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12

GRADE MATHEMATICS

TEACHER TOOLKIT

CAPS Planner

TERM 3



Jika iMfundo
what I do matters

ENDORSED BY



GRADE 12

Mathematics
Teacher Toolkit:
CAPS Planner

TERM 3

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A. INTRODUCTION

This book is intended to help you cover the curriculum for Grade 12 Mathematics in Term 3. There is a companion book for Terms 1 and 2 but no planners for Term 4. Teachers should keep these books to use from year to year.

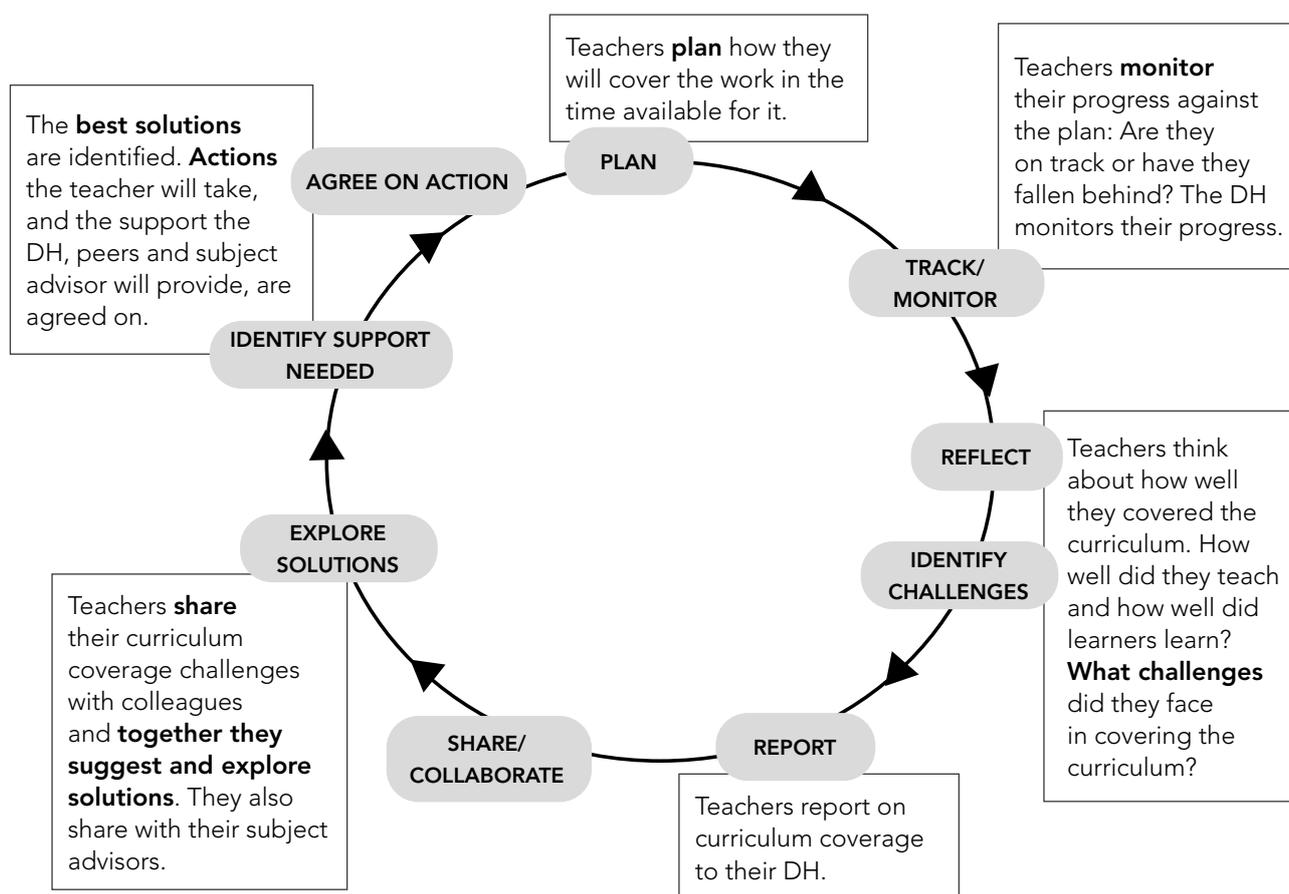
1. The need to improve curriculum coverage

In South Africa, too many learners drop out of school before Grade 12, and too few of those who reach Grade 12 do well in the NSC examinations. There are many reasons for such poor outcomes. One of the most important of these is that the curriculum is not covered each year. In other words, the teachers do not teach everything required by the CAPS in the year, and learners do not sufficiently understand the concepts and develop the skills that are taught. **Improving curriculum coverage is the key thing that teachers can do to improve learning outcomes.**

2. A cycle of activities that support improved curriculum coverage

Covering the curriculum is a complex task in which teachers face many challenges. However, there is a cycle of practices that can support curriculum coverage (see Figure 1). If these practices become routine in the school, curriculum coverage, and thus learners' outcomes, should improve.

Figure 1: The cycle of practices for supporting improved curriculum coverage



B. INFORMATION ABOUT RESOURCES IN THIS BOOK

In this book, you will find resources which will help you plan, track, reflect and report on curriculum coverage for the purpose of working collaboratively with peers and your department head (DH) and subject adviser to solve curriculum coverage problems. The resources are described below.

1. Planners for a daily programme of work

Later in this book there are planners that will help you plan what to teach each day in Term 3 (see Resource 1 in Section C). These planners provide a daily programme of work. There is a planner for all the books on the approved list of Learning and Teaching Support Materials (LTSMs) for Grade 12 Mathematics.

1.1 How planners link to the CAPS

Planners link the CAPS contents and skills to activities in the learner's book (LB) and teacher's guide (TG) of each set of LTSMs. The daily plan of activities ensures that time is allocated to all the work required by the CAPS in the term. Should you miss a lesson for any reason, it is important that you do not skip this lesson, but continue in the next lesson from where you left off.

Please note: The planners were compiled a few years ago, and the sequence of topics in them follows the annual teaching plan (ATP) of the KZN Department of Education at that time. Since then, the order of topics of the ATP has changed substantially. Please, therefore, follow the current ATP but use the relevant parts of the planners to help you plan the work to be done in the LTSM you are using.

In the CAPS, four-and-a-half hours have been allocated to Mathematics in the FET Phase each week. To comply with this, the planners give the content and skills for five 55-minute lessons each week.

1.2 The structure of the planners

The example of a planner below (Table 1) is Week 5 from *Via Afrika Mathematics* Term 3. It shows you how the planning for a week is arranged. The same layout, abbreviations and symbols are used in the planners for all the LTSMs for each term.

The table heading states the week of the term and the LTSM to which the planning is linked. Look at the notes to see what each column tells you.

Table 1: An example of a planner

VIA AFRIKA MATHEMATICS Week 5						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
21	Revise counting and probability	296–297	Questions	359–361	10-9 (pp. 440–443)	506–512
22	Formal assessment: Test					
23	STATISTICS Regression and Correlation CAPS p. 48 Revise measures of central tendency, measures of dispersion and cumulative frequency	262–265	Questions	326–329	9-1 (pp. 360–372)	430–439
24	Revise symmetrical and skewed data	266–269	1	330–332		
25	Discuss scatter plots; Find the line of best fit intuitively and make predictions using interpolation and extrapolation (use <i>Siyavula Everything Maths</i>)				9-2 (pp. 372–379)	439–445

The columns, from left to right, give the following information:

- The number of the lesson in the term.
- The CAPS content and skills that are dealt with in each lesson, and the page in the CAPS where each topic or subtopic starts.
- The page number in the learner's book where content and work for learners can be found.
- The activity in the learner's book that should be done by the learners during the lesson.
- The page number in the teacher's guide where support is given for the work to be done.

- The page number in the *Siyavula Everything Maths* learner's book where there are activities related to the content. These are resources which you can use for teaching, revision, extension or consolidation, in class or for homework.
- The page number in the *Siyavula Everything Maths* teacher's guide where there is information to support the material in the learner's book.

Abbreviations and symbols used in the planners
<ul style="list-style-type: none"> • TG = teacher's guide • LB = learner's book
* = select (this indicates that teachers should choose some of the questions given in the activity referred to) # = supplement (this indicates that the activity/exercise referred to is insufficient, and teachers should provide additional examples)

1.3 How to use the planners

Plan for the term

- **Find the correct planner to use** – the one that gives the daily plans for the LTSM that you use mostly in your class. You can of course use the others to help you find additional or alternative activities related to the same skills and concepts.
- **Check the length of the term against the number of weeks in the planner.** The planners for **Term 3** are based on a term of eleven weeks. The first eight weeks are set aside for learners to complete the content and to write and remediate the Term 3 test. The final three weeks are allocated to the trial examinations.

The planners remain the same from year to year, but the school calendar does not. If the term in any year is of a different length, or if your school allocates more or less time for end-of-term tests and examinations than is in the planner, you will have to adjust your planning accordingly. It is very important to do this planning at the beginning of the term so that you neither rush through the work when you in fact have more time for it than allocated in the planner, nor find that you have followed the pace of the planner, but run out of teaching time.

Plan for lessons

- **Compare your timetable with the number of lessons in the week, and the length of each lesson.** In the planners, there are five lessons of 55 minutes each per week. If you do not have five periods of this length each week, you will need to adjust the programme for each lesson in the planner to fit the length and number of your lessons.
- **Plan and prepare for each lesson.** The planners give support for the planning of a programme of work. They do not offer help with detailed lesson planning or preparation.

Planning for a lesson involves drawing up a plan of action. A lesson plan should include an introduction, sequenced content and activities for learners to work on individually or in groups, a conclusion, and homework activities to consolidate the learning of the day or to prepare for the next day's lesson where possible. No lesson plan templates are provided here. You should use the one you prefer or that is specified by your school/subject adviser.

When preparing for a Mathematics lesson you should:

- make sure that you understand every aspect of the content knowledge and skills addressed in the lesson;
- consider relevant prior knowledge that the new work builds on, how you will check that learners have this knowledge, and how you will help close any gaps from the past;
- think carefully about how best to help learners understand new work and develop new skills;
- work through each of the learner activities yourself, noting alternative answers where necessary, and making notes on possible learner difficulties in relation to the activities;
- ensure that any resources you need to use in the lesson are available;
- decide how you will pair/group your learners;
- check in your teacher's guide and learner's book for enrichment/challenge activities for learners who have completed their work and/or need a challenge; and
- see where there are remedial and support activities for learners who have barriers to learning.

These brief points are elaborated on in Resource 3 in Section C.

2. Plans for assessment

Curriculum coverage requires teachers to teach the content given in the CAPS each term/year. It also requires that learners understand the concepts and develop the skills that are taught. Thus, assessment gives vital information about how well the curriculum is being covered. It tells teachers which topics or aspects of topics learners are

struggling with, and how many learners are managing well, just coping, or struggling. Teachers need to reflect on possible reasons for and implications of these patterns of achievement, thinking about, for example, what they tell of the efficacy of their teaching methodology and how it could be improved, what feedback they can give learners to encourage and support improvement, and whether they can move on to new work, or need to remediate that which has already been taught.

The CAPS requires that teachers assess their learners' progress by means of both informal and formal assessment, and resources in this book assist teachers with planning for both.

2.1 Informal assessment

Informal assessment is ongoing and part of the teaching process as teachers listen to learners' responses and questions in class, and check their classwork and homework books. No record of the marks for informal assessment needs to be kept, but recording some of these will help you monitor learners' progress.

The CAPS for Mathematics in the FET Phase does not specify exactly what needs to be done for informal assessment, and consequently the planners do not schedule informal assessment activities. Teachers should use their discretion in this regard. All the LTSMs include activities that are either intended to be used for informal assessment, or which could effectively serve this purpose. You should think about which to use when you do your planning. Occasionally suggestions are made in the planners.

2.2 Formal assessment

Formal assessment is assessment for which marks are recorded. In South African schools, these marks should be entered into SA-SAMS.

The resources in this book help you plan when your learners will complete formal assessment tasks. Knowing this helps you to plan related activities such as when tasks and marking guidelines will be moderated, when marking will be completed and moderated, when marks will be recorded, and when feedback will be given to learners. All these activities are important in ensuring that assessment is at the correct level and that information from it can be used to support improved curriculum coverage.

Formal assessment tasks specified in the CAPS

The CAPS specifies two formal assessment tasks for Term 3 (a test and a trial examination).¹

Formal assessment programmes in the LTSMs and planners

Resource 4 in Section C shows how the formal assessment tasks are integrated into the planners for Term 3. It shows when tasks are scheduled in the planner for each of the LTSMs. A note is also made of this date in the planners themselves by writing **Formal assessment** in the CAPS content column. You will see an example of this in Table 1, Lesson 22. Resource 4 also gives information about resources for the test and trial examination available in the LTSMs.

Not all the LTSMs provide an example of all the assessment activities required for the assessment tasks, and some of those provided might not be suitable for your class. Some provide an exemplar test or examination in the learner's book, making it unsuitable for use as a formal assessment task as learners can prepare for it in advance. It is therefore essential that you check the assessment activities carefully before giving them to the learners and, if necessary, adapt them, set your own, use examples from a different set of LTSMs or, in the case of the Term 3 test, use the exemplar provided in Section C of this book. If you use centrally set common tests, such as is generally required for the trial examination, the resources in the LTSMs can be used for practice.

The dates in the assessment programme provided for your LTSM might not suit your context for some reason. You should be sure to check this, and schedule dates that are more appropriate where necessary.

3. Resources to support content knowledge, pedagogy and assessment practices

Sound content and pedagogical knowledge and teaching and learning resources enable teachers to support learning, and thus have a positive impact on curriculum coverage. For this reason, where appropriate, guidelines for teaching certain topics or skills, explanatory information about the content, suggestions for sound structuring of lessons and exemplar assessment tasks are provided in this series of books. Below is a brief description of resources provided in the Resources section of this book.

¹ The DBE makes changes to the assessment requirements from time to time. In such instances, you might need to change the assessment programme shown here to align with the revised requirements.

3.1 Guidelines for preparing and presenting a Mathematics lesson

Section 1.3 above drew attention to the need for thorough preparation for a Mathematics lesson to be successful, and gave some brief pointers to effective preparation. Resource 3 in Section C gives more detail about the points made in 1.3, as well as suggestions for how to structure the main activities in a lesson. Following this format in most lessons will ensure that time is allocated to both the learning of new concepts and skills and opportunities for practising and consolidating these.

Note that the times suggested in Resource 3 in Section C are for a lesson of about one hour. You will need to make appropriate adjustments if you have lessons of a different length.

3.2 An exemplar Term 3 test, memorandum and analysis of cognitive levels

An exemplar Term 3 test is provided in Resource 5, with a marking memorandum together with an analysis of cognitive levels in Resource 6. Resource 7 shows the weighting of marks in the test across the cognitive levels compared with the weighting specified in the CAPS (p. 53).

You can photocopy and use the exemplar test as it is for formal or informal assessment, or adapt it in ways that make it more useful to you. Because learners traditionally write a centrally set common trial paper, no exemplar is provided in this book.

Assessment resources described above support curriculum coverage by:

- supporting learning by providing a photocopyable sheet of formulae for learners so that they can refer to it and do not have to memorise the formulae;
- providing assessment tasks that are fully CAPS compliant, and which have been approved by district advisers (this ensures that learners will be assessed at the correct standard);
- providing correct marking guidelines so that learners' work will be marked to the same standard across different markers; and
- supporting teachers' ability to work with the levels of questions required by the CAPS by providing a detailed analysis of the levels of questions asked in the tasks (this strengthens their ability to set assessment tasks that comply with the weighting of cognitive levels themselves in future).

3.3 A sheet of formulae for learners

A sheet of formulae that can be copied for learners to use in Term 3 is provided. Learners can take this into the examination for their reference. This means that they do not have to memorise the formulae and can use the time for meaningful learning.

3.4 An exemplar formal assessment mark record sheet

Resource 9 provides a template on which to record formal assessment marks for Term 3 to help you see how individual learners are progressing, and which topics might need remedial work. Should you wish, you could also record any informal assessment marks that you have to give a fuller picture.

3.5 Templates for tracking, reflecting and reporting for collaborative problem solving

Planning is one activity on the curriculum completion support cycle (Figure 1), and you have seen how the material in this book supports teachers with planning. The templates provided as Resource 10 in Section C are tools to assist teachers with other aspects of the cycle. There is a template to use in conventional schools, and one for use in multigrade schools. The template for conventional schools is reproduced below, with annotations that show how it is used as a tool for curriculum coverage support. The template for multigrade schools works in the same way.

Teachers should print a copy of the relevant template for each week of the term and use it together with the teaching plan for that week. This teaching plan could be the planner for their LTSM in this book or the ATP or another daily planning resource. They record curriculum coverage information and their reflection on it for all the Mathematics lessons with each class they teach in the week.

Note that dates are not given in the tracking and reflecting template. Teachers should fill two dates into the spaces at the top of the template. Firstly, they should record the week in the planner when the work they are doing is scheduled to be done; secondly, they should record the week when they in fact are starting that work. These dates will help them see how well they are keeping up with the pace set in the planner they are following.

This is the no. of the week in the planner that is being followed.

This is the no. of the week in the term when the work actually starts. If curriculum coverage is behind, this might be a later week than the week in the planner.

Week no. in planner _____

Week no. in term when work planned for week started _____

Refer to the planner for details of the week's work (or the ATP for subjects without planners)

Class (or subject for FP)

On track by end of week? (Yes/no)

How many learners are working confidently? (Rough estimate)

How many learners in this class?

At the end of the week, the teacher uses evidence from informal and formal assessment, to estimate for each class how many learners out of the total are working confidently at Level 4 or above. They use this information, together with the amount of work planned that they have taught, to state whether or not their curriculum coverage is on track.

DAY

BRIEF NOTES ON THE DAY'S WORK: Consider such things as:

What concepts/skills did the learners struggle with or manage well in this lesson? What could be the reasons for this? Did the class complete the work you had planned? Do you need to change your plans for the next lesson? What changes will you make?

Prompts for daily reflection.

1

2

3

4

5

Each day, the teacher reflects on how their lesson went, and how they could improve it using the prompts provided. They also think about whether or not they can proceed as planned in the next lesson. This is a professional judgement they make based on informal and formal assessment. They note the main points here.

Reflection on the week:

**What concepts and skills for the week did learners struggle with?
What could you do differently next time to better support or extend learning?
What good practice could you share?**

**Did you cover the curriculum for the week? If not, what were some of the challenges? What can you do to catch up? What help do you need?
How will your progress this week affect your plan for next week?**

At the end of the week, the teacher reflects on the week's teaching and learning. They think about what learners found difficult, and how they can change their practice so learning improves.

At the end of the week, the teacher considers whether or not the work planned for the week has been taught and learnt, and if not, what can be done to solve curriculum coverage problems and get back on track.

The teacher writes their reflections here for their own professional development, but also to share them with their DH to get support in solving problems.

DH:

Date:

At the end of the week, the DH reads the teacher's reflections and record of curriculum coverage and signs the template. S/he uses the information shared in a supportive conversation with the teacher. Together they consider any curriculum coverage problems the teacher faces and work towards finding solutions.

C. RESOURCES

1. PLANNERS FOR TERM 3

1.1 Classroom Mathematics

CLASSROOM MATHEMATICS Week 1						
*Select						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
1	FINANCE, GROWTH AND DECAY CAPS p. 42 Revise Grade 11 financial mathematics	83–87	4.1*	125–127		
2	Solve problems for future value annuities using the sum of a geometric series	88–92	4.2*	127–130	3-2 (pp. 109–115)	150–154
3	Derive the formula and solve problems involving future value annuities	93–98	4.3*	131–133	3-3 (pp. 115–117)	155–157
4	Solve problems for present value annuities (loan repayments) using the formula for a geometric series; Solve problems involving deferred payments; Determine the balance on a loan	98–104	4.4*	134–138		
5	Derive the formula and solve problems involving present value annuities	104–109	4.5 (no. 1–3)	138–139	3-4 (pp. 118–124)	157–161

Note: If preferred, the present value annuity formula (Lesson 5) may be developed in Lesson 4 before doing Exercise 4.4.

CLASSROOM MATHEMATICS Week 2						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
6	Solve problems involving present value annuities	109–111	4.5 (no. 4–10)*	139–144	3-5 (pp. 125–131)	162–164
7	Use logarithms to calculate the value of n , the time period in simple formulae and in annuities formulae	112–116	4.7–4.8*	145–149	3-1 (pp. 106–109)	146–150
8	Calculate the final payment of a loan; Critically analyse investment and loan options such as pyramid schemes	116–122	4.9–4.11*	150–155	Note (pp. 131–133)	
9	Revise finance, growth and decay (<i>Check your skills ex.</i>)	123–124	4.12 (no. 1–5)	156–158	3-6 (pp. 134–135)	164–170
10	Revise finance, growth and decay (cont.) (<i>Check your skills ex.</i>)	124	4.12 (no. 6–9)	158–160		

CLASSROOM MATHEMATICS Week 3						
#Supplement						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
11	Revise finance, growth and decay (cont.) (<i>Extend your skills ex.</i>)	125	4.13	160–163		
12	COUNTING AND PROBABILITY CAPS p. 49 Revise Grade 11 probability (dependent/independent events, mutually exclusive events, complementary events, etc.)	355–356	13.1	468–471	10-1 (pp. 402–413)	474–482
13	Revise contingency tables and whether events are independent or not; Revise Venn diagrams and tree diagrams (use <i>Siyavula Everything Maths</i>)	357–358	Example 1#	–	10-2–10-3 (pp. 413–424)	482–493
14	Learn about and apply the fundamental counting principle to number of arrangements	359–361	13.2–13.3 (no. 1–4)	471–472	10-4 (pp. 425–428)	494–495
15	Apply the fundamental counting principle to number of arrangements (cont.)	362	13.3 (no. 5–10)	472		

CLASSROOM MATHEMATICS Week 4

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
16	Learn about applying the fundamental counting principle to permutations; Work with factorial notation	363–365	13.4–13.5	472–473	10-5 (pp. 329–431)	495–497
17	Apply the fundamental counting principle to permutations (cont.)	366–369	13.6	474	10-6 (pp. 431–433)	497–499
18	Solve problems involving different letter arrangements	369–373	13.7–13.8	474	10-7 (pp. 433–436)	500–502
19	Apply the fundamental counting principle to solve probability problems	374–378	13.9 (no. 1–3)	475–476	10-8 (pp. 436–440)	502–506
20	Apply the fundamental counting principle to solve probability problems (cont.)	379	13.9 (no. 4–8)	476		

CLASSROOM MATHEMATICS Week 5

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
21	Revise counting and probability (use <i>Check your skills</i>)	380–381	13.10	477–478	10-9 (pp. 440–443)	506–512
22	Formal assessment: Test					
23	STATISTICS Regression and Correlation CAPS p. 48 Revise measures of central tendency, measures of dispersion, symmetrical and skewed data and cumulative frequency	317–323	12.1 (no. 1–4)	438–441	9-1 (pp. 360–372)	430–439
24	Revise Grade 11 work (cont.)	323	12.1 (no. 5–8)	441–442		
25	Draw scatter plots of bivariate data and discuss correlation	325–328	12.2	443–446		

Note: Refer to Lesson 21: If learners do not have time to complete Exercise 13.10 (*Check your skills*) (LB pp. 380–381, TG pp. 477–478), they may complete the exercise at home. They can also do Exercise 13.11 (*Extend your skills*) (LB p. 382, TG p. 478) for enrichment at home. Full solutions can then be photocopied.

CLASSROOM MATHEMATICS Week 6

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
25	Calculate and analyse the correlation coefficient, r	329–334	12.3	446–448	9-4 (pp. 387–393)	453–461
26	Find the line of best fit intuitively and make predictions using interpolation and extrapolation	334–340	12.4	449–451	9-2 (pp. 372–379)	439–445
27	Calculate the least squares regression line using formulae and then the calculator, draw a scatter plot and the regression line; Make predictions	340–346	12.5 (no. 1–2)	451–453	9-3 (pp. 380–386)	445–453
28	Calculate the least squares regression line, draw a scatter plot and the regression line and make predictions (cont.); Review test done in previous week	346–348	12.5 (no. 3–5)	453–457		
29	Revise statistics: regression and correlation	349–352	12.6	458–460	9-5 (pp. 394–399)	461–472

Note: Refer to Lesson 29: The revision exercise *Check your skills*: Exercise 12.6 (LB pp. 349–352, TG pp. 458–460) may be completed by learners at home. *Extend your skills*: Exercise 12.7 (LB pp. 353–354, TG pp. 461–464) for enrichment (optional) should be done by learners at home. Full solutions for learners can be photocopied from the Teacher's Guide.

CLASSROOM MATHEMATICS Week 7
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
30						
31						
32						
33						
34						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

CLASSROOM MATHEMATICS Week 8
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
40						
41						
42						
43						
44						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

CLASSROOM MATHEMATICS Week 9–11 Trial examinations

1.2 Clever: Keeping Maths Simple

CLEVER: KEEPING MATHS SIMPLE Week 1

*Select

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
1	FINANCE, GROWTH AND DECAY CAPS p. 42 Revise Grade 11 financial mathematics	81–85	4.1*	76–78		
2	Solve problems for future value annuities using the sum of a geometric series	86–88	4.2*	78–79	3-2 (pp. 109–115)	150–154
3	Derive the formula and solve problems involving future value annuities; Compare investments	89–92	4.3 (no. 1–4)	79–80	3-3 (pp. 115–117)	155–157
4	Solve problems involving future value annuities (cont.)	92–93	4.3 (no. 5–8)	80		
5	Derive the formula and solve problems involving present value annuities (loans and loan repayments)	93–97	4.4 (no. 1–3)	80–81		

Note: Refer to Lesson 2: Teach learners the modified future value formula for investments which start immediately (Example 2 LB p. 86).

CLEVER: KEEPING MATHS SIMPLE Week 2

*Select

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
6	Solve problems involving present value annuities; Determine the outstanding balance on a loan	98	4.4 (no. 4–9)	81–82	3-4 (pp. 118–124)	157–161
7	Calculate repayments for deferred annuities	98–101	4.5	82–84	3-5 (pp. 125–131)	162–164
8	Use logarithms to calculate the value of n , the time period in simple formulae	101–103	4.6*	85–86	3-1 (pp. 106–109)	146–150
9	Use logarithms to calculate the value of n , the time period in annuities formulae and in radioactive decay; Read note on pyramid schemes	104–106	4.7	86–88	Note (pp. 131–133)	
10	Revise finance, growth and decay	106–107	Rev. ex. (no. 1–5)	88	3-6 (pp. 134–135)	164–170

CLEVER: KEEPING MATHS SIMPLE Week 3

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
11	Revise finance, growth and decay (cont.)	107	Rev. ex. (no. 6–9)	89		
12	COUNTING AND PROBABILITY CAPS p. 49 Revise Grade 11 probability (dependent/independent events, mutually exclusive events, complementary events, Venn diagrams, tree diagrams and contingency tables)	348–359	13.1 (no. 1–5)	307–312	10-1 (pp. 402–413)	474–482
13	Revise Grade 11 probability (cont.)	359–360	13.1 (no. 6–12)	312–313	10-2–10-3 (pp. 413–424)	482–493
14	Learn about and apply the fundamental counting principle to number of arrangements	360–362	13.2	313–314	10-4 (pp. 425–428)	494–495
15	Apply the fundamental counting principle to number of arrangements (cont.)	362–366	13.3	314–315		

CLEVER: KEEPING MATHS SIMPLE Week 4

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
16	Work with factorial notation; Solve problems involving different letter arrangements	366–371	13.4–13.5	315–317	10-5 (pp. 329–431) 10-7 (pp. 433–436)	495–497 500–502
17	Apply the fundamental counting principle to permutations and combinations	371–373	13.6	317–318	10-6 (pp. 431–433)	497–499
18	Apply the fundamental counting principle to solve probability problems	374–376	Rev. ex. (no. 1–5)	318–319	10-8 (pp. 436–440)	502–506
19	Apply the fundamental counting principle to solve probability problems (cont.)	377–378	Rev. ex. (no. 6–13)	319–321		
20	Apply the fundamental counting principle to solve probability problems (cont.)	378–379	Rev. ex. (no. 14–23)	321–323		

Notes:

1. Refer to Lesson 17: Combinations may be done for enrichment purposes – they are not stipulated in the CAPS.
2. There is a good summary of Grade 12 concepts in the Learner's Book (pp. 379–380).

CLEVER: KEEPING MATHS SIMPLE Week 5

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
21	Revise counting and probability (use <i>Revision worksheet 1</i> and <i>Revision worksheet 2</i> in TG)	–	–	324–327	10-9 (pp. 440–443)	506–512
22	Formal assessment: Test					
23	STATISTICS Regression and Correlation CAPS p. 48 Revise measures of central tendency, measures of dispersion, symmetrical and skewed data and cumulative frequency	315–324	12.1 (no. 1–3)	279–282	9-1 (pp. 360–372)	430–439
24	Revise Grade 11 work (cont.)	324–325	12.1 (no. 4–8)	282–284		
25	Draw scatter plots of bivariate data and discuss correlation; Draw in the line of best fit intuitively	325–329	12.2	284–285	9-2 (pp. 372–379)	439–445

CLEVER: KEEPING MATHS SIMPLE Week 6

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
26	Calculate and analyse the correlation coefficient, r ; Calculate the least squares regression line, draw a scatter plot and the regression line; Make predictions using interpolation and extrapolation	329–336	12.3	285–287	9-4 (pp. 387–393)	453–461
27	Calculate the least squares regression line and the correlation coefficient, draw a scatter plot and the regression line and make predictions (cont.)	336–340	Rev. ex. (no. 1–3)	287–288	9-3 (pp. 380–386)	445–453
28	Revise statistics: regression and correlation	340–342	Rev. ex. (no. 4–7)	288–290		
29	Revise statistics: regression and correlation (cont.); Review test done in previous week	342–347	Rev. ex. (no. 8–110)	290–292	9-5 (pp. 394–399)	461–472
30	Revise statistics: regression and correlation (use <i>Revision worksheet 1</i> and <i>Revision worksheet 2</i> in TG)	–	–	293–302		

Note: Refer to Lesson 30: Learners may complete these revision worksheets at home. Full solutions can then be photocopied (*Revision worksheet 1* TG pp. 297–299; *Revision worksheet 2*: TG pp. 301–302).

CLEVER: KEEPING MATHS SIMPLE Week 7
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
31						
32						
33						
34						
35						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

CLEVER: KEEPING MATHS SIMPLE Week 8
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
36						
37						
38						
39						
40						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

CLEVER: KEEPING MATHS SIMPLE Week 9–11 Trial examinations

1.3 Maths Handbook and Study Guide

MATHS HANDBOOK AND STUDY GUIDE Week 1						
#Supplement						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
1	FINANCE, GROWTH AND DECAY CAPS p. 42 Revise Grade 11 financial mathematics; Use logarithms to determine n , the time period (use <i>Siyavula Everything Maths</i>)	50–54	Notes		3-1 (pp. 106–109)	146–150
2	Solve problems for future value annuities using the sum of a geometric series; Derive the formula and solve problems involving future value annuities	55–62 85	1 (no. 1)	23–24	3-2 (pp. 109–115)	150–154
3	Solve problems involving future value annuities	85	1 (no. 2–5)#	23–25	3-3 (pp. 115–117)	155–157
4	Solve problems involving future value annuities made at the beginning of the time periods	63–65 85–86	2	25–26		
5	Develop and solve problems involving present value annuities (loans and loan repayments); Determine the outstanding balance on a loan	66–72 86	3#	26	3-4 (pp. 118–124)	157–161

MATHS HANDBOOK AND STUDY GUIDE Week 2						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
6	Determine repayments involving deferred payments	73–74 86	4	26–27		
7	Determine final payments with reduced values	75–80	5	27–28		
8	Critically analyse investment and loan options such as pyramid schemes; Apply finance formula to growth and decay	81–84 87	Mixed ex. (no. 1–5)	28–29	3-5; Note (pp. 125–133)	162–164
9	Critically analyse investment and loan options such as pyramid schemes (cont.); Apply finance formula to growth and decay (cont.)	87–88	Mixed ex. (no. 6–10)	29–32		
10	Revise finance, growth and decay (use <i>Siyavula Everything Maths</i>)				3-6 (no. 1–5) (p. 134)	164–166

MATHS HANDBOOK AND STUDY GUIDE Week 3						
#Supplement						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
11	Revise finance, growth and decay (cont.) (use <i>Siyavula Everything Maths</i>)				3-6 (no. 6–11) (pp. 134–135)	167–170
12	COUNTING AND PROBABILITY CAPS p. 49 Revise Grade 11 probability (dependent/independent events, mutually exclusive events, complementary events etc.)	294–296 308	1 (no. 1–3)#	116–117	10-1 (pp. 402–413)	474–482
13	Revise Venn diagrams and tree diagrams; Revise contingency tables and whether events are independent or not	297–301 308–309	1 (no. 4–6)#	117–118	10-2–10-3 (pp. 413–424)	482–493
14	Learn about and apply the fundamental counting principle to number of arrangements	302 309	2#	118	10-4 (pp. 425–428)	494–495
15	Work with factorial notation; Apply the fundamental counting principle to different arrangements and probability	303–306 310	3#	119	10-5–10-6 (no. 1–5) (pp. 329–432)	495–498

MATHS HANDBOOK AND STUDY GUIDE Week 4

#Supplement

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
16	Learn about applying the fundamental counting principle to permutations	307 310	4#	119	10-6 (no. 6–12) (pp. 432–433)	498–499
17	Apply the fundamental counting principle to solve probability problems	311	Mixed ex.	119–120		
18	Apply the fundamental counting principle to solve problems involving number of arrangements (use <i>Siyavula Everything Maths</i>)				10-7 (pp. 433–436)	500–502
19	Apply the fundamental counting principle to solve probability problems (use <i>Siyavula Everything Maths</i>)				10-8 (pp. 436–440)	502–506
20	Apply the fundamental counting principle to solve probability problems (cont.) (use <i>Siyavula Everything Maths</i>)				10-9 (no. 1–6) (pp. 440–442)	506–509

MATHS HANDBOOK AND STUDY GUIDE Week 5

#Supplement

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
21	Revise counting and probability (use <i>Siyavula Everything Maths</i>)				10-9 (no. 7–14) (p. 443)	509–512
22	Formal assessment: Test					
23	STATISTICS Regression and Correlation CAPS p. 48 Revise measures of central tendency, measures of dispersion, symmetrical and skewed data and cumulative frequency	275–282 289	1 (no. 1–2)#	110–111	9-1 (pp. 360–372)	430–439
24	Revise Grade 11 work (cont.)	290	1 (no. 3–6)	111–113		
25	Find the line of best fit intuitively and make predictions using interpolation and extrapolation (use <i>Siyavula Everything Maths</i>)				9-2 (pp. 372–379)	439–445

MATHS HANDBOOK AND STUDY GUIDE Week 6

#Supplement

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
26	Calculate the least squares regression line, draw a scatter plot and the regression line; Make predictions	283–285 291	2	113–114	9-3 (pp. 380–386)	445–453
27	Calculate the least squares regression line using formulae and then the calculator, draw a scatter plot and the regression line and make predictions (cont.); Calculate and analyse the correlation coefficient, r	286–288 292	Mixed ex.#	114–115	9-4 (no. 1–3) (pp. 387–391)	453–456
28	Calculate and analyse the correlation coefficient, r (cont.) (use <i>Siyavula Everything Maths</i>)				9-4 (no. 4–8) (pp. 392–393)	456–461
29	Revise statistics: regression and correlation (use <i>Siyavula Everything Maths</i>); Review test done in previous week				9-5 (no. 1–5) (pp. 394–396)	461–464
30	Revise statistics: regression and correlation (cont.) (use <i>Siyavula Everything Maths</i>)				9-5 (no. 6–11) (pp. 396–399)	464–472

MATHS HANDBOOK AND STUDY GUIDE Week 7

Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
31						
32						
33						
34						
35						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

MATHS HANDBOOK AND STUDY GUIDE Week 8

Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
36						
37						
38						
39						
40						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

MATHS HANDBOOK AND STUDY GUIDE Week 9–11 Trial examinations

1.4 Mind Action Series Mathematics

MIND ACTION SERIES MATHEMATICS Week 1

*Select

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
1	FINANCE, GROWTH AND DECAY CAPS p. 42 Revise Grade 11 financial mathematics	62	Rev.	63		
2	Use logarithms to calculate the value of n , the time period in simple formulae	63–65	1*	63–65	3-1 (pp. 106–109)	146–150
3	Use the sum of a geometric series or the future value annuity formula to solve problems	65–75	2 (no. 1)*	57–63 65	3-2 (pp. 109–115)	150–154
4	Use the sum of a geometric series or the future value annuity formula to solve problems (cont.)	75–76	2 (no. 2–10)*	65–67		
5	Solve problems involving future value annuities; Use logarithms to calculate the value of n , the time period	76–80	3*	67–69		

MIND ACTION SERIES MATHEMATICS Week 2

*Select

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
6	Solve problems involving loans or loan repayments using the sum of a geometric series or the present value annuity formula	81–88	4 (no. 1–4)	70		
7	Solve problems involving present value annuities	89	4 (no. 5–11)	70–73	3-4 (pp. 118–124)	157–161
8	Solve problems involving deferred payments; Determine the final payment of an annuity	89–92	5*	73–76		
9	Critically analyse and compare investments and loans; Determine the outstanding balance on a loan	92–96	6–7	76–79	3-5 (pp. 125–131)	162–164
10	Solve problems involving sinking funds; Read about pyramid schemes (use <i>Siyavula Everything Maths</i>)	96–99	8	79–80	3-3 (pp. 115–117) Note (pp. 131–133)	155–157

MIND ACTION SERIES MATHEMATICS Week 3

#Supplement

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
11	Revise finance, growth and decay	100–102	Rev. ex.	80–84	3–6 (pp. 134–135)	164–170
12	COUNTING AND PROBABILITY CAPS p. 49 Revise Grade 11 probability (dependent/independent events, mutually exclusive events, complementary events, etc.)	305–306	Rev. ex. (no. 1–2)#	323	10–1 (pp. 402–413)	474–482
13	Revise Venn diagrams and tree diagrams; Revise contingency tables (use <i>Siyavula Everything Maths</i>)	306–307	Rev. ex. (no. 3–8)	323–325	10–2–10–3 (pp. 413–424)	482–493
14	Learn about and apply the fundamental counting principle to number of arrangements	308–310	1	325–326	10–4 (pp. 425–428)	494–495
15	Work with factorial notation (use <i>Siyavula Everything Maths</i>); Learn about applying the fundamental counting principle to permutations	310–313	2	326–327	10–5 (pp. 329–431)	495–497

Notes:

1. Refer to Lesson 11: The *Revision Exercise* (LB pp. 100–102, TG pp. 80–84) as well as *Some Challenges* (LB pp. 102–104, TG pp. 85–94) may be completed by learners at home. Full solutions can then be photocopied for them.
2. Refer to Lesson 12: A very good summary of Grade 10 and 11 definitions is provided (LB p. 305).
3. Refer to Lesson 12: *An approach to teaching probability* (TG pp. 321–322) is worthwhile reading.

MIND ACTION SERIES MATHEMATICS Week 4

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
16	Apply the fundamental counting principle arrangements of objects in a row	313–316	3	327–329	10–6 (pp. 431–433)	497–499
17	Apply the fundamental counting principle to solve problems involving different letter arrangements	317–320	4	329–331	10–7 (pp. 433–436)	500–502
18	Apply the fundamental counting principle to solve probability problems	321–324	5 (no. 1–4)	331–332	10–8 (pp. 436–440)	502–506
19	Apply the fundamental counting principle to solve probability problems (cont.)	324	5 (no. 5–9)	332–334		
20	Revise counting and probability	325–326	Rev. ex. (no. 1–5)	335	10–9 (pp. 440–443)	506–512

MIND ACTION SERIES MATHEMATICS Week 5

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
21	Revise counting and probability (cont.)	326–327	Rev. ex. (no. 6–7) Some challenges	335–338		
22	Formal assessment: Test					
23	STATISTICS Regression and Correlation CAPS p. 48 Revise measures of central tendency, measures of dispersion, symmetrical and skewed data and cumulative frequency	288–289	Rev. ex. (no. 1–2)	307 313–314	9-1 (pp. 360–372)	430–439
24	Revise Grade 11 work (cont.)	289–291	Rev. ex. (no. 3–6)	314–316		
25	Draw scatter plots of bivariate data and an intuitive line of best fit (use <i>Siyavula Everything Maths</i>)				9-2 (pp. 372–379)	439–445

Notes:

- Refer to Lesson 21: There is an error in the solution to Revision exercise Question 6(d) (TG p. 336). The answer should be: $1 \times 5 \times 12 \times 4 + 1 \times 5 \times 13 \times 1 = 305$.
- Refer to Lesson 23: Revision notes and *Worked Examples* on these subtopics can be found in *Siyavula Everything Maths* (LB pp. 360–369).
- Blank, labelled grids have been supplied for exercises (TG pp. 308–312).

MIND ACTION SERIES MATHEMATICS Week 6

#Supplement

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
26	Calculate the least squares regression line, draw a scatter plot and the regression line and make predictions (interpolation and extrapolation)	292–296	1 (no. 1–3)	317–318	9-3 (pp. 380–386)	445–453
27	Calculate the least squares regression line, draw a scatter plot and the regression line and make predictions cont.	296–300	1 (no. 4–7)	319–320		
28	Calculate and analyse the correlation coefficient, r	300–303	2	320	9-4 (pp. 387–393)	453–461
29	Revise statistics: regression and correlation; Review test done in previous week	304	Rev. ex.#	320	9-5 (no. 1–5) (pp. 394–396)	461–464
30	Revise statistics: regression and correlation (cont.) (use <i>Siyavula Everything Maths</i>)				9-5 (no. 6–11) (pp. 396–399)	464–472

MIND ACTION SERIES MATHEMATICS Week 7
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
31						
32						
33						
34						
35						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

MIND ACTION SERIES MATHEMATICS Week 8
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
36						
37						
38						
39						
40						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

MIND ACTION SERIES MATHEMATICS Week 9–11 Trial examinations

1.5 Platinum Mathematics

PLATINUM MATHEMATICS Week 1						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
1	FINANCE, GROWTH AND DECAY CAPS p. 42 Revise Grade 11 financial mathematics	60–61	1	44–45		
2	Derive the future value annuities formula and solve problems	62–65	2 (no. 1)	46	3-2 (pp. 109–115)	150–154
3	Solve problems involving future value annuities	65–66	2 (no. 2–6)	46		
4	Derive the present value annuities formula and solve problems	66–70	3 (no. 1–2)	46	3-4 (pp. 118–124)	157–161
5	Solve problems involve present value annuities	70	3 (no. 3–7)	47		

PLATINUM MATHEMATICS Week 2						
*Select						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
6	Solve problems involving sinking funds and future value annuities that end early	71–75	4–5*	47–48	3-3 (pp. 115–117)	155–157
7	Calculate the outstanding balance on a loan; Solve problems involving deferred payments	75–78	6–7	49–50		
8	Use logarithms to calculate the value of n , the time period	79–81	8	51	3-1 (pp. 106–109) 3-5 (pp. 125–131)	146–150 162–164
9	Analyse investment and loan options such as pyramid schemes	82–87	9	52		
10	Revise finance, growth and decay	88	Rev. test (no. 1–6)	52–53	3-6 (pp. 134–135)	164–170

Note: Refer to Lesson 8: Read note on pyramid schemes in *Siyavula Everything Maths* (pp. 131–133).

PLATINUM MATHEMATICS Week 3						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
11	Revise finance, growth and decay (cont.)	89	Rev. test (no. 7–11)	53–54		
12	COUNTING AND PROBABILITY CAPS p. 49 Revise Grade 11 probability (dependent/independent events, mutually exclusive events, complementary events etc.)	256–260	1	225–227	10-1 (pp. 402–413)	474–482
13	Revise the use of Venn diagrams, tree diagrams and contingency tables to solve problems	261–266	2	227–230	10-2–10-3 (pp. 413–424)	482–493
14	Learn about and apply the fundamental counting principle to number of arrangements; Learn about factorial notation (use <i>Siyavula Everything Maths</i>)	267–269 273	3 (no. 1–5)	230	10-4 (pp. 425–428) 10-5 (pp. 329–431)	494–495 495–497
15	Apply the fundamental counting principle to number of arrangements and to permutations	269–274	3 (no. 6–11)	230	10-6 (pp. 431–433)	497–499

PLATINUM MATHEMATICS Week 4						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
16	Apply the fundamental counting principle to permutations (cont.)	274	3 (no. 12–17)	230	10-7 (pp. 433–436)	500–502
17	Apply the fundamental counting principle to solve probability problems	275–279	4 (no. 1–2)	231	10-8 (pp. 436–440)	502–506
18	Apply the fundamental counting principle to solve probability problems (cont.)	279	4 (no. 3–7)	231–232		
19	Revise counting and probability	280–281	Rev. test (no. 1–5)	232		
20	Revise counting and probability (cont.)	281	Rev. test (no. 6–11)	232		

PLATINUM MATHEMATICS Week 5 #Supplement						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
21	Revise counting and probability (cont.)	282	Rev. test (no. 12–16)	233	10-9 (pp. 440–443)	506–512
22	Formal assessment: Test					
23	STATISTICS Regression and Correlation CAPS p. 48 Revise measures of central tendency, measures of dispersion, symmetrical and skewed data and cumulative frequency	240–242	1#	215–217	9-1 (no. 1–4) (pp. 360–371)	430–437
24	Revise Grade 11 work (cont.) (use <i>Siyavula Everything Maths</i>)				9-1 (no. 5–10) (pp. 371–372)	437–439
25	Discuss scatter plots; Find the line of best fit intuitively and make predictions using interpolation and extrapolation (use <i>Siyavula Everything Maths</i>)				9-2 (pp. 372–379)	439–445

Note: Refer to Lesson 21: If more material is required for revision, then select questions from Exercise 10-9 in *Siyavula Everything Maths*.

PLATINUM MATHEMATICS Week 6 #Supplement						
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
26	Calculate the least squares regression line first by using a formula then by using a calculator (use <i>Siyavula Everything Maths</i>)				9-3 (pp. 380–386)	445–453
27	Calculate and analyse the correlation coefficient, r ; Calculate the least squares regression line, draw a scatter plot and the regression line; Make predictions	243–250	2 (no. 1–2)	217–219		
28	Calculate the least squares regression line, draw a scatter plot and the regression line; Make predictions (cont.)	251–252	2 (no. 3–5)#	219–221	9-4 (pp. 387–393)	453–461
29	Revise statistics: regression and correlation; Review test done in previous week	253–254	Rev. test (no. 1–4)	222–223		
30	Revise statistics: regression and correlation (cont.)	254–255	Rev. test (no. 5–8)	223–224	9-5 (pp. 394–399)	461–472

PLATINUM MATHEMATICS Week 7
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
31						
32						
33						
34						
35						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

PLATINUM MATHEMATICS Week 8
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
36						
37						
38						
39						
40						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

PLATINUM MATHEMATICS Week 9–11 Trial examinations

1.6 Siyavula Everything Maths

SIYAVULA EVERYTHING MATHS Week 1				
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.
1	FINANCE, GROWTH AND DECAY CAPS p. 42 Use logarithms to calculate the value of n , the period of an investment	106–109	3-1	146–150
2	Derive the formula and solve problems involving future value annuities	109–115	3-2	150–154
3	Solve problems involving sinking funds	115–117	3-3	155–157
4	Derive the formula and solve problems involving present value annuities	118–122 124	3-4 (no. 1–4)	157–159
5	Solve problems involving deferred payments; Determine the balance on a loan	122–124	3-4 (no. 5–8)	159–161

SIYAVULA EVERYTHING MATHS Week 2				
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.
6	Analyse investment and loan options; Read note on <i>pyramid schemes</i>	125–133	3-5	162–164
7	Revise finance, growth and decay	134	3-6 (no. 1–5)	164–166
8	Revise finance, growth and decay (cont.)	134–135	3-6 (no. 6–11)	167–170
9	Revise finance, growth and decay (cont.)	–	–	–
10	Revise finance, growth and decay (cont.)	–	–	–

Note: There is a shortage of material for this topic. More material may be sourced from other sets of LTSMs or from past trial (preliminary) or final examination papers.

SIYAVULA EVERYTHING MATHS Week 3				
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.
11	Revise finance, growth and decay (cont.)	–	–	–
12	COUNTING AND PROBABILITY CAPS p. 49 Revise Grade 11 probability (dependent/independent events, mutually exclusive events, complementary events, etc.)	402–413	10-1	474–482
13	Revise Venn diagrams and tree diagrams	413–421	10-2	482–489
14	Revise contingency tables and whether events are independent or not	421–424	10-3	489–493
15	Learn about and apply the fundamental counting principle to number of arrangements	425–428	10-4	494–495

SIYAVULA EVERYTHING MATHS Week 4				
Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.
16	Work with factorial notation	329–431	10-5	495–497
17	Apply the fundamental counting principle to counting problems and permutations	431–433	10-6	497–499
18	Solve problems involving different letter arrangements	433–436	10-7	500–502
19	Apply the fundamental counting principle to solve probability problems	436–440	10-8	502–506
20	Revise counting and probability	440–442	10-9 (no. 1–6)	506–509

SIYAVULA EVERYTHING MATHS Week 5

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.
21	Revise counting and probability (cont.)	443	10-9 (no. 7-14)	509-512
22	Formal assessment: Test			
23	STATISTICS Regression and Correlation CAPS p. 48 Revise measures of central tendency, measures of dispersion, five number summary, symmetrical and skewed data and cumulative frequency	360-370	9-1 (no. 1-2)	430-434
24	Revise Grade 11 work (cont.)	371-372	9-1 (no. 3-10)	434-439
25	Discuss scatter plots, find the line of best fit intuitively and make predictions using inter-polation and extrapolation	372-379	9-2	439-445

SIYAVULA EVERYTHING MATHS Week 6

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.
26	Calculate the least squares regression line using formulae and then the calculator, draw a scatter plot and the regression line; Make predictions	380-386	9-3	445-453
27	Calculate and analyse the correlation coefficient, r	387-391	9-4 (no. 1-3)	453-456
28	Calculate and analyse the correlation coefficient, r (cont.)	392-393	9-4 (no. 4-8)	456-461
29	Revise statistics: regression and correlation; Review test done in previous week	394-396	9-5 (no. 1-5)	461-464
30	Revise statistics: regression and correlation	396-399	9-5 (no. 6-11)	464-472

SIYAVULA EVERYTHING MATHS Week 7

Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.
31				
32				
33				
34				
35				

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

SIYAVULA EVERYTHING MATHS Week 8
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.
36				
37				
38				
39				
40				

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

SIYAVULA EVERYTHING MATHS Week 9–11 Trial examinations

1.7 Via Afrika Mathematics

VIA AFRIKA MATHEMATICS Week 1

*Select

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
1	FINANCE, GROWTH AND DECAY CAPS p. 42 Revise Grade 11 financial mathematics	76–77	Questions *	102–104		
2	Derive the formula and solve problems involving future value annuities	78–81	1 (no. 1)	105–107	3-2 (pp. 109–115)	150–154
3	Solve problems involving future value annuities	81	1 (no. 2–6)	107		
4	Derive the formula and solve problems involving present value annuities	82–85	2	108–109	3-4 (pp. 118–124)	157–161
5	Use logarithms to calculate the value of n , the time period in simple formulae	86–87	3	110–111	3-1 (pp. 106–109)	146–150

Note: Read the Teacher's Guide for good advice (TG p. 122) on this topic.

VIA AFRIKA MATHEMATICS Week 2

*Select

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
6	Analyse investments and loans; Determine the outstanding balance on a loan	88–92	4* 5	112–116	3-5 (pp. 125–131)	162–164
7	Solve problems involving sinking funds	92–93	6	116	3-3 (pp. 115–117)	155–157
8	Solve problems involving deferred payments	94–95	7	116–117	Note (pp. 131–133)	
9	Determine the value of the final payment and use logarithms to determine the time periods	96–97	8	117		
10	Read about pyramid schemes; Revise finance, growth and decay	100–101	Questions (no. 1–6)	120	3-6 (pp. 134–135)	164–170

VIA AFRIKA MATHEMATICS Week 3

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
11	Revise finance, growth and decay (cont.)	101	Questions (no. 6–11)	120–121		
12	COUNTING AND PROBABILITY CAPS p. 49 Revise Grade 11 probability (dependent/independent events, mutually exclusive events, complementary events etc.)	280–281	Questions	345–347	10-1 (pp. 402–413)	474–482
13	Revise solving probability problems using Venn diagrams	282–283	1	348–351	10-2–10-3 (pp. 413–424)	482–493
14	Revise solving probability problems using tree diagrams and contingency tables	284–287	2–3	351–352		
15	Learn about and apply the fundamental counting principle different arrangements; Work with factorial notation (use <i>Siyavula Everything Maths</i>)	288–289	4	345–355	10-4 (pp. 425–428) 10-5 (pp. 329–431)	494–495 495–497

VIA AFRIKA MATHEMATICS Week 4

#Supplement

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
16	Apply the fundamental counting principle to number of arrangements (cont.)	289–291	5#	355	10-7 (pp. 433–436)	500–502
17	Learn about applying the fundamental counting principle to permutations (use <i>Siyavula Everything Maths</i>)				10-6 (pp. 431–433)	497–499
18	Apply the fundamental counting principle to solve probability problems	292–293	6 (no. 1–5)	356–357	10-8 (pp. 436–440)	502–506
19	Apply the fundamental counting principle to solve probability problems (cont.)	294	6 (no. 6–11)	357–358		
20	Apply the fundamental counting principle to solve probability problems (cont.)	295	6 (no. 12–19)	358–359		

VIA AFRIKA MATHEMATICS Week 5

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
21	Revise counting and probability	296–297	Questions	359–361	10-9 (pp. 440–443)	506–512
22	Formal assessment: Test					
23	STATISTICS Regression and Correlation CAPS p. 48 Revise measures of central tendency, measures of dispersion and cumulative frequency	262–265	Questions	326–329	9-1 (pp. 360–372)	430–439
24	Revise symmetrical and skewed data	266–269	1	330–332		
25	Discuss scatter plots; Find the line of best fit intuitively and make predictions using interpolation and extrapolation (use <i>Siyavula Everything Maths</i>)				9-2 (pp. 372–379)	439–445

VIA AFRIKA MATHEMATICS Week 6

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
26	Calculate and analyse the correlation coefficient, r ; Calculate the least squares regression line, draw a scatter plot and the regression line; Make predictions	270–276	2 (no. 1–2)	333–337	9-4 (pp. 387–393)	453–461
27	Calculate the least squares regression line, the correlation coefficient, draw a scatter plot and the regression line and make predictions (cont.)	276–277	2 (no. 3–8)	337–340	9-3 (pp. 380–386)	445–453
28	Revise statistics: regression and correlation	278–279	Questions	341–344		
29	Revise statistics: regression and correlation (cont.) (use <i>Siyavula Everything Maths</i>); Review test done in previous week				9-5 (no. 1–5) (pp. 394–396)	461–464
30	Revise statistics: regression and correlation (use <i>Siyavula Everything Maths</i>)				9-5 (no. 6–11) (pp. 396–399)	464–472

VIA AFRIKA MATHEMATICS Week 7
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
31						
32						
33						
34						
35						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

VIA AFRIKA MATHEMATICS Week 8
Catch up, consolidation and revision; Plan your week

Lesson	CAPS concepts and skills	LB pp.	LB ex.	TG pp.	Siyavula Everything Maths	
					LB ex.	TG pp.
36						
37						
38						
39						
40						

Note: Work in class on matric past paper questions (based on the CAPS) is advised during this week.

VIA AFRIKA MATHEMATICS Week 9–11 Trial examinations

3. Guidelines for preparing a Mathematics lesson

The planner provides a detailed programme to guide you through the daily content you need to teach your class, and when to do formal assessments. You are still required to draw up your own lesson plans and will still make the final professional choices about which examples and explanations to give, which activities to set for your class and how to manage your class on a daily basis. It is a good idea that you and your Mathematics colleagues agree on a day that you can get together to plan your lessons as a group and submit your plans to your DH for quality assurance. To deliver the lessons successfully **you must do the necessary preparation yourself**. Bear in mind that your lessons will not succeed if you have not prepared properly for them. This entails a number of key steps, such as those noted below.

- 1. Review the term focus:** Start by looking at the CAPS and **orientating** yourself to the CAPS content focus for the year and the term. It is important that you are clear about the content focus, as this will frame everything you do in your Mathematics lessons during the term. **The time allocation per term** is given in the CAPS document on page 17. This indicates how many hours are to be spent on each topic. Note that where the term length is different to the total number of weeks specified in the CAPS, you will have to adjust the pace at which you work on each topic.
- 2. Prepare resources:** It is very important that you **check what is required for each lesson ahead of time** so that you have all your resources available and ready for use.
- 3. Prepare the content:** Think carefully about what it is that you will teach your learners in each lesson. Think about the prior knowledge of the content that learners should have learned in earlier grades that will be built on in the lesson. You should refer to the CAPS content and skills clarification column for further guidance while you prepare.
 - Prepare **a short introduction** to the topic so that you can explain it in simple terms to your learners. The Learner's Book and Teacher's Guide will assist you. Also think about how learners will develop an understanding of the main concepts of the lesson topic. You need to think about how to explain new Mathematics content and skills to your learners.
 - **Make sure you have prepared for teaching concepts before you teach.** Prepare yourself to assist learners with any questions they might have during the lesson. Look at the activities in the Learner's Book and in the *Siyavula Everything Maths* Learner's Book and think about how best to help your learners engage with them. Consider what will be done in class and at home. Be sure to have some extension and remediation activities ready to use as needed. It is a good idea to do your own answers to the exercises/activities you will be giving your learners so that you are aware of where learners may have difficulties. Also identify any common misconceptions and plan how you will address these.

Consider the needs of any learners with barriers to learning in your class and how best you can support them. The DBE has published some excellent materials to support you in working with learners with learning barriers.

- 4. Plan the steps in your lesson, and think carefully about how much time to allocate to different learner activities.** Also think about how to organise the learners when they work. Most lessons should include the steps below and we have suggested the time to be spent on each (for a 55 minute lesson) – but you might find that you need to work differently in some lessons, such as when a test is being written.
 - **Homework review/reflection (10 minutes):** This is the first activity of the lesson. During this part of the lesson you may reflect on the previous day's work. We recommend that you use these 10 minutes to remediate and correct the previous day's homework and do spot testing. Learners should have marked their work from the answers provided at the back of their Learner's Book. Choose one or two activities that you noted were problematic to go over more thoroughly. Allow learners the opportunity to write corrections as needed. If peer or individual marking has been done, you should regularly sample some learners' books to moderate this marking and to see what errors are being made so you can remediate these.
 - **Lesson content – introduction and concept development (10 minutes):** This is the second activity of the lesson. We recommend that you are actively involved with your class for 10 minutes – going through examples interactively with your learners or assisting them with introductory investigations. There are worked examples, suggested explanations and introductory investigations in the Learner's Book or Teacher's Guide that you should go through with your class as a whole. The CAPS content clarification column would also be a useful reference should you need further examples or ideas to enrich your explanations. You should elaborate on these explanations and provide additional examples if necessary.
 - **Classwork activity (30 minutes):** This is the third activity of the lesson. This part of the lesson provides an opportunity for learners to consolidate new concepts by doing activities or exercises from the Learner's Book or the *Siyavula Everything Maths* Learner's Book. These activities allow learners to practise their mathematical and problem solving skills. It is important that you **prepare yourself for the classwork activity** because you need to assist learners as they do the classwork. You may also need to select particular questions from each activity for the classwork in advance. This will ensure that all activity types and concepts are covered each day and enable you to give quick and clear instructions to your learners about which exercise they should do, which is necessary as the **exercises given in the various Learner's Books vary greatly in length**.

- Depending on your learners and the activities, you could discuss one or two of the classwork activities with the whole class before allowing the learners to work independently. Give the learners an opportunity to complete these activities alone, in pairs, and in groups, so that they experience working alone as well as with their peers. Encourage learners, where appropriate, to write the questions with their answers and to show their working neatly and systematically in their workbooks. Plan the timing of the lesson so that you and the learners can go over some of the classwork together and they can do corrections in the lesson.

If you require your learners to work in groups, carefully assign learners in such a way that there are learners with mixed abilities who can assist each other in each group.

This is also the part of the lesson where you can assist learners who need extra support and extend those who need enrichment. Throughout the lesson, try to identify learners who need additional support or extension by paying attention to how well they managed the homework, how they respond when you develop the new content, and how they cope with the class activities. While the rest of the class is busy working through the classwork activities, you should spend some time with those that need extra support and help them to work through the remediation activities. If learners successfully complete the daily classwork activities ahead of the rest of the class, be prepared to give them extension activities to do. All the LTSMs provide activities and ideas for remediation and extension.

- **Allocate homework (5 minutes):** This is the fourth and final activity of the lesson. In this step you should tell the learners about the homework for the day and make sure they know what is expected of them and understand what it is that they have to do. It is a good idea to get learners into the habit of regular daily homework such as completing unfinished classwork, revising what was done in class and noting what they did not understand. Once they have done this they should complete any additional work that you have set them to do for homework, such as specific questions that you have chosen from the classwork to be done as homework, or some of the remediation or extension activities given in the LTSMs you are using.

Homework enables the learners to consolidate the Mathematics that you have taught them in class. It also promotes learner writing, development of mathematical knowledge and language and the development of regular study habits. Encourage your learners to show their parent(s) or their guardian(s) the work they have done.

5. **After each lesson, reflect on how it went:** The tracking template has prompts to assist you, and spaces where you can note your thoughts about your lessons. You will use these notes as you plan and prepare for your teaching and in discussions with your DH and peers.

4. Assessment term plan

Term 3: Formal assessment tasks included in each set of LTSMs

LTSMs	Test	Trial examination <i>In last three weeks of term</i> <i>* Suitable for practice but not for formal assessment</i>
Classroom Mathematics	Week 5 – Lesson 22 Exemplar test: Section C of planner	Exemplar end-of-year examinations *Paper 1: LB pp. 407–409 Memorandum: TG pp. 525–529 *Paper 2: LB pp. 410–413 Memorandum: TG pp. 530–535
	Other possible tests Test: Financial mathematics TG p. 167 Memorandum: TG pp. 168–169 Test: Counting and probability TG pp. 479–480 Memorandum: TG pp. 481–482 Test: Statistics (Regression and correlation) TG p. 465 Memorandum: TG pp. 466–467 Other assessments Project: Finance LB pp. 126–127, TG pp. 164–166	
Clever: Keeping Maths Simple	Week 5 – Lesson 22 Exemplar test: Section C of planner	End-of-year sample papers *Paper 1: LB pp. 423–426 Memorandum: LB pp. 442–449 *Paper 2: LB pp. 427–432 Memorandum: LB pp. 450–455 Additional sample papers Paper 1: <i>Paper One</i> TG pp. 348–350 Memorandum: TG pp. 366–371 Paper 2: <i>Paper Two</i> TG pp. 351–356 Memorandum: TG pp. 372–376 Paper 3: <i>Paper One</i> TG pp. 357–360 Memorandum: TG pp. 377–381 Paper 4: <i>Paper Two</i> TG pp. 361–365 Memorandum: TG pp. 382–385
	Other tests Practice test: Financial mathematics TG p. 95 Memorandum: TG p. 96 Practice test: Counting and probability TG p. 328 Memorandum: TG p. 329 Practice test: Statistics (Regression and correlation) TG pp. 303–304 Memorandum: TG pp. 305–306 Other assessments Project: Finance TG pp. 341–342 Rubric: TG pp. 343–344 Memorandum notes: TG pp. 345–346	
Maths Handbook and Study Guide	Week 5 – Lesson 22 Exemplar test: Section C of planner	Exemplar preliminary examinations *Paper 1: LB pp. 312–318 Memorandum: TG pp. 121–126 Paper 2: LB pp. 318–324 Memorandum: TG pp. 126–130
	Other assessments Grade 11 Revision of statistics assignment LB pp. 381–382 Memorandum: TG pp. 134–136	
Mind Action Series Mathematics	Week 5 – Lesson 22 Exemplar test: Section C of planner	End of year examination exemplars Paper 1: TG pp. 339–343 Memorandum: TG pp. 344–352 Paper 2: TG pp. 353–359 Memorandum: TG pp. 360–367
	Other assessments Project: Legal and illegal investment schemes LB pp. 105–109, TG pp. 95–97 Rubric: TG pp. 98–99 Memorandum: TG pp. 100–102	
Platinum Mathematics	Week 5 – Lesson 22 Exemplar test: Section C of planner	Preliminary exams (exemplars) Paper 1: TG pp. 362–365 Memorandum: TG pp. 280–282 Paper 2: TG pp. 366–370 Memorandum: TG pp. 283–285 Exam practice: Preliminary *Paper 1: LB pp. 283–285 Memorandum: LB pp. 387–388 *Paper 2: LB pp. 286–289 Memorandum: LB pp. 389–390 <i>More examination practice papers have been included in the Learner’s Book.</i>
	Other assessments Project: Financial maths LB p. 114, TG p. 87 Project: Pyramid schemes TG pp. 343–345 Rubric: p. 266 Control test book <i>Relevant questions can be selected from the three tests provided.</i>	

LTSMs	Test	Trial examination <i>In last three weeks of term</i> <i>* Suitable for practice but not for formal assessment</i>
Siyavula Everything Maths	Week 5 – Lesson 22 Exemplar test: Section C of planner	
Via Afrika Mathematics	Week 5 – Lesson 22 Exemplar test: Section C of planner Note: <i>The Term 3 tests provided in the TG (pp. 370–375) cover Euclidean geometry, regression and the counting principle, so are not suitable for KZN use unless only selected questions are used.</i> Other assessments Assignment: Financial mathematics LB p. 99, TG pp. 118–119	End-of-year exemplar papers *Paper 1: LB pp. 318–321 Memorandum: TG pp. 412–418 *Paper 2: LB pp. 322–325 Memorandum: TG pp. 419–423 Additional exemplars Paper 1: TG pp. 424–427 Memorandum: TG pp. 428–435 Paper 2: TG pp. 436–438 Memorandum: TG pp. 439–443
	Topics in exemplar test Finance, growth and decay Counting and probability	

5. The exemplar Term 3 test

Time: 65 minutes

Total: 55 marks

INSTRUCTIONS TO LEARNERS:

1. There are five questions. Answer all questions.
2. Show all your calculations where necessary. Full marks will not be awarded where working out should be shown but is not.
3. Scientific non-programmable calculators may be used.
4. Answer questions to two decimal places where appropriate.
5. Write neatly and legibly.

QUESTION 1

- 1.1 What is the nominal interest rate per annum, compounded semi-annually, of an annual effective interest rate of 8,25%? (3)
- 1.2 The value of a car depreciates at a reducing balance rate of 11,5% per annum. Determine how many years and months it will take for the car to halve in value. (4)
- 1.3 Mr Phosa plans to buy a house for two million rand. He has to pay a deposit of 15% and take a loan from the bank for the balance owing. Investor Bank offers him an interest rate of 9,5% per annum compounded monthly.
- 1.3.1 If he pays off the loan over 20 years, what are his monthly payments? (5)
- 1.3.2 What is the balance of the loan after 10 years? (4)

[16]

QUESTION 2

Mrs Gabela has bought a new tractor for R800 000 for her farm. She has decided to replace this tractor in five years' time, when its trade-in value will be R200 000.



The replacement cost of the tractor is expected to increase by 8% per annum.

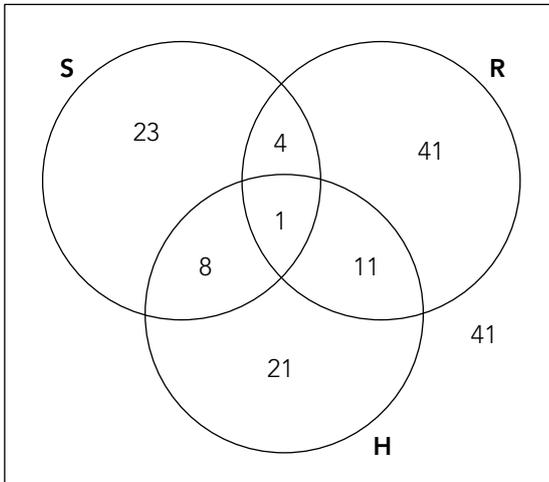
- 2.1 Show that Mrs Gabela will have to pay a cash amount of R975 462,46 when she replaces the tractor in five years' time. (3)
- 2.2 One month after purchasing her present tractor, she starts to put money into a sinking fund to replace this tractor. For five years, she deposits the same amount, every month into an account which pays interest at a rate of 12% per annum compounded monthly.
- At the end of five years, she has exactly R975 462,46, the amount needed to purchase the new tractor, after she trades in her present tractor. Calculate the monthly deposit. (4)
- 2.3 Suppose that 12 months after the purchase of the present tractor and every 12 months thereafter, Mrs Gabela withdraws R5 000 from her account, to pay for the maintenance of the present tractor. If she makes five such withdrawals, what will the new monthly deposit be? (5)

[12]

QUESTION 3

Mr Panache wants to start organising next year's matric dance. He asked 150 of the current Grade 11s to indicate their preferred venue. They had to choose either the school hall (S), a restaurant (R) or an hotel (H).

The information collected is shown in the Venn Diagram below:



- 3.1 Are the events S and H mutually exclusive? Justify your answer. (2)
- 3.2 Calculate: (2)
- 3.2.1 $P(S \cup R)$ ' (2)
- 3.2.2 The probability of the Grade 11s preferring only TWO of the given venue choices. (2)
- 3.3 Show, with all working, whether the events preferring the school hall (S) and preferring a restaurant (R) are independent or not. (4)

[10]

QUESTION 4

A soccer star is suffering from an injury. The probability that the player will be fit to play in the upcoming match is $\frac{1}{3}$. When he plays, the probability that his team will win is $\frac{3}{4}$ but otherwise, if he is not fit to play, it is only $\frac{1}{2}$.

- 4.1 Set up a tree diagram to illustrate all the possible outcomes. (3)
- 4.2 Hence (or otherwise) calculate the probability that his team will win the next game. (3)

[6]

QUESTION 5

- 5.1 In how many different ways can Johnny dress for a party if he has three jackets, four pairs of jeans, two pairs of shoes and five shirts? (2)
- 5.2 If there are 24 Grade 12s in your class and there is only first and second place for class representative and vice-class representative, in how many ways can this selection be made? (3)
- 5.3 The word **INDEFINITE** is given. (3)
- 5.3.1 If the letters are not repeated, calculate the total number of arrangements of these letters that can be made. (3)
- 5.3.2 Determine the probability that an arrangement will have the E's together. (3)

[11]

7. Weighting of cognitive levels in the Term 3 test

The table below shows the weighting of marks across the cognitive levels in the exemplar test provided above. As can be seen, this differs slightly from the suggested weightings in the CAPS. This is acceptable, provided the two lower cognitive levels add up to approximately 55%, while the two higher levels add up to approximately 45%. In this exemplar test, the two lower levels together account for 55% of the marks, and the two higher for 45%.

Cognitive levels	Mark out of 55	Percentage of marks in the test	Percentage of marks at each level prescribed by the CAPS (p. 53)
Knowledge (K)	2	4%	≈ 20%
Routine procedures (RP)	31	56%	≈ 35%
Complex procedures (CP)	11	20%	≈ 30%
Problem solving (PS)	11	20%	≈ 15%

8. A sheet of formulae for learners

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$			
$A = P(1 + ni)$	$A = P(1 - ni)$	$A = P(1 - i)^n$	$A = P(1 + i)^n$
$T_n = a + (n - 1)d$	$S_n = \frac{n}{2}(2a + (n - 1)d)$		
$T_n = ar^{n-1}$	$S_n = \frac{a(r^n - 1)}{r - 1}; r \neq 1$	$S_\infty = \frac{a}{1 - r}; -1 < r < 1$	
$F = \frac{x[(1 + i)^n - 1]}{i}$		$P = \frac{x[1 - (1 + i)^{-n}]}{i}$	
$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$			
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$		$M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$	
$y = mx + c$	$y - y_1 = m(x - x_1)$	$m = \frac{y_2 - y_1}{x_2 - x_1}$	$m = \tan \theta$
$(x - a)^2 + (y - b)^2 = r^2$			
In $\triangle ABC$: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$		$a^2 = b^2 + c^2 - 2bc \cdot \cos A$	
area $\triangle ABC = \frac{1}{2}ab \cdot \sin C$			
$\sin(\alpha + \beta) = \sin \alpha \cdot \cos \beta + \cos \alpha \cdot \sin \beta$			
$\sin(\alpha - \beta) = \sin \alpha \cdot \cos \beta - \cos \alpha \cdot \sin \beta$		$\cos(\alpha + \beta) = \cos \alpha \cdot \cos \beta - \sin \alpha \cdot \sin \beta$	
$\cos(\alpha - \beta) = \cos \alpha \cdot \cos \beta + \sin \alpha \cdot \sin \beta$			
$\cos 2\alpha = \begin{cases} \cos^2 \alpha - \sin^2 \alpha \\ 1 - 2 \sin^2 \alpha \\ 2 \cos^2 \alpha - 1 \end{cases}$		$\sin 2\alpha = 2 \sin \alpha \cdot \cos \alpha$	
$\bar{x} = \frac{\sum f(x)}{n}$		$\sigma^2 = \frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n}$	
$P(A) = \frac{n(A)}{n(S)}$		$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$	

10. Templates for tracking, reflecting on and reporting curriculum coverage

10.1 Conventional schools¹

NAME OF TEACHER: _____ SUBJECT/GRADE: _____

Week no. in planner _____				
Week no. in term when work planned for week started _____				
Refer to the planner ² for details of the week's work (or the ATP for subjects without planners)				
Class (or subject for FP)				
On track by end of week? (Yes/no)				
How many learners are working confidently? ³ (Rough estimate)				
How many learners in this class?				
BRIEF NOTES ON THE DAY'S WORK: Consider such things as: <i>What concepts/skills did the learners struggle with or manage well in this lesson? What could be the reasons for this? Did the class complete the work you had planned? Do you need to change your plans for the next lesson? What changes will you make?</i>				
DAY⁴				
1				
2				
3				
4				
5				
Reflection on the week: Think about and make a note of:				
What concepts and skills for the week did learners struggle with? What could you do differently next time to better support or extend learning? What good practice could you share?			Did you cover the curriculum for the week? If not, what were some of the challenges? What can you do to catch up? What help do you need? How will your progress this week affect your plan for next week?	
DH:			Date:	

¹ Please amend this draft template to suit the needs of your school.

² You can use any planning document (such as the CAPS planner, the ATP or printed lesson plans) as the basis for your tracking.

³ Estimate of learners in that grade that are working confidently at Level 4 (adequate achievement) or above.

⁴ This can also be lessons if there are more than five lessons a week.

10.2 Multigrade schools¹

NAME OF TEACHER: _____

Week no. in planner _____

Week no. in term when work planned for week started _____

Refer to the planner² for details of the week's work (or the ATP for subjects without planners)

Subjects							
GRADE	On track this week? ³						
	Est. learners > Level 4 ⁴						
	# learners in grade						
GRADE	On track this week?						
	Est. learners > Level 4						
	# learners in grade						
GRADE	On track this week?						
	Est. learners > Level 4						
	# learners in grade						
DAY	BRIEF NOTES ON THE DAY'S WORK: Consider such things as: <i>What concepts/skills did the learners struggle with or manage well in this lesson? What could be the reasons for this? Did the class complete the work you had planned? Do you need to change your plans for the next lesson? What changes will you make?</i>						
	1						
	2						
	3						
	4						
5							
Reflection on the week: Think about and make a note of:							
SUBJECT	What concepts and skills for the week did learners struggle with? What could you do differently next time to better support or extend learning? What good practice could you share?	Did you cover the curriculum for the week? If not, what were some of the challenges? What can you do to catch up? What help do you need? How will your progress this week affect your plan for next week?					
Principal:				Date:			

¹ Please amend this draft template to suit the needs of your school.

² You can use any planning document (such as the CAPS planner, the ATP or printed lesson plans) as the basis for your tracking.

³ Yes/no?

⁴ Estimate of learners in that grade that are working confidently at Level 4 (adequate achievement) or above.



Jika iMfundo
what I do matters

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THE PROGRAMME TO IMPROVE LEARNING OUTCOMES

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