GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	1	TOPIC	SCALE (Number scale)LP1: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Explain the meaning of a given scale (e.g. explain what the scale 1 : 100 means in terms of the measurements on a map). Use a given scale to determine actual measurements when given measured values, or measured values from given actual values. Use a given scale in conjunction with measurement on a map to determine length/dimensions. Determine the scale of a map.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Explain the meaning of a given scale **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Scale- Maps** Work with the following types of scales on maps: number scales expressed in the form 1:500 bar scales expressed in the form 0m 10 m 20m Discuss advantages and disadvantages of each type of scale and the situations in which one type of scale is more appropriate than the other. Calculate actual length and distance when map measurements are known. Calculate map measurements when actual lengths and distances are known.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column – LEARNER ACTIVITY Q1-5 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column– LEARNER ACTIVITY Q6-7 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers 8. GDE Data Bank Math Lit Questions and answers

Determine the most appropriate scale in which to draw/construct a map and use this scale to complete the task. Determine the scale in which a map has been drawn in the form 1:... and use the scale to determine other dimensions on the map . **LEARNER ACTIVITY** 1.What is a scale? *Scale* is a ratio that shows the relationship between a length measured on a plan or a map and the actual measured plan or a map and the actual real world length/distance. 2. Name the t**ypes of Scale** 2.1. Number Scale - Is represented by means of a ratio. 2.2 Bar Scale - A scale bar helps you find the distance between two places on a map. 3. Name two ways in which a scale can be written • In the form of a ratio(no units) • In the form of an equation to represent a relationship between two quantities sometimes of different units 4. Mention two applications of scale • A scale can be used on maps • it can also be used on plans 5. If using the scale of 1 : 50, state what each of the following on the plan equal to on the actual length • 1 **mm** on the plan = 50 **mm** in actual length • 2 **cm** on the plan = 100 **cm** in actual length • 4 **m** on the plan = 200 **m** in actual length 6. The following formula is used to calculate the scale factor: $$Scale\ factor = \frac{the\ actual\ measurements}{the\ plan\ measurements}$$			9. Textbooks Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

What are the scale factors of the following: (a) 1 : 4 **Answe**r: 4 which is an enlargement of 4 units (b) 2 : 1 **Answer**: 0.5, which is a reduction factor to half 7. On a map the distance between Kimberley and Bloemfontein is 7,3 cm. The actual distance between Kimberley and Bloemfontein is 146 km. What is the scale of the map? Answer - 1 : 2 000 000			

Reflection/Notes:

Name of Teacher:		**HOD:**	
Sign:		**Sign:**	
Date:		**Date:**	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	1	TOPIC	SCALE (plans)LP2: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Use a given scale in conjunction with measurement on a plan to determine length/dimensions. Determine the scale of a plan. Use a given scale in conjunction with other content or skills to complete a project.(e.g. use a given scale to determine the dimensions in which to draw a 2-D plan of a object and then draw the plan.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Explain the meaning of a given scale Use a given scale in conjunction with measurement on a map to determine length/dimensions. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Scale- plans Calculate actual length and distance when plan measurements are known. Calculate plan measurements when actual lengths and distances are known using a given scale to inform the drawing of 2-dimensional plans and pictures. Determine the most appropriate scale in which to draw/construct a plan and use this scale to complete the task.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY Q1.1-1.3 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column– LEARNER ACTIVITY Q2 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers

|			
Determine the scale in which a plan has been drawn in the form 1:... and use the scale to determine other dimensions on the plan. **LEARNER ACTIVITY** 1 In order to make sense of a map or scale diagram, the scale must known. Answer the following questions by making use of the scale provided. 1.1 If the scale used is 1 : 100, what is the actual length of the car? 1 ------> 100 9 cm			8. GDE Data Bank Math Lit Questions and answers Textbooks Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

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1.2 The scale of this blueprint is 1cm = 5m.

6.7
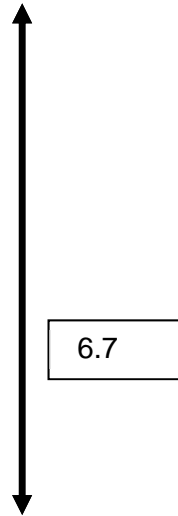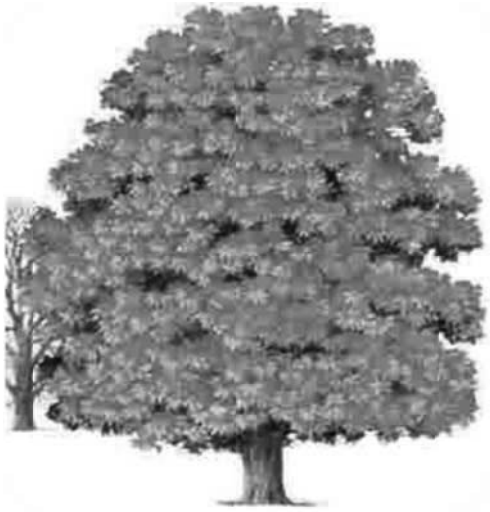
What is the actual height of the tree?

Using the scale: 1cm = 5m

6.7 cm = x

x = **44.5 m** which is the height of the tree

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11.2 cm

1.3   The scale of the drawing of a bus as shown above is 1 cm = 90 cm. What is the actual length of the bus in metres?

1 cm = 90 cm

11.2 cm = x cm

x = **1008 cm**, which can also be written as 10.08 m

350 m

2.1.   Write down the height of the tower on the picture(in mm). **45 mm**

2.2   What is the scale on the scale drawing?

45 mm   --------> 350 m

45 mm   -------->350 000 mm

$$\frac{45mm}{45mm} ----> \frac{350000mm}{45mm}$$

$$\frac{1}{1} ----- > \frac{70000}{9}$$

therefore the scale used is 9 : 70 000

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	1	TOPIC	SCALE (models)LP3 : TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Critique the scale in which an object has been drawn and offer an opinion as to a more appropriate scale. Decide on an appropriate scale in which to draw a picture or build a model, and then complete the project.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Calculate actual length and distance when plan measurements are known. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Scale - Models** Calculate measurements when actual lengths and distances are known using a given scale to inform the 3-dimensional models. Determine the most appropriate scale in which to draw/construct a model, and use this scale to complete the task. **LEARNER ACTIVITY** When making a drawing of an object which is meant to be in proportion to the size of the object, and from which measurements can be taken, a scale is used to fix the ratio between the actual measurements on the object and those in the drawing. Scale is usually stated in one of two(or both forms: either as a ratio or as a statement of how one measurement is related to the other.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY Q1-3 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column– LEARNER ACTIVITY Q4 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook Spot On-Gr10 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

1. Complete:

1: 1 means the drawing is the -----------(same size) as the object.

1:10 means 1 cm on the drawing represents---------(10cm) on the object.

1:100 means 1 cm on the drawing represents----------(100 cm) on the object or-------(1) metre.

1;25 000 means 1 cm represents---------- (250) metres.

2. A model giraffe is made to a scale of 1:50. What does this tell you about

a. The height of the actual giraffe. (it is 150 times bigger than the model)

b. The height of the model giraffe? (it is 150 times smaller than a real giraffe)

c. The height of the actual giraffe if the model is 3,5cm tall. (the actual giraffe is 3,5 x 150cm = 5,25m tall)

3. A model is made using the scale 1:20

The table gives details of the model and the real Moses Madiba Sport Stadium in Durban. Complete the table

	Model	Real Stadium
Length of the field	600cm	A
Height of the stadium	B	30m
Height of the entrance gate	20cm	C
Width of the entrance gate	D	5m
Width of the field	450cm	E

A= 120m
B= 150cm
C= 4m
D=25cm
E= 90m
 000

4. A scale model of an aeroplane was built using a scale of 1cm representing 2m. Complete the table

	Model aeroplane	Real aeroplane
Length	A	62m
Wing span	25cm	B
Height of doors	C	1,6m
Width of doors	0,4cm	D
Length of cabin	3,9cm	E
Width of cabin	1,3cm	F

A= 31cm
B= 50m
C= 0,8cm
D= 0,8m
E= 7,8m
F= 2,6m

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	1	TOPIC	SCALE (consolidation)LP4: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Explain the meaning of a given scale Use a given scale to determine actual measurements when given measured values, or measured values from given actual values. Use a given scale in conjunction with measurement on a plan/map to determine length/dimensions. Determine the scale of a map or plan. Use a given scale in conjunction with other content or skills to complete a project. Critique the scale in which an object has been drawn and offer an opinion as to a more appropriate scale. Decide on an appropriate scale in which to draw a picture or build a model, and then complete the project.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
<u>TEACHING METHODS</u> Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis <u>INTRODUCTION</u> <u>Pre-knowledge assessment</u> Calculate actual length and distance when map and/or plan measurements are known. <u>Baseline assessment tasks</u> Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. <u>LESSON PREPARATION</u> **Scale - Revision**	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY Q1,2 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column– <u>Investigation</u>: *What happens if you resize a map or plan*?: Select appropriate task from r esources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook Spot On-Gr10 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011)

Work with the following types of scales on maps, plans and in the construction of models: number scales expressed in the form 1:500 bar scales expressed in the form

0m	10m	20m

Discuss advantages and disadvantages of each type of scale and the situations in which one type of scale is more appropriate than the other.

Calculate actual length and distance when map and/or plan measurements are known.

Calculate map and/or plan measurements when actual lengths and distances are known using a given scale to inform the drawing of 2-dimensional plans and pictures and the construction of 3-dimensional models.+

Determine the most appropriate scale in which to draw/construct a map, plan and/or model, and use this scale to complete the task.

Determine the scale in which a map and/or plan has been drawn in the form 1:... and use the scale to determine other dimensions on the map and/or plan.

Assessment
Level 1:
Explain the meaning of a given scale
e.g. explain what the scale 1 : 100 means in terms of the measurements on a plan and actual dimensions).

Level 2:
Use a given scale to determine actual measurements when given measured values, or measured values from given actual values.

Level 3:
Use a given scale in conjunction with measurement on a plan/map to determine length/dimensions.

Determine the scale of a map or plan.

Use a given scale in conjunction with other content or skills to complete a project (e.g. use a given scale to determine the dimensions in which to draw a 2-dimensional plan of an object, and then draw the plan).

Level 4:
Critique the scale in which an object has been drawn and offer an opinion as to a more appropriate scale.

7.   DoE NSC exempl   ar question papers

8. GDE Data Bank Math Lit Questions and answers
Textbooks
Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

Decide on an appropriate scale in which to draw a picture or build a model, and then complete the project.

LEARNER ACTIVITY

Possible assessment (incorporating maps and/or plans):
<u>Investigation</u>: *What happens if you resize a map or plan*?

Investigate the effect that resizing a map or plan with a number scale has on the scale of the plan or map.

Investigate the effect that resizing a map or plan with a bar scale has on the scale of the plan or map.

Discuss the advantages and disadvantages of using number and bar scales on maps and plans.

1. The table below shows the dimensions of different parts of a house as measured on a plan. If the plan is drawn in the scale 1:50, use the scale to determine the actual length of each feature of the house.

Feature	Measure on the plan	Actual real-world measure (metres)
House length	14cm	(7m)
House width	10.5cm	(5.25m)
Height of walls	4.4cm	(2.2m)
Height of the roof	3cm	(1.5m)
Height of the doors	4cm	(2m)
Width of the doors	1.6cm	(0.8m)
Height of the big windows	2.4cm	(1.2m)
Width of the big windows	3.6cm	(1.8m)
Height of the small windows	1.2cm	(0.6m)
Width of the small windows	2.5cm	(1.25m)

2. An architect is drawing a plan of a building in the scale 1:20. The table below shows the actual real-world measurements of some of the dimensions of the building. You need to use the scale to determine how long the architect will need to draw these dimensions on the plan.

Feature	Measure on the plan (cm)	Actual real-world measure
Wall length	(16cm)	8m
Wall width	(9cm)	4.5m
Wall height	(4.4cm)	2.2m
Roof height	(2.4cm)	1.2m
Door height	(3.6cm)	1.8m

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	2	TOPIC	MAPS (Seating plan)LP5: TIME:60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Work with the following maps: map showing the seating plan and/or layout for a classroom; seating plans for cinemas and sports fields; Describe the position of an object (e.g. *furniture, seats*) in relation to surrounding objects. Describe the numbering systems used for seating in sports stadiums;		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Explain the meaning of a given scale e.g. explain what the scale 1 : 100 means in terms of the measurements on a map and actual dimensions). **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks fi rst. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Work with the following maps: map showing the seating plan and/or layout for a classroom; seating plans for cinemas and sports fields; Describe the position of an object (e.g. *furniture, seats*) in relation to surrounding objects. Describe the numbering systems used for seating in sports stadiums; Estimate distances using measurement and a given scale; **LEARNER ACTIVITY** 1. Lenasia South Secondary School decides to tile the floor of the school hall, measuring 18m by 18m. A scale drawing is to be made of the hall. 1.1 Determine the scale (in simplified form) to be used if the length of the wall is 60mm. (2) (1 : 0,3)	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY Q1,2 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to tea cher activity column–2 LEARNER ACTIVITY Q3 and/ or: Select appropriate task from resources in the resources column	Pre- knowledge – 5min Baseline- 10 min Performance task - 20 min Home-work – 25 min	1. Textbook- Spot On 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SS IP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers 8. GDE Data Bank Math Lit Questions and answers

1.2 If each chair occupies 0.5 m^2 determine the no of chairs that can be placed in the hall. (648)

Question 2:
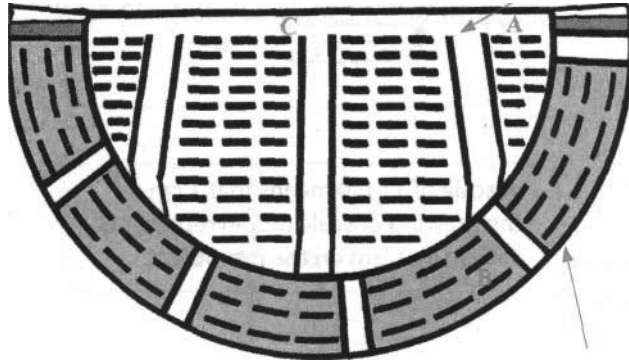
A: Lower level

B: Upper Level

C: Stage

a) If a person wants to view the facial expressions and close-up views of the performers, which seat A, B, or C would you recommend? Give a reason for your answer. (C)

b) If a person wants to view the play as a whole, seeing all the artists perform together, which seat A, B or C should the person select?

Give a reason for your answer. (B)

Explain why the cost of a ticket for seat A is less than the cost of the other seats. (A person will good view)

3. A 2-dimensional floor plan of an office is given below. A bar scale is attached to the floor plan. (Source of the picture:Marc North & Tamara Ridgway. 2009. *The Answer Series* Grade 11 *3-in-1 Study Guide*. Ch.3)
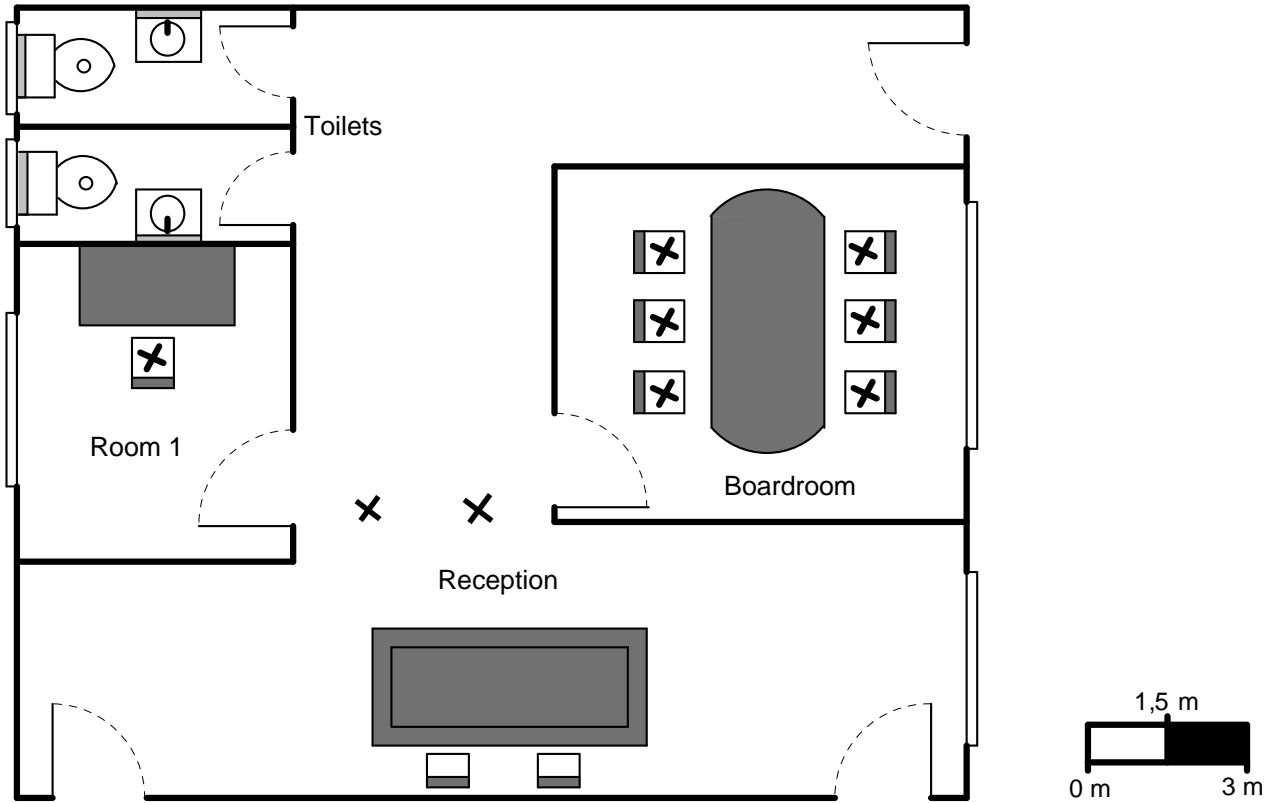**3.1** Use the bar scale to determine the length and width of the Boardroom.(2)
3.2 Use the bar scale to determine the width of the door leading into the boardroom.(2)
3.3 Use the bar scale to write down a *number scale* for this floor plan.(2)

9. Textbooks
Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

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Toilets

Room 1

Boardroom

Reception

1,5 m

0 m   3 m

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	2	TOPIC	MAPS (Buildings)LP6 : TIME:60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Work with the following maps: map showing the layout of the buildings and/or sports fields at a school; map showing the layout of the stores in a shopping centre; Describe the position of an object (e.g. *buildings*) in relation to surrounding objects. Describe the position of a building in relation to surrounding buildings (e.g. *the building is directly across the road from the double-storey brick building*). Find locations, follow directions and develop directions for travelling between two or more locations using the following mapping reference systems and/or techniques: directional indicators "left", "right", "along", "straight", "up" and "down"; house and/or building numbering systems;

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Work with the map showing the seating plant for a classroom; **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Work with the following maps: map showing the layout of the buildings and/or sports fields at a school; map showing the layout of the stores in a shopping centre; Describe the position of an object (e.g. *buildings*) in relation to surrounding objects. Describe the position of a building in relation to surrounding buildings (e.g. *the building is directly across the road from the double-storey brick building*). Find locations, follow directions and develop directions for travelling between two or more locations using the following mapping reference systems and/or techniques: directional indicators "left", "right", "along", "straight", "up" and "down"; house and/or building numbering systems;	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY Q(1,2) and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column– LEARNER ACTIVITY Q(3) and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Perform-ance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers 9. Textbooks

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LEARNER ACTIVITY			Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models
1.1 The picture alongside shows a map on which the questions that follow are based. The scale 5cm = 2km should be used for the first two questions 1.2 The distance between Joy city and Laughter city is 23 cm. Calculate the actual distance between the two cities. (9.2 km)1.2 The map also shows a famous fountain which is just 5 km away from an FET college. How far is the fountain away from the college? (12,5 cm) 2. The scale of the map is 1 : 30 000. The distance from Town C to Town D is 3 Km. Determine how far apart the towns are on the map. (10 cm) 3. The flat – roofed clubhouse has a length = 18 m, breadth = 12m and height = 5m. Use the scale 1 : 200 and draw the floor plan to scale. (4)			

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK		2	TOPIC	MAPS (Streets)LP7: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Work with the following maps: street maps with and without a grid reference system; national and provincial road and rail maps; strip charts showing distances on a portion of road; Locate grid reference system (*e.g. North Street is located on AD14*); the "street names index" located at the back of street maps showing the page and/or grid reference for various streets. Estimate: the time that will it take to travel between two or more locations; the amount and cost of fuel that will be used in travelling between two or more locations; the average speed travelled during a trip (i.e. distance travelled in terms of time taken).			

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Work map showing the layout of the buildings. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Work with the following maps: street maps with and without a grid reference system; national and provincial road and rail maps; strip charts showing distances on a portion of road; Locate grid reference system (*e.g. North Street is located on AD14*); the "street names index" located at the back of street maps showing the page and/or grid reference for various streets. Estimate: the time that will it take to travel between two or more locations; the amount and cost of fuel that will be used in travelling between two or more locations; the average speed travelled during a trip (i.e. distance travelled in terms of time taken). Determine appropriate stopping locations with consideration of petrol consumption and/or fatigue. Determine the "operating cost" of a vehicle using the fixed, running and operating cost tables distributed by the Automobile Association of South Africa. Plan and cost trips using timetables, fare charts, distance charts and budgets.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY Q1.1 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column– LEARNER ACTIVITY Q1.2 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers 9. Textbooks

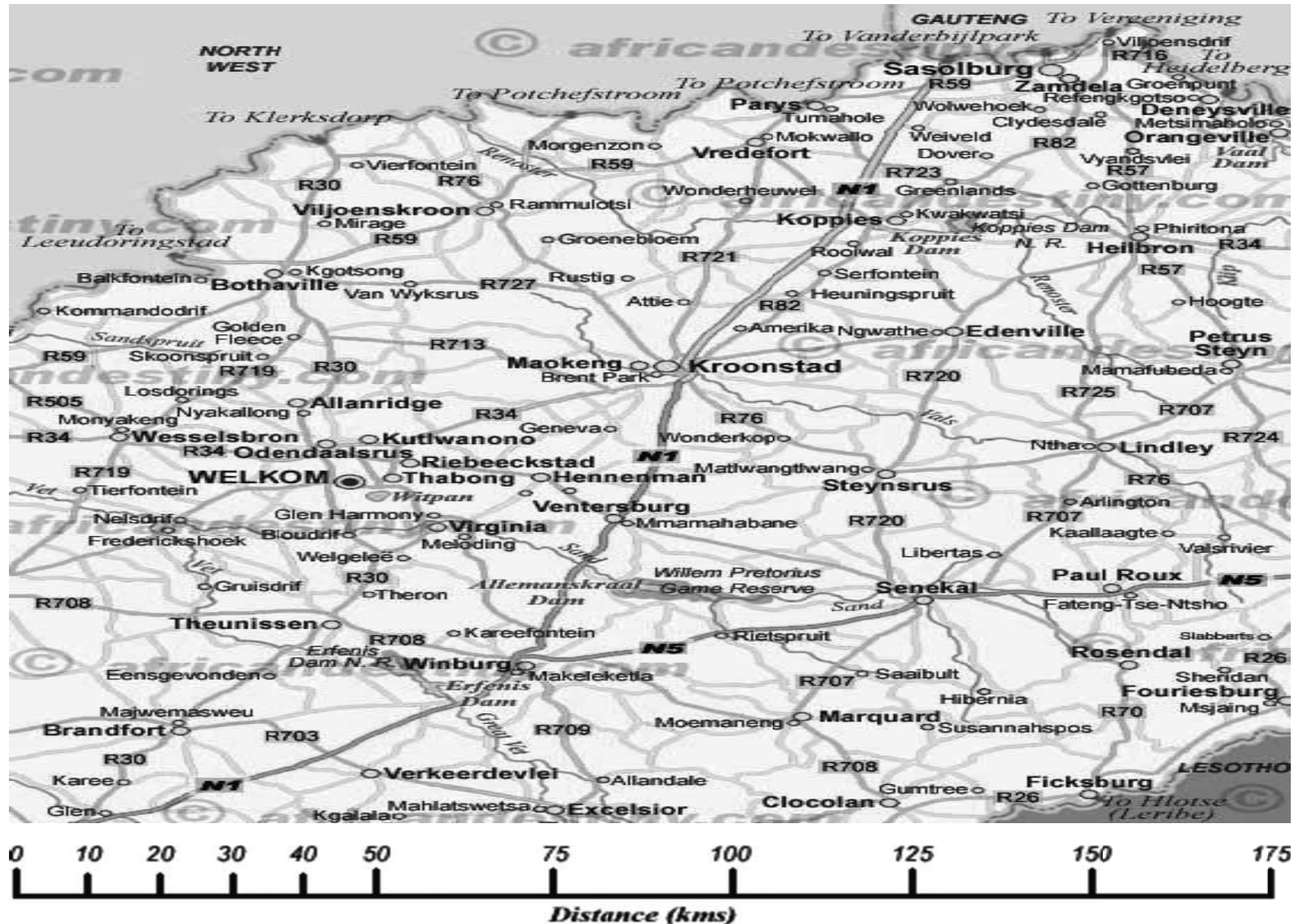|			

Work with a combination of maps showing different perspectives and scales to navigate to a destination.
(e.g. *When travelling between two cities, a map with a large scale showing national roads and towns will be useful. Upon approaching one of the cities, a map showing the suburbs and major roads in and around the city will be more practical for determining in which direction to travel to get to a particular destination in the city. Upon arrival in a particular suburb, a street map with a much smaller scale will then become more practical for navigating to the particular destination*.)
 	
Interpret the following compass directions in the context of appropriate maps and plans:
"North", "South", "East" and "West";
"North-east", "North-west", "South-east" and "South-west".
 	
In order to:
Make sense of signboards on roads and in map books indicating direction (e.g. *The symbols "N10" on a roadside signboard indicate that you are travelling North on route/road 10*).
 	
When working with maps, it is unreasonable to expect learners to measure and determine distances, travelling time, petrol consumption and/or average speed accurately. There simply are too many factors that influence the accuracy of such calculations when working with maps: for example, whether you cut the corner or turn the corner on the outside of the road; or whether there are traffic lights or other obstructions (e.g. roadworks) on a stretch of road.
For this reason, maps should be used only for <u>estimating </u>distances, travelling times and petrol consumption between different places.
A more appropriate context in which to test accurate measurement involves working with floor and elevation plans.
 	
LEARNER ACTIVITY
Make use of the map on appendix A7 to answer the questions that follow:
 	
1. 1   Calculate the actual distance between Kroonstad and Sasolburg.
 	
     approximately 111 km
 	
1.2   If there is an FET college in Welkom, which measures a certain distance on the map (in cm), away from a famous fountain in Viljoenskroon, what is the actual distance between the FET college and the fountain? *Hint: Use Viljoenskroon as the destination.*
 	
     approximately 100 km
			Street maps, provincial
			and national road maps,
			and maps showing railway
			routes; timetables, fare
			tables and distance
			charts; appropriate floor
			plans and elevation plans;
			cardboard for making
			models

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Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	

Date:		Date:	

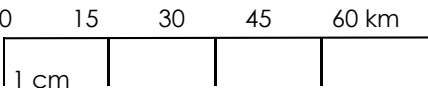APPENDIX A (This map must be used to answer question in activity 1):

Source:www.africadestiny.com

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	2	TOPIC	MAPS (Elevation, estate)LP8 : TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Work with the following maps: elevation maps (e.g. *of the Comrades Marathon route*); residential or housing estate maps. Interpret the following compass directions in the context of appropriate maps and plans: "North", "South", "East" and "West"; "North-east", "North-west", "South-east" and "South-west".		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Work with the map showing the layout of the buildings. Explain the meaning of a given scale **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Work with the following maps: elevation maps (e.g. *of the Comrades Marathon route*); residential or housing estate maps. Interpret the following compass directions in the context of appropriate maps and plans: "North", "South", "East" and "West"; "North-east", "North-west", "South-east" and "South-west". Interpret elevation plans of buildings that include the words "North Elevation", "South Elevation", "East Elevation" and "West Elevation". Inform decisions on where to position a house or a garden in relation to the position of the sun at different times of the day. A more appropriate context in which to test accurate measurement involves working with floor and elevation plans.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY Q1-5 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column–6-8 LEARNER ACTIVITY Q and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers 9. Textbooks

LEARNER ACTIVITY 1. The following legend appears in a road chart which is schematic representation of the Soweto Marathon route. 0 15 30 45 60 km 1 cm What is the ratio of the legend?**1 : 1 500 000** 2. The scale of a map is 1: 40 000. The distance between Town A and Town B, on the map is 9,5 cm. Calculate the distance, in Km, between the towns.(3,8 km) 3. Use the bar scale provided on the map to determine the approximate distance from Bergville to Winterton. 4. Use the bar scale provided on the map to determine the approximate distance from Pietermaritzburg to Pinetown. 5. The actual distance from Mooi River to Estcourt is 30 km. Use this information to determine an accurate number scale for this map. 6. Estimate the direction of Pietermaritzburg in relation to Durban. 7. Determine the bearing of Durban from Pietermaritzburg. 8. Calculate the distance in Km between Durban and Pietermaritzburg		Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

Reflection/Notes:

Name of Teacher:		**HOD:**	
Sign:		**Sign:**	
Date:		**Date:**	

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Question 3-8

Below is a map of a section of KwaZulu-Natal. (Source: www.sa-venues.com/maps)

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	2	TOPIC	MAPS (Consolidation)LP9: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to:

The Learners should be able to:

Identify the labels/names of national roads (e.g. N3) that must be travelled on to travel between two locations.

Identify the names of the towns on the route between two locations.

Identify the scale of a map.

Identify the position of two locations on a map and use given distance values on the map to determine the travelling distance between the two locations.

Interpret a given set of directions and describe what location the directions lead to.

Provide a set of directions to travel between two locations in a town using street names.

Use a map in conjunction with a distance chart to determine the shortest route to travel between two locations.

Identify a possible route between two locations on a map, measure the distance between the locations, and use a given scale to estimate the distance between the two locations.

Estimate travelling times between two or more locations based on estimated travelling speed and known or calculated distances.

Critique a proposed travel route in relation to distance, estimated travelling times, etc, and suggest and justify possible alternative routes.

Use maps in conjunction with other travel resources (e.g. exchange rate information; distance chart; bus timetable; etc) and financial information (e.g. fare tables; petrol price; etc) to plan and cost a trip.

Make decisions regarding appropriate stopping points during a journey based on considerations of fatigue, petrol consumption, travelling time, etc.
.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Work with Maps (seating, buildings, street, elevation)	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to te acher activity column–	Pre-knowledge – 5min Baseline- 10 min Performance	1. Textbook 2. Worksheets 3. Calculator

Baseline assessment tasks	Assignment: *Finding your way*: Select appropriate task from resources in the resources column.	task- 20 min	4. NSC Nat ional examination question papers (2008 – 2011)
Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column.		Home-work- 25 min	
LESSON PREPARATION	**Homework:** Refer to te acher activity column– Assignment: *Planning a trip*: Select appropriate task from reso urces in the resources column		5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions
Revision Work with the following maps: map showing the seating plan and/or layout for a classroom; map showing the layout of the buildings and/or sports fields at a school; map showing the layout of the stores in a shopping centre; seating plans for cinemas and sports fields; street maps with and without a grid reference system; national and provincial road and rail maps; strip charts showing distances on a portion of road; elevation maps (e.g. *of the Comrades Marathon route*); residential or housing estate maps.			6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers 8. GDE Data Bank Math Lit Questions and answers 9. Textbooks Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models
Describe the position of an object (e.g. *buildings, furniture, seats*) in relation to surrounding objects. Describe the position of a building in relation to surrounding buildings (e.g. *the building is directly across the road from the double-storey brick building*). Find locations, follow directions and develop directions for travelling between two or more locations using the following mapping reference systems and/or techniques: directional indicators "left", "right", "along", "straight", "up" and "down"; house and/or building numbering systems; numbering systems used for seating in sports stadiums; grid reference system (*e.g. North Street is located on AD14*); the "street names index" located at the back of street maps showing the page and/or grid reference for various streets. Estimate: distances using measurement and a given scale (number or bar scale); the time that will it take to travel between two or more locations; the amount and cost of fuel that will be used in travelling between two or more locations; the average speed travelled during a trip (i.e. distance travelled in terms of time taken).			
Determine appropriate stopping locations with consideration of petrol consumption and/or fatigue. Determine the "operating cost" of a vehicle using the fixed, running and operating cost tables distributed by the Automobile Association of South Africa. Plan and cost trips using timetables, fare charts, distance charts and budgets			
Work with a combination of maps showing different perspectives and scales to navigate to a destination. (e.g. *When travelling between two cities, a map with a large scale showing national roads and towns will be useful. Upon approaching one of the cities, a map showing the suburbs and major roads in and around the city will be more practical for determining in which direction to travel to get to a particular destination in the city. Upon arrival in a particular suburb, a street map with a much smaller scale will then become more practical for navigating to the particular destination.*)			

Interpret the following compass directions in the context of appropriate maps and plans:
"North", "South", "East" and "West";
"North-east", "North-west", "South-east" and "South-west".

In order to:
Make sense of signboards on roads and in map books indicating direction (e.g. *The symbols "N10" on a roadside signboard indicate that you are travelling North on route/road 10*).
Interpret elevation plans of buildings that include the words "North Elevation", "South Elevation", "East Elevation" and "West Elevation".
Inform decisions on where to position a house or a garden in relation to the position of the sun at different times of the day.

Assessment

Level 1
Identify the labels/names of national roads (e.g. N3) that must be travelled on to travel between two locations.
Identify the names of the towns on the route between two locations.
Identify the scale of a map.

Level 2
Identify the position of two locations on a map and use given distance values on the map to determine the travelling distance between the two locations.
Interpret a given set of directions and describe what location the directions lead to.
Provide a set of directions to travel between two locations in a town using street names.

Level 3
Use a map in conjunction with a distance chart to determine the shortest route to travel between two locations.
Identify a possible route between two locations on a map, measure the distance between the locations, and use a given scale to estimate the distance between the two locations.
Estimate travelling times between two or more locations based on estimated travelling speed and known or calculated distances.

Level 4
Critique a proposed travel route in relation to distance, estimated travelling times, etc, and suggest and justify possible alternative routes.
Use maps in conjunction with other travel resources (e.g. exchange rate information; distance chart; bus timetable; etc) and financial information (e.g. fare tables; petrol price; etc) to plan and cost a trip.
Make decisions regarding appropriate stopping points during a journey based on considerations of fatigue, petrol consumption, travelling time, etc.

LEARNER ACTIVITY **Possible assessment:** <u>Assignment</u>: *Finding your way* Work with a given map to find your way to a destination. OR Select the seats with the best view for an event from the remaining available seats. **Possible assessment (incorporating finance, maps and timetables):** <u>Assignment</u>: *Planning a trip* Plan a trip between two cities or countries, making use of maps, bus/train/taxi/flight timetables, tariff tables, exchange rates (if necessary) and the AA fixed, running and operating cost tables (if necessary).			

Reflection/Notes:

| **Name of Teacher:**		**HOD:**	
Sign:		**Sign:**	
Date:		**Date:**	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	3	TOPIC	PLANS (Assembly Diagrams)LP10: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Work with instruction/assembly diagrams, containing words and/or pictures, found in manuals for the following in order : plugs; plastic models; unassembled wooden furniture units; cellphones; electrical appliances that require individual components to be connected children's toys including *Lego*-type kits. Complete the task presented in the instructions and/or explain what the instructions mean and/or represent using everyday language.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Explain the meaning of a given scale e.g. explain what the scale 1 : 100 means in terms of the measurements on a plan and actual dimensions). **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Plans Work with instruction/assembly diagrams, containing words and/or pictures, found in manuals for the following in order : plugs; plastic models; unassembled wooden furniture units; cellphones (e.g. *installing a battery and sim card; or operating instructions*); electrical appliances that require individual components to be connected (e.g. *connecting speakers to a hi-fi; or connecting an aerial to a television*); children's toys including *Lego*-type kits. **LEARNER ACTIVITY** 1. Use the diagram of a music system to explain how you would inset a USB and earphones that will enable you to listen to music. See diagram below.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column–LEARNER ACTIVITY Q1 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column–LEARNER ACTIVITY Q2 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typ ical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

(Place the earphones into earphone socket in the bottom left hand corner of the music system, no.10. Place the USB into the USB socket next to the earphone socket, no.11. Switch the music system, no,3. Push the CD/USB/CARD button, no.6 to select USB then press the play mode button, no.7. Adjust the volume, no.12, as required.)
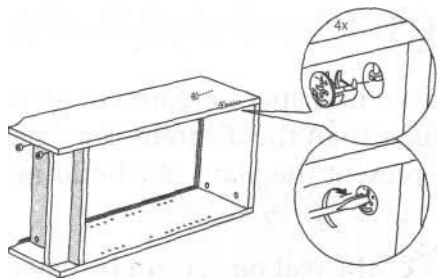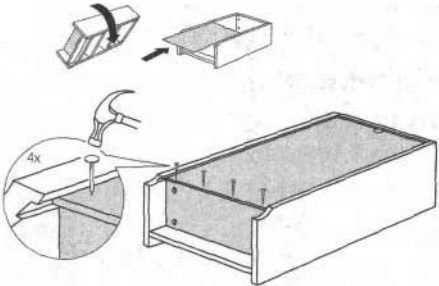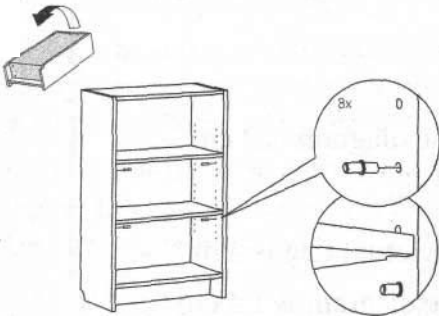
Front view
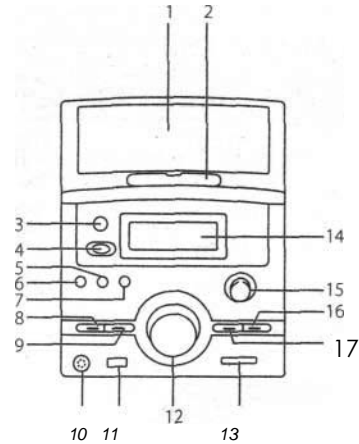
1	CD door	10	Earphone socket
2	iPOD dock	11	USB socket
3	ON/OFF button	12	Volume button
4	Function button	13	SD/MMC card slot
5	PROG button	14	LCD (liquid crystal display)
6	CD/USB/CARD button	15	Tuning knob
7	PLAY mode button	16	Play/Pause/ST/MO button
8	SKIP<< button. 9. SKIP>>	17	Stop/Band button

2. Provide sentences to describe these diagrams

a.

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b.

c.

Answers:
a. Insert the supporting pins
b. Use nails to reinforce
c. Insert pins to support shelves

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	3	TOPIC	PLANS(Floor/Layout)LP11: TIME: 60 min

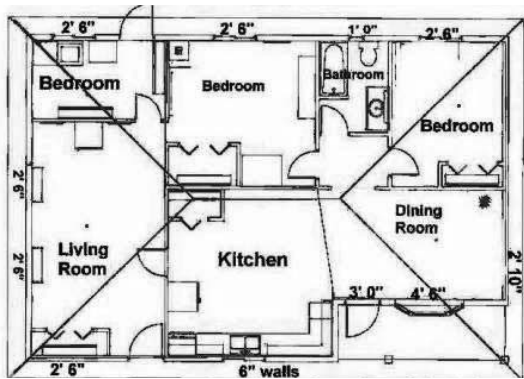| LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Work with the rough and scaled floor/layout plans showing a top view perspective in the context of the following: a familiar structure; a less familiar structure; a complex structure. Understand the symbols and notation used on plans Describe what is being represented on the plans. Critique the layout of the structure shown on the plan and suggest alternative layout options. Determine actual lengths of objects shown on plans using measurement and a given scale (number or bar scale). Determine quantities of materials needed by using the plans together with perimeter, area and volume calculations.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Identify the scale of a plan. Explain the meaning of term: floor plan Read off the value(s) of given dimensions on the plan. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Plans Work with the following plans: rough and scaled <u>floor/layout plans</u> showing a top view perspective And in the context of the following: a familiar structure (eg. *classroom; room in a house → bedroom or lounge*); a less familiar structure (e.g. *office space containing cubicles; a garden/tool shed*); a complex structure (e.g. *house → RDP house*). Understand the symbols and notation used on plans (e.g. *the symbol for a window is a double line; the symbol for a door is a vertical line attached to a quarter circle indicating the swing direction of the door*).	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teac her activity column– LEARNER ACTIVITY Q1,2 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teac her activity column– LEARNER ACTIVITY Q3 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks

Describe what is being represented on the plans. Critique the layout of the structure shown on the plan and suggest alternative layout options. Determine actual lengths of objects shown on plans using measurement and a given scale (number or bar scale). Determine quantities of materials needed by using the plans together with perimeter, area and volume calculations. **LEARNER ACTIVITY** 1. Explain what is a floor plan with a example. **Floor plans** are schematic representation of a structure which only shows a two dimensional top-view of the structure without the roof. It shows the layout of the inside of a structure. The following is an example of a floor plan: 2. The sketch below is an illustration of a rough floor plan of Thato's bedroom. On the diagram, a 2 cm measure represents 1m measure on the actual object. The measurements provided are assumed to be correct on the plan.			Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

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3

5

4

2

1

6 cm

8 cm

On the sketch,

Item 1: is a couch which is 2 cm long,

Item 2: is a bed which is 3.8 cm long and 1.8 cm wide

Item 3: is a wardrobe which is 3.8 cm long and 1.8 cm wide

Item 4: is a table which is 2 cm long and 1 cm wide.

Item 5: is a door.

2.1   What are the dimensions of the bedroom floor in metres?

3 m x 4 m

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2.2   What are the dimensions (only or one face area) of the real bed, cupboard and table?

bed: 1.9 m x 2.4 m

wardrobe: 1.9 m x 2.4 m

table: 1 m x 0,5 m

2.3   Will Thato be able to fit another bed in his bedroom with the present arrangement of the furniture? If yes, where?

Remaining space = the flat floor area *(minus)* the area occupied by other items

If it is bigger than the bed area, then another bed will fit. However, make allowance for   a reasonable difference in area as the furniture may not have to fit exactly in the room (there should be some space to maneuver.

2.4   Draw the sketch of the floor plan and show how you would like to arrange the furniture if this was your bedroom.

Allocate marks appropriately for a sensible diagram with all items fitted. The drawing must be to scale preferably.

3. Consider the floor plan given below.
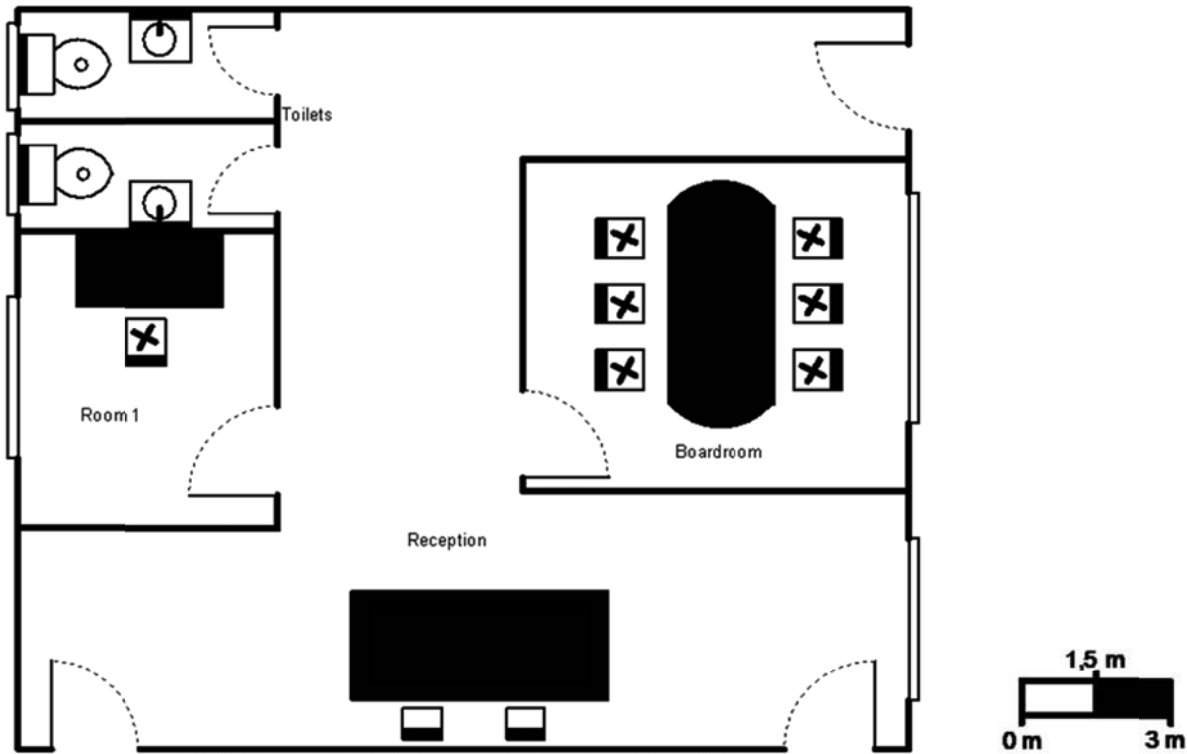
Make use of a ruler and necessary calculations to determine the actual dimensions of room 1 floor.

According to the legend alongside the plan,

2cm = 3m

The room 1 floor dimensions are approximately 3.9 cm x 3.4 cm

Therefore the room 1 floor dimensions are approximately **5.9 m x 5.1 m**

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	3	TOPIC	PLANS (Elevation)LP12: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Work with the rough and scaled elevation plans (front, back and side) showing a side view perspective in the context of the following: a familiar structure; a less familiar structure; a complex structure . Understand the symbols and notation used on plans Describe what is being represented on the plans. Critique the layout of the structure shown on the plan and suggest alternative layout options. Determine actual lengths of objects shown on plans using measurement and a given scale (number or bar scale). Determine quantities of materials needed by using the plans together with perimeter, area and volume calculations. Understand the terms: North Elevation; South Elevation; East Elevation; West Elevation and the relevance of compass directions in the construction of buildings. Connect the features shown on elevation plans with features and perspectives shown on a floor plan of the same structure.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Identify the scale of a plan. Explain the meaning of term: elevation plan. Read off the value(s) of given dimensions on the plan. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to te acher activity column– LEARNER ACTIVITY Q1 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to te acher activity column– LEARNER ACTIVITY Q2 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers

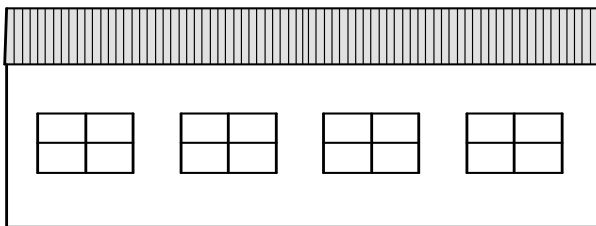|			
LESSON PREPARATION Plans Work with the following plans: rough and scaled <u>elevation plans</u> (front, back and side) showing a side view perspective; And in the context of the following in order to: a familiar structure (eg. *classroom; room in a house → bedroom or lounge*); a less familiar structure (e.g. *office space containing cubicles; a garden/tool shed*); a complex structure (e.g. *house → RDP house*). Understand the symbols and notation used on plans (e.g. *the symbol for a window is a double line; the symbol for a door is a vertical line attached to a quarter circle indicating the swing direction of the door*). Describe what is being represented on the plans. Critique the layout of the structure shown on the plan and suggest alternative layout options. Determine actual lengths of objects shown on plans using measurement and a given scale (number or bar scale). Determine quantities of materials needed by using the plans together with perimeter, area and volume calculations. Understand the terms "North Elevation"; "South Elevation"; "East Elevation"; "West Elevation" and the relevance of compass directions in the construction of buildings. Connect the features shown on elevation plans with features and perspectives shown on a floor plan of the same structure. **LEARNER ACTIVITY** 1. Explain Elevation Plan with example. **Elevation Plan** is a two-dimensional vertical view seen when the object is looked at from the position to one side of the object and looking straight at it. Usually elevations are drawn to scale so that measurements can be taken from them, and are further identified as front, side or end elevations. Points of the compass can also be used in identifying elevations. Examples: The following identification hold only if the house is facing to the South. "South" Elevation 			8. GDE Data Bank Math Lit Questions and answers Textbooks Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

"North" Elevation
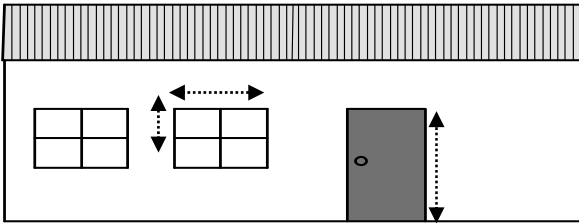
"East" Elevation
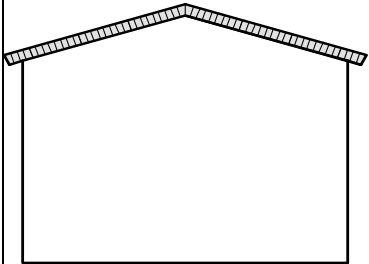
The "**South** Elevation" is the side of the house that you are facing when you are facing towards **South**.

"West" Elevation
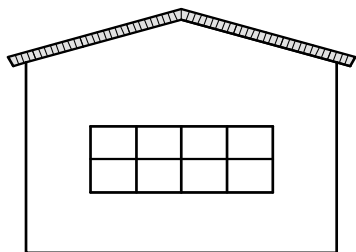
2. The picture below shows the outline of a house. The view from the front, back and side is called the front elevation, back elevation and side elevation respectively.

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2.1 Sketch the view of the house from above

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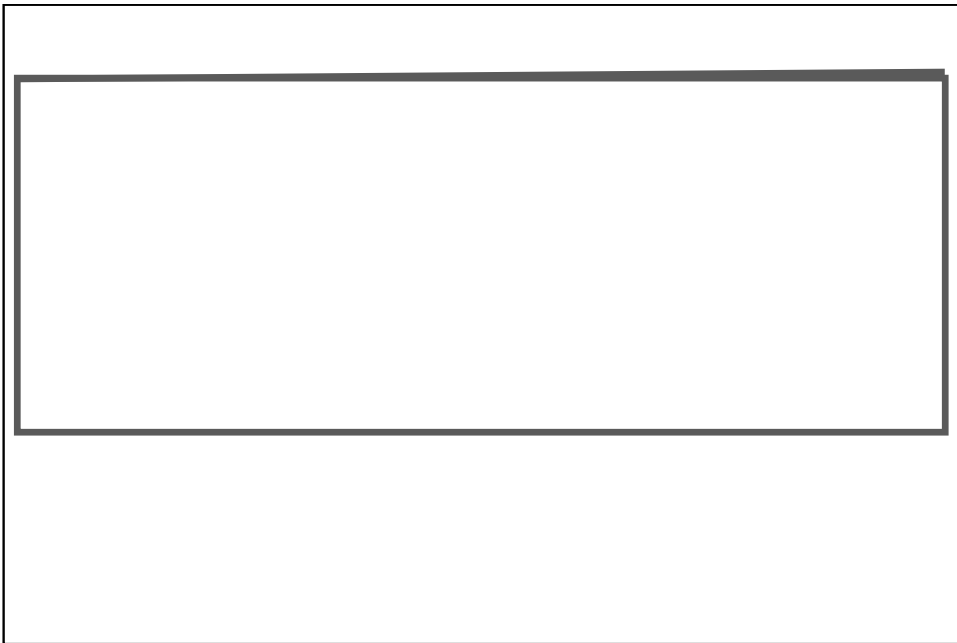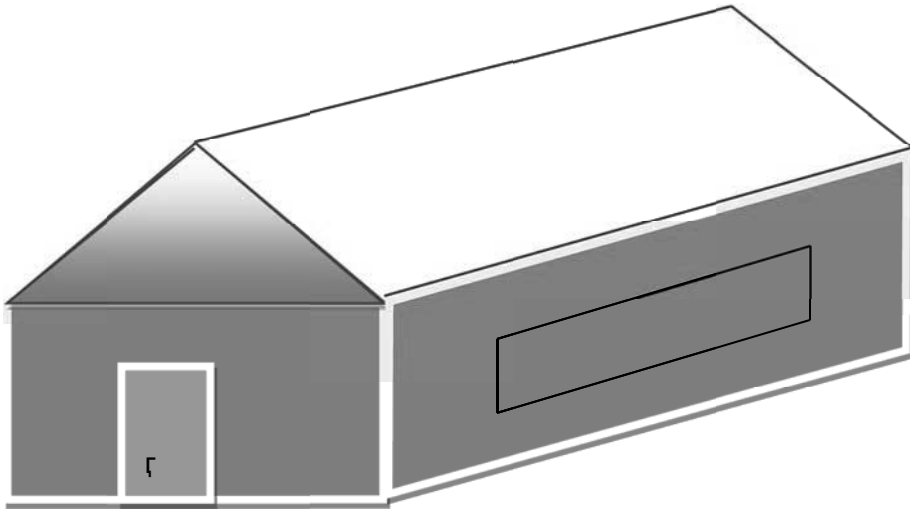
2.2 Sketch the side elevation of the house.

side elevation

2.3 Sketch the front elevation of the house.
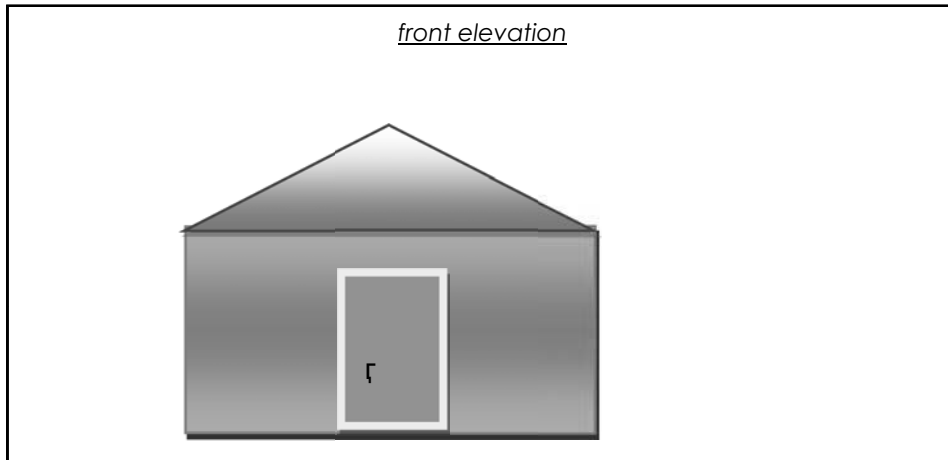
front elevation

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	3	TOPIC	PLANS (Design Drawings)LP13: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to:
	
	 Determine the most appropriate scale in which to draw a plan and use the scale In order to determine how long/wide/high an object must be drawn on a plan when actual dimensions are known.
	 Draw scaled 2-D floor and elevation plans for:
	     a familiar structure ;
	     a less familiar structure
	     a complex structure .

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Explain the meaning of terms (e.g. floor plan; elevation plan; layout plan; etc). **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Plans Determine the most appropriate scale in which to draw a plan and use the scale In order to determine how long/wide/high an object must be drawn on a plan when actual dimensions are known. Draw scaled 2-D floor and elevation plans for: a familiar structure (eg. *classroom; room in a house → bedroom or lounge*); a less familiar structure (e.g. *office space containing cubicles; a garden/tool shed*); a complex structure (e.g. *house → RDP house*).	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to te acher activity column– LEARNER ACTIVITY Q1, and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to te acher activity column– LEARNER ACTIVITY Q2 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks

Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

5cm

14.4 cm

LEARNER ACTIVITY

1. A blueprint shows the main bedroom to be 5 cm long and 3 cm wide. The scale on the blueprint is 2 cm = 11 m. What are the actual dimensions of the main bedroom floor?

length: accept any method but the bedroom should be 27 cm long

the length is 576 cm which can also be written as 5.76 m or 5.8 m

2. Draw a floor plan, giving the scale used of a small bedroom cottage, which has a lounge/dining room, kitchenette and bathroom. The total surface area is about 200m^2

- Educators can make a rubric for marking the activity by using the guide as provided on the example on one of the previous sections.

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	4	TOPIC	PLANS (consolidation) LP14 TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Identify the scale of a plan. Explain the meaning of terms (e.g. floor plan; elevation plan; layout plan; etc). Read off the value(s) of given dimensions on the plan. Use a given key to identify the number of windows/doors/rooms shown on a plan for a building. Identify on which plan a particular structure is shown. Measure dimensions on a plan and use a given scale to determine actual dimensions. Use plans in conjunction with other content, skills or applications to complete a project (e.g. interpret plans to determine the dimensions of a room in order to establish the amount carpet needed for the floor or the room). Describe an item represented in a plan Critique the design of a structure shown on a plan. Decide on an appropriate scale in which to draw a plan and then draw the plan. Make connections between plans showing different views of the same structure.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Identify the scale of a plan. Explain the meaning of terms (e.g. floor plan; elevation plan; layout plan; etc). Read off the value(s) of given dimensions on the plan.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column–	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011)

Baseline assessment tasks Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Plans- Revision Work with instruction/assembly diagrams, containing words and/or pictures, found in manuals for the following in order : plugs; plastic models; unassembled wooden furniture units; cellphones (e.g. *installing a battery and sim card; or operating instructions*); electrical appliances that require individual components to be connected (e.g. *connecting speakers to a hi-fi; or connecting an aerial to a television*); children's toys including *Lego*-type kits. Complete the task presented in the instructions and/or explain what the instructions mean and/or represent using everyday language. Work with the following plans: rough and scaled <u>floor/layout plans </u>showing a top view perspective rough and scaled <u>elevation plans </u>(front, back and side) showing a side view perspective ; rough and scaled <u>design drawings </u>of items to be manufactured (e.g. *clothing; furniture*). And in the context of the following in order to : a familiar structure (eg. *classroom; room in a house → bedroom or lounge*) ; a less familiar structure (e.g. *office space containing cubicles; a garden/tool shed*) ; a complex structure (e.g. *house → RDP house*). Understand the symbols and notation used on plans (e.g. *the symbol for a window is a double line; the symbol for a door is a vertical line attached to a quarter circle indicating the swing direction of the door*). Describe what is being represented on the plans. Critique the layout of the structure shown on the plan and suggest alternative layout options. Determine actual lengths of objects shown on plans using measurement and a given scale (number or bar scale). Determine quantities of materials needed by using the plans together with perimeter, area and volume calculations. Understand the terms "North Elevation"; "South Elevation"; "East Elevation"; "West Elevation" and the relevance of compass directions in the construction of buildings. Connect the features shown on elevation plans with features and perspectives shown on a floor plan of the same structure.	LEARNER ACTIVITY - <u>Assignment</u>: *Building a house* **Homework**: Refer to teacher activity column– LEARNER ACTIVITY- <u>Assignment</u>: *Building a house*	Home-work- 25 min	5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

Determine the most appropriate scale in which to draw a plan and use the scale In order to determine how long/wide/high an object must be drawn on a plan when actual dimensions are known.

Draw scaled 2-D floor and elevation plans for: a familiar structure (eg. *classroom; room in a house → bedroom or lounge*); a less familiar structure (e.g. *office space containing cubicles; a garden/tool shed*); a complex structure (e.g. *house → RDP house*).

Assessment

Level 1
Identify the scale of a plan.

Explain the meaning of terms (e.g. floor plan; elevation plan; layout plan; etc).

Read off the value(s) of given dimensions on the plan (e.g. the length of the wall is 4 m).

Level 2
Use a given key to identify the number of windows/doors/rooms shown on a plan for a building.
Identify on which plan a particular structure is shown (e.g. the door is shown on the North elevation plan).

Level 3
Measure dimensions on a plan and use a given scale to determine actual dimensions.
Use plans in conjunction with other content, skills or applications to complete a project (e.g. interpret plans to determine the dimensions of a room in order to establish the amount carpet needed for the floor or the room).

Level 4
Describe an item represented in a plan
Critique the design of a structure shown on a plan.
Decide on an appropriate scale in which to draw a plan and then draw the plan.
Make connections between plans showing different views of the same structure (e.g. explain which wall shown on a floor plan is represented on a particular side view plan).

LEARNER ACTIVITY
Possible assessment (incorporating finance, models, plans, perimeter, area and volume):
Assignment: *Building a house*
Investigate some of the considerations involved in the construction of a house, including: interpreting plans of the house, building a scale model of the house and performing perimeter, area and volume calculations in the context of fencing, paint, concrete, etc.; analysing a budget for the building project; analysing inflation figures to predict possible adjustments to building costs.

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	4	TOPIC	MODELS (Containers) LP15: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Investigate packaging arrangements using actual cans and a range of actual boxes in order to determine the most appropriate way to package cans and/or boxes for optimal usage of space and to determine the most cost-effective way to package a number of cans and/or boxes. Make and use the 3-dimensional scale models of packaging containers and 2-dimensional scale cut-outs/pictures of appropriate views of 3-dimensional models of packaging containers in order to: Investigate the best packaging shape to use for packaging a particular product. Investigate the best packaging shape to use for fragile and irregular-shaped objects, while trying to minimise wasted space and cost. Investigate the amount of material used to make a box. Investigate the number of furniture items that can fit in a venue, while considering the space needed for tables, chairs and walking around. Estimate quantities of materials needed using perimeter, area and volume calculations.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Explain the meaning of a given scale e.g. explain what the scale 1 : 100 means in terms of the measurements on a model and actual dimensions). **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Models Investigate packaging arrangements using <u>actual</u> cans and a range of <u>actual</u> boxes. In order to: Determine the most appropriate way to package cans and/or boxes for optimal usage of space. Determine the most cost-effective way to package a number of cans and/or boxes.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY Q1 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column– LEARNER ACTIVITY Q2 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook-Spot On 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks

			Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models
Make and use the following in order to: 3-dimensional scale models of packaging containers (e.g. *packaging containers for balls, biscuits, etc.*); 2-dimensional scale cut-outs/pictures of appropriate views of 3-dimensional models of packaging containers. Investigate the best packaging shape to use for packaging a particular product (e.g. *Should balls be packaged in a cylindrical or rectangular container?*). Investigate the best packaging shape to use for fragile and irregular-shaped objects (e.g. *a television set*), while trying to minimise wasted space and cost. Investigate the amount of material used to make a box. Investigate the number of furniture items that can fit in a venue, while considering the space needed for tables, chairs and walking around. Estimate quantities of materials needed (e.g. *paint; tiles*) using perimeter, area and volume calculations. The primary focus is on using scale models and pictures to solve problems. The models and/or pictures must be drawn to scale. Additional contexts and/or resources involving 3-D models and 2-D pictures in which the concepts described above can be explored include the following: • packaging containers: fruit juice containers; chocolate boxes; cool drink cans; tinned food; tennis ball containers; golf ball containers; boxes used for packaging fruit juice containers and/or cool drink cans; boxes used for packaging floor tiles. **LEARNER ACTIVITY** 1. Bring an empty food tin or cool drink can to school. Make a model of the tin using scrap paper by rolling it around the tin, stapling it, then cutting the correct height of the original tin. Make 24 such tins. a. Calculate the minimum dimensions of a box that would be able to hold 24 tins. b. Build a cardboard box and place the tins inside. 2. Design packaging for three tennis balls. a) Would you require more material to package the tennis balls in a rectangular prism or in a cylinder? b) Create both packages to determine the answer.			

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK		4	TOPIC	MODELS (Buildings) LP16 TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Make and use the 3-dimensional scale models of buildings from given or constructed 2-dimensional floor and elevation plans in order to : Investigate possible ways to stack/arrange boxes in a storeroom in order to minimise wasted space. Critique aspects of the layout and/or design of a structure and make suggestions for alterations. Investigate the placement of cupboards and other furniture in a room. Estimate quantities of materials needed (e.g. *paint; tiles*) using perimeter, area and volume calculations+. Investigate the number of furniture items that can fit in a venue, while considering the space needed for tables, chairs and walking around. Analyse a model and critique the layout of the structure shown in the model.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Measure the dimensions of a container constructed. Use a given scale to determine the dimensions in which to build a container model. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Models Make and use the following in order to : 3-dimensional scale models of buildings (e.g. *classroom; storeroom; school hall; house*) from given or constructed 2-dimensional floor and elevation plans; Investigate possible ways to stack/arrange boxes in a storeroom in order to minimise wasted space. Critique aspects of the layout and/or design of a structure and make suggestions for alterations. Investigate the placement of cupboards and other furniture in a room.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY Q1(a) and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column– LEARNER ACTIVITY Q1(b) and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook- 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks

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Estimate quantities of materials needed (e.g. *paint; tiles*) using perimeter, area and volume calculations+. Investigate the number of furniture items that can fit in a venue, while considering the space needed for tables, chairs and walking around. The primary focus is on using scale models and pictures to solve problems. The models and/or pictures must be drawn to scale. Additional contexts and/or resources involving 3-D models and 2-D pictures in which the concepts described above can be explored include the following: • 3-D models of buildings: school tuck shop; spaza shop and/or local café/supermarket; sports club change room.			Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	5	TOPIC	MODELS (Cut-outs/ Pictures) LP17: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Make and use the 2-dimensional scale cut-outs/pictures of appropriate views of 3-dimensional models of packaging containers in order to: Investigate the best packaging shape to use for packaging a particular product. Investigate the best packaging shape to use for fragile and irregular-shaped objects while trying to minimise wasted space and cost. Investigate the amount of material used to make a box. Investigate the number of furniture items that can fit in a venue, while considering the space needed for tables, chairs and walking around. Estimate quantities of materials needed using perimeter, area and volume calculations. Make and use the 2-dimensional scale cut-outs/pictures of appropriate views of buildings in order to : Investigate possible ways to stack/arrange boxes in a storeroom in order to minimise wasted space. Critique aspects of the layout and/or design of a structure and make suggestions for alterations. Investigate the placement of cupboards and other furniture in a room. Estimate quantities of materials needed using perimeter, area and volume calculations+. Investigate the number of furniture items that can fit in a venue, while considering the space needed for tables, chairs and walking around.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Measure the dimensions of a building constructed. Use a given scale to determine the dimensions in which to build a Building model. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Models Make and use the 2-dimensional scale cut-outs/pictures of appropriate views of 3-dimensional models of packaging containers in order to:	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY Q1,2 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column– LEARNER ACTIVITY Q3 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook –Spot On 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks

Investigate the best packaging shape to use for packaging a particular product (e.g. *Should balls be packaged in a cylindrical or rectangular container?*). Investigate the best packaging shape to use for fragile and irregular-shaped objects (e.g. *a television set*), while trying to minimise wasted space and cost. Investigate the amount of material used to make a box. Investigate the number of furniture items that can fit in a venue, while considering the space needed for tables, chairs and walking around. Estimate quantities of materials needed (e.g. *paint; tiles*) using perimeter, area and volume calculations. Make and use the 2-dimensional scale cut-outs/pictures of appropriate views of buildings in order to : Investigate possible ways to stack/arrange boxes in a storeroom in order to minimise wasted space. Critique aspects of the layout and/or design of a structure and make suggestions for alterations. Investigate the placement of cupboards and other furniture in a room. Estimate quantities of materials needed (e.g. *paint; tiles*) using perimeter, area and volume calculations+. Investigate the number of furniture items that can fit in a venue, while considering the space needed for tables, chairs and walking around. Make and use the following in order to : 3-dimensional scale models of buildings (e.g. *classroom; storeroom; school hall; house*) from given or constructed 2-dimensional floor and elevation plans; The primary focus is on using scale models and pictures to solve problems. The models and/or pictures must be drawn to scale. Additional contexts and/or resources involving 3-D models and 2-D pictures in which the concepts described above can be explored include the following: • 2-D pictures: office space containing office cubicles; matric dance and/or birthday party and/or wedding venue; crop estimates for a piece of land; possible seating arrangements at a local sports ground. **LEARNER ACTIVITY** 1. In a scale drawing of a square advertisement poster, the length of one of the sides is 8cm. The logo on the scale drawing of the advertisement is 3cm long and 1cm wide. The side length of the actual advertisement is to be 4m. a) What is the scale of the scale drawing? Give your answer in the form 1:n (1:50) b) What is the length and width of the logo on the real advertisement? (150:50) 2. On cardboard, using the scale 5cm reorsents2m, draw scale drawings of the floor plans of the following furniture: a. A bed 1m by 2m b. A wardrobe 1,5m by o,5m			Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models

c. A chest of drawers 70cm by 40cm d. A desk 70cm by 120cm 3. Cut out the floor plans of the furniture drawn and arrange them in a sensible way			

Reflection/Notes:

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Sign:		Sign:	
Date:		Date:	

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	5	TOPIC	MODELS (Consolidation) LP18: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Measure the dimensions of a structure for which a model or 2-D picture will be constructed. Build a model using a given table of dimensions or a given cut-out. Use a given scale to determine the dimensions in which to build a model or draw a 2-D picture, and complete the project. Build a model and use the model in conjunction with other content, skills or applications to solve a problem (e.g. build a model of a container and use the model to investigate different types of packaging arrangements; or build a model of a container and determine the surface area and volume of the model to investigate the amount of storage space available in the container). Decide on an appropriate scale in which to build a model or draw a 2-D picture, use the scale to determine dimensions, and the complete the project. Construct and compare two models in terms of storage space and materials used and make a decision about which model will the better choice for packaging an item. Analyse a model and critique the layout of the structure shown in the model.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Measure the dimensions of a structure for which a model or 2-D picture will be constructed. Build a model using a given table of dimensions or a given cut-out. Use a given scale to determine the dimensions in which to build a model or draw a 2-D picture, and complete the project. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks fi rst. Select appropriate calculation tasks from resources in the resources column.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column– LEARNER ACTIVITY - Assignment: *Building a model of a school hall* **Homework:** Refer to teacher activity column– LEARNER ACTIVITY - Assignment: *Building a model of a school hall*	Pre- knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers

LESSON PREPARATION			8. GDE Data Bank Math Lit Questions and answers Textbooks Street maps, provincial and national road maps, and maps showing railway routes; timetables, fare tables and distance charts; appropriate floor plans and elevation plans; cardboard for making models
Models- Revision Investigate packaging arrangements using <u>actual</u> cans and a range of <u>actual</u> boxes. In order to: Determine the most appropriate way to package cans and/or boxes for optimal usage of space. Determine the most cost-effective way to package a number of cans and/or boxes. Make and use the following in order to: 3-dimensional scale models of packaging containers (e.g. *packaging containers for balls, biscuits, etc.*); 2-dimensional scale cut-outs/pictures of appropriate views of 3-dimensional models of packaging containers. Investigate the best packaging shape to use for packaging a particular product (e.g. *Should balls be packaged in a cylindrical or rectangular container?*). Investigate the best packaging shape to use for fragile and irregular-shaped objects (e.g. *a television set*), while trying to minimise wasted space and cost. Investigate the amount of material used to make a box. Investigate the number of furniture items that can fit in a venue, while considering the space needed for tables, chairs and walking around. Estimate quantities of materials needed (e.g. *paint; tiles*) using perimeter, area and volume calculations. Make and use the following in order to : 3-dimensional scale models of buildings (e.g. *classroom; storeroom; school hall; house*) from given or constructed 2-dimensional floor and elevation plans; 2-dimensional scale cut-outs/pictures of appropriate views of buildings. Investigate possible ways to stack/arrange boxes in a storeroom in order to minimise wasted space. Critique aspects of the layout and/or design of a structure and make suggestions for alterations. Investigate the placement of cupboards and other furniture in a room. Estimate quantities of materials needed (e.g. *paint; tiles*) using perimeter, area and volume calculations+. Investigate the number of furniture items that can fit in a venue, while considering the space needed for tables, chairs and walking around. The primary focus is on using scale models and pictures to solve problems. The models and/or pictures must be drawn to scale. Additional contexts and/or resources involving 3-D models and 2-D pictures in which the concepts described above can be explored include the following:			

• packaging containers: fruit juice containers; chocolate boxes; cool drink cans; tinned food; tennis ball containers; golf ball containers; boxes used for packaging fruit juice containers and/or cool drink cans; boxes used for packaging floor tiles.

• 3-D models of buildings: school tuck shop; spaza shop and/or local café/supermarket; sports club change room.

• 2-D pictures: office space containing office cubicles; matric dance and/or birthday party and/or wedding venue; crop estimates for a piece of land; possible seating arrangements at a local sports ground.

Models

Level 1

Measure the dimensions of a structure for which a model or 2-D picture will be constructed.

Level 2
Build a model using a given table of dimensions or a given net/cut-out.

Level 3
Use a given scale to determine the dimensions in which to build a model or draw a 2-D picture, and complete the project.
Build a model and use the model in conjunction with other content, skills or applications to solve a problem (e.g. build a model of a container and use the model to investigate different types of packaging arrangements; or build a model of a container and determine the surface area and volume of the model to investigate the amount of storage space available in the container).

Level 4
Decide on an appropriate scale in which to build a model or draw a 2-D picture, use the scale to determine dimensions, and the complete the project.
Construct and compare two models in terms of storage space and materials used and make a decision about which model will the better choice for packaging an item.
Analyse a model and critique the layout of the structure shown in the model.

Assignment: *Building a model of a school hall*
Build a model of a school hall to investigate the best way to arrange furniture (tables, chairs, dance floor, etc.) for a school function (e.g. matric dance).

Reflection/Notes:

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Sign:		Sign:	
Date:		Date:	

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	5	TOPIC	DEVELOPING AND COLLECTING Data (Developing questions) LP19: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Developing questions and collecting data Read information directly from a given questionnaire/survey (e.g. the name of the organisation for which the questionnaire is being conducted).Complete a given questionnaire. Conduct a given Question/ survey with a group of people. Decide on appropriate questions to include on a questionnaire/survey, construct and then conduct the questionnaire/survey. Critique the questions/layout of a questionnaire/survey. Make a deduction about whether collected is biased or valid based on the structure of instrument used to collect the data and the way in which the data was collected.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss these stages. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **STATISTICAL PROCESS** Every statistical process is made up of at least six interconnected stages: posing a question; collecting data; classifying and organising data; summarising data; representing data; and interpreting/analysing data.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1-3 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q4 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** Textbooks 1. Textbook- Spot On 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011)

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Every stage in the process is dependent on the stage that precedes it and directly impacts on the stage that follows it. As such, if the data that is collected is biased, then every following stage will be flawed; or if the data is summarised using an inappropriate average, then the analysis of the data will be incorrect. It is important that learners come to understand the interconnectedness of the statistical process and that these processes are taught and assessed as related stages. Developing questions Develop a question or set of questions that requires the collection of multiple sets of data. Recognise that the way in which questions are phrased can impact on the data collected and, hence, on the findings of the investigation in order to investigate problems relating to national and global issues.		7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		**Sign:**	
Date:		**Date:**	

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LEARNER ACTIVITY ANNEXURE

1.Every statistical process is made up of at least six interconnected stages. Name the stages.
 posing a question;
 collecting data;
 classifying and organising data;
 summarising data;
 representing data;
 and interpreting/analysing data.

2. When developing questions what must be noted?

(Questions must be short, simple and easy to understand; Answers must be one word or a chose between two or mor5e possible answers; Tick boxes must be provided where there is a choice of answers; Do not ask sensitive information; Ony ask relavent questions; Do not ask vague questions; Do not ask negative questions.)

3.Study the questions:

a. How old are you? Young, middle aged or old?

b. Do you not give money to charity? Yes or no?

c. If you were a teacher, what would you have taught the children in Grade 10 and 11 during the first term, that they would find useful after leaving school and studying at a college or doing some other job, instead of teaching them Mathematical Literacy or Life Orientation?

i.   Explain what is wrong with each question.

ii.   Improve the way each question is asked.

       (answers: a. Can be interpreted differently by different individuals. Provide specific age groups; b. Negative question. Remove 'not' from the question; c. Sentence too long and difficult to follow. Shorten or create more shorter questions with tick boxes or one word answers.)

4.Show how the below questionnaire about magazines can be improved:

a. Do you read a lot of magazines? Yes or No

b. How much time do you spend reading magazines per week? 0-1 hour or 1-2 hours

c. What do you read?

d. What do you do with your old magazines?

e. Do you have a guest room in your house?

Answers:

a. The words a lot will have different meanings to different people. Rather ask the following: how many different magazines do you usually read during the week? None, 1, 2, or 3 or more.

b. Some people may not be able to choose one of the two. Add more options: less than 1 hour; from 1-2 hours; from 2-3 hours; from 3-4 hours; from 4-5 hours; more than 5 hours.

c. This question is too vague. Rather ask: which of the following to you read: Family Fun; All sorts Sports; Popular Places; Your Garden; Meals in minutes; Pets and Vets.

d. This question is clear, but giving options makes things easier: keep it; give it away; throw it away; other.

e. This question has nothing to do with the other questions, so leave it out.

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	5	TOPIC	DEVELOPING AND COLLECTING DATA(Observation) LP20: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Read information directly from a given questionnaire/survey (e.g. the name of the organisation for which the questionnaire is being conducted).Complete a given questionnaire. Conduct a given Question/ survey with a group of people. Decide on appropriate questions to include on a questionnaire/survey, construct and then conduct the questionnaire/survey. Critique the questions/layout of a questionnaire/survey. Make a deduction about whether collected is biased or valid based on the structure of instrument used to collect the data and the way in which the data was collected.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss Developing questions. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Collecting data	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1-4 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q5-6 and/ or: Select appropriate task from resources in the resources column	Pre- knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	Recommended texts and/or resources: Textbooks 1. Textbook- Spot On 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers

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Develop and use an observation instrument for collecting multiple sets of data, with an awareness of the following: the situations for which the different types of data collection instruments are most appropriate and the advantages and disadvantages of each type; the difference between a "population" and a "sample"; how to select an appropriate sample from a population; the impact that the choice of sample will have on the reliability of the data collected in order to collect data on problems being investigated relating to national and global issues.			8. GDE Data Bank Math Lit Questions and answers Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		**HOD:**	
Sign:		**Sign:**	
Date:		**Date:**	

LEARNER ACTIVITY ANNEXURE

1. Explain the term Observation in Data collection.

   An experiment is carried out to obtain data by means of counting or measuring .

2. State the information which can be gathered by means of observation.

   a. Who is the class's favourite teacher?

   b. Information regarding householders' electricity consumption, water consumption and the number and ages of people in the household.

   c. Do dogs with longer legs run faster? (Observation. Dogs' legs will be measured and they will be timed to see how fast they run.)

3. State the information which can be gathered by means of observation.

   a. How many vehicles use a certain road between 16:00 and 18:00 on weekdays? (observation)

   b. What are the water consumption habits of a typical Grade 10 learner?

   c. Will you use the Gautrain on a regular basis to work?

4. What is the difference between a "population" and a "sample". (A population is all the possible individuals or items from which data can be obtained. A sample is a relatively small number of individuals or items selected to represent the whole population.)

5. You have to determine the percentage of South Africans who has excess to clean, running water. Will you use a sample or the whole population? (A well chosen sample).

6. When is a sample not biased but fair? (Sample must be well defined; items must be selected at random; differences in population must be reflected in the same ratio in the sample; sample must be large enough to get reliable conclusions.)

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	5	TOPIC	DEVELOPING AND COLLECTING DATA(Interview) LP21: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Read information directly from a given questionnaire/survey (e.g. the name of the organisation for which the questionnaire is being conducted).Complete a given questionnaire. Conduct a given Question/ survey with a group of people. Decide on appropriate questions to include on a questionnaire/survey, construct and then conduct the questionnaire/survey. Critique the questions/layout of a questionnaire/survey. Make a deduction about whether collected is biased or valid based on the structure of instrument used to collect the data and the way in which the data was collected.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss Observation technique for collecting data. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Collecting data	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1-3 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q4 and/ or: Select appropriate task from resources in the resources column	Pre- knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** Textbooks 1. Textbook- Spot On 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers

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Develop and use an interview instrument for collecting multiple sets of data, with an awareness of the following: the situations for which the different types of data collection instruments are most appropriate and the advantages and disadvantages of each type; the difference between a "population" and a "sample"; how to select an appropriate sample from a population; the impact that the choice of sample will have on the reliability of the data collected in order to collect data on problems being investigated relating to national and global issues.			8. GDE Data Bank Math Lit Questions and answers Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		**HOD:**	
Sign:		**Sign:**	
Date:		**Date:**	

LEARNER ACTIVITY ANNEXURE

1. For each of the questions, design tick boxes to collect the answers:

A. What is your home language?

B. What do you think the minister of education should do to improve discipline in school?

C. What measures are taken by your family to save water?

D. What is your opinion about human rights?

2. Explain the term Interview in Data collection. (people are asked a few questions orally)

3. Say in each case whether information can be gathered by means of an interview.

a. Who is the class's favourite teacher? (interview)

b. Information regarding householders' electricity consumption, water consumption and the number and ages of people in the household.

c. Do dogs with longer legs run faster?

4. Say in each case whether information can be gathered by means of an interview.

a. How many vehicles use a certain road between 16:00 and 18:00 on weekdays?

b. What are the water consumption habits of a typical Grade 10 learner?

c. Will you use the Gautrain on a regular basis to work? (interview)

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	6	TOPIC	DEVELOPING AND COLLECTING DATA (Survey) LP22: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Read information directly from a given questionnaire/survey (e.g. the name of the organisation for which the questionnaire is being conducted).Complete a given questionnaire. Conduct a given Question/ survey with a group of people. Decide on appropriate questions to include on a questionnaire/survey, construct and then conduct the questionnaire/survey. Critique the questions/layout of a questionnaire/survey. Make a deduction about whether collected is biased or valid based on the structure of instrument used to collect the data and the way in which the data was collected.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss Interview technique for collecting data. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Collecting data Develop and use a questionnaire or survey appropriate instrument for collecting multiple sets of data with an awareness of the following: the situations for which the different types of data collection instruments are most appropriate and the advantages and disadvantages of each type; the difference between a "population" and a "sample"; how to select an appropriate sample from a population; the impact that the choice of sample will have on the reliability of the data collected in order to collect data on problems being investigated relating to national and global issues.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1-3 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q4-5 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** Textbooks 1. Textbook- Spot On 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers

			8. GDE Data Bank Math Lit Questions and answers Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

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LEARNER ACTIVITY

1. Explain the term Questionnaire in collecting data. (people complete a list of questions in writing, more questions can be asked in this way).

2. When designing a questionnaire what must be noted?

(Questions must be short, simple and easy to understand; Answers must be one word or a chose between two or mor5e possible answers; Tick boxes must be provided where there is a choice of answers; Do not ask sensitive information; Ony ask relavent questions; Do not ask vague questions; Do not ask negative questions.)

3. Design a questionnaire to find out information about the television viewing habits of people.

4. Say in each case whether information can be gathered by means of a written questionnaire:

a. Who is the class's favourite teacher?

b. Information regarding householders' electricity consumption, water consumption and the number and ages of people in the household. (questionnaire)

c. Do dogs with longer legs run faster?

5. Say in each case whether information can be gathered by means a written questionnaire:

a. How many vehicles use a certain road between 16:00 and 18:00 on weekdays?

b. What are the water consumption habits of a typical Grade 10 learner? (questionnaire)

c. Explain the term Observation in Data collection.

d. Will you use the Gautrain on a regular basis to work?

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	6	TOPIC	DEVELOPING AND COLLECTING DATA(Consolidation) LP23: TIME:60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Read information directly from a given questionnaire/survey (e.g. the name of the organisation for which the questionnaire is being conducted).Complete a given questionnaire. Conduct a given Question/ survey with a group of people. Decide on appropriate questions to include on a questionnaire/survey, construct and then conduct the questionnaire/survey. Critique the questions/layout of a questionnaire/survey. Make a deduction about whether collected is biased or valid based on the structure of instrument used to collect the data and the way in which the data was collected.			

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss the techniques used for collecting data. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Revision	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure - Assignment. **Homework:** Refer to Learner Activity Annexure - Assignment	Pre- knowledge –5min Baseline- 10 min Perform-ance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** Textbooks 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers

Every statistical process is made up of at least six interconnected stages: posing a question; collecting data; classifying and organising data; summarising data; representing data; and interpreting/analysing data. Every stage in the process is dependent on the stage that precedes it and directly impacts on the stage that follows it. As such, if the data that is collected is biased, then every following stage will be flawed; or if the data is summarised using an inappropriate average, then the analysis of the data will be incorrect. It is important that learners come to understand the interconnectedness of the statistical process and that these processes are taught and assessed as related stages. Developing questions Develop a question or set of questions that requires the collection of multiple sets of data. Recognise that the way in which questions are phrased can impact on the data collected and, hence, on the findings of the investigation in order to investigate problems relating to national and global issues . Collecting data Develop and use an appropriate instrument for collecting multiple sets of data, including: observation; interview; questionnaire or survey; with an awareness of the following: the situations for which the different types of data collection instruments are most appropriate and the advantages and disadvantages of each type; the difference between a "population" and a "sample"; how to select an appropriate sample from a population; the impact that the choice of sample will have on the reliability of the data collected in order to collect data on problems being investigated relating to national and global issues. Developing questions and collecting data Assessment Level1 Read information directly from a given questionnaire/survey (e.g. the name of the organisation for which the questionnaire is being conducted). Complete a given questionnaire. Level 2 Conduct a given Question/ survey with a group of people. Level 3 Decide on appropriate questions to include on a questionnaire/survey, construct and then conduct the questionnaire/survey.			8. GDE Data Bank Math Lit Questions and answers Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Level 4 Critique the questions/layout of a questionnaire/survey. Make a deduction about whether collected is biased or valid based on the structure of instrument used to collect the data and the way in which the data was collected.			

Reflection/Notes:

Name of Teacher:		**HOD:**	
Sign:		**Sign:**	
Date:		**Date:**	

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LEARNER ACTIVITY ANNEXURE

Possible assessment (incorporating all the stages of the statistical cycle):
Assignment: *Risky behaviour*
  Collect, organise, summarise and represent data on drug and alcohol usage drawn from learners in grade 12 and from different gender.

Explain the term Observation in Data collection.

1. Say in each case whether information can be gathered by means of observation, an interview or a written questionnaire:

a. Who is the class's favourite teacher?

b. Information regarding householders' electricity consumption, water consumption and the number and ages of people in the household.

c. Do dogs with longer legs run faster?

2. Say in each case whether information can be gathered by means of observation, an interview or a written questionnaire:

a. How many vehicles use a certain road between 16:00 and 18:00 on weekdays? (observation)

b. What are the water consumption habits of a typical Grade 10 learner? (questionnaire)

c. Will you use the Gautrain on a regular basis to work? (interview)

Answers for question 1:

a. Interview. The learners will be asked who their favourite teacher is and can vote by putting up their hands.

b. Questionnaire

c. Observation. Dogs' legs will be measured and they will be timed to see how fast they run.

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	6	TOPIC	CLASSIFY ORGANISE DATA(Classify)LP24 TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Sort data from smallest to biggest. Count the number of values in a data set. Explain the difference between categorical data & numerical data. Explain the difference between discrete & continuous data. Sort data according to two categories.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss collecting data. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Classifying and organising data Classifying and organising data Classify collected data as: categorical data (e.g. *male/female; type of car*); numerical data, further classified as discrete data (e.g. *number of people; number of cars*) and continuous data (e.g. *weights; rainfall*).	Pre-knowledge assessment activity: Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1-3 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q4 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook- Spot On 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers

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Sort collected numerical data according to more than two categories.(e.g. *Sort data according to gender, height and class.*) Group collected data using intervals (where appropriate) (e.g. *It is often appropriate to group test scores in the mark intervals "0–29"; "30–39"; etc.*).			8. GDE Data Bank Math Lit Questions and answers Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		**Sign:**	
Date:		**Date:**	

Learner Activity Annexure

1. Data can be categorical or numerical. Explain these concepts. (Categorical data describes a property, for example, gender, colour or flavour. Numerical data consists of numbers.)

2. Name the two kind of numerical data and give examples of each. (Discrete data: there are only a finite number of possible values within a certain range, for example, the number of learners in a classroom. Continuous data: an infinite number of possible values, within a certain range, e.g. measurements of temperature.)

3. Are the following data categorical or numerical? If it is numerical, state whether it is discrete or continuous:

a. Television programs each learner in Grade 10 likes most. (categorical)

b. Distance learners have to travel to school. (numerical, continuous)

c. Mass of each of 100 dogs. (numerical, continuous)

d. Colours of the cars in a parkade. (categorical)

e. Number of learners in each school in South Africa. (numerical, discrete)

f. Temperature at 07:00 recorded at 80 different weather stations. (numerical, continuous)

g. Mass of each of 500 eggs. (numerical, continuous)

h. Sizes of the dresses sold by a shop during one year. (numerical, discrete)

4. Sort collected numerical data according to more than two categories.(e.g. *Sort data according to gender, height and class.*)

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	6	TOPIC	CLASSIFY ORGANISE DATA(organise)LP25 TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Sort data from smallest to biggest. Count the number of values in a data set. Explain the difference between categorical data & numerical data. Explain the difference between discrete & continuous data. Sort data according to two categories. Complete a given frequency table. Calculate percentage values to represent the relative size of different categories of data. When given a raw set of data, sort the data, decide on appropriate intervals (if necessary), and construct a frequency table to organise the data. .			

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss Classifying data. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1-4 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q5 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook- Spot On 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions

LESSON PREPARATION		6. GDE Prelim question papers (2009 – 2011)
Classifying and organising data		7. DoE NSC exemplar question papers
Organise collected data using: tallies; frequency tables.		8. GDE Data Bank Math Lit Questions and answers Textbooks
Recognise that the way in which data is classified, sorted and/or grouped will affect how data is organised, summarised and represented In order to: transform the data into a form that can be analysed, or into a form that can be more easily summarised and/or represented, to find answers to the question(s) posed on issues relating to national and global issues.		Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

Learner Activity Annexure

1. Explain the concepts: tally and frequency table, frequency, grouped data. (A tally and frequency table shows the number of times each item occurs. The frequency of a specific piece of data is the number of times that data occurs. Grouped data are data divided into groups to make it easier to handle, both discrete and continuous data can be grouped, a group is also called a class).

2. When is a stem and leaf table useful? (it is useful to group and order the data, a part of the value of each piece of data is used to define the group or class and the remainder of the values listed next to it.)

3. The list gives the number of loaves of bread bought in one week by each of 20 households.

8	6	4	9	5	3	4	8	4	2
2	2	5	5	4	5	2	7	1	1

a. Draw up a tally and frequency table for the number of loaves.

No. of loaves	Tally	Frequency
1	II	2
2	IIII	4
3	I	1
4	IIII	4
5	IIII	4
6	I	1
7	I	1
8	II	2

9	I	1

4. The list gives the number of loaves of bread bought in one week by each of 20 households.

8	6	4	9	5	3	4	8	4	2
2	2	5	5	4	5	2	7	1	1

a. Draw up a frequency table grouping the data into five groups.

No of loaves	Tally	Frequency
1-2	卌 I	6
3-4	卌	5
5-6	卌	5
7-8	I I I	3
9-10	I	1

5. Represent the set of data in a stem and leaf table:

2; 4; 13; 15; 18; 21; 25; 26; 29; 29; 32; 37; 39; 39; 39

0	2 4
1	3 5 8
2	1 5 6 9 9
3	2 7 9 9 9

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	6	TOPIC	CLASSIFY ORGANISE DATA(Frequency tables)LP26 TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Complete a given frequency table. Calculate percentage values to represent the relative size of different categories of data. When given a raw set of data, sort the data, decide on appropriate intervals (if necessary), and construct a frequency table to organise the data. If necessary, use the frequency table to draw an appropriate graph to represent the data. Explain with justification whether data is discrete or continuous. Analyse data organised in tables and make deductions about trends in the data.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss organising data. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Sort collected numerical data according to more than two categories.(e.g. *Sort data according to gender, height and class.*)	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q2 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Perform-ance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar

Group collected data using intervals (where appropriate) (e.g. *It is often appropriate to group test scores in the mark intervals "0–29"; "30–39"; etc.*).			question papers
Organise collected data using: tallies; frequency tables.			8. GDE Data Bank Math Lit Questions and answers
Recognise that the way in which data is classified, sorted and/or grouped will affect how data is organised, summarised and represented In order to: transform the data into a form that can be analysed, or into a form that can be more easily summarised and/or represented, to find answers to the question(s) posed on issues relating to national and global issues. Complete a given frequency table.			Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*;
Calculate percentage values to represent the relative size of different categories of data.			population statistics; motor accident statistics;
When given a raw set of data, sort the data, decide on appropriate intervals (if necessary), and construct a frequency table to organise the data.			education statistics; health statistics)
If necessary, use the frequency table to draw an appropriate graph to represent the data.			
Explain with justification whether data is discrete or continuous.			
Analyse data organised in tables and make deductions about trends in the data.			

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		**Sign:**	
Date:		**Date:**	

Learner Activity Annexure

1. The table below illustrates the monthly bookings of Malong Caravan Park. Draw the bar graph to illustrate the frequency of bookings per month.

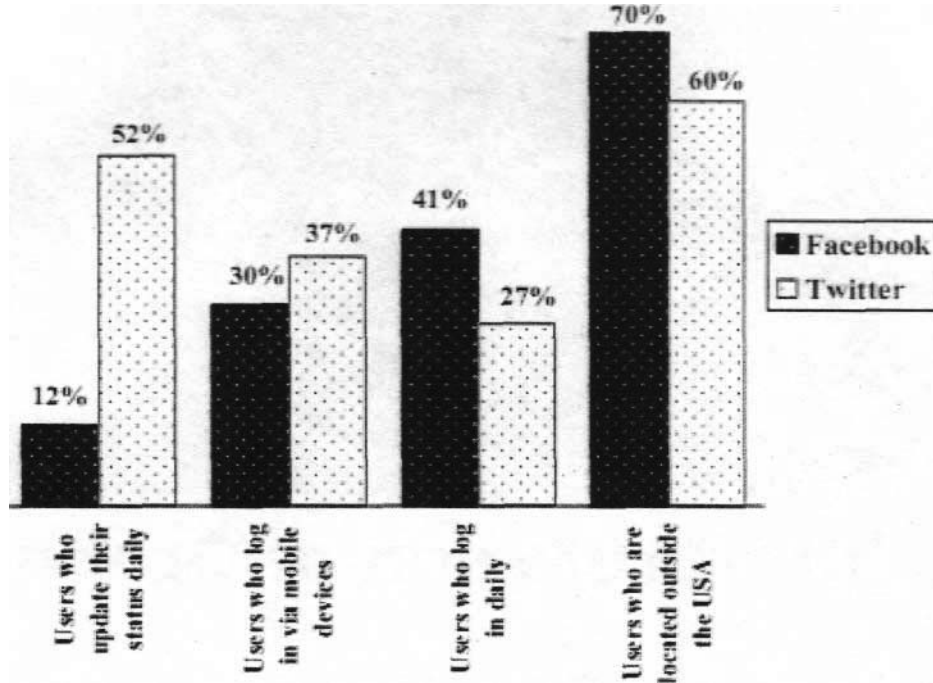| Month	No. of sites booked
January	4000
February	2000
March	2500
April	4000
May	2500
June	3500
July	4000
August	4000
September	3500
October	4000
November	2500
December	3500

Caravan Park Bookings

2. The following table illustrates the percentage of users of facebook and twitter for December 2010. Draw the compound bar graph to show the comparison of users of facebook and twitter for December 2010

Users	% Users who update their status daily	% users who log in via mobile devices	% users who log in daily	% users who are located outside the USA
Facebook	12	30	41	70
Twitter	52	37	27	60

3.

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	6	TOPIC	CLASSIFY ORGANISE DATA(consolidation)LP27 TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Sort data from smallest to biggest. Count the number of values in a data set. Explain the difference between categorical data & numerical data. Explain the difference between discrete & continuous data. Sort data according to two categories. Complete a given frequency table. Calculate percentage values to represent the relative size of different categories of data. When given a raw set of data, sort the data, decide on appropriate intervals (if necessary), and construct a frequency table to organise the data. If necessary, use the frequency table to draw an appropriate graph to represent the data. Explain with justification whether data is discrete or continuous. Analyse data organised in tables and make deductions about trends in the data.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss these stages. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure - Assignment. **Homework:** Refer to Learner Activity Annexure - Assignment	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011)

LESSON PREPARATION Classifying and organising data Classifying and organising data Classify collected data as: categorical data (e.g. *male/female; type of car*); numerical data, further classified as discrete data (e.g. *number of people; number of cars*) and continuous data (e.g. *weights; rainfall*). Sort collected numerical data according to more than two categories.(e.g. *Sort data according to gender, height and class.*) Group collected data using intervals (where appropriate) (e.g. *It is often appropriate to group test scores in the mark intervals "0–29"; "30–39"; etc.*). Organise collected data using: tallies; frequency tables. Recognise that the way in which data is classified, sorted and/or grouped will affect how data is organised, summarised and represented In order to*:* transform the data into a form that can be analysed, or into a form that can be more easily summarised and/or represented, to find answers to the question(s) posed on issues relating to national and global issues. Assessment Level 1 Sort data from smallest to biggest. Count the number of values in a data set. Explain the difference between categorical data & numerical data; and between discrete & continuous data. Level 2 Sort data according to two categories (e.g. sort a set of data separately for females and males). Complete a given frequency table. Calculate percentage values to represent the relative size of different categories of data. Level 3 When given a raw set of data, sort the data, decide on appropriate intervals (if necessary), and construct a frequency table to organise the data. If necessary, use the frequency table to draw an appropriate graph to represent the data. Level 4 Explain with justification whether data is discrete or continuous. Analyse data organised in tables and make deductions about trends in the data.			5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

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Learner Activity Annexure

Possible assessment (incorporating all the stages of the statistical cycle):

Assignment: *Risky behaviour*

Collect, organise, summarise and represent data on drug and alcohol usage drawn from learners in different grades and from different gender and racial groups. Analyse the data in relation to the national results presented in the 1st or 2nd *National Youth Risk Behaviour Survey*.

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	7	TOPIC	MEASURING DATA (Summarizing) LP28: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to:
	Identify the maximum and minimum values in a set of data.
	Calculate mean, median, mode and range for both sorted and unsorted data and for data sets containing an even and an odd number of data values.
	Calculate the mean, median and modal average for a set of data and decide with reasons which average provides the most accurate representation of the data.
	Use data presented on a graph to determine the mean, median, mode and range of a data set.
	Analyse measures of central tendency and spread and make deductions about trends in the data.
	Interpret tables and charts showing percentile/quartile values and explain what those values represent in relation to the scenario represented in the table/chart.
	Compare measures of central tendency/spread calculated for two sets of data and use these measures to explain differences between the data sets.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss these stages. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Summarising data	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1-4 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q5 and/ or: Select appropriate task from resources in the resources column	Pre- knowledge –5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011)

Summarise multiple sets of collected data using the following measures of central tendency and spread: mean; median; mode; range; with an understanding of the following: the function/purpose of the measures of central tendency and spread; the measure of central tendency that is being referred to when the term "average" is used; the role and impact of outliers on the measures of central tendency and/or spread; the strengths and limitations of each type of measure of central tendency and spread and the situations in which one measure is more or less appropriate than the other measures. (e.g. *If there is an outlier in a data set, the mean average may be skewed by the outlier. As such, it would be advisable to calculate the mean, median and modal averages, compare these averages, and then decide which average is the most representative of the majority of the data values.*) Analyse calculated and/or given measures of central tendency and/or spread In order to*:* Recognise trends at different places in the data to facilitate finding answers to the questions posed on issues relating to national and global issues .		7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		**Sign:**	
Date:		**Date:**	

Learner Activity

1. Find the range, median, and mode of the set of data:

107; 100; 102; 98; 99; 100; 102; 100

Range= 9   Mean= 101 Median= 100 Mode= 100

2. A garage owner keeps a record of the number of cars he repaired:

6; 6; 5; 3; 2; 6; 8; 5; 4; 3

a. What is the mean number of the cars he repairs per day? (4.5)

b. What is the mode? (3)

3. Of the three averages: mean, median and mode. Which one is:

a. The easiest to find? (mode)

b. Not affected by very large values and very small values? (median)

c. Affected by every single value of date? (mean)

4. John and Steven are comparing their marks. Their marks for the past five tests are:

John	6	8	6	6	9
Steven	3	4	10	8	10

Who has a better set of marks? Explain your answer.

Answer:

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	Mean	Median	Mode	Range
John	7	6	6	3
Steven	7	8	10	7

John. His lowest mark is higher than Steven's lowest mark and his marks are more consistent than Steven's.

5. Mrs Long is the high-jump coach at Roseland High School. She records the heights jumped by the five boys in the high-jump team.

Lerato is one of the members of the team. The following are heights, in metres, of the last 12 jumps:

1,70; 1,68; 1,78; 1,90; 1,74; 1,85; 1,81; 1,95; 1,98; 2,00; 2,02; 1,80

Determine the following:

5.1.1   the median height jumped by Lerato during his last 12 jump

Answers

1.1   1,68; 1,70; 1,74; 1,78; 1,80; 1,81; 1,85; 1,90; 1,95; 1,98; 2,00; 2,02 (ordering)

1.1.1 Median = (1,81 + 1,85) ÷ 2 = 1,83

2. Peter and Joseph have an argument about who is better as soccer. The table below contains the number of goals scored by each school during the 1997-2004 seasons.

			Peter's	School			
18	31	11	25	21	24	20	39

			Joseph's	School			
21	24	19	24	20	18	24	39

a. Arrange the data in ascending order

b. Which school scored the highest number of goals during a season

c. Which school scored 25 goals or more the most times over the eight seasons

d. Calculate the median of the number of goals for Peter's school and Joseph's school

Answers

a. Peter's school: 11 18 20 21 24 25 31 39

Joseph's school: 18 19 20 21 24 24 24 39

b. The highest number of goals is 39 for both schools.

c. Peter's school scored 25 or more goals during 3 seasons, and Joseph's school only during 1 season.

d. Peter's school: (21+24) ÷ 2 = 22,5 goals

Joseph's school: (21+24) ÷ 2 = 22,5 goals

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	7	TOPIC	MEASURING DATA(Quartiles)LP29: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to:
	Identify the maximum and minimum values in a set of data.
	Calculate mean, median, mode and range for both sorted and unsorted data and for data sets containing an even and an odd number of data values.
	Calculate the mean, median and modal average for a set of data and decide with reasons which average provides the most accurate representation of the data.
	Use data presented on a graph to determine the mean, median, mode and range of a data set.
	Analyse measures of central tendency and spread and make deductions about trends in the data.
	Interpret tables and charts showing percentile/quartile values and explain what those values represent in relation to the scenario represented in the table/chart.
	Compare measures of central tendency/spread calculated for two sets of data and use these measures to explain differences between the data sets.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis INTRODUCTION Pre-knowledge assessment Every statistical process is made up of at least six interconnected stages. Discuss measures of central tendency . Baseline assessment tasks Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. LESSON PREPARATION	Pre-knowledge assessment activity: Refer to Teacher activity. Baseline Assessment : Refer to Teacher activity. Performance Task: Refer to Learner Activity Annexure – Q1.1 and/ or: Select appropriate task from resources in the resources column. Homework: Refer to Learner Activity Annexure – Q1.2 and/ or: Select appropriate task from resources in the resources	Pre- knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	Recommended texts and/or resources: 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions

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	column		
Summarising data Summarise multiple sets of collected data using the following measures of central tendency and spread: quartiles; percentiles (*interpretation only*) with an understanding of the following: the function/purpose of the measures of central tendency and spread; the measure of central tendency that is being referred to when the term "average" is used; the role and impact of outliers on the measures of central tendency and/or spread; the strengths and limitations of each type of measure of central tendency and spread and the situations in which one measure is more or less appropriate than the other measures. (e.g. *If there is an outlier in a data set, the mean average may be skewed by the outlier. As such, it would be advisable to calculate the mean, median and modal averages, compare these averages, and then decide which average is the most representative of the majority of the data values.*) Common contexts involving quartiles and percentiles include: growth charts for babies and children; percentile and quartile categories used in analysing results (e.g. for the matric examination results); quintile categories for schools; test and/or exam results for a large group of learners (e.g. *for the whole school*). * In working with quartiles, learners are expected to: be able to identify the quartile values in a small set of data; explain the process involved in determining given quartile values in a set of data; interpret quartile values and make deductions regarding the significance of quartile values in terms of trends in the data. Represent multiple sets of collected data using: box-and-whisker plots (as graphical representations of quartiles) (*interpretation only*); Learners are not expected to draw box-and-whisker plots. However, they must be able to: locate minimum, maximum, median and quartile values on the plot; interpret the plot and explain what the shape of the plot signifies in terms of the spread of the data values. Learners are _not_ expected to: calculate quartile values using formulae; calculate interquartile range. + Learners are not expected to perform any calculations involving percentiles. Rather, if presented with percentile values in tables or graphs, learners must be able to explain what those values say about the data. Analyse calculated and/or given measures of central tendency and/or spread In order to: Recognise trends at different places in the data to facilitate finding answers to the questions posed on issues relating to national and global issues. Work with quartile and percentile values, together with various measuring instruments#, in the following contexts: *Road to Health* chart and other growth charts for children; test and exam results In order to: Analyse the growth pattern of a baby/toddler. Analyse the health status of a child using calculated Body Mass Index values. Determine the quantity of paracetamol (a drug found in several medicines,	column		6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

including Panado) to be administered to a child. Analyse the performance of a group of learners in a test and/or exam.			

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

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Learner Activity Annexure

1.Mrs Long is the high-jump coach at Roseland High School. She records the heights jumped by the five boys in the high-jump team.

1.1.Lerato is one of the members of the team. The following are heights, in metres, of the last 12 jumps:

1,70; 1,68; 1,78; 1,90; 1,74; 1,85; 1,81; 1,95; 1,98; 2,00; 2,02; 1,80

Determine the following:

 1.1.1   the median height jumped by Lerato during his last 12 jumps

 1.1.2   the height that is his lower quartile

 1.1.3   the height of his upper quartile

1.1.4   his interquartile range (IQR), in centimetres, using the formula: interquartile range = upper quartile – lower quartile OR IQR = Q3 - Q1

1.2 the athletes in the high-jump team were told that if their 75th percentile was at 1,95m or higher, they would qualify to take part in the inter-high competition.

1.2.1   which of the heights jumped by Lerato is at his 75th percentile?

1.2.2   The 75th percentiles for the other four members of the team were as follows:

Charles 1,94 m   Lebo 1,80m

Mohamed 1,95m   Siyabonga 2,00 m

Which of the five athletes did NOT qualify to take part in the inter-high competition? Give a reason for your answer.

Answers

1.1 1,68; 1,70; 1,74; 1,78; 1,80; 1,81; 1,85; 1,90; 1,95; 1,98; 2,00; 2,02 (ordering)

1.1.1 Median = (1,81 + 1,85) ÷ 2 = 1,83

1.1.2 Lower quartile = (1,74 + 1,78) ÷ 2 = 1,76

1.1.3 Upper Quartile = (1,95 + 1,98) ÷ 2 = 1,9651

1.1.4 IQR= 1, 965 − 1,76 = 0,205

1.2.1   75th percentile = Q_3 = 0,025

1.2.2 Charles and Lebo did not qualify. Their 75th percentile is less than 1,95m

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	7	TOPIC	MEASURING DATA(consolidation) LP30: TIME:60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to:
	Identify the maximum and minimum values in a set of data.
	Calculate mean, median, mode and range for both sorted and unsorted data and for data sets containing an even and an odd number of data values.
	Calculate the mean, median and modal average for a set of data and decide with reasons which average provides the most accurate representation of the data.
	Use data presented on a graph to determine the mean, median, mode and range of a data set.
	Analyse measures of central tendency and spread and make deductions about trends in the data.
	Interpret tables and charts showing percentile/quartile values and explain what those values represent in relation to the scenario represented in the table/chart.
	Compare measures of central tendency/spread calculated for two sets of data and use these measures to explain differences between the data sets.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Every statistical process is made up of at least six interconnected stages. Discuss measures of central tendency and spread including quartiles . measures of central tendency **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Revision Summarising data	Pre-knowledge assessment activity: Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1 (a-e) **Homework:** Refer to Learner Activity Annexure – Q1 (f-k)	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question

Summarise multiple sets of collected data using the following measures of central tendency and spread: mean; median; mode; range; quartiles; percentiles (*interpretation only*) with an understanding of the following: the function/purpose of the measures of central tendency and spread; the measure of central tendency that is being referred to when the term "average" is used; the role and impact of outliers on the measures of central tendency and/or spread; the strengths and limitations of each type of measure of central tendency and spread and the situations in which one measure is more or less appropriate than the other measures. (e.g. *If there is an outlier in a data set, the mean average may be skewed by the outlier. As such, it would be advisable to calculate the mean, median and modal averages, compare these averages, and then decide which average is the most representative of the majority of the data values.*) Common contexts involving quartiles and percentiles include: growth charts for babies and children; percentile and quartile categories used in analysing results (e.g. for the matric examination results); quintile categories for schools; test and/or exam results for a large group of learners (e.g. *for the whole school*). * In working with quartiles, learners are expected to: be able to identify the quartile values in a small set of data; explain the process involved in determining given quartile values in a set of data; interpret quartile values and make deductions regarding the significance of quartile values in terms of trends in the data. Learners are <u>not</u> expected to: calculate quartile values using formulae; calculate interquartile range. + Learners are not expected to perform any calculations involving percentiles. Rather, if presented with percentile values in tables or graphs, learners must be able to explain what those values say about the data. Analyse calculated and/or given measures of central tendency and/or spread In order to*:* Recognise trends at different places in the data to facilitate finding answers to the questions posed on issues relating to national and global issues. Work with quartile and percentile values, together with various measuring instruments#, in the following contexts: *Road to Health* chart and other growth charts for children; test and exam results In order to*:* Analyse the growth pattern of a baby/toddler. Analyse the health status of a child using calculated Body Mass Index values. Determine the quantity of paracetamol (a drug found in several medicines, including Panado) to be administered to a child. Analyse the performance of a group of learners in a test and/or exam. Measuring data Level1		papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Identify the maximum and minimum values in a set of data. Level2 Calculate mean, median, mode and range for both sorted and unsorted data and for data sets containing an even and an odd number of data values. Level 3 Calculate the mean, median and modal average for a set of data and decide with reasons which average provides the most accurate representation of the data. Use data presented on a graph to determine the mean, median, mode and range of a data set. Level 4 Analyse measures of central tendency and spread and make deductions about trends in the data. Interpret tables and charts showing percentile/quartile values and explain what those values represent in relation to the scenario represented in the table/chart. Compare measures of central tendency/spread calculated for two sets of data and use these measures to explain differences between the data sets.			

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		**Sign:**	
Date:		**Date:**	

Learner Activity Annexure

Possible assessment (incorporating all the stages of the statistical cycle):

1. Peter and Joseph have an argument about who is better as soccer. The table below contains the number of goals scored by each school during the 1997-2004 seasons.

			Peter's	School			
18	31	11	25	21	24	20	39

			Joseph's	School			
21	24	19	24	20	18	24	39

a. Arrange the data in ascending order

b. Which school scored the highest number of goals during a season

c. Which school scored 25 goals or more the most times over the eight seasons

d. Calculate the median of the number of goals for Peter's school and Joseph's school

e. Calculate the first and third quartiles for both datasets

f. Construct the five-number summaries for both datasets

g. Whose school do you think is better at soccer, peter's or joseph's? Explain your answer by referring to the five-number summaries for the two datasets.

h. Calculate the mean number of goals during the period for Perter's school and Joseph's school.

i. The standard deviations for the two schools are given in the following table:

School	Standard Deviation
Peter's school	8,48
Joseph's school	6,65

Which school played more consistently over the eight seasons, i.e. which school tended to score a similar number of goals from one season to the next. Explain your answer

j. Which measure of central technology, median or mode, better reflects the number of goals scored over the period by each school? Explain your answer.

k. Which measure of spread, the five-number summary or standard deviation, better reflects the spread of the number of goals scored by each school? Explain your answer.

Answers

a. Peter's school: 11 18 20 21 24 25 31 39

Joseph's school: 18 19 20 21 24 24 24 39

b. The highest number of goals is 39 for both schools.

c. Peter's school scored 25 or more goals during 3 seasons, and Joseph's school only during 1 season.

d. Peter's school: (21+24) ÷ 2 = 22,5 goals

Joseph's school: (21+24) ÷ 2 = 22,5 goals

e. Peter's school 1st quartile = 2nd and 3rd values = (18+20) ÷ 2 = 19 goals

3rd quartile = (25+31) ÷ 2 = 28 goals

Joseph's school 1st quartile = (19+20) ÷ 2 = 19,5 goals

3rd quartile= (24+24) ÷ 2 = 24 goals

f.

Measure	Peter's school	Joseph's school
Minimum	11	18
1st quartile	19	19,5
Median	22,5	22,5
3rd quartile	28	24
Maximum	39	39

g. The spread of values for Joseph's school is smaller than that of Peter's school. This means that Joseph's school is more consistent than Peter's school.

h. Mean number of goals for Peter's school = 189 goals ÷ 8 = 23 goals

   Mean number of goals for Joseph's school = 189 goals ÷ 8 = 23 goals

i. The spread of goals scored is smaller for Joseph's school is smaller than for peter's school. This means that Joseph's school is the more consistent one when it comes to scoring goals.

j. The mean does not provide an accurate picture of the average number of goals scored by each school because of the presence of outliners in the data for both schools. For Peter's school there are two outliners, 11 goals and 39 goals. For Joseph's school there is one outliner, 39 goals. As such, the median best reflects the average number of goals scored by each school.

k. The five-number summary better reflects the spread of the number of goals scored by each school as it shows the spread values at different points in the data set so that one can see that the date is skewed as a result of the outliner. The standard deviation, on the other hand, is affected by the outliners and, as such, does not provide an accurate picture of the spread of the values in the data set.

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	8	TOPIC	REPRESENTING DATA(Pie charts) LP31: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Read values directly from the values provided on Pie graphs. Estimate values from given Pie graphs. Analyse graphs and make deductions about trends in the data and predictions for the future. Represent multiple sets of collected data using pie charts. They must be able to interpret and read values from a pie chart Explain how the sizes of the different segments of a pie chart have been determined.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Read values directly from the table of values **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Representing data** Represent multiple sets of collected data using pie charts. Learners are not expected to draw pie charts in an examination. They must be able to interpret and read values from a pie chart and, if necessary, explain how the sizes of the different segments of a pie chart have been determined.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1 (a) and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q1 (b) and/ or: Select appropriate task from resources in the resources column	Pre- knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	Recommended texts and/or resources: 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks

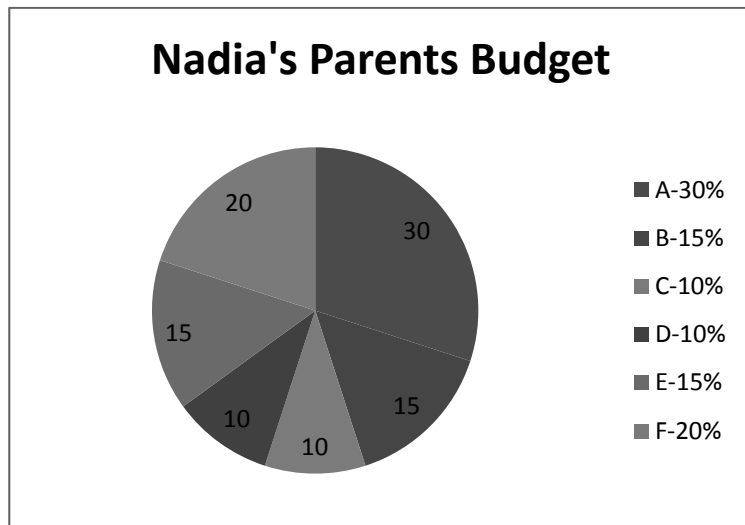|			Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

LEARNER ACTIVITY ANNEXURE

1.a. Nadia has moved to the city and bought her own house. She decides to compare her monthly budget of R15 000 to her parents monthly budget of R20 000. Illustrate Nadia's parent's budget on a pie chart, using the table below.
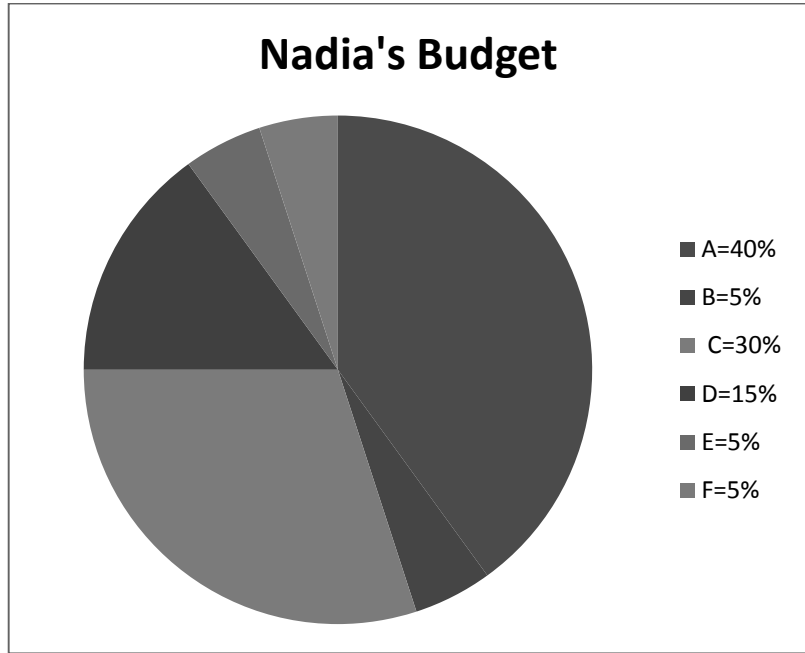
		Nadia's parents budget (%)	Nadia's Budget (%)
A	Food, bond, electricity	30	40
B	Insurance, medical aid	15	5
C	Clothing and personal care	10	30
D	Communication (cellphone, computer, etc.	10	15
E	Savings	15	5
F	other	20	5

1.a .Nadia's parent's budget

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1.b. Nadia's budget

Nadia's Budget

■ A=40%

■ B=5%

■ C=30%

■ D=15%

■ E=5%

■ F=5%

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	8	TOPIC	REPRESENTING DATA(Histograms) LP32: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Read values directly from the values provided on histogram graphs. Draw a histogram graph from a given table of data. Estimate values from given histograms. Organise data using an appropriate table, decide on the most appropriate format for representing the data (i.e. actual values or percentages). Analyse histogram graphs and make deductions about trends in the data and predictions for the future.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Read values directly from the table of values **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Representing data** Represent multiple sets of collected data using histograms .	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q2 and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook- Spot On 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011)

Read information from graphs and, if necessary, use estimation to determine values on the graphs. Analyse data presented in graphs in order to identify trends in the data to facilitate finding answers to the questions posed regarding issues relating to national and global issues. Owing to the large and complex nature of the data dealt with in relation to national and/or global issues, it is expected that more complex estimation will be required (e.g. *given that a bar representing the population of a particular age group lies between 23 000 000 and 24 000 000, the population in that age group is approximately 23 500 000*).		7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

LEARNER ACTIVITY ANNEXURE

1.A group of 24 learners were asked how many hours of computer games or playstation games they played on average per week. The results are as follows:

21 6 6 10 6 26 21 8 1 7 11 16 2 2 12 12 16   17 3 4 15 3 4 18

a. Select a suitable size for class intervals.
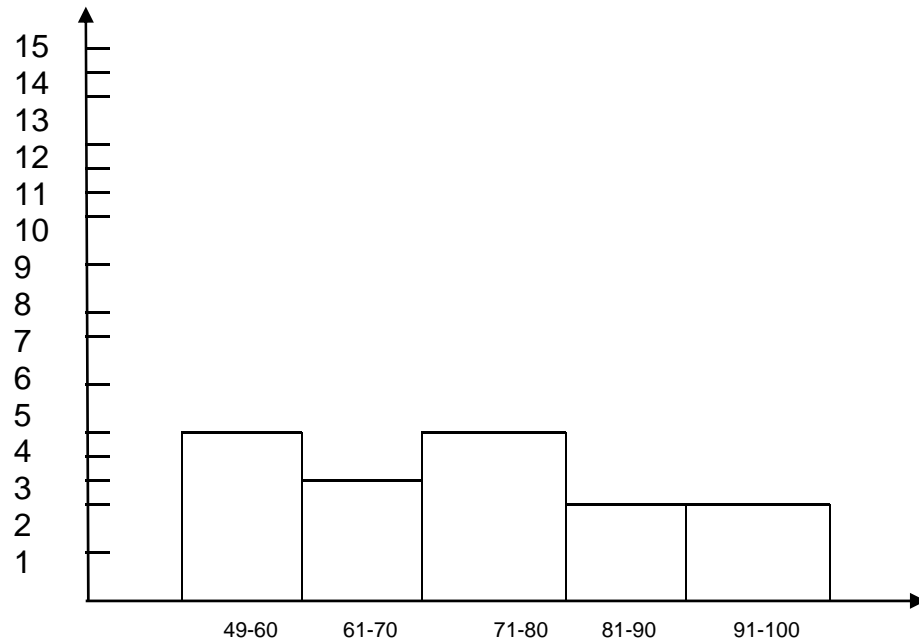
b. Record the results in a frequency table.

Answer:

Number of hours	Frequency
0-5	7
6-10	6
11-15	4
16-20	4
21-25	2
26-30	1

2. Frequency table is a prerequisite to drawing a histogram. Draw the Histogram.

Class interval	Tally	Frequency
49 – 60	////	4
61 – 70	///	3
71 – 80	////	4
81 – 90	//	2
91 – 100	//	2
	Total	15

Histogram: Masses of 15 learners

1 mark for each 'bar'
1 mark each for labeling the axes
1 mark for the histogram title   (10)

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	8	TOPIC	REPRESENTING DATA(Bar Graphs) LP33: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Read values directly from the values provided on Bar graphs. Draw a Bar graph from a given table of data. Estimate values from given Bar graphs. Organise data using an appropriate table, decide on the most appropriate format for representing the data (i.e. actual values or percentages). Analyse Bar graphs and make deductions about trends in the data and predictions for the future.			

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Read values directly from the table of values **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Representing data** Represent multiple sets of collected data using single bar graphs with an understanding that each type of representation offers a different picture of the data and that certain types of representations are more appropriate for particular types of data (e.g. *Although it would be possible to use a pie chart to show the monthly rainfall in a town, it would be difficult to identify trends in the rainfall pattern from this chart. A bar graph and especially a line graph would allow for a much more in-depth analysis of the trends in the rainfall data.*); and the effect that the scale of a set of axes and the point at which the axes cross can have on the impression created by a graph.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q1 continued and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	Recommended texts and/or resources: 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks

|			
Read information from B**ar** graphs and, if necessary, use estimation to determine values on the graphs. Analyse data presented in **Bar** graphs in order to identify trends in the data to facilitate finding answers to the questions posed regarding issues relating to national and global issues. Owing to the large and complex nature of the data dealt with in relation to national and/or global issues, it is expected that more complex estimation will be required (e.g. *given that a bar representing the population of a particular age group lies between 23 000 000 and 24 000 000, the population in that age group is approximately 23 500 000*).			Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		**HOD:**	
Sign:		**Sign:**	
Date:		**Date:**	

LEARNER ACTIVITY ANNEXURE

1. The table below illustrates the monthly bookings of Malong Caravan Park. Draw the bar graph to illustrate the frequency of bookings per month.

Month	No. of sites booked
January	4000
February	2000
March	2500
April	4000
May	2500
June	3500
July	4000
August	4000
September	3500
October	4000
November	2500
December	3500

Answer:

Caravan Park Bookings

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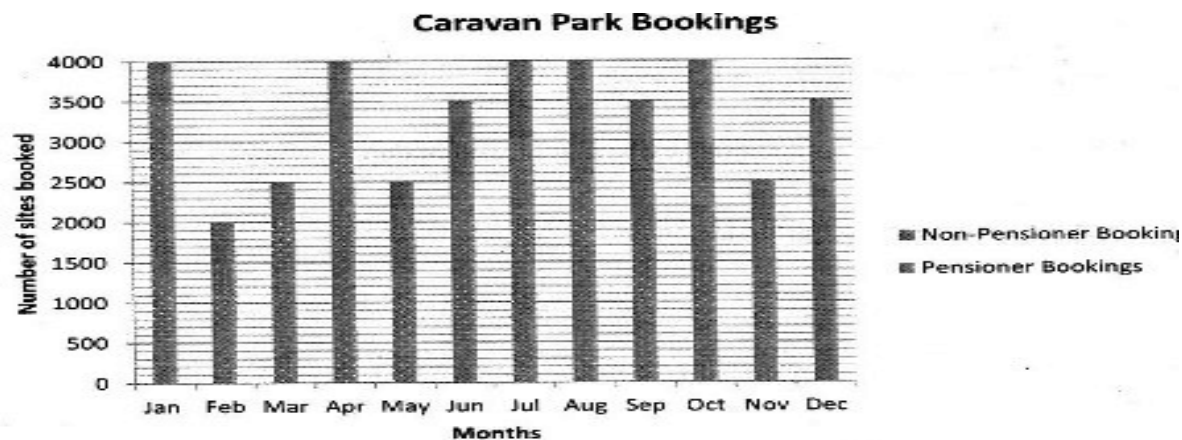
GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	8	TOPIC	REPRESENTING DATA(Line graphs) LP34: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Read values directly from the values provided on Line and broken line graphs. Draw a Line graph from a given table of data. Estimate values from given Line graphs. Organise data using an appropriate table, decide on the most appropriate format for representing the data (i.e. actual values or percentages). Analyse Line graphs and make deductions about trends in the data and predictions for the future.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Read values directly from the table of values **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Representing data** Represent multiple sets of collected data using line and broken line graphs with an understanding that each type of representation offers a different picture of the data and that certain types of representations are more appropriate for particular types of data (e.g.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q1 continued and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar

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Although it would be possible to use a pie chart to show the monthly rainfall in a town, it would be difficult to identify trends in the rainfall pattern from this chart. A bar graph and especially a line graph would allow for a much more in-depth analysis of the trends in the rainfall data.); and the effect that the scale of a set of axes and the point at which the axes cross can have on the impression created by a graph. Read information from Line graphs and, if necessary, use estimation to determine values on the graphs. Analyse data presented in Line graphs in order to identify trends in the data to facilitate finding answers to the questions posed regarding issues relating to national and global issues.			question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

| **Name of Teacher:**		**HOD:**	
Sign:		**Sign:**	
Date:		**Date:**	

LEARNER ACTIVITY ANNEXURE

1. The graph below shows the maximum and minimum temperatures of five world cities for 8 March 2011. Draw the line graphs for the maximum and minimum temperatures of five world cities for 8 March 2011, using the table below:

	Amsterdam	Harare	Hong Kong	London	New Deli
Maximum degrees Celsius	8	29	20	10	27
Minimum degrees Celsius	3	14	10	-1	13

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Answer:

The graph below shows the maximum and minimum temperatures of five world cities for 8 March 2011.

THE MAXIMUM AND MINIMUM TEMPERATURES OF FIVE WORLD CITIES FOR 8 MARCH 2011
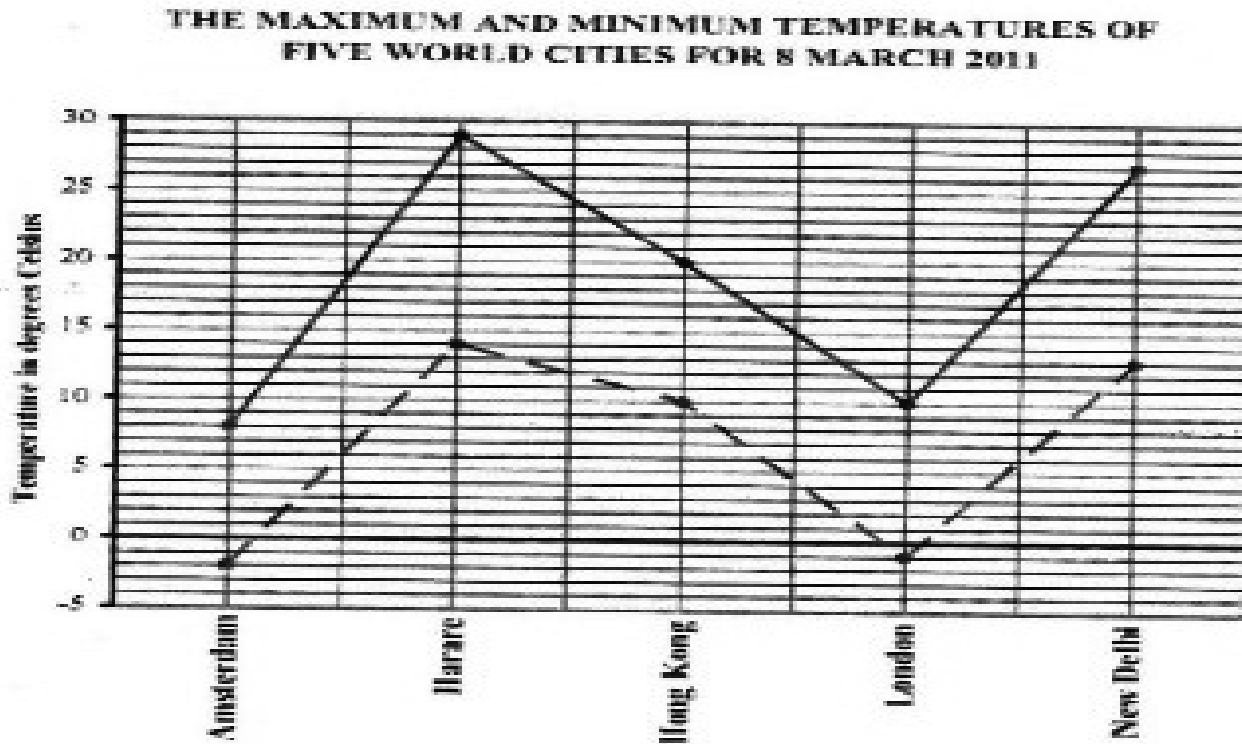
GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	8	TOPIC	REPRESENTING DATA(Multiple bar graph and Compound/vertical stack graphs) LP35: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Read values directly from the values provided on **Multiple bar graph and Compound/vertical stack graphs**. Draw a **Multiple bar graph and Compound/vertical stack graphs** from a given table of data. Estimate values from given **Multiple bar graph and Compound/vertical stack graphs** Organise data using an appropriate table, decide on the most appropriate format for representing the data (i.e. actual values or percentages), and decide on the most appropriate graph needed to represent the data. Analyse **Multiple bar graph and Compound/vertical stack graphs** and make deductions about trends in the data and predictions for the future.			

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Read values directly from the table of values **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Representing data** Represent multiple sets of collected data using multiple bar graphs and compound/vertical stack graphs; Read information from **Multiple bar graph and Compound/vertical stack graphs** and, if necessary, use estimation to determine values on the graphs.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q1 continued and/ or: Select appropriate task from resources in the resources column	Pre- knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers

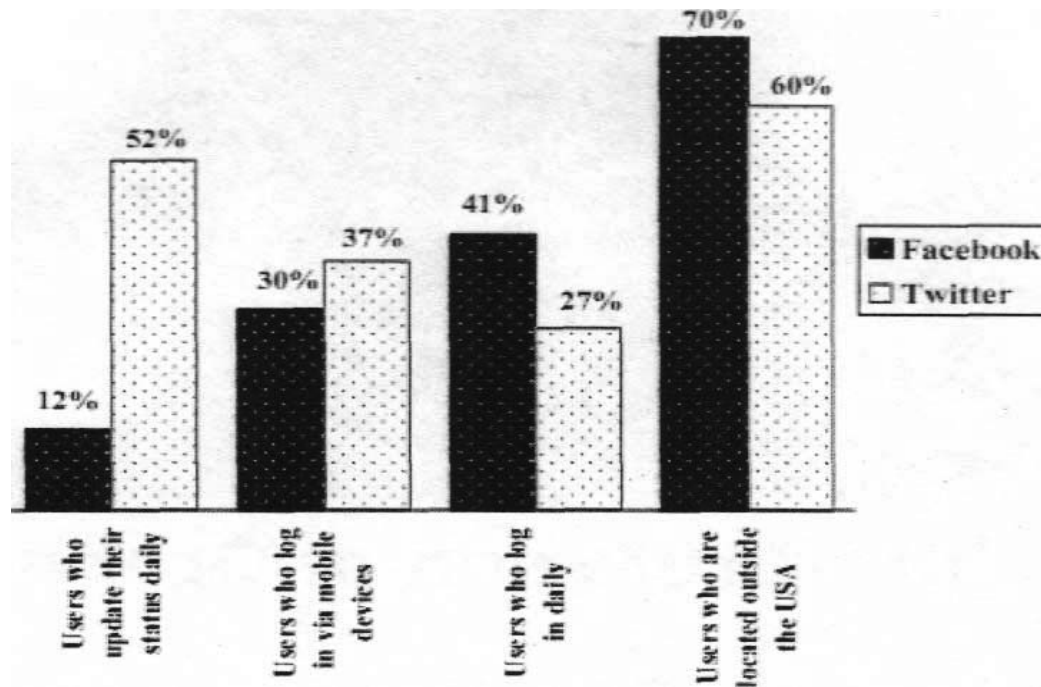|			
Analyse data presented in graphs in order to identify trends in the data to facilitate finding answers to the questions posed regarding issues relating to national and global issues. Owing to the large and complex nature of the data dealt with in relation to national and/or global issues, it is expected that more complex estimation will be required (e.g. *given that a bar representing the population of a particular age group lies between 23 000 000 and 24 000 000, the population in that age group is approximately 23 500 000*).			Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		**Sign:**	
Date:		**Date:**	

LEARNER ACTIVITY ANNEXURE

1. The following table illustrates the percentage of users of facebook and twitter for December 2010. Draw the compound bar graph to show the comparison of users of facebook and twitter for December 2010

Users	% Users who update their status daily	% users who log in via mobile devices	% users who log in daily	% users who are located outside the USA
Facebook	12	30	41	70
Twitter	52	37	27	60

Answer

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	8	TOPIC	REPRESENTING DATA(Interpreting and analysing data- 1) LP36: TIME:60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Read and select data from representations (i.e. tables and graphs) containing data in order to answer questions relating to the data. Identify and describe trends/patterns in data presented in tables/graphs and explain what the data is saying about the question/problem for which the data was collected. Investigate how the choice of representation of the data impacts on the impressions created and conclusion(s) that can be drawn taking into account that: using percentages to represent data values in a table or graph; using actual values to represent data values in a table or graph; when comparing different categories of data; the choice of scale on the axes and/or the point at which the axes cross; tables.		

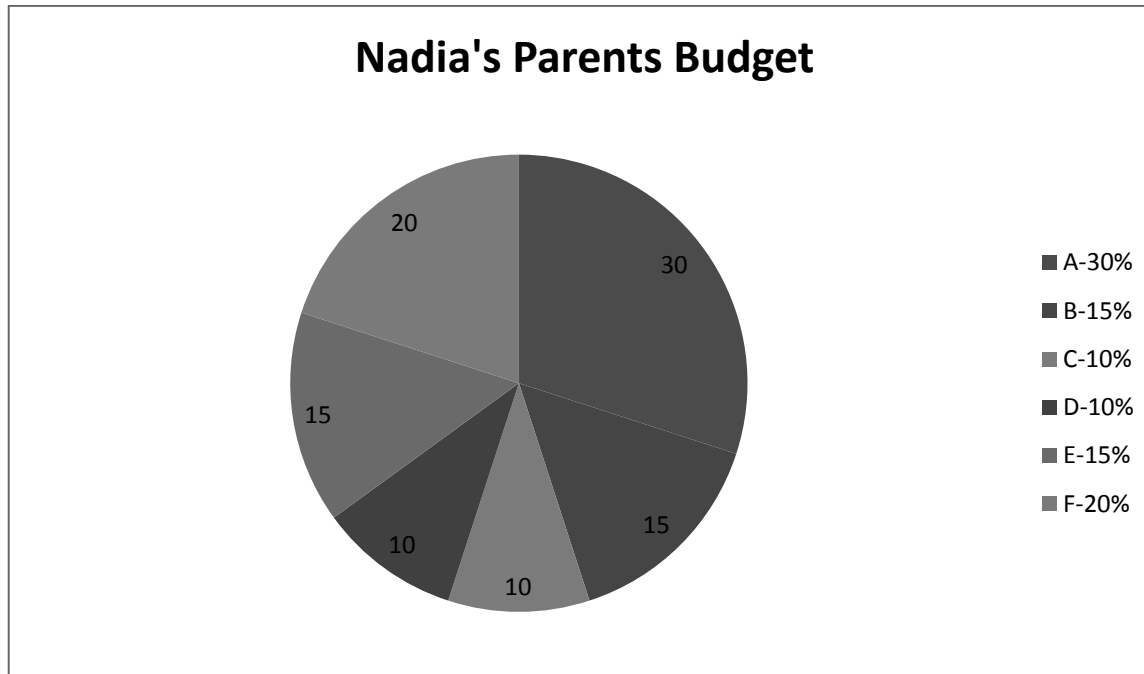| TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Read values directly from the values provided on graphs. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Interpreting and analysing data** Read and select data from representations (i.e. tables and graphs) containing data in order to answer questions relating to the data. Identify and describe trends/patterns in data presented in tables/graphs and explain what the data is saying about the question/problem for which the data was collected. Investigate how the choice of representation of the data impacts on the impressions created and conclusion(s) that can be drawn, taking into account that: using percentages to represent data values in a table or graph is useful for comparing relationships in size, but does not reveal the size of the population/sample; using actual values to represent data	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1 (a-b) and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q1 (c-d) and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook 2. Worksheets 3. Calculator 4. NSE National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Sources of national/global

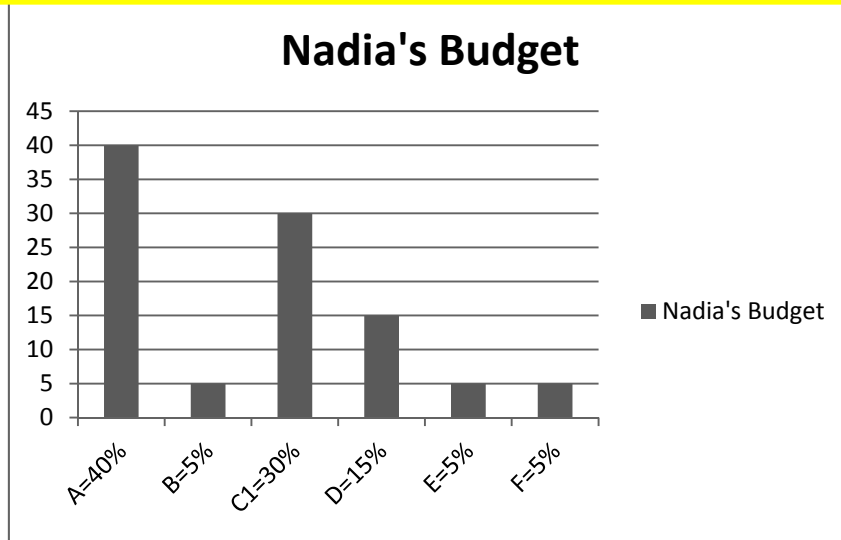| values in a table or graph shows the population/sample size, but is often not useful for showing the relationship between categories clearly; when comparing different categories of data, if there is an unequal number of data items in each category, then the use of actual values or percentage values to represent the data will affect the impression of the data that is created; the choice of scale on the axes and/or the point at which the axes cross impact on the impression created by the graph; tables will often contain more information than graphs, but trends/patterns are less easy to observe.			statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

Reflection/Notes:

Name of Teacher:		**HOD:**	
Sign:		**Sign:**	
Date:		**Date:**	

LEARNER ACTIVITY ANNEXURE

1. Nadia has moved to the city and bought her own house. She decides to compare her monthly budget of R15000 rand, to her parents monthly budget of R20000.

Nadia's Parents Budget

Legend:
- A-30%
- B-15%
- C-10%
- D-10%
- E-15%
- F-20%

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Nadia's Budget

Key for the pie charts

A	Food, bond, electricity
B	Insurance, medical aid
C	Clothing and personal care
D	Communication (cellphone, computer, internet service
E	Savings
F	Other

a. Write down two examples of monthly expenses that could be considered as 'other' expenses. (Transport and Entertainment)

b. State the % of Nadia's monthly income that she spends on communication. (15%)

c. Calculate the actual amount that Nadia's parents save each month. (R3000)

d. Calculate the actual amount that Nadia spends on clothing and personal care. (R4500)

The graph below shows the maximum and minimum temperatures of five world cities for 8 March 2011.

THE MAXIMUM AND MINIMUM TEMPERATURES OF FIVE WORLD CITIES FOR 8 MARCH 2011
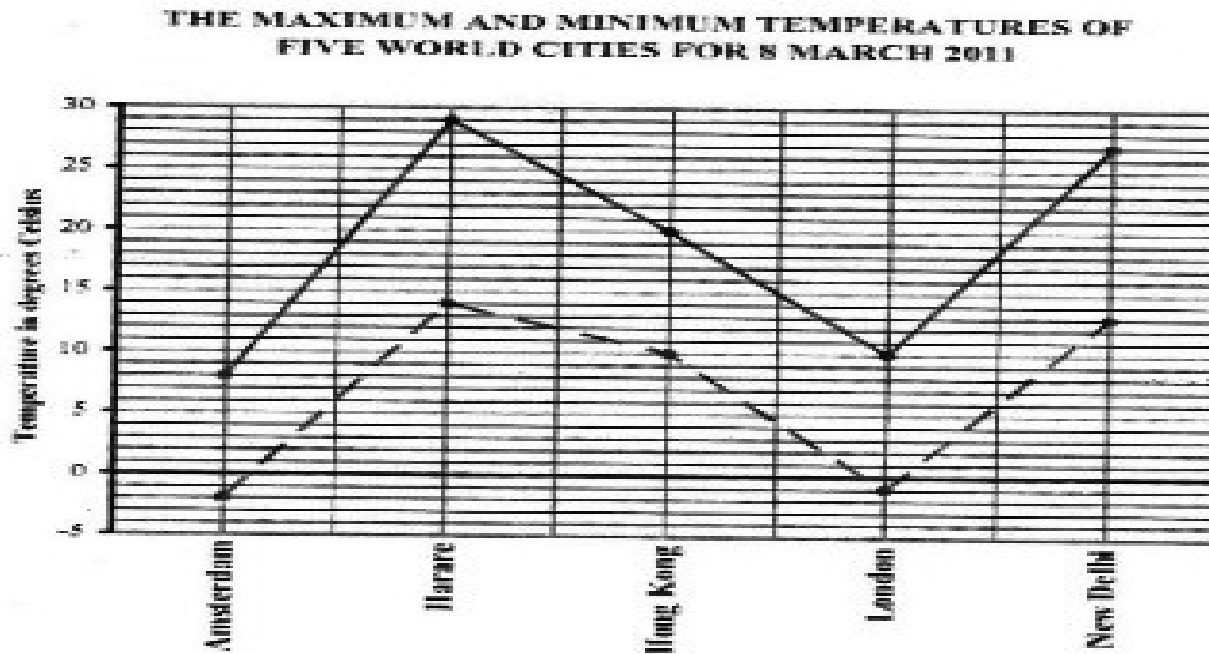
a.   Write down New Deli's maximum temperature. (27)

b.   Which city had a minimum temperature that was higher than London's maximum temperature? (Harare)

c.   Which city had the lowest minimum temperature? (Amsterdam)

d.   Which city had the highest minimum temperature as well as the highest maximum temperature? (Harare)

e.   Determine the temperature range for Amsterdam. [8-(-2)=10]

f.   Convert New Deli's minimum temperature to degrees Fahrenheit, using the formula: F=1,8 x degrees+32. (1.8x13+32= 55.4 Fahrenheit)

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	9	TOPIC	REPRESENTING DATA(Interpreting and analysing data - 2)
							LP37: TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Ask questions about the way in which data has been collected, organised, summarised and represented to reveal possible sources of error/bias/misinterpretation. Learners should know to ask questions about: the size of the sample; the representivity of the sample; the methods used for collecting data; the neutrality of the data collection process; whether the data collected was fact or opinion; the way in which the data was sorted and/or grouped; the sizes of the groups used in grouping the data; the type of measure used to determine the average of the data; the spread (range) of the data and what this spread says about the data. Compare different representations of multiple sets of data and explain differences. Investigate situations in which summarised and/or represented data is interpreted in different ways Develop opposing arguments using the same summarised and/or represented data.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Read values directly from the values provided on graphs. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Analyse data presented in graphs In order to: Identify trends in the data to facilitate finding answers to the questions posed regarding issues relating tonational and global issues. **Interpreting and analysing data** Ask questions about the way in which data has been collected, organised, summarised and represented to reveal possible sources of error/bias/misinterpretation.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure – Q1 and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to Learner Activity Annexure – Q2 and/ or: Select appropriate task from resources in the resources column	Pre- knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	Recommended texts and/or resources: 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers

|			
Learners should know to ask questions about: the size of the sample; the representivity of the sample; the methods used for collecting data; the neutrality of the data collection process; whether the data collected was fact or opinion; the way in which the data was sorted and/or grouped; the sizes of the groups used in grouping the data; the type of measure used to determine the average of the data; the spread (range) of the data and what this spread says about the data. Compare different representations of multiple sets of data and explain differences. Investigate situations in which summarised and/or represented data is interpreted in different ways.(e.g. *A newspaper may use statistics on the number of deaths related to motor vehicles to paint a picture of how dangerous it is to drive in South Africa. The Minister of Transport, on the other hand, may applaud the fact that the statistics show a drop in the number of road deaths*.) Develop opposing arguments using the same summarised and/or represented data. (e.g. *Analyse data on the matric results and explain how the statistics may be interpreted favourably by the Education Minister and negatively by a newspaper*.) In order to*:* Find answers to the questions posed regarding issues relating to the personal lives of learners, the wider community, and national and global issues. It is essential that the interpretation and analysis of data occur at every stage during the statistical cycle: when drawing up a questionnaire, questions should be asked about the reliability of the questionnaire; when organising data, decisions must be made about whether to express data as actual values or percentages, and the implications of each format; once measures of central tendency and spread have been calculated, the meaning of these measures in relation to the data should be determined; once graphs have been drawn to represent data, the graphs should be analysed to determine trends or meaning in the data; when conclusions are made from organised, summarised and represented data on a question or problem, those conclusions must be analysed in terms of each stage of the statistical cycle to determine the reliability and validity of the conclusions.			8. GDE Data Bank Math Lit Questions and answers Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

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Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

LEARNER ACTIVITY ANNEXURE

1. The graph below illustrates the monthly bookings of Malong Caravan Park

Caravan Park Bookings
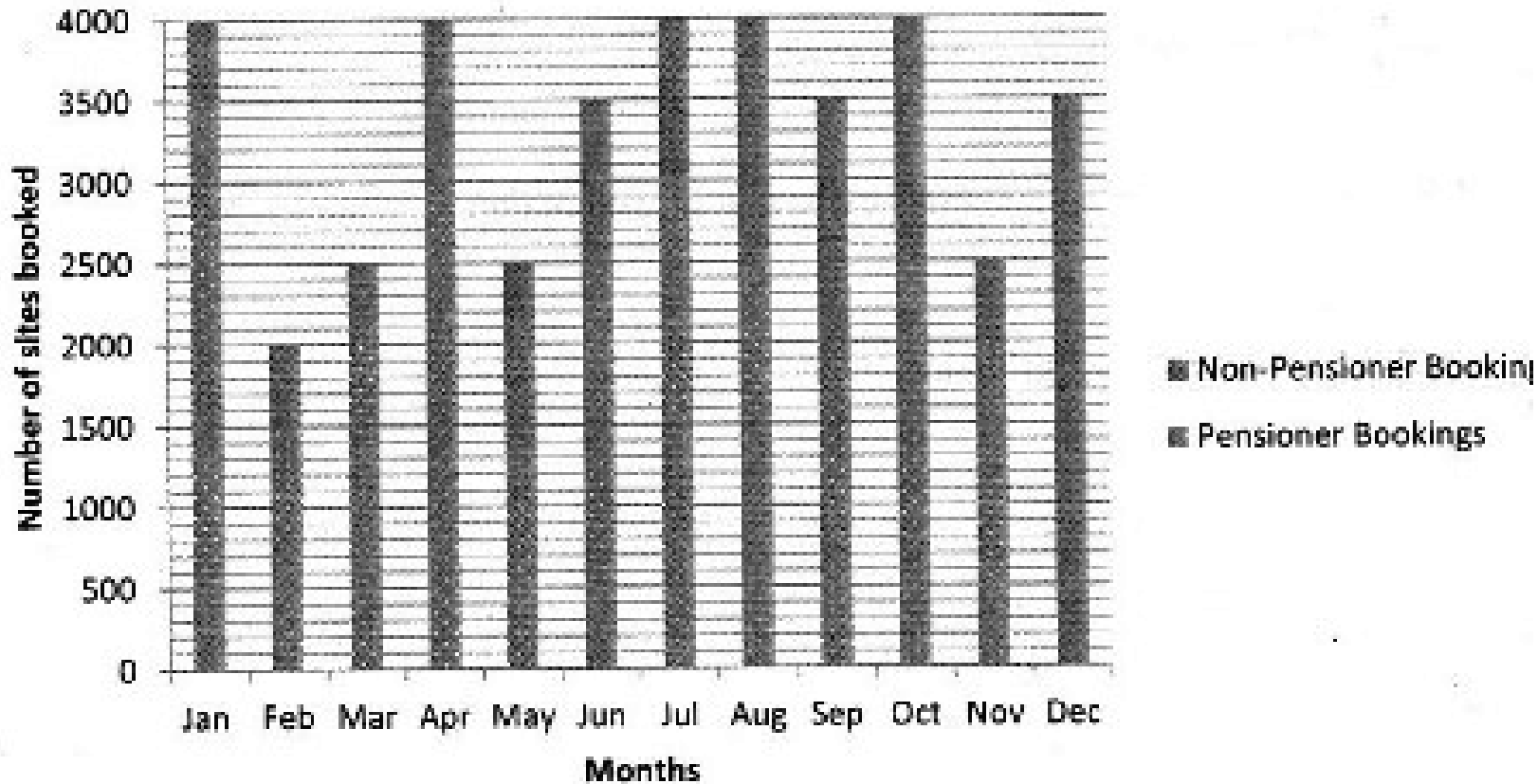
a. Why do you think the caravan park's bookings for December is greater than those for the month of February? (more people go on holiday during December than in February.)

b. Calculate the mean number of total bookings made by pensioners.

Mean = (3500+1500+2000+3000+2000+2500+3000+2500+2000+3500)÷12 = 2500

c. Determine the range of the number of bookings made? (4000-2000=2000)

d. Every month, the caravan park has fixed expenses of R65000 and a further expense of R35 for every site booked. Determine the profit the caravan park had during the month of February. Income= (150x200=300 000); expenses= (65000+(35x2000) = 135 000; profit= 300 000-135000= R165 000

2. Facebook and Twitter are two international social networking sites. Individuals can use Facebook and Twitter to communicate with one another via the internet. Facebook has 500 million users, of which 230 are male. Twitter has 10 million users, of which 50,88 million are male. The graph below shows a comparison of Facebook and Twitter for December 2010.

    a. Give one example of a mobile device. (cellphone/ laptop/ iPad)

    b. Write down the percentage of Facebook users who logged in using mobile devices (30%)

    c. Calculate the percentage of Facebook users who did NOT update their status daily. (100%-12%=88%)

    d. Determine the number of Twitter users that logged in daily. (27%x106million= 28 620 000 or 28,62 million)

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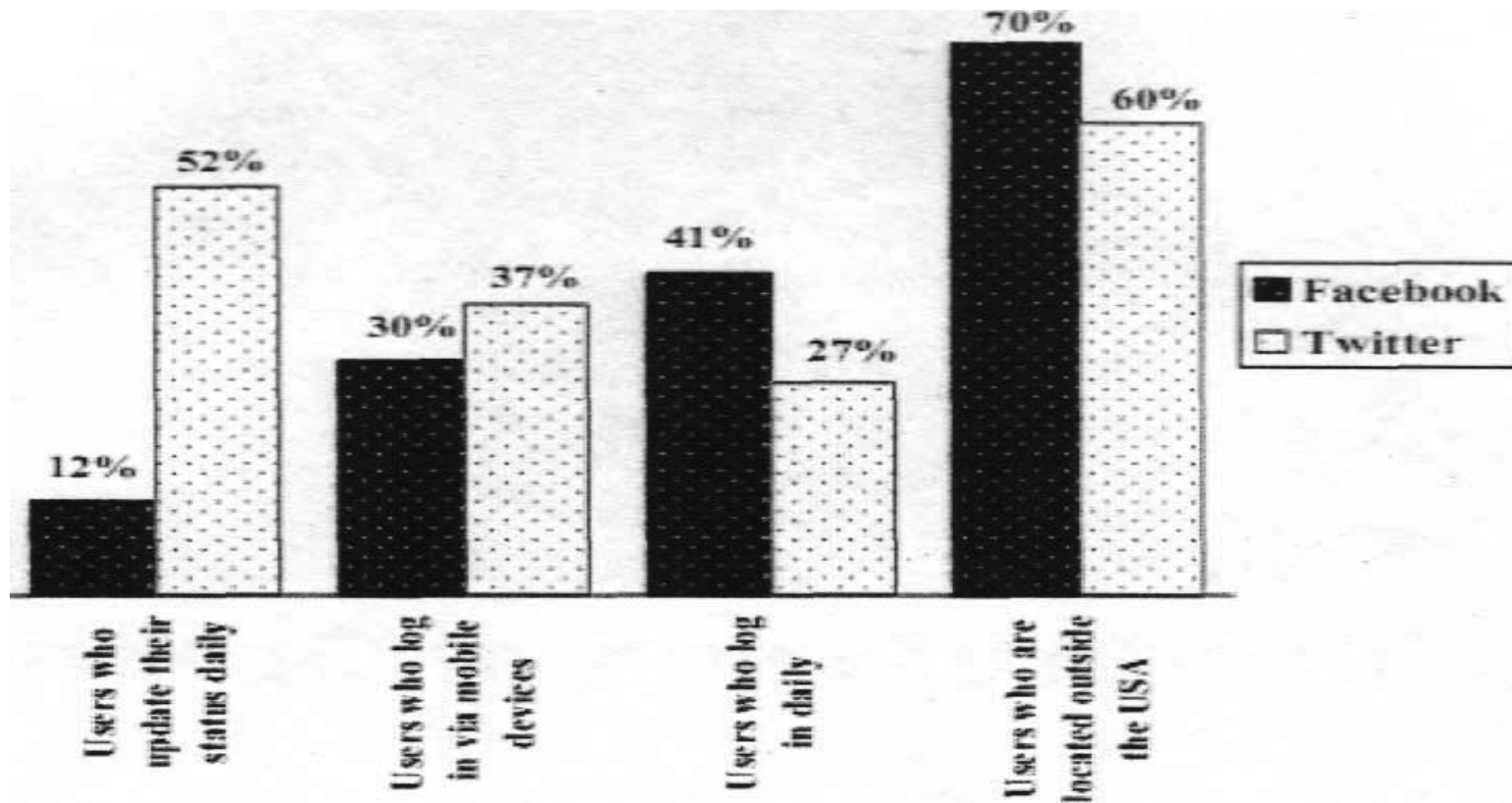
GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	9	TOPIC	REPRESENTING DATA(Consolidation) LP38 TIME: 60 min

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Read values directly from the values provided on graphs. Draw a specified graph from a given table of data. Estimate values from given graphs. Organise data using an appropriate table, decide on the most appropriate format for representing the data (i.e. actual values or percentages), and decide on the most appropriate graph needed to represent the data. Analyse graphs and make deductions about trends in the data and predictions for the future.			

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** Read values directly from the values provided on graphs. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Revision** **Representing data** Represent multiple sets of collected data using: pie charts; histograms; single bar graphs: line and broken line graphs; multiple bar graphs and compound/vertical stack graphs; box-and-whisker plots with an understanding of the following: that each type of representation offers a different picture of the data and that certain types of representations are more appropriate for particular types of data	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to Learner Activity Annexure - Assignment. **Homework:** Refer to Learner Activity Annexure - Assignment	Pre-knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	**Recommended texts and/or resources:** 1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers

(e.g. *Although it would be possible to use a pie chart to show the monthly rainfall in a town, it would be difficult to identify trends in the rainfall pattern from this chart. A bar graph and especially a line graph would allow for a much more in-depth analysis of the trends in the rainfall data.*); the effect that the scale of a set of axes and the point at which the axes cross can have on the impression created by a graph. Read information from graphs and, if necessary, use estimation to determine values on the graphs. Analyse data presented in graphs In order to*:* Identify trends in the data to facilitate finding answers to the questions posed regarding issues relating to national and global issues. Owing to the large and complex nature of the data dealt with in relation to national and/or global issues, it is expected that more complex estimation will be required (e.g. *given that a bar representing the population of a particular age group lies between 23 000 000 and 24 000 000, the population in that age group is approximately 23 500 000*). **Interpreting and analysing data** Read and select data from representations (i.e. tables and graphs) containing data in order to answer questions relating to the data. Identify and describe trends/patterns in data presented in tables/graphs and explain what the data is saying about the question/problem for which the data was collected. Investigate how the choice of representation of the data impacts on the impressions created and conclusion(s) that can be drawn, taking into account that: using percentages to represent data values in a table or graph is useful for comparing relationships in size, but does not reveal the size of the population/sample; using actual values to represent data values in a table or graph shows the population/sample size, but is often not useful for showing the relationship between categories clearly; when comparing different categories of data, if there is an unequal number of data items in each category, then the use of actual values or percentage values to represent the data will affect the impression of the data that is created; the choice of scale on the axes and/or the point at which the axes cross impact on the impression created by the graph; tables will often contain more information than graphs, but trends/patterns are less easy to observe. Ask questions about the way in which data has been collected, organised, summarised and represented to reveal possible sources of error/bias/misinterpretation. Learners should know to ask questions about: the size of the sample; the representivity of the sample; the methods used for collecting data; the neutrality of the data collection process; whether the data collected was fact or opinion; the way in which the data was sorted and/or grouped; the sizes of the groups used in grouping the data; the type of measure used to determine the average of the data; the spread (range) of the data and what this spread says about the data. Compare different representations of multiple sets of data and explain differences. Investigate situations in which summarised and/or represented data is interpreted in different ways.			8. GDE Data Bank Math Lit Questions and answers Textbooks Sources of national/global statistics (e.g. teenage behaviour → *Second National Youth Risk Behaviour Survey*; population statistics; motor accident statistics; education statistics; health statistics)

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(e.g. *A newspaper may use statistics on the number of deaths related to motor vehicles to paint a picture of how dangerous it is to drive in South Africa. The Minister of Transport, on the other hand, may applaud the fact that the statistics show a drop in the number of road deaths*.)

Develop opposing arguments using the same summarised and/or represented data. (e.g. *Analyse data on the matric results and explain how the statistics may be interpreted favourably by the Education Minister and negatively by a newspaper*.)

In order to*:*

Find answers to the questions posed regarding issues relating to the personal lives of learners, the wider community, and national and global issues.

It is essential that the interpretation and analysis of data occur at every stage during the statistical cycle: when drawing up a questionnaire, questions should be asked about the reliability of the questionnaire; when organising data, decisions must be made about whether to express data as actual values or percentages, and the implications of each format; once measures of central tendency and spread have been calculated, the meaning of these measures in relation to the data should be determined; once graphs have been drawn to represent data, the graphs should be analysed to determine trends or meaning in the data; when conclusions are made from organised, summarised and represented data on a question or problem, those conclusions must be analysed in terms of each stage of the statistical cycle to determine the reliability and validity of the conclusions.

Representing data

Level 1

Read values directly from the values provided on graphs.

Level 2
Draw a specified graph from a given table of data.
Estimate values from given graphs.

Level 3
Organise data using an appropriate table, decide on the most appropriate format for representing the data (i.e. actual values or percentages), and decide on the most appropriate graph needed to represent the data.

Level 4
Analyse graphs and make deductions about trends in the data and predictions for the future.

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LEARNER ACTIVITY ANNEXURE

Possible assessment (incorporating all the stages of the statistical cycle):
Assignment: *Risky behaviour*
Collect, organise, summarise and represent data on drug and alcohol usage drawn from learners in different grades and from different gender and racial groups. Analyse the data in relation to the national results presented in the 1st or 2nd *National Youth Risk Behaviour Survey*.
Present the findings of the study to the management, teachers and learners in the school.

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	9	TOPIC	EVALUATING EXPRESSIONS LIKELIHOOD(games, weather predictions) LP39: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Work with situations involving likelihood, including -games that make use of coin and dice - **weather predictions** Explain whether or not a particular rainfall prediction indicates that it is more or less likely to rain. Analyse a table of rainfall data for a town and make predictions about the chance of rain in that town during a particular month during the year. Evaluate and critique the validity of expressions and interpretations of likelihood presented in newspapers and other sources of information.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** An understanding of the concept of likelihood, together with a sense of whether an event is more or less likely to take place. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Evaluating Expressions involving likelihood** Work with situations involving likelihood, including	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column	Pre- knowledge –5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NS C exemplar question papers

- games that make use of coin and dice - **weather predictions** **In order to:** Evaluate and critique the validity of expressions and interpretations of likelihood presented in newspapers and other sources of information. (e.g. discuss the validity of such statements as: - 'if you choose the same numbers every week for the lottery, then this will increase your chances of winning', - 'the more tickets you buy, the higher your chances of winning', - 'this team has a higher chance of winning the match than the other team.')			8. GDE Data Bank Math Lit Questions and answers Textbooks Coins and dice Games involving coins and dice; weather reports;

Reflection/Notes:

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	9	TOPIC	EVALUATING EXPRESSIONS LIKELIHOOD (Tests, cosmetic products)LP40: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Work with the following situations involving likelihood: - tests where there is the chance of inaccurate results - products making statements regarding likelihood Evaluate and critique the validity of expressions and interpretations of likelihood presented in newspapers and other sources of information. (e.g. a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles)		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** An understanding of the concept of likelihood (games, weather predictions), together with a sense of whether an event is more or less likely to take place. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do th e calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Evaluating Expressions involving likelihood** Work with situations involving likelihood, including - tests where there is the chance of inaccurate results (e.g. pregnancy test, drug test) - products making statements regarding likelihood (e.g. a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles)	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column	Pre- knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NS C exemplar question papers

In order to: Evaluate and critique the validity of expressions and interpretations of likelihood presented in newspapers and other sources of information. (e.g. a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles)			8. GDE Data Bank Math Lit Questions and answers Textbooks cosmetic and other products making statements regarding likelihood (e.g. 80% of the women who used this product …); products showing success and failure rates for their usage (e.g. pregnancy tests; drug tests); etc.

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	9	TOPIC	EVALUATING EXPRESSIONS LIKELIHOOD (Lottery, gambling, risk assessments, newspaper articles) LP41: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Work with situations involving likelihood, including - national lotteries (e.g. Powerball) - gambling scenarios (e.g. slot machines) - risk assessment (e.g. in applications for car insurance) - newspaper articles that refer to 'likelihood', 'chance', and/or 'probability'. Evaluate and critique the validity of expressions and interpretations of likelihood presented in newspapers and other sources of information. (e.g. discuss the validity of such statements as: - 'if you choose the same numbers every week for the lottery, then this will increase your chances of winning', - 'the more tickets you buy, the higher your chances of winning', - 'this team has a higher chance of winning the match than the other team.')

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** An understanding of the concept of likelihood (drug tests), together with a sense of whether an event is more or less likely to take place. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column.	Pre- knowledge –5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typi cal examination questions

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LESSON PREPARATION	Homework:		6. GDE Prelim question
Evaluating Expressions involving likelihood	Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column		papers (2009 – 2011)
Work with situations involving likelihood, including			7. DoE NSC exempl ar question papers
- national lotteries (e.g. Powerball)			8. GDE Data Bank Math Lit Questions and answers Textbooks newspaper articles referring to likelihood; information on a lottery; etc.
- gambling scenarios (e.g. slot machines)			
- risk assessment (e.g. in applications for car insurance)			
- newspaper articles that refer to 'likelihood', 'chance', and/or 'probability'.			
In order to:			
Evaluate and critique the validity of expressions and interpretations of likelihood presented in newspapers and other sources of information. (e.g. discuss the validity of such statements as:			
- 'if you choose the same numbers every week for the lottery, then this will increase your chances of winning', - 'the more tickets you buy, the higher your chances of winning', - 'this team has a higher chance of winning the match than the other team.')			

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Date:		Date:	

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	10	TOPIC	EVALUATING EXPRESSIONS LIKELIHOOD(Consolidation) LP42: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to:

The Learners should be able to:

Work with situations involving likelihood, including
- games that make use of coin and dice
- weather predictions
- tests where there is the chance of inaccurate results (e.g. pregnancy test, drug test)
- products making statements regarding likelihood (e.g. a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles)
- national lotteries (e.g. Powerball)
- gambling scenarios (e.g. slot machines)
- risk assessment (e.g. in applications for car insurance)
- newspaper articles that refer to 'likelihood', 'chance', and/or 'probability'.

Evaluate and critique the validity of expressions and interpretations of likelihood presented in newspapers and other sources of information. (e.g. discuss the validity of such statements as:

- 'if you choose the same numbers every week for the lottery, then this will increase your chances of winning',
- 'the more tickets you buy, the higher your chances of winning',
- 'this team has a higher chance of winning the match than the other team.')

Explain whether or not a particular rainfall prediction indicates that it is more or less likely to rain.

Critique the use of references to likelihood/probability values in newspaper articles.

Analyse a table showing risk assessment profiles for people from different age groups and explain why particular age groups are classified as higher risk than others.

Analyse a game involving likelihood and make a deduction about the fairness of the game.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION**	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :**	Pre- knowledge – 5min Baseline- 10 min	1. Textbook 2. Worksheets 3. Calculator

Pre-knowledge assessment An understanding of the concept of likelihood (games, weather predictions, drug tests, gambling), together with a sense of whether an event is more or less likely to take place. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Revision** **Evaluating Expressions involving likelihood** Work with situations involving likelihood, including -games that make use of coin and dice - weather predictions - tests where there is the chance of inaccurate results (e.g. pregnancy test, drug test) - products making statements regarding likelihood (e.g. a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles) - national lotteries (e.g. Powerball) - gambling scenarios (e.g. slot machines) - risk assessment (e.g. in applications for car insurance) - newspaper articles that refer to 'likelihood', 'chance', and/or 'probability'. **In order to:** Evaluate and critique the validity of expressions and interpretations of likelihood presented in newspapers and other sources of information. (e.g. discuss the validity of such statements as: - 'if you choose the same numbers every week for the lottery, then this will increase	Refer to Teacher activity. **Performance Task:** Refer to teacher activity column and/ or: Select appropriate task from resources in the r esources column. **Homework:** Refer to teacher activity column and/ or: Select appropriate task from resources in the r esources column	Performance task- 20 min Home-work- 25 min	4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Coins and dice Games involving coins and dice; weather reports; newspaper articles referring to likelihood; cosmetic and other products making statements regarding likelihood (e.g. 80% of the women who used this product …); products showing success and failure rates for their usage (e.g. pregnancy tests; drug tests); information on a lottery; etc.

your chances of winning',
- 'the more tickets you buy, the higher your chances of winning',
- 'this team has a higher chance of winning the match than the other team.')

Assessment

Level 1
Identify the percentage chance of rain for a particular town from a weather report in a newspaper.
Explain the meaning of terms associated with likelihood (e.g. event; outcome).

Level 2
Express the likelihood of an event using fraction, percentage and decimal notation.
Identify all of the possible outcomes for a particular event (e.g. rolling a dice; gambling game).
Explain whether or not a particular rainfall prediction indicates that it is more or less likely to rain.

Level 3
Conduct an experiment to compare the experimental likelihood of an event to its theoretical likelihood.
Identify appropriate values from a given table of data values (e.g. on motor vehicle fatalities in South Africa) and express the probability of certain events shown on the table.
Develop a game involving likelihood and administer the game to another learner in the class.

Level 4
Analyse a table of rainfall data for a town and make predictions about the chance of rain in that town during a particular month during the year.
Explain whether the statement "if I take the same Lottery numbers every week then my chances of winning increase" makes sense.
Critique the use of references to likelihood/probability values in newspaper articles.

Analyse a table showing risk assessment profiles for people from different age groups and explain why particular age groups are classified as higher risk than others.
Analyse a game involving likelihood and make a deduction about the fairness of the game.

Investigation: Likelihood in the world

Investigate how betting odds are determined for a sports event and critique the reliability

of these odds. OR Investigate the following statements in the contest of the national lottery and / or gambling: "If you choose the same numbers every week for the lottery, then this will increase your chances of winning." "The more tickets you buy, the higher your chances of winning." "The likelihood of winning a game improves if there has not been a winner for some time." OR Investigate the use of likelihood in determining "risk" in applications for car, household and life insurance.			

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	10	TOPIC	PREDICTION (games, weather predictions)LP43: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Work with situations involving likelihood, including -games that make use of coin and dice - weather predictions Recognise that expressions of likelihood are only predictions about the outcome of an event. Recognise that expressions of likelihood are predictions about the future based on events of the past. Recognise that expressions of likelihood can only predict the trend of an outcome over a long period of time (for a very large number of trials) and cannot accurately predict the outcome of single events. Recognise that there are two different ways of making a prediction about the future. Recognise the difference between situations where the outcome of one event impacts on the outcome of another and situations where the two outcomes do not impact on each other. Recognise the difference between predictions that are based on knowledge and intuition about a situation (e.g. the outcome of a sports match) and expressions of likelihood that are based on long-term trends in data.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** An understanding of the concept of likelihood , together with a sense of whether an event is more or less likely to take place.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column.	Pre- knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011)

	Homework: Refer to teacher activity column and/or: Select appropriate task from resources in the resources column		5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Coins and dice Games involving coins and dice; weather reports;
<u>Baseline assessment tasks</u> Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. <u>**LESSON PREPARATION**</u> **Prediction** Work with situations involving likelihood, including - games that make use of coin and dice - weather predictions <u>In order to:</u> Recognise that expressions of likelihood are only predictions about the outcome of an event.) Recognise that expressions of likelihood are predictions about the future based on events of the past. Recognise that expressions of likelihood can only predict the trend of an outcome over a long period of time (for a very large number of trials) and cannot accurately predict the outcome of single events. Recognise that there are two different ways of making a prediction about the future: - Prediction based on the observation of a large number of actual events (referred to as determining the experimental o 'empirical' likelihood/probability o an event). - Prediction based on what is believed should/ might happen in a situation (referred to as determining in the theoretical likelihood/probability of an event). Recognise the difference between situations where the outcome of one event impacts on the outcome of another and situations where the two outcomes do not impact on each other.			

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Recognise the difference between predictions that are based on knowledge and intuition about a situation (e.g. the outcome of a sports match) and expressions of likelihood that are based on long-term trends in data. (e.g. *Even though we can use the historical win-lose record of two soccer teams to get a sense of who we believe might win in an upcoming match, there are simply too many other factors that impact on the performance of the teams (e.g. injuries of players; performance of the teams on the day) to be able to predict with certainty what the outcome of the match will be. As such, our "prediction" of who the winning team will be is based on personal preference or knowledge about the two teams rather than on long-term historical trends.*)			

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	10	TOPIC	PREDICTION (Tests, cosmetic products) LP44: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to:

The Learners should be able to:

Work with the following situations involving likelihood:

- tests where there is the chance of inaccurate results

- products making statements regarding likelihood

Recognise that expressions of likelihood are only predictions about the outcome of an event.

Recognise that expressions of likelihood are predictions about the future based on events of the past.

Recognise that expressions of likelihood can only predict the trend of an outcome over a long period of time (for a very large number of trials) and cannot accurately predict the outcome of single events.

 Recognise that there are two different ways of making a prediction about the future:

- Prediction based on the observation of a large number of actual events
- Prediction based on what is believed should/ might happen in a situation

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** An understanding of the concept of likelihood (games, weather predictions), together with a sense of whether an event is more or less likely to take place. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column and/ or: Select appropriate task from resources in the r esources column.	Pre- knowledge – 5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSI P Grade 10- 12 Learner Notes and Typical examination questions

LESSON PREPARATION	Homework:		6. GDE Prelim question

LESSON PREPARATION

Prediction

Work with situations involving likelihood, including

- tests where there is the chance of inaccurate results (e.g. pregnancy test, drug test)

- products making statements regarding likelihood (e.g. a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles)

<u>In order to:</u>

Recognise that expressions of likelihood are only predictions about the outcome of an event.)

Recognise that expressions of likelihood are predictions about the future based on events of the past.

Recognise that expressions of likelihood can only predict the trend of an outcome over a long period of time (for a very large number of trials) and cannot accurately predict the outcome of single events. Recognise that there are two different ways of making a prediction about the future:

- Prediction based on the observation of a large number of actual events (referred to as determining the experimental o 'empirical' likelihood/probability o an event). (e.g. if a type of medicine is being administered to a group of ten people during a trial and one person develops a headache, then the experimental likelihood of using the medicine and developing headaches in this trail is 1/10. If however, the medicine were tested on 10 000 people, of whom 100 developed headaches, then the likelihood for this larger experiment is 1/1000. The likelihood for the second and larger experiment is possibly a more accurate reflection of the true likelihood of developing headaches when using the medicine because of the greater number of people involved in the experiment.)

Homework:
Refer to teacher activity column and/ or: Select appropriate task from resources in the r esources column

6. GDE Prelim question papers (2009 – 2011)

7. DoE NSC exemplar question papers

8. GDE Data Bank Math Lit Questions and answers Textbooks cosmetic and other products making statements regarding likelihood (e.g. 80% of the women who used this product …); products showing success and failure rates for their usage (e.g. pregnancy tests; drug tests); etc.

- Prediction based on what is believed should/ might happen in a situation (referred to as determining in the theoretical likelihood/probability of an event). (e.g. based on the results of the larger experiment, the manufacturers of the medicine can now state on the bottles that 1 in 1000 people who use the medicine may develop headaches. This value represents what the manufacturers expect to be the most accurate description of the likelihood of developing headaches when using the medicine.) Prediction based on the observation of a large number of actual events (referred to as determining the experimental o 'empirical' likelihood/probability o an event). - Prediction based on what is believed should/ might happen in a situation (referred to as determining in the theoretical likelihood/probability of an event). - Recognise the difference between situations where the outcome of one event impacts on the outcome of another and situations where the two outcomes do not impact on each other. Recognise the difference between predictions that are based on knowledge and intuition about a situation			

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	10	TOPIC	PREDICTION(Lottery, gambling, risk assessments, newspaper articles) LP45: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	
LESSON OBJECTIVES	The Learners should be able to: Work with situations involving likelihood, including - national lotteries (e.g. Powerball) - gambling scenarios (e.g. slot machines) - risk assessment (e.g. in applications for car insurance) - newspaper articles that refer to 'likelihood', 'chance', and/or 'probability'. Identify all of the possible outcomes for a particular event (e.g. gambling game). Explain whether the statement "if I take the same Lottery numbers every week then my chances of winning increase" makes sense. Critique the use of references to likelihood/probability values in newspaper articles. Analyse a table showing risk assessment profiles for people from different age groups and explain why particular age groups are classified as higher risk than others. Analyse a game involving likelihood and make a deduction about the fairness of the game.		

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** An understanding of the concept of likelihood (drug tests), together with a sense of whether an event is more or less likely to take place.	Pre-knowledge assessment activity: Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity.	Pre-knowledge –5min Baseline-10 min Performance task- 20 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011)

Baseline assessment tasks Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks fi rst. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Prediction** Work with situations involving likelihood, including - national lotteries (e.g. Powerball) - gambling scenarios (e.g. slot machines) - risk assessment (e.g. in applications for car insurance) - newspaper articles that refer to 'likelihood', 'chance', and/or 'probability'. In order to: Recognise that expressions of likelihood are only predictions about the outcome of an event, (e.g. Although there is always a chance that someone may win a lottery, this does not mean that there will always be a winner every time the lottery is played.) Recognise that expressions of likelihood are predictions about the future based on events of the past. (e.g. Car insurance rates for people between the ages of 18 and 25 years are generally higher than those for people between the ages of 30 and 55 years. This is because historically there have been more motor vehicle accidents involving 18 to 25 year olds than 30 to 55 years old.) Recognise that expressions of likelihood can only predict the trend of an outcome over a long period of time (for a very large number of trials) and cannot accurately predict the outcome of single events. (e.g. Event though people aged 18 to 25 years are deemed more likely to be involved in a motor vehicle accident than any other age group, this does not necessarily mean that it is not possible that another age group might experience a higher number of crashes during the course of a year. However, based on trends in the past, it is more likely that people aged 18 to 25 years will be more involved in an accident.)	**Performance Task:** Refer to te acher activity column and/ or: Select appropriate task from resources in the r esources column. **Homework:** Refer to te acher activity column and/ or: Select appropriate task from resources in the r esources column	Home-work- 25 min	5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks newspaper articles referring to likelihood; information on a lottery; etc.

Recognise that there are two different ways of making a prediction about the future:

- Prediction based on the observation of a large number of actual events (referred to as determining the experimental o 'empirical' likelihood/probability o an event).
- Prediction based on what is believed should/ might happen in a situation (referred to as determining in the theoretical likelihood/probability of an event).

Recognise the difference between situations where the outcome of one event impacts on the outcome of another and situations where the two outcomes do not impact on each other.

(e.g. *If a person buys more than one lottery ticket, does this increase the chance of winning? And if a person plays a slot machine, does his or her chance of winning increase the more times he or she plays?*)

Recognise the difference between predictions that are based on knowledge and intuition about a situation (e.g. the outcome of a sports match or horse race) and expressions of likelihood that are based on long-term trends in data.
(e.g. *Even though we can use the historical win-lose record of two soccer teams to get a sense of who we believe might win in an upcoming match, there are simply too many other factors that impact on the performance of the teams (e.g. injuries of players; performance of the teams on the day) to be able to predict with certainty what the outcome of the match will be. As such, our "prediction" of who the winning team will be is based on personal preference or knowledge about the two teams rather than on long-term historical trends.*)

Reflection/Notes:

Name of Teacher:		HOD:	
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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	10	TOPIC	PREDICTION (consolidation) LP46: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to:
	Work with situations involving likelihood, including
	-games that make use of coin and dice
	- weather predictions
	- tests where there is the chance of inaccurate results (e.g. pregnancy test, drug test)
	- products making statements regarding likelihood (e.g. a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles)
	- national lotteries (e.g. Powerball)
	- gambling scenarios (e.g. slot machines)
	- risk assessment (e.g. in applications for car insurance)
	- newspaper articles that refer to 'likelihood', 'chance', and/or 'probability'.
	Explain whether or not a particular rainfall prediction indicates that it is more or less likely to rain.
	Analyse a table of rainfall data for a town and make predictions about the chance of rain in that town during a particular month during the year.
	Critique the use of references to likelihood/probability values in newspaper articles.
	Analyse a table showing risk assessment profiles for people from different age groups and explain why particular age groups are classified as higher risk than others.
	Analyse a game involving likelihood and make a deduction about the fairness of the game.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis	**Pre-knowledge assessment activity:** Refer to Teacher activity.	Pre- knowledge – 5min	1. Textbook 2. Worksheets

INTRODUCTION **Pre-knowledge assessment** An understanding of the concept of likelihood (games, weather predictions, drug tests, gambling), together with a sense of whether an event is more or less likely to take place. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** **Prediction - Revision** Work with situations involving likelihood, including -games that make use of coin and dice - weather predictions - tests where there is the chance of inaccurate results (e.g. pregnancy test, drug test) - products making statements regarding likelihood (e.g. a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles) - national lotteries (e.g. Powerball) - gambling scenarios (e.g. slot machines) - risk assessment (e.g. in applications for car insurance) - newspaper articles that refer to 'likelihood', 'chance', and/or 'probability'. In order to: Recognise that expressions of likelihood are only predictions about the outcome of an event, (e.g. Although there is always a chance that someone may win a lottery, this does not mean that there will always be a winner every time the lottery is played.)	**Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column	Baseline- 10 min Performance task- 20 min Home-work- 25 min	3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exemplar question papers 8. GDE Data Bank Math Lit Questions and answers Textbooks Coins and dice Games involving coins and dice; weather reports; newspaper articles referring to likelihood; cosmetic and other products making statements regarding likelihood (e.g. 80% of the women who used this product …); products showing success and failure rates for their usage (e.g. pregnancy tests; drug tests); information on a lottery; etc.

Recognise that expressions of likelihood are predictions about the future based on events of the past. (e.g. Car insurance rates for people between the ages of 18 and 25 years are generally higher than those for people between the ages of 30 and 55 years. This is because historically there have been more motor vehicle accidents involving 18 to 25 year olds than 30 to 55 years old.)

Recognise that expressions of likelihood can only predict the trend of an outcome over a long period of time (for a very large number of trials) and cannot accurately predict the outcome of single events. (e.g. Event though people aged 18 to 25 years are deemed more likely to be involved in a motor vehicle accident than any other age group, this does not necessarily mean that it is not possible that another age group might experience a higher number of crashes during the course of a year. However, based on trends in the past, it is more likely that people aged 18 to 25 years will be more involved in an accident.)

Recognise that there are two different ways of making a prediction about the future:
-     Prediction based on the observation of a large number of actual events (referred to as determining the experimental o 'empirical' likelihood/probability o an event). (e.g. if a type of medicine is being administered to a group of ten people during a trial and one person develops a headache, then the experimental likelihood of using the medicine and developing headaches in this trail is 1/10. If however, the medicine were tested on 10 000 people, of whom 100 developed headaches, then the likelihood for this larger experiment is 1/1000. The likelihood for the second and larger experiment is possibly a more accurate reflection of the true likelihood of developing headaches when using the medicine because of the greater number of people involved in the experiment.)
-     Prediction based on what is believed should/ might happen in a situation (referred to as determining in the theoretical likelihood/probability of an event). (e.g. based on the results of the larger experiment, the manufacturers of the medicine can now state on the bottles that 1 in 1000 people who use the medicine may develop headaches. This value represents what the manufacturers expect to be the most accurate description of the likelihood of developing headaches when using the medicine.)
Recognise the difference between situations where the outcome of one event impacts on the outcome of another and situations where the two outcomes do not impact on each other. (e.g. *If a person buys more than one lottery ticket, does this increase the chance of winning? And if a person plays a slot machine, does his or her chance of winning increase the more times he or she plays?*)

Recognise the difference between predictions that are based on knowledge and intuition about a situation (e.g. the outcome of a sports match or horse race) and expressions of likelihood that are based on long-term trends in data. (e.g. *Even though we can use the historical win-lose record of two soccer teams to get a sense of who we believe might win in an upcoming match, there are simply too many other factors that impact on the performance of the teams (e.g. injuries of players; performance of the teams on the day) to be able to predict with certainty what the outcome of the match will be. As such, our "prediction" of who the winning team will be is based on personal preference or knowledge about the two teams rather than on long-term historical trends.*) Assessment Level 1 Identify the percentage chance of rain for a particular town from a weather report in a newspaper. Explain the meaning of terms associated with likelihood (e.g. event; outcome). Level 2 Express the likelihood of an event using fraction, percentage and decimal notation. Identify all of the possible outcomes for a particular event (e.g. rolling a dice; gambling game). Explain whether or not a particular rainfall prediction indicates that it is more or less likely to rain. Level 3 Conduct an experiment to compare the experimental likelihood of an event to its theoretical likelihood. Identify appropriate values from a given table of data values (e.g. on motor vehicle fatalities in South Africa) and express the probability of certain events shown on the table. Develop a game involving likelihood and administer the game to another learner in the class. Level 4 Analyse a table of rainfall data for a town and make predictions about the chance of rain in that town during a particular month during the year. Explain whether the statement "if I take the same Lottery numbers every week then my chances of winning increase" makes sense.			

Critique the use of references to likelihood/probability values in newspaper articles. Analyse a table showing risk assessment profiles for people from different age groups and explain why particular age groups are classified as higher risk than others. Analyse a game involving likelihood and make a deduction about the fairness of the game.			

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	11	TOPIC		EXPRESSIONS OF LIKELIHOOD (games, weather predictions) LP47: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Work with situations involving likelihood, including: games that make use of coins and dice; weather predictions; in order to express the likelihood. Identify the percentage chance of rain for a particular town from a weather report in a newspaper. Explain the meaning of terms associated with likelihood (e.g. event; outcome). Express the likelihood of an event using fraction, percentage and decimal notation. Develop a game involving likelihood and administer the game to another learner in the class.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** An understanding of the concept of likelihood, together with a sense of whether an event is more or less likely to take place. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do th e calculation tasks first. Select appropriate calculation tasks from resources in the resources column.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to te acher activity column and/ or: Select appropriate task from resources in the r esources column. **Homework:** Refer to te acher activity column and/ or: Select appropriate task from resources in the r esources column	Pre- knowledge –5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typi cal examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers

LESSON PREPARATION			8. GDE Data Bank Math Lit Questions and answers Textbooks Coins and dice Games involving coins and dice; weather reports
Expressions of likelihood Calculations involving likelihood and probability are often confined to mathematical calculations primarily in the context of dice, coins and games. However, although we may encounter situations involving likelihood and chance on a regular basis in daily life, it is very seldom that mathematical calculations are needed in order to make sense of those situations. For example, you don't need to be able to calculate the probability of winning a lottery to know that even though there is a chance of winning, that chance is very small. What is more important is having an understanding of the concept of likelihood, together with a sense of whether an event is more or less likely to take place. In light of the above, the descriptions given below encourage teachers to focus more on interpreting situations involving likelihood than on the mathematical calculation of likelihood. This involves developing an understanding of the concept of likelihood, familiarity with the different notations used in expressions of likelihood and developing a sense of whether a situation is more or less likely to occur. Alternative contexts outside of the realm of dice, coins and games have also been suggested to reinforce this focus. Expressions of likelihood Work with situations involving likelihood, including: games that make use of coins and dice; weather predictions; In order to: Recognise the difference between the following terms: event; outcome/result. Recognise that likelihood is expressed using a scale that ranges between: 0 (events that cannot take place – impossible events); and 1 or 100% (events that are certain to take place). Recognise that the likelihood of an event is expressed using fractions, percentages and decimal notation. The scope of the data relates to the personal lives of learners, the wider community, and national and global issues.			

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	11	TOPIC	EXPRESSIONS OF LIKELIHOOD (Tests, cosmetic products tables and graphs) LP48: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:			DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Work with situations involving likelihood, including: tests where there is the chance of inaccurate results (e.g. *pregnancy test; drug test*); products making statements regarding likelihood (e.g. *a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles*); tables and graphs containing data and statistics; in order to express the likelihood. Identify appropriate values from a given table of data values (e.g. on motor vehicle fatalities in South Africa) and express the probability of certain events shown on the table.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** An understanding of the concept of likelihood (games, weather predictions), together with a sense of whether an event is more or less likely to take place. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Expressions of likelihood Work with situations involving likelihood, including: tests where there is the chance of inaccurate results (e.g. *pregnancy test; drug test*); products making statements regarding likelihood (e.g. *a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles*); tables and graphs containing data and statistics; In order to: Recognise the difference between the following terms: event; outcome/result.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column. **Homework**: Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column	Pre- knowledge –5min Baseline- 10 min Performance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC National examination question papers (2008 – 2011) 5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim questi on papers (2009 – 2011) 7. DoE NSC exemplar question papers

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Recognise that likelihood is expressed using a scale that ranges between: 0 (events that cannot take place – impossible events); and 1 or 100% (events that are certain to take place). Recognise that the likelihood of an event is expressed using fractions, percentages and decimal notation. The scope of the data relates to the personal lives of learners, the wider community, and national and global issues.			8. GDE Data Bank Math Lit Questions and answers Textbooks cosmetic and other products making statements regarding likelihood (e.g. 80% of the women who used this product …); products showing success and failure rates for their usage (e.g. pregnancy tests; drug tests); table of data values (e.g. on motor vehicle fatalities in South Africa)etc.

Reflection/Notes:

Name of Teacher:		HOD:	
Sign:		Sign:	
Date:		Date:	

GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	11	TOPIC	EXPRESSIONS OF LIKELIHOOD(Lottery, gambling, risk assessments, newspaper articles) LP49: TIME: 60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Work with situations involving likelihood, including: national lotteries (e.g. *Power Ball*); gambling scenarios (e.g. *slot machines*); risk assessments (e.g. *in applications for car insurance*); newspaper articles that refer to "likelihood", "chance" and/or "probability". in order to express the likelihood. Identify all of the possible outcomes for a particular event (e.g. gambling game). Explain whether the statement "if I take the same Lottery numbers every week then my chances of winning increase" makes sense. Critique the use of references to likelihood/probability values in newspaper articles. Analyse a table showing risk assessment profiles for people from different age groups and explain why particular age groups are classified as higher risk than others. Analyse a game involving likelihood and make a deduction about the fairness of the game.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** An understanding of the concept of likelihood (drug tests), together with a sense of whether an event is more or less likely to take place. **Baseline assessment tasks** Many learners battle with basic calculation skills and using a calculator Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column. **LESSON PREPARATION** Expressions of likelihood Work with situations involving likelihood, including: national lotteries (e.g. *Power Ball*); gambling scenarios (e.g. *slot machines*); risk assessments (e.g. *in applications for car insurance*); newspaper articles that refer to "likelihood", "chance" and/or "probability". in order to express the likelihood. Recognise the difference between the following terms: event; outcome/result.	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column. **Homework:** Refer to teacher activity column and/ or: Select appropriate task from resources in the resources column	Pre-knowledge – 5min Baseline- 10 min Perform-ance task- 20 min Home-work- 25 min	1. Textbook 2. Worksheets 3. Calculator 4. NSC Nat ional examination question papers (2008 – 2011) 5. GDE SSI P Grade 10-12 Learner Notes and Typical examination questions 6. GDE Prelim question papers (2009 – 2011) 7. DoE NSC exempl ar question papers

Recognise that likelihood is expressed using a scale that ranges between: 0 (events that cannot take place – impossible events); and 1 or 100% (events that are certain to take place). Recognise that the likelihood of an event is expressed using fractions, percentages and decimal notation. The scope of the data relates to the personal lives of learners, the wider community, and national and global issues.			8. GDE Data Bank Math Lit Questions and answers Textbooks newspaper articles referring to likelihood ;information on a lottery; etc.

Reflection/Notes:

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Sign:		**Sign:**	
Date:		**Date:**	

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GRADE	12	SUBJECT	MATHEMATICAL LITERACY	WEEK	11	TOPIC	EXPRESSIONS OF LIKELIHOOD(consolidation) LP50: TIME:60 min.

LESSON SUMMARY FOR: DATE STARTED:		DATE COMPLETED:	

LESSON OBJECTIVES	The Learners should be able to: Work with situations involving likelihood, including: games that make use of coins and dice; weather predictions; tests where there is the chance of inaccurate results (e.g. *pregnancy test; drug test*); products making statements regarding likelihood (e.g. *a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles*); tables and graphs containing data and statistics*; national lotteries (e.g. *Power Ball*); gambling scenarios (e.g. *slot machines*); risk assessments (e.g. *in applications for car insurance*); newspaper articles that refer to "likelihood", "chance" and/or "probability". in order to express the likelihood. Identify the percentage chance of rain for a particular town from a weather report in a newspaper. Explain the meaning of terms associated with likelihood (e.g. event; outcome). Express the likelihood of an event using fraction, percentage and decimal notation. Identify all of the possible outcomes for a particular event (e.g. rolling a dice; gambling game). Explain whether or not a particular rainfall prediction indicates that it is more or less likely to rain. Conduct an experiment to compare the experimental likelihood of an event to its theoretical likelihood. Identify appropriate values from a given table of data values (e.g. on motor vehicle fatalities in South Africa) and express the probability of certain events shown on the table. Develop a game involving likelihood and administer the game to another learner in the class.

TEACHER ACTIVITIES	LEARNER ACTIVITIES	TIMING	RESOURCES NEEDED
TEACHING METHODS Telling, Explanation, Discussion, Investigation, Calculation, Interpretation, Analysis **INTRODUCTION** **Pre-knowledge assessment** An understanding of the concept of likelihood (games, weather predictions, drug tests,	**Pre-knowledge assessment activity:** Refer to Teacher activity. **Baseline Assessment :** Refer to Teacher activity. **Performance Task:** Refer to teacher activity column and/	Pre- knowledge –5min Baseline- 10 min Performance task- 20 min	1. Textbook 2. Worksheets 3. Calculator 4. NSE National examination question

| | or: Select appropriate task from resources in the resources column.

Homework:
Refer to teacher activity column and/or: Select appropriate task from resources in the resources column | Home-work-

25 min | papers (2008 – 2011)
5. GDE SSIP Grade 10-12 Learner Notes and Typical examination questions
6. GDE Prelim question papers (2009 – 2011)
7. DoE NSC exemplar question papers
8. GDE Data Bank Math Lit Questions and answers Textbooks |

gambling), together with a sense of whether an event is more or less likely to take place.

Baseline assessment tasks

Many learners battle with basic calculation skills and using a calculator
Therefore ensure that learners do the calculation tasks first. Select appropriate calculation tasks from resources in the resources column.

LESSON PREPARATION

Expressions of likelihood
Calculations involving likelihood and probability are often confined to *mathematical calculations* primarily in the context of dice, coins and games. However, although we may encounter situations involving likelihood and chance on a regular basis in daily life, it is very seldom that mathematical calculations are needed in order to make sense of those situations. For example, you don't need to be able to calculate the probability of winning a lottery to know that even though there is a chance of winning, that chance is very small. What is more important is having an understanding of the concept of likelihood, together with a sense of whether an event is more or less likely to take place.

In light of the above, the descriptions given below encourage teachers to focus more on *interpreting* situations involving likelihood than on the mathematical calculation of likelihood. This involves developing an understanding of the concept of likelihood, familiarity with the different notations used in expressions of likelihood and developing a sense of whether a situation is more or less likely to occur. Alternative contexts outside of the realm of dice, coins and games have also been suggested to reinforce this focus.

Expressions of likelihood
Work with situations involving likelihood, including: games that make use of coins and dice; weather predictions; tests where there is the chance of inaccurate results (e.g. *pregnancy test; drug test*); products making statements regarding likelihood (e.g. *a cosmetic product that claims that 80% of the women who used the product now have less visible wrinkles*); tables and graphs containing data and statistics*; national lotteries (e.g. *Power Ball*); gambling scenarios (e.g. *slot machines*); risk assessments (e.g. *in applications for car insurance*); newspaper articles that refer to "likelihood", "chance" and/or "probability".

In order to:
Recognise the difference between the following terms: event; outcome/result.
Recognise that likelihood is expressed using a scale that ranges between: 0 (events that cannot take place – impossible events); and 1 or 100% (events that are certain to take place).
Recognise that the likelihood of an event is expressed using fractions, percentages and

The resources column also contains: Coins and dice
Games involving coins and dice; weather reports; newspaper articles referring to likelihood; cosmetic and other products making statements regarding likelihood (e.g. 80% of the women who used this product ...); products showing success and failure rates for their usage (e.g. pregnancy tests; drug tests); information on a lottery; etc.

decimal notation.
The scope of the data relates to the personal lives of learners, the wider community, and national and global issues.

Assessment
Level 1
Identify the percentage chance of rain for a particular town from a weather report in a newspaper.
Explain the meaning of terms associated with likelihood (e.g. event; outcome).

Level2
Express the likelihood of an event using fraction, percentage and decimal notation.
Identify all of the possible outcomes for a particular event (e.g. rolling a dice; gambling game).
Explain whether or not a particular rainfall prediction indicates that it is more or less likely to rain.

Level 3
Conduct an experiment to compare the experimental likelihood of an event to its theoretical likelihood.
Identify appropriate values from a given table of data values (e.g. on motor vehicle fatalities in South Africa) and express the probability of certain events shown on the table.
Develop a game involving likelihood and administer the game to another learner in the class.

Level 4
Analyse a table of rainfall data for a town and make predictions about the chance of rain in that town during a particular month during the year.
Explain whether the statement "if I take the same Lottery numbers every week then my chances of winning increase" makes sense.
Critique the use of references to likelihood/probability values in newspaper articles.
Analyse a table showing risk assessment profiles for people from different age groups and explain why particular age groups are classified as higher risk than others.
Analyse a game involving likelihood and make a deduction about the fairness of the game.

Reflection/Notes:

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Date:		Date:	

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