a run which will increase their desire to succeed. This will encourage them to continue to the end and / or run faster.

NB Specific examples of the above would add depth to the answer.

[6]

Physics

BACK on TRACK

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Work somewhere quiet
- Use www.bbc.com/bitesize/subjects/zrkw2hv and kerboodle to help

Work to be completed:

1. By the end of this week you need to have listened to or read the podcast on topic P8 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257201) and produced a mind map or revision notes containing the key points.
2. By the end of this week you need to have listened to or read the podcast on topic P10 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257205) and produced a mind map or revision notes containing the key points.
3. By the end of this week you need to have listened to or read the podcast on topic P12 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257219) and produced a mind map or revision notes containing the key points.
4. By the end of this week you need to have listened to or read the podcast on topic P15 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257225) and produced a mind map or revision notes containing the key points.
5. Assessment of progress (mocks)

Physics

BACK on TRACK

Combined Science

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made.

Top Tips:

- Work somewhere quiet
- Use www.bbc.com/bitesize/subjects/zrkw2hv and kerboodle to help

Work to be completed:

1. By the end of this week you need to have listened to or read the podcast on topic P8 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257243)
and produced a mind map or revision notes containing the key points.
2. By the end of this week you need to have listened to or read the podcast on topic P10 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257796)
and produced a mind map or revision notes containing the key points.
3. By the end of this week you need to have listened to or read the podcast on topic P12 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257248)
and produced a mind map or revision notes containing the key points.
4. By the end of this week you need to have listened to or read the podcast on topic P15 (https://www.kerboodle.com/app/courses/20690/modules/Resources/content/257252)
and produced a mind map or revision notes containing the key points.
5. Assessment of progress (mocks)

Textiles

BACK on TRACK

This work should take you approximately 1 hour per week. This programme lasts for 4 weeks. Each week you should complete the Progress Tracker sheet. Show your work to your teacher and they can sign off the week for you. There will be an assessment at the end of this where you can show your teacher the progress you have made

Top Tips:
Work in a quiet space and treat the hour like an exam — no phone, no distractions, just NEA focus.
Have one clear NEA target each session (one page finished is better than lots started).
Review graded past NEA examples

Work to be completed:

1: Complete your research
Complete any missing gaps in Section A and B
Carry out materials and components research in Section D
Make sure it links clearly to your specification and client needs

2. Get feedback and fill the gaps
Collect client feedback throughout and use it to justify changes

3: Experiment and write it up
Produce further practical experiments / samples that test the function and aesthetics
Explain results: what worked, what didn't, and why

4: Develop your design ideas
Create developed models and coloured drawings that show improvements and decisions
Add clear annotations linked to the specification

5. Assessment of progress (mocks) and NEA progress (Final hand in Friday 27th February)