

Assessment Report

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Level 1 Science 2019

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Part A: Commentary

Generally, candidates used the scaffolding in questions to assist their response. To achieve highly, candidates are advised to answer the question rather than focus entirely upon the scaffolding. Candidates need to practise applying their knowledge to unknown situations to achieve the highest grades.

Part B: Report on standards

90940: Demonstrate understanding of aspects of mechanics

Candidates who were awarded **Achievement** commonly:

- correctly identified the type of motion in parts of a speed / time graph
- were able to select a formula, write an equation and use this to correctly calculate values for speed and/or acceleration using numerical data provided
- could name forces acting on an object and describe net force
- recognised that unbalanced forces result in a change of speed
- identified constant speed and acceleration from a speed time graph
- stated that E_p and E_k will be equal for an object that will descend.

Candidates whose work was assessed as **Not Achieved** commonly:

- described changes in energy as changes in forces
- could not identify common forces
- often confused a speed/time graph with a distance/time
- correctly rearranged formulae but used incorrect values
- often stated that acceleration was a force.

Candidates who were awarded **Achievement with Merit** commonly:

- calculated distance using area under a time/speed graph for acceleration, constant speed and deceleration, but made a minor error
- recognised that same pressure can be produced by different people as a result of changing either their mass or their surface area
- calculated speed using appropriate formula, when given information about E_k and mass but made a minor error
- recognised that horizontal forces are balanced if they are equal and opposite
- recognised that unbalanced forces result in acceleration and balanced forces result in constant speed

- understood the concept of balanced forces result in a net force of zero, unbalanced forces as greater (or less) than zero but failed to take into account that the forces are the same size but are in opposite directions.

Candidates who were awarded **Achievement with Excellence** commonly:

- fully explained the reasons for the stated observations by linking to physical principles
- manipulated formulae to make correct calculations
- used a speed time graph to calculate the distance travelled by an object
- understood and clearly explained the concept of constant speed being the result of balanced forces as a consequence of equal forces being in an opposite direction and unbalanced forces would result in acceleration
- could calculate speed when given E_k and mass
- could complete three step calculations using multiple formulae to solve mechanics problems.

Standard-specific comments

Candidates generally had a good understanding of most concepts examined. Candidates should use labelled force diagrams to aid explanations and check calculated answers are sensible.

90944: Demonstrate understanding of aspects of acids and bases

Candidates who were awarded **Achievement** commonly:

- wrote word equations or correct formulae for ionic compounds

- gave correct definition for rate of reaction or collision theory
- recognised rate of reaction would increase with higher concentration
- identified higher concentration had more acid particles in it
- stated higher temperature led to particles moving faster or more frequent collisions
- wrote the electron arrangement of ions
- described loss or gain of electrons
- described ionic compounds as having no charge or charges of ions cancel each other out
- related litmus paper or baking soda observations to acid, base or neutral solution in table
- identified neutralisation reactions.

Candidates whose work was assessed as **Not Achieved** commonly:

- could not write word or formulae equations
- incorrectly substituted the word faster for frequency
- incorrectly used term “dissolving” when referring to marble chip in place of “reacting”
- could not give correct electron arrangement of atoms or ions
- could not give charges of protons and electrons.

Candidates who were awarded **Achievement with Merit** commonly:

- wrote correct but unbalanced symbol equations
- explained how more acid particles per volume led to a faster rate of reaction
- explained acid particles at higher temperatures will have more energy so there will be more successful collisions
- explained acid particles at higher temperatures move faster so there would

be more frequent collisions/collisions per second

- explained the loss/gain of electrons gives ions full outer shells
- explained balance of protons and electrons of both ions
- explained how ions make neutral compounds which are stable.

Candidates who were awarded **Achievement with Excellence** commonly:

- used ionic formulae to explain the movement of electrons as ions form and create new stable compounds
- wrote correctly balanced symbol equations
- related an increase in concentration to an increase of available acid particles leading to an increase of frequency of collisions therefore a higher rate of reaction
- related an increase of temperature to a rise in energy of acid particles that causes a higher frequency of effective/successful collisions between reactant particles.

Standard specific comments

Candidates generally had a good understanding of most concepts examined. Using electron transfer to explain the formation of neutrally charged compounds was not as well understood, nor was relating the properties of acids and bases to reactions, which often inhibited the candidate's level of achievement.

90948: Demonstrate understanding of biological ideas relating to genetic variation

Candidates who were awarded **Achievement** commonly:

- identified correct DNA base pairs
- defined a mutation as a change in DNA
- described chromosome, gene/allele
- drew correct Punnet Square
- defined genotype or phenotype
- described variation as differences between individuals
- described meiosis as producing gametes
- defined the role of gametes in sexual reproduction.

Candidates whose work was assessed as **Not Achieved** commonly:

- drew a completed but incorrect Punnet square
- described a trait being passed on rather than DNA
- knew the base pair rule
- could not describe fertilisation.
- could not describe variation.

Candidates who were awarded **Achievement with Merit** commonly:

- explained genetic variation in relation to either gamete formation or random fertilisation
- linked genetic variation and passing on DNA in populations being beneficial
- understood how a mutation in DNA can affect the phenotype of an organism
- showed the link between gene/allele in producing phenotype
- explain difference in expected and actual ratios were due to random/change fertilisation.

Candidates who were awarded **Achievement with Excellence** commonly:

- explained genetic variation in relation to both gamete formation and random

fertilisation

- comprehensively linked genetic variation to natural selection
- comprehensively linked a DNA mutation to allele, gene and phenotype in context.
- made clear links between gametes and inheritance of traits through sexual reproduction to produce offspring
- explained differences in predicted and expected ratios due to random nature of fertilisation and how each event is not influenced by previous offspring
- showed clear understanding of inheritance and transmission of alleles to future offspring through sexual reproduction
- explained how populations are influenced by increasing frequency of favourable alleles through sexual reproduction.

Standard specific comments

Candidates generally had a good understanding of most concepts examined. Common issues for candidates included: defining genetic variation, sexual reproduction, meiosis and fertilisation.

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Previous years' reports

[2018 \(PDF, 114KB\)](#)

[2017 \(PDF, 48KB\)](#)

[2016 \(PDF, 238KB\)](#)

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