

YEAR 9 SCIENCE

Assessment Booklet

Autumn Term



Name: _____

Teacher: _____

Classroom: _____

Expectations

Practical Reports

- Completed in blue or black ink
- All margins, tables & label lines are ruled
- All headings and subheadings are underlined
- Diagrams are scientifically drawn in pencil
- All components of the report are present: title, date, aim, hypothesis, materials, diagram, method, results, questions, conclusion
- All graphs drawn on graph paper in pencil and with a ruler
- Writing is legible
- Checked by a peer

Workbook

- Have feedback booklets inside cover
- All work to have a clear title & date (both underlined with a ruler)
- The margin will be used for question numbers/letters
- All writing will start next to the margin with correct use of capital letter and punctuation
- All writing in blue or black ink
- All writing will be legible and of an appropriate size
- All diagrams, tables and drawings to be completed with a pencil and a ruler
- All errors to be crossed out with a single line, no correction fluid to be used
- Do not tear pages from your book
- Each piece of work to be ruled off before starting next piece of work
- All feed forward to be completed in purple and self-correction in red
- Word processed work should be named and typed in Ariel size 12 font, size 14 for headings

Equipment

- Blue or black pen
- Red Pen
- Pencil
- Ruler
- Rubber
- Calculator
- Glue
- Scissors

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BIOLOGY 9A/B – GENETICS & EVOLUTION/PLANT GROWTH

Revision Checklist

9Aa Environmental Variation

1. Identify and give examples of environmental variation.
2. Explain how environmental variation is caused.
3. Tell the difference between continuous and discontinuous variation.
4. Explain why environmental variation can make classification and identification difficult.

9Ab Inherited Variation

5. Identify and give examples of inherited variation.
6. Explain how inherited variation is caused.
7. Describe where genetic information is stored and what it does.
8. Identify normal distribution.

9Ab Working Scientifically - Probability

9. Describe what probability is.
10. Calculate probabilities from experimental data.
11. Express probabilities as percentages, decimals and fractions.

9Ac DNA

12. State what chromosomes are made of.
13. State the number of pairs of chromosomes in most human cells.
14. Describe where genes are found and what they do.
15. Describe the roles played by Watson, Crick, Franklin and Wilkins in the discovery of the structure of DNA.
16. Use a model to illustrate the relationship between cells, cell nuclei, DNA, chromosomes, genetic information and genes.

9Ad Genes & Extinction

17. Explain how changes in an ecosystem can cause endangerment and extinction.
18. Suggest methods of conservation.
19. Explain how particular adaptations affect the chances of survival in a habitat.
20. Explain why preserving biodiversity is important and the role of gene banks.

9Ae Natural Selection

21. Explain how natural selection determines the survival of certain variations of adaptations within a population.
22. Explain how natural selection can lead to evolution.

9Ba Reactions in Plants

23. Model aerobic respiration using a word equation.
24. Model photosynthesis using a word equation.
25. Explain how the rate of photosynthesis can be controlled by limiting factors.

9Bb Plant Adaptations

26. Describe how gas exchange (including water) occurs in plants.
27. Describe how leaves (and their cells) are adapted for photosynthesis.
28. Describe how roots and stems (and their cells) are adapted for water absorption and transport.

9Bc Plant Products

- 29. Explain where starch is found in a plant and how to detect it.
 - 30. Describe how a range of different substances are made by plants.
 - 31. Describe the uses of some different substances made by plants.
-



9Bd Growing Crops

- 32. Describe how and why plants are cross-bred.
 - 33. Describe how and why plants are selectively bred.
 - 34. Recall the main mineral salts required by plants.
 - 35. Explain how farmers try to increase the yields of their crops.
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9Be Farming Problems

- 36. Use food webs to predict the effects of changes in the numbers of organisms in an ecosystem.
 - 37. Model the recycling of carbon in an ecosystem using the carbon cycle.
 - 38. Explain some of the problems caused by modern farming methods.
-



9Be Working Scientifically – Bias & Validity

- 39. Identify and explain some different reasons for bias.
 - 40. Explain how something is valid (or not valid).
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Feedback

Mark

Pearson Step

Below Expected Progress / Making Expected Progress / Above Expected Progress

Teacher Feedback

Student Feedback

WWW:

EBI/
Target:

CHEMISTRY 9E/F – MAKING MATERIALS/REACTIVITY

Revision Checklist

9Ea About Ceramics

1. Recall some examples of ceramics and describe their properties and uses.
2. Explain how the properties of different ceramics make them useful.
3. Explain how the crystal size, in solids, depends on the speed of cooling.
4. Explain how the properties of a ceramic depend on its bonding and structure.

9Eb Polymers

5. Recall some examples of polymers and link their properties to their uses.
6. Name the source of most monomers and describe how they polymerise.
7. Classify changes as exothermic or endothermic from temperature changes.
8. Explain how the properties of a polymer depend on its bonding and structure.

9Eb Working Scientifically – Peer Review

9. Describe the process of peer review.
10. Explain the main advantages and disadvantages of peer review.

9Ec Composite Materials

11. Describe what a composite is, give some examples, and describe their properties and uses.
12. Describe what happens in thermal decomposition reactions.
13. Explain why certain composites have particular uses.
14. Identify and explain exothermic and endothermic reactions in terms of energy transfer.

9Ed Problems With Materials

15. Correctly use the terms biodegradable and non-biodegradable.
16. Recall examples of the pollution problems caused by burning fossil fuels.
17. Recall some problems caused by the disposal of artificial polymers.
18. Explain the causes and possible problems caused by acid rain and the greenhouse effect.
19. Explain how toxins can cause harm by biomagnification through food chains.
20. Explain how some of the problems of making and using materials can be overcome.

9Ee Recycling Materials

21. Explain what a landfill site is, and some of the problems they cause.
22. Explain some of the advantages of recycling materials.
23. Describe how metals, glass, concrete and paper can be recycled.
24. Describe some of the particular advantages of recycling certain materials.

9Fa Types of Explosion

25. Explain how chemical reactions are different from physical changes.
26. Use observations to identify chemical reactions and physical changes.
27. Use particle theory to describe the cause of gas pressure.
28. Use particle theory to explain why gas pressure increases if the temperature increases, the number of particles increases or the volume decreases.

9Fb Reactivity

29. State the meaning of 'reactivity series'.
30. Describe the reactions of metals with water and acids.
31. Explain the products formed by the oxidation of metals.
32. Use evidence to place metals in an order of reactivity.
33. Explain how sacrificial protection prevents iron from rusting.

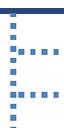
9Fc Energy & Reactions

- 34. Describe the test for oxygen.
- 35. Describe the combustion of hydrocarbons.
- 36. Describe examples of energy being needed to start or continue a reaction.
- 37. Explain how oxidisers and particle sizes can affect the speed of reactions.
- 38. Classify reactions as exothermic or endothermic from temperature changes.
- 39. Explain why energy is needed to start some reactions or keep others going.



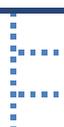
9Fc Working Scientifically – Percentage Loss or Gain

- 40. Express one number as a percentage of another.
- 41. Calculate the new amount after a percentage increase or decrease.
- 42. Calculate percentage change.



9Fd Displacement

- 43. Describe what happens during a displacement reaction.
- 44. Explain why a displacement reaction may or may not occur.
- 45. Use results from displacement reactions to produce an order of reactivity.



9Fe Extracting Metals

- 46. Explain why some metals have been used for much longer than others.
- 47. Explain what happens in oxidation and reduction.
- 48. Describe how metals are extracted from their ores.
- 49. Explain how the method used to extract a metal is related to cost and the metal's position in the reactivity series.



Feedback

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PHYSICS 9I/J – FORCES & MOTION/FORCE FIELDS & ELECTROMAGNETS

Revision Checklist

9Ia Forces & Movement

1. Name some different forces and identify forces acting on different objects.
2. Explain the effects of balanced and unbalanced forces.
3. Calculate the resultant of forces acting along a line.
4. Explain why moving vehicles have a top speed.

9Ib Energy For Movement

5. Recall and identify different ways in which energy is transferred and stored.
6. Identify useful and wasted energies, and state what efficiency means.

9Ic Speed

7. State what speed and mean (average) speed mean.
8. Use the formula relating speed, distance and time.
9. Explain why a maximum speed may be greater than a mean speed.
10. Draw and interpret distance–time graphs.
11. Calculate the relative speed between two objects moving along the same line.

9Ic Working Scientifically – Equations & Graphs

12. Rearrange and use the formula relating speed, distance and time.
13. Calculate a speed from the gradient of a distance-time graph.

9Id Turning Forces

14. Describe how levers can magnify forces or distances.
15. Identify the pivot, load and effort in different levers.
16. Explain how levers are used in common devices.
17. Describe what a moment is and recall its units.
18. Use the formula relating moment, force and perpendicular distance.
19. Recall that something will balance if the moments are equal and opposite.

9Ie More Machines

20. Describe how a ramp or a simple pulley system can reduce the force needed to lift an object.
21. Recall that if the force needed to move a load is decreased, the distance it moves is increased.
22. Describe the relationship between work done & energy transfer, & factors that affect work done.
23. Use the formula relating work, force and distance moved.
24. Use ideas about conservation of energy when explaining how simple machines work.

9Ja Force Fields

25. Described magnetic fields and how they affect compasses.
26. Described what magnets can do to magnetic materials and other magnets.
27. Described the variables that affect the strength of gravity.
28. Used gravitational field strength to calculate weights.
29. Described how mass and weight affect the strength of gravity.

9Jb Static Electricity

30. Described how certain materials can be given a charge of static electricity.
31. Described how the two types of charge affect each other and some of the effects this causes.
32. Described what an electric field is and how it affects electrically charged objects.
33. Explained what happens to electrons when an object is given a charge of static electricity.

9Jc Current Electricity

- 34. Described different ways in which the current in a circuit can be changed.
- 35. Described how current and voltage behave in series and parallel circuits.
- 36. Described how voltage and energy are linked.
- 37. Described what an electric current is.



9Jd Resistance

- 38. Described the relationship between resistance and current.
- 39. Described how the resistance of a wire changes with length and thickness.
- 40. Used the formula relating current, voltage and resistance.
- 41. Interpreted voltage-current graphs.



9Jd Working Scientifically – Rounding Numbers

- 42. Rounded numbers to different numbers of decimal places and significant figures.
- 43. Chose an appropriate number of decimal places or significant figures for an answer.



9Je Electromagnets

- 44. Described the shape of the magnetic field around a straight & a coil of wire carrying a current.
- 45. Described how the strength of an electromagnet can be changed.
- 46. Explained how electromagnets are used in relays.
- 47. Described the motor effect and how it is used in simple electric motors.



Feedback

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Pearson Step

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WWW:

EBI/
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COMBINED ASSESSMENT TASK

Ensure that you revise each unit thoroughly and complete all assigned revision tasks.

Unit Checklist

9A	Genetics & Evolution	
9B	Plant Growth	
9E	Making Materials	
9F	Reactivity	
9I	Forces & Motion	
9J	Force Fields & Electromagnets	

Revision Task Checklist

Pearson Activelearn Tasks	
Revision Mats	
Biology	
Chemistry	
Physics	

COMBINED ASSESSMENT TASK

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