

LESSON PLAN

<p>Learning Area: Mathematics</p> <p>Lesson: Module 3: Number patterns Graphical representations Equations Statistics Probability theory</p>	<p>Grade: 9</p>	<p>Integration:</p>	<p>Content:</p>
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Duration:	Date/Week:
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Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
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LEARNING UNIT 1

<p>Understand descriptions of patterns</p>	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p style="text-align: center;">The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.1 investigates, in different ways, a variety of numeric and geometric patterns and relationships by representing and generalising them, and by explaining and justifying the rules that generate them (including patterns found in nature and cultural forms and patterns of the learner's own creation.</p>			
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Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
Make tables from descriptions	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.2 represents and uses relationships between variables in order to determine input and/or output values in a variety of ways using:</p> <p>2.2.1 verbal descriptions;</p> <p>2.2.2 flow diagrams;</p> <p>2.2.3 tables;</p> <p>2.2.4 formulae and equations.</p>			
Complete flow diagrams	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.1 investigates, in different ways, a variety of numeric and geometric patterns and relationships by representing and generalising them, and by explaining and justifying the rules that generate them (including patterns found in nature and cultural forms and patterns of the learner's own creation).</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
<p>Make decisions on the basis of information given</p>	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.3 constructs mathematical models that represent, describe and provide solutions to problem situations, showing responsibility toward the environment and health of others (including problems within human rights, social, economic, cultural and environmental contexts).</p>			
<p>Recognise the value of tabular information</p>	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.6 determines, analyses and interprets the equivalence of different descriptions of the same relationship or rule presented:</p> <p>2.6.1 verbally;</p> <p>2.6.2 in flow diagrams;</p> <p>2.6.3 in tables;</p> <p>2.6.4 by equations or expressions;</p> <p>2.6.5 by graphs on the Cartesian plane in order to select the most useful representation for a given situation.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
LEARNING UNIT 2 - ASSESSMENT					
Calculate values in tables correctly	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.2 represents and uses relationships between variables in order to determine input and/or output values in a variety of ways using:</p> <p>2.2.1 verbal descriptions;</p> <p>2.2.2 flow diagrams;</p> <p>2.2.3 tables;</p> <p>2.2.4 formulae and equations.</p>			
Make tables from descriptions or equations	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.2 represents and uses relationships between variables in order to determine input and/or output values in a variety of ways using:</p> <p>2.2.1 verbal descriptions;</p> <p>2.2.2 flow diagrams;</p> <p>2.2.3 tables;</p> <p>2.2.4 formulae and equations.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
Draw graphs from tables or equations	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.5 draws graphs on the Cartesian plane for given equations (in two variables), or determines equations or formulae from given graphs using tables where necessary.</p>			
Find equations of straight-line graphs	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.5 draws graphs on the Cartesian plane for given equations (in two variables), or determines equations or formulae from given graphs using tables where necessary.</p>			
Read graphs with understanding	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.6 determines, analyses and interprets the equivalence of different descriptions of the same relationship or rule presented:</p> <p>2.6.1 verbally;</p> <p>2.6.2 in flow diagrams;</p> <p>2.6.3 in tables;</p> <p>2.6.4 by equations or expressions;</p> <p>2.6.5 by graphs on the Cartesian plane in order to select the most useful representation for a given situation.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
LEARNING UNIT 3 - ASSESSMENT					
State a word problem in algebra	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.3 constructs mathematical models that represent, describe and provide solutions to problem situations, showing responsibility toward the environment and health of others (including problems within human rights, social, economic, cultural and environmental contexts).</p>			
Use tables and flow diagrams to solve some equations	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.2 represents and uses relationships between variables in order to determine input and/or output values in a variety of ways using:</p> <p>2.2.1 verbal descriptions;</p> <p>2.2.2 flow diagrams;</p> <p>2.2.3 tables;</p> <p>2.2.4 formulae and equations.</p>			
Solve equations algebraically	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.4 solves equations by inspection, trial-and-improvement or algebraic processes (additive and multiplicative inverses, and factorisation), checking the solution by substitution.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
Check solutions	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.4 solves equations by inspection, trial-and-improvement or algebraic processes (additive and multiplicative inverses, and factorisation), checking the solution by substitution.</p>			
Tell equations and expressions apart	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.6 determines, analyses and interprets the equivalence of different descriptions of the same relationship or rule presented:</p> <p>2.6.1 verbally;</p> <p>2.6.2 in flow diagrams;</p> <p>2.6.3 in tables;</p> <p>2.6.4 by equations or expressions;</p> <p>2.6.5 by graphs on the Cartesian plane in order to select the most useful representation for a given situation.</p>			
Solve two equations simultaneously	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.4 solves equations by inspection, trial-and-improvement or algebraic processes (additive and multiplicative inverses, and factorisation), checking the solution by substitution.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
Solve simple exponential equations	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	2.8 uses the laws of exponents to simplify expressions and solve equations.			
LEARNING UNIT 4 - ASSESSMENT					
Collect information	<p style="text-align: center;">LO 5</p> <p style="text-align: center;">DATA HANDLING</p> <p>The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions and to interpret and determine chance variation.</p>	5.1 poses questions relating to human rights, social, economic, environmental and political issues in South Africa.			
Arrange information into tables	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p>The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	2.2 represents and uses relationships between variables in order to determine input and/or output values in a variety of ways using: <ul style="list-style-type: none"> 2.2.1 verbal descriptions; 2.2.2 flow diagrams; 2.2.3 tables; 2.2.4 formulae and equations. 			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
Arrange information into tables	<p style="text-align: center;">LO 5</p> <p style="text-align: center;">DATA HANDLING</p> <p>The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions and to interpret and determine chance variation.</p>	<p>5.2 selects, justifies and uses appropriate methods for collecting data (alone and/or as a member of a group or team) which include questionnaires and interviews, experiments, and sources such as books, magazines and the Internet in order to answer questions and thereby draw conclusions and make predictions about the environment.</p>			
Calculate descriptive measures	<p style="text-align: center;">LO 5</p> <p style="text-align: center;">DATA HANDLING</p> <p>The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions and to interpret and determine chance variation.</p>	<p>5.3 organises numerical data in different ways in order to summarise by determining:</p> <p>5.3.1 measures of central tendency;</p> <p>5.3.2 measures of dispersion.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
Make appropriate graphs of the data	<p style="text-align: center;">LO 2</p> <p style="text-align: center;">PATTERNS FUNCTIONS AND ALGEBRA</p> <p style="text-align: center;">The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems, using algebraic language and skills.</p>	<p>2.6 determines, analyses and interprets the equivalence of different descriptions of the same relationship or rule presented:</p> <p>2.6.1 verbally;</p> <p>2.6.2 in flow diagrams;</p> <p>2.6.3 in tables;</p> <p>2.6.4 by equations or expressions;</p> <p>2.6.5 by graphs on the Cartesian plane in order to select the most useful representation for a given situation.</p>			
Make appropriate graphs of the data	<p style="text-align: center;">LO 5</p> <p style="text-align: center;">DATA HANDLING</p> <p style="text-align: center;">The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions and to interpret and determine chance variation.</p>	<p>5.4 draws a variety of graphs by hand/technology to display and interpret data including:</p> <p>5.4.1 bar graphs and double bar graphs;</p> <p>5.4.2 histograms with given and own intervals;</p> <p>5.4.3 pie charts;</p> <p>5.4.4 line and broken–line graphs;</p> <p>5.4.5 scatter plots.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
Interpret data in graphs	<p style="text-align: center;">LO 5</p> <p style="text-align: center;">DATA HANDLING</p> <p>The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions and to interpret and determine chance variation.</p>	<p>5.5 critically reads and interprets data with awareness of sources of error and manipulation to draw conclusions and make predictions about:</p> <p>5.5.1 social, environmental and political issues (e.g. crime, national expenditure, conservation, HIV/AIDS);</p> <p>5.5.2 characteristics of target groups (e.g. age, gender, race, socio-economic groups);</p> <p>5.5.3 attitudes or opinions of people on issues (e.g. smoking, tourism, sport);</p> <p>5.5.4 any other human rights and inclusivity issues.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
LEARNING UNIT 5 - ASSESSMENT					
Discuss probabilities and risks sensibly	<p style="text-align: center;">LO 5</p> <p style="text-align: center;">DATA HANDLING</p> <p>The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions and to interpret and determine chance variation.</p>	<p>5.1 poses questions relating to human rights, social, economic, environmental and political issues in South Africa;</p> <p>5.5 critically reads and interprets data with awareness of sources of error and manipulation to draw conclusions and make predictions about:</p> <p>5.5.1 social, environmental and political issues (e.g. crime, national expenditure, conservation, HIV/AIDS);</p> <p>5.5.2 characteristics of target groups (e.g. age, gender, race, socio-economic groups);</p> <p>5.5.3 attitudes or opinions of people on issues (e.g. smoking, tourism, sport);</p> <p>5.5.4 any other human rights and inclusivity issues.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
Estimate probabilities	<p style="text-align: center;">LO 5</p> <p style="text-align: center;">DATA HANDLING</p> <p>The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions and to interpret and determine chance variation.</p>	<p>5.6 considers situations with equally probable outcomes, and:</p> <p>5.6.1 determines probabilities for compound events using two-way tables and tree diagrams;</p> <p>5.6.2 determines the probabilities for outcomes of events and predicts their relative frequency in simple experiments;</p> <p>5.6.3 discusses the differences between the probability of outcomes and their relative frequency.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
Calculate probabilities in simple experiments	<p style="text-align: center;">LO 5</p> <p style="text-align: center;">DATA HANDLING</p> <p>The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions and to interpret and determine chance variation.</p>	<p>5.6 considers situations with equally probable outcomes, and:</p> <p>5.6.1 determines probabilities for compound events using two-way tables and tree diagrams;</p> <p>5.6.2 determines the probabilities for outcomes of events and predicts their relative frequency in simple experiments;</p> <p>5.6.3 discusses the differences between the probability of outcomes and their relative frequency.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
<p>Calculate probabilities in compound experiments</p>	<p style="text-align: center;">LO 5</p> <p style="text-align: center;">DATA HANDLING</p> <p>The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions and to interpret and determine chance variation.</p>	<p>5.6 considers situations with equally probable outcomes, and:</p> <p>5.6.1 determines probabilities for compound events using two-way tables and tree diagrams;</p> <p>5.6.2 determines the probabilities for outcomes of events and predicts their relative frequency in simple experiments;</p> <p>5.6.3 discusses the differences between the probability of outcomes and their relative frequency.</p>			

Learning Activities:	Learning outcome:	Assessment Standards:	Teaching methods and Lesson Progression:	Resources:	Assessment:
<p>Use knowledge of probabilities to understand risks</p>	<p style="text-align: center;">LO 5</p> <p style="text-align: center;">DATA HANDLING</p> <p>The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions and to interpret and determine chance variation.</p>	<p>5.5 critically reads and interprets data with awareness of sources of error and manipulation to draw conclusions and make predictions about:</p> <p>5.5.1 social, environmental and political issues (e.g. crime, national expenditure, conservation, HIV/AIDS);</p> <p>5.5.2 characteristics of target groups (e.g. age, gender, race, socio-economic groups);</p> <p>5.5.3 attitudes or opinions of people on issues (e.g. smoking, tourism, sport);</p> <p>5.5.4 any other human rights and inclusivity issues.</p>			
<p>Teacher reflection:</p>					