education

Department of Education
REPUBLIC OF SOUTH AFRICA

NATIONAL CURRICULUM STATEMENT GRADES 10-12

SUBJECT:
MATHEMATICAL LITERACY

TEACHER TRAINING MANUAL 2006

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PROGRAMME

PERIOD: Monday to Friday

DURATION: 36-37 hours

5-DAY PROGRAMME FOR MATHEMATICAL LITERACY TEACHERS-

SESSION	ACTIVITY	TIME	DAY
1. Introducing the National Curriculum Statement (NCS) and the National Senior Certificate (NSC)	Introduction of training participants	3-4 hours	Mon AM
	Overview of the week of training / documents provided		
	Introduction to the NCS and NSC		
2. Introducing the Mathematical Literacy Subject Statement	Introduction	20 hours	Mon PM – Wed PM
	Subject Content and Approach		
	Conclusion / Wrap-up		
3. Planning for teaching Mathematical Literacy in the NCS	The Planning Cycle	8 hours	Thu
	The Grade 11 Work Schedule		
	Critique of the Grade 11 Work Schedule		
	Development of the first Lesson Plan for Grade 11		
4. Annual assessment plan	Introduction	5 hours	Fri AM
	Annual assessment plan		
	Conclusion / Wrap-up		

SESSION 1

Introducing the National Curriculum Statement (NCS) and the National Senior Certificate (NSC) (3-4 hours)

ACTIVITY 1: Introduction of training participants

FORM OF ACTIVITY: Introductions

ACTIVITY 2: Overview of the week of training / documents provided

FORM OF ACTIVITY: Presentation

RESOURCES: The 5-day training programme (PowerPoint)
A hard copy of each document referred to-

- National Senior Certificate Policy
- Subject Statement
- Subject Assessment Guidelines
- Learning Programme Guidelines
- Teacher Guide for Mathematical Literacy
- National Protocol on Assessment
- HE admission requirements

CONTENT:

- Training programme for the week and house rules
- Documents making up the NSC policy and documents supporting the NCS policy – purpose and status of each

ACTIVITY 3: Introduction to the NCS and NSC

Part 1: 20 Questions

FORM OF ACTIVITY: Test and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector

CONTENT:

- 20 questions focusing on the NCS and NSC

INSTRUCTIONS:

- Allow the participants to record their responses to each question as individuals
- Discuss the answers with the group as a whole, inviting participants to offer answers before discussing them

Part 2: NCS and NSC

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, a hard copy of each document referred to in the presentation-

- National Senior Certificate Policy
- Subject Statement
- Subject Assessment Guidelines
- Learning Programme Guidelines
- National Protocol on Assessment

CONTENT:

- Overview of the NCS, including principles and Critical and Developmental Outcomes
- National Senior Certificate: Requirements, structure and details

Part 3: Requirements for Higher Education study

FORM OF ACTIVITY: Open-book and presentation

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, HE admission requirements

CONTENT:

- Requirements for certificate, diploma and degree programmes

INSTRUCTIONS:

Introduction

- While the HE document is not part of NCS policy, it provides teachers with indicators on required learner performance in NCS subjects for entry into Higher Education
- The 3-year NSC programme is the key to Higher Education study and teachers need to be aware of the admission requirements for different programmes offered at Higher Education Institutions as they are the conduits between Grade 9 and Higher Education study

Open-book activity

- Ask participants to study the HE document and identify the requirements for certificate, diploma and degree programmes

Report back and discussion

- Allow one report back
- Present the requirements
- Discuss the designated list of subjects, noting that learners already have 3 of the designated subjects in their NSC package – two languages and Mathematics or Mathematical Literacy

At the end of this session you will have:

- Noted the design of the NCS
- Been exposed to documents making up the NCS
- Gained an understanding of the requirements for the National Senior Certificate
- Explored the HE admission requirements

SESSION 2 –
Introducing the Subject Statement (20 hours)

ACTIVITY 1: Income and expenditure (Elsie's chicken food) (2 hours)
(This activity is based on Teacher Guide Unit Number 1)

FORM OF ACTIVITY: Group based task

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, or overhead projector, Mathematical Literacy Teacher Guide, basic calculators, activity handout(s) (Appendix)

CONTENT: Completion of this activity will reveal ways of teaching the following:

- Income and expenditure and exploring the three situations:
  - income > expenditure
  - Income = expenditure
  - Income < expenditure
- Basic calculations using a basic calculator
- Income and expenditure statements, and budgets
- Ratio/proportion
- Breakeven points and making a profit
- Interpreting answers in context

INSTRUCTIONS: Introduction of activities based on Teacher Guide Unit Number 1 by the facilitator.

ACTIVITY 2: Space and Shape (Baking Cookies) (3 hours)
(This activity is based on Teacher Guide Unit number 2)

FORM OF ACTIVITY: Group based task on physical modelling

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, or overhead projector, Mathematical Literacy Teacher Guide, pairs of scissors, basic calculators, rulers, pairs of compasses, 10 $\times$ A4 sheets of light cardboard and/or paper per group, activity handout(s) (Appendix)

CONTENT: Completion of the "*Packing cookies on a baking tray*" task will reveal ways of teaching:

- percentage
- rounding off
- measuring
- using construction instruments – ruler and pair of compasses
- conversions

- scale drawings

Completion of the "*Reflection*" task will reveal the importance of:

- estimation
- interpretation of drawings
- derivation of formula/method

Completion of the "*Meeting the demand*" task will reveal ways of teaching:

- ratios
- volumes
- basic calculations
- working with formulae
- interpreting answers

INSTRUCTIONS: Introduction of activities based on Teacher Guide Unit number 2 by the facilitator.

ACTIVITY 3: Calculating costs (Telephone cards and public telephones) (4 hours) (This activity is based on Teacher Guide Unit number 5)

FORM OF ACTIVITY: Presentation, individual work, group work and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, or overhead projector, Mathematical Literacy Teacher Guide, basic calculators, sheets of graph paper (6 sheets per group), activity handout(s) (Appendix)

CONTENT: Completion of this activity will reveal ways of teaching the following:

- Basic calculations and use of a basic calculator
- Working with formulae
- Selecting information from tables
- Developing formula based on information in tables
- Rate
- Ratio/Proportion
- Rounding down, up and off
- Completing tables of values
- Drawing of graphs from tables of values
- Identifying critical points on graphs

INSTRUCTIONS: Introduction of activities based on Teacher Guide Unit number 5 by the facilitator.

ACTIVITY 4: Measuring and calculating (postage – sending mail) (4 hours)
(This activity is based on Teacher Guide Unit number 14)

FORM OF ACTIVITY: Group based task

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, or overhead projector, Mathematical Literacy Teacher Guide, basic calculators, South African Post Office rates brochure (1 per participant), measuring tapes (1 – 2 per group), kitchen scales (1 per every 2 groups), rulers, postal items of different sizes and weights, Post Office domestic letter size guide (to be loaned from a local post office), activity handout(s) (Appendix)

CONTENT: Completion of this activity will reveal ways of teaching the following:

- Measuring length and weight
- Converting between units of measurement
- Performing basic calculations
- Using a basic calculator
- Working with and interpreting information presented in tables
- Developing tables of values
- Estimating
- Interpreting answers in contexts
- Constant and variable relationships
- Simple formulae
- Checking answers
- Decision making

INSTRUCTIONS: Introduction of activities based on Teacher Guide Unit number 14 by the facilitator.

ACTIVITY 5: Data Handling (spending energy) (4 hours)
(This activity is based on Teacher Guide Unit number 24)

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, or overhead projector, Mathematical Literacy Teacher Guide, basic calculators, activity handout(s) (Appendix)

CONTENT: Completion of this activity will reveal ways of teaching the following:

- The role of energy conservation in our daily lives.
- Collecting, summarising and representation of data.
- Other forms of data representation.
- Comparing, analysing and critiquing of different types of data representation.

INSTRUCTIONS: Introduction of activities based on Teacher Guide Unit number 24 by the facilitator.

ACTIVITY 6: Introduction to Mathematical Literacy (2 hours)

FORM OF ACTIVITY: Reflection, presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, or overhead projector, Mathematical Literacy Teacher Guide, Core Assessment Standards for Mathematical Literacy

CONTENT:

- Overview of the subject: Definition, purpose and scope of the subject
- Learning Outcomes for the subject
- Incremental implementation of the Mathematical Literacy curriculum for Grades 10-12 – Core Assessment Standards
- Time allocation and placement of Mathematical Literacy in the school timetable
- Content in Mathematical Literacy
- Progression in Mathematical Literacy

ACTIVITY 7: Teaching Mathematical Literacy – dealing with the realities (2 hours)

FORM OF ACTIVITY: Discussion

RESOURCES: Newsprint, koki pens and Prestik

CONTENT:

- Discussion of the classroom realities and their implications for teaching Mathematical Literacy
- Support needed to make a success of teaching Mathematical Literacy.

At the end of this session you will have:

- Engaged with and analysed the content (i.e. knowledge, skills and values) relevant to Mathematical Literacy
- Critically explored the teaching, learning and assessment approach relevant to Mathematical Literacy
- Explored the use of the Mathematical Literacy Teacher Guide in developing lessons for teaching Mathematical Literacy

SESSION 3 –
Planning for teaching subjects in the NCS (8 hours)

ACTIVITY 1: Introduction to the planning cycle (½ hour)

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector

CONTENT:
- Three stages of planning
- Purpose, role-players and duration per stage
- Issues to consider when developing a Learning Programme
- Brief overview of the key activities and development process per stage

ACTIVITY 2: Introduction to the Grade 11 Work Schedule (1 hour)

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint, Laptop, Data Projector, Grade 11 Work Schedule, Optional: OHP Presentation, OHP Projector, OHP Pens and OHP Sheets

CONTENT:
- Elements of design
- Process of design
  - Integration: What, how and why
  - Sequencing: What, how and why
  - Pacing: What, how and why
  - Suggested assessment tasks: What and why – will return to this in Session 4
  - LTSM: What and why

ACTIVITY 3: Critique the Grade 11 Work Schedule (4½ hours)

FORM OF ACTIVITY: Interactive, report back and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, Learning Programme Guidelines

CONTENT:
- Grade 11 Work Schedule

INSTRUCTIONS:

- Participants study the example of the Grade 11 Work Schedule provided and critique it:
  - Does the Work Schedule cover all the Assessment Standards (i.e. content)?
  - Integration: Are the Assessment Standards appropriately linked?
  - Are the Assessment Standards covered in sufficient detail and depth?
  - Pacing: Is the time allocation across the 40 weeks appropriate?
  - Sequencing: Is the content presented in the correct order?
  - Are appropriate assessment tasks suggested?
  - Are relevant LTSM listed?
  - How can the Work Schedule be improved?

ACTIVITY 4: Report back (1 hour)

FORM OF ACTIVITY: Report back and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, Learning Programme Guidelines

CONTENT:
- Improved Grade 11 Work Schedule

INSTRUCTIONS:
- Allow different groups to present their improved version of the exemplar Work Schedule for Grade 11
- Engage participants in a discussion after each presentation

ACTIVITY 5: Development of the first Lesson Plan for Grade 11 (1 hour)

FORM OF ACTIVITY: Presentation, interactive, report back and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, Learning Programme Guidelines, Teacher Guide

CONTENT:
- Grade 11 Lesson Plan
  - Elements of design
  - Process of design

INTRODUCTION:
- Lesson Plan: What it is and its duration
- Pointers on deciding on the number of Lesson Plans to be written
- Elements and design of a Lesson Plan
- Teaching method: What and why
- Assessment strategy: Who, when, how and form of assessment
- Expanded opportunities: Inclusive approach to accommodate all learners
- Teacher reflection: What it is and its role in reflective practice

INSTRUCTIONS:

- Provide an overview of the elements and the design process of a Lesson Plan
- Engage participants in the development of the first Lesson Plan that will be presented for the first 2-5 weeks of the school year according to the Grade 11 Work Schedule critiqued in Activity 3
- Allow one group to present and then discuss their presentation

At the end of this session you will have:

- Been introduced to the planning cycle for a Learning Programme
- Been exposed to the elements and design process of a Work Schedule and a Lesson Plan for your subject
- Critiqued and improved an exemplar of a Grade 11 Work Schedule
- Developed a Lesson Plan for the first 2-5 weeks for Grade 11

SESSION 4 –
Annual assessment plan (5 hours)

ACTIVITY 1: Introduction to assessment in the NCS (¼ hour)

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, National Protocol on Assessment

CONTENT:
- Approach to assessment: Norm-referenced and criteria-driven
- Recording process: Global mark per task and no averaging of marks to arrive at a total for the subject
- Reporting process: Grade 7-9 also use 7 codes
- Portfolios: Teacher and learner

ACTIVITY 2: Programme of Assessment for Grades 10 and 11

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Assessment Guidelines

CONTENT:
- Programme of Assessment for Grades 10 and 11 (Section 2 of the Subject Assessment Guidelines): Number of tasks
- Nature of <u>other</u> tasks: Forms of assessment suitable to the subject (Section 3 of the Subject Assessment Guidelines) and suitable tools
- Weighting of tasks

ACTIVITY 3: Development of a Grade 11 annual assessment plan

FORM OF ACTIVITY: Presentation, interactive and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Assessment Guidelines

CONTENT:
- Programme of Assessment for Grade 11: Tasks, topics, tools and dates

INSTRUCTIONS:
- Ask participants to revisit the Grade 11 Work Schedule (Session 3: Activity 3) and to align the annual assessment plan for Grade 11 with it

- Engage participants in the compilation of a Grade 11 annual assessment plan in which they indicate:
  - Eight tasks: 2 Tests, 2 examinations and 4 other tasks
  - Topics for each task
  - Assessment tools for each task
  - Date and duration of each task

At the end of this session you will have:

- Exposed to assessment practice in the NCS
- Gained an understanding of the elements making up a Programme of Assessment
- Developed an annual assessment plan for Grade 11

ACTIVITY HANDOUTS

Session 1 – Activity 3: Twenty Questions

No.	Answer
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20	

Session 2 – Activity 1: Budgets (Elsie's chicken food)

The most basic and important concepts to understand with respect to personal finance are income and expenditure. If income exceeds expenditure then we have money to save; if income equals expenditure we break even and if expenditure exceeds income we will have to use up our savings, or worse, go into debt.

Elsie, like many women across South Africa, makes a living by selling chicken food, fruit and vegetables on the side of the street and in markets.

Task 1: Based on the information about Elsie's stall provided in the Teacher Guide (p. 7) calculate the cost[1] of the following items:

- Each of the different buckets of chicken food,
- A packet of potatoes.

[1] At this stage we are only interested in calculating the price of the item based on what Elsie has paid for the components.

Task 2: <u>Income</u>

Based on the information provided for Elsie's chicken food stall (Teacher Guide, p. 7) and your own sense of Elsie's stall, make a list of the different forms of income that Elsie's stall could experience.

Task 3: <u>Expenses</u>

Based on the information provided for Elsie's chicken food stall (Teacher Guide, p. 7) and on your own experience, make a list of the different expenses that Elsie is likely to experience in running her stall.

Task 4: Develop a simple income and expenditure statement (estimating the values) for a week in the life of Elsie's stall.

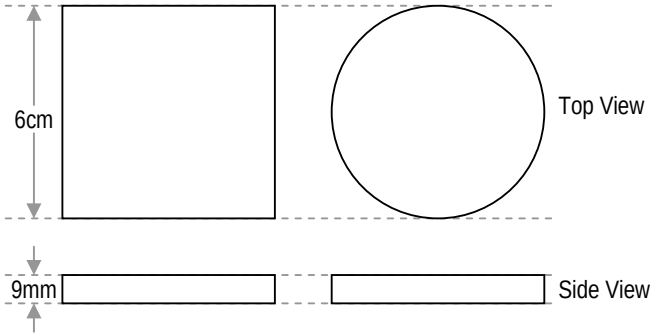
Task 5: Based on your income and expenditure statement decide which of the statements below best describes Elsie's chicken feed stall. Be ready to justify your answer.

Income < Expenses
Income = Expenses
Income > Expenses

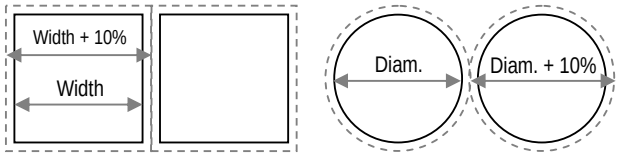
Session 2 – Activity 2: Baking Cookies – Space and Shape

Background Information

Round and square cookies - dimensions



Requirements for packing cookies on a baking tray:

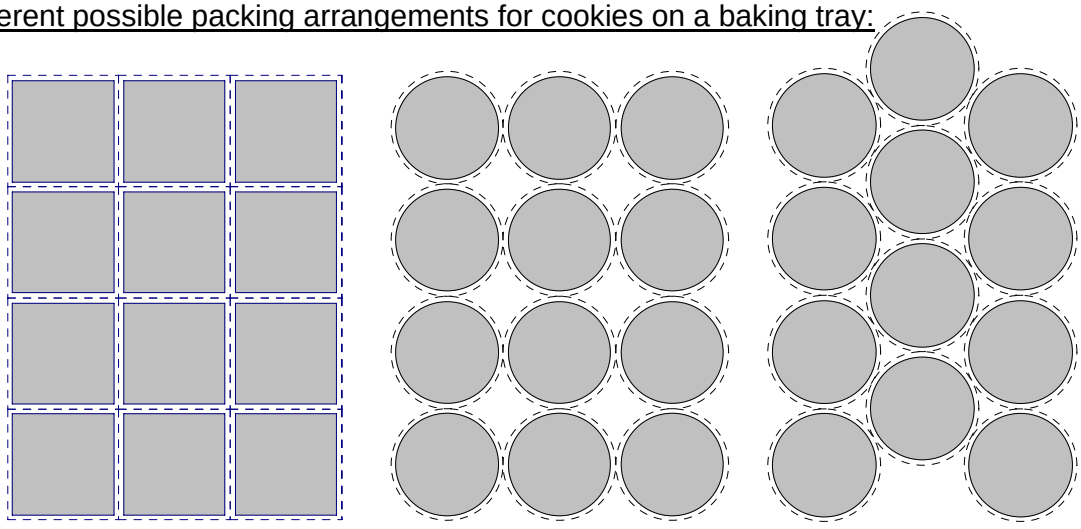


Baking tray dimensions

Baking trays with the following dimensions can be bought from most supermarkets (other dimensions are also available):

Tray 1: 440 *mm* × 290 *mm* × 15 *mm*
Tray 2: 385 *mm* × 260 *mm* × 13 *mm*
Tray 4: 335 *mm* × 235 *mm* × 15 *mm*

Different possible packing arrangements for cookies on a baking tray:



Packing cookies on a baking tray

Task 1:
Draw scale drawings of the square and circular cookies, and cut at least 30 of each of these out (let the scale drawings include the expansion distance).

Task 2:
Draw scale drawings for the three baking trays described above.

Task 3:
Use your scale cut-outs for the cookies to explore how many round cookies and how many square cookies can be baked at a time on each of the baking trays. Make a table to record your findings

Reflection

Reflect on the processes used to determine the maximum number of cookies per tray. Can you think of an easier method to determine

- the number of square cookies, and
- the number of round cookies?

Meeting the demand

Task 4: Determine the volume of the square and the round cookie.

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Task 5: If a 200*g* packet of square cookies has 19 cookies in it, how many cookies will there be in 200g packet of round cookies? Be ready to explain your answer.

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Task 6: How many of each kind will there be in a 250*g* packet?
Be ready to explain your answer.

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Task 7: (As a teacher) Develop at least three variations on the two problems listed above (with solutions).

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Activity 3: The cost of using a Telkom Public phone

Telephone call charges from public phones		Rand (excl VAT)	Rand (incl. VAT)
	Unit charge per metering period	0,439	0,50
Calls to Telkom phones	Metering period in seconds		
	Standard time: Monday to Friday 07:00 to 19:00	Callmore time: Monday to Friday 19:00 to 07:00 and Friday 19:00 to Monday 07:00	
Local (0-50 km)	58,0	110,0	
Long distance (> 50km)	20,7	38,5	
	Metering period in seconds		
Calls to mobile cellular phones	Rate 1: Weekdays from 07:00 to 20:00	Rate 2: Monday to Friday 20:00 to 07:00 and Friday 20:00 to Monday 07:00	
	11,2	17,6	

source: www.telkom.co.za

Task 1: Use the table and calendar provided to answer the following questions.

WORK AS AN INDIVIDUAL

1.1 What is the VAT inclusive charge for a metering period?

1.2 At which of the following rates (Standard, Callmore, Rate 1 or Rate 2) will the following calls be charged?
- (a) To Telkom at 16:00 on 26/04/05
- (b) To Telkom at 19:30 on 26/04/05
- (c) To Cellular at 19:30 on 26/04/05
- (d) To Telkom at 13:00 on 27/04/05
- (e) To Telkom at 13:00 on 30/04/05
- (f) To Cellular at 08:00 on 07/05/05

April 2005						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

WORKING AS A GROUP

1.3 How long is the metering period for each of the following calls?
- (a) To Telkom (45km) at 16:00 on 15/04/05
- (b) To Cellular phone at 16:00 on 15/04/05
- (c) To Telkom (98km) at 19:30 on 16/04/05
- (d) To Cellular phone at 19:30 on 16/04/05
- (e) To Telkom (15km) at 11:30 on 17/04/05
- (f) To Cellular at 11:30 on 17/04/05
- (g) To Telkom (1125km) at 14:00 on 18/04/05
- (h) To Cellular at 14:00 on 18/04/05

1.4 How much will each of the following calls cost?

(a) To Telkom (45km) at 20:00 on 15/04/05 duration 7 minutes
(b) To Cellular phone at 20:00 on 15/04/05 duration 7 minutes
(c) To Telkom (78km) at 16:00 on 07/04/05 duration 4 minutes
(d) To Cellular phone at 16:00 on 07/04/05 duration 4 minutes

1.5 How many days will a R20,00 Telkom phone card last if you make a local call everyday for 5 minutes during Callmore time to another Telkom phone?

Task 2: Complete the table below.

Number of units for different telephone calls			Call duration (minutes)								
			0,5	1	1,5	2	2,5	3	3,5	4	4,5
To Telkom	Std time	Local									
		Long distance									
	Callmore time	Local									
		Long distance									
To mobile numbers		Rate 1									
		Rate 2									

Task 3: Use the table you have completed and the graph paper provided to draw a graph which depicts the information from the first row of the table.

PLEASE DO NOT PROCEED TO TASK 4 UNTIL AFTER THE PLENARY DISCUSSION ON TASK 3.

Task 4: Use the table you have completed and the new piece of graph paper provided to draw a graph which depicts the information for one further row of the table.

Session 2 – Activity 4: Measuring and calculating (postage – sending mail)

Task 1: Determining dimensions

You have been supplied with a measuring tape, and have access to a kitchen scale. For each of the items supplied please determine the dimensions necessary to complete the table below.

Item number	Length (mm)	Breadth (mm) Diameter	Height (mm)	Weight (grams)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Session 2 – Activity 4: Measuring and calculating (postage – sending mail)

Task 2: Local mail costs

You have been supplied with a Post Office rates brochure refer to the appropriate page(s) and classify each of the postal items on your list and determine both the ordinary mail and Fastmail costs for mailing the items.

Item number	Classification	Ordinary mail cost	Fastmail cost
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Session 2 – Activity 4: Measuring and calculating (postage – sending mail)

Task 3: International mail costs

You have been supplied with a Post Office rates brochure refer to the appropriate page(s) and classify each of the postal items on your list and determine the costs of sending the item to (a) a country in Southern Africa and (b) a country in the "rest of the world."

Item number	International mail classification	Southern Africa mailing cost	"Rest of the world" mailing cost
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
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18			
19			
20			

Session 2 – Activity 5: Burning Energy

Task 1: Complete a burning energy log sheet for a typical weekday in your life.

Please note:

- You must do each of the activities for at least half an hour, and
- You cannot do more than one activity at the same time

Task 2: Representing data – pie charts

- Draw a personal pie chart (using time spend) that shows the different activities in your typical day.
- Draw a personal pie chart that shows how you burnt energy in your typical day.

Task 3: Representing data – compound bar graphs

- Participation in different activities: Combine the data for your group and draw a double bar graph that compares the participation in five different activities by yourself with that of the group.
- Energy spent through different activities: Combine the data for your group and draw a double bar graph that compares the energy spent on five different activities by yourself with that of the group.

Task 4: Comparing different types of representation

By looking at the different representations you have developed, compare the advantages and disadvantages of each of the forms of representation.

_____

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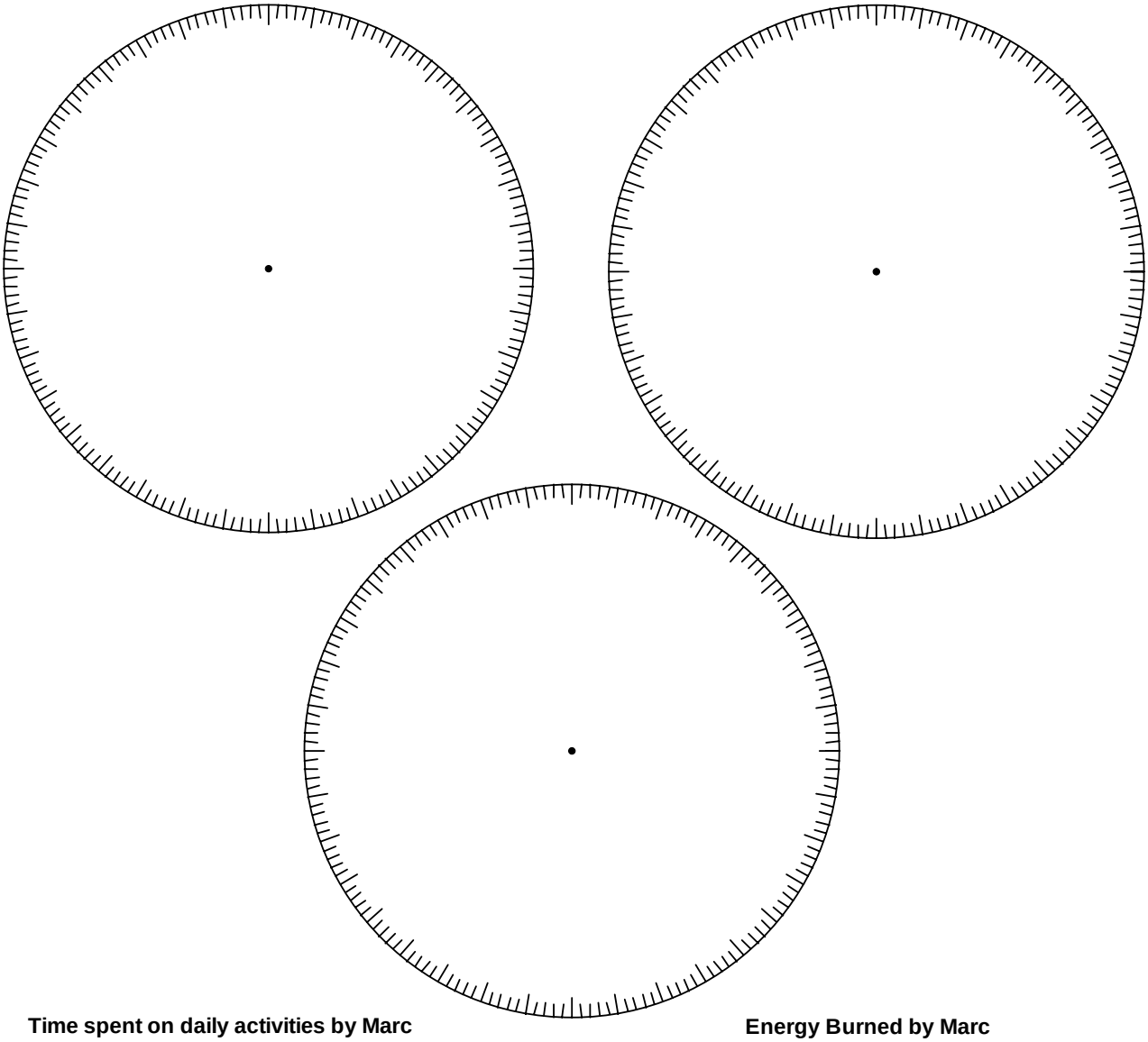
_____

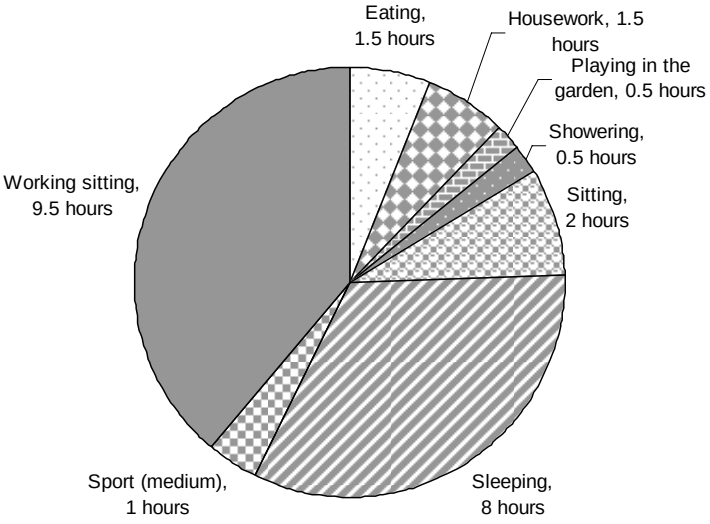
Burning Energy – individual data collection sheet

Every activity that we engage in every day burns energy. Complete the log below for a typical week-day.

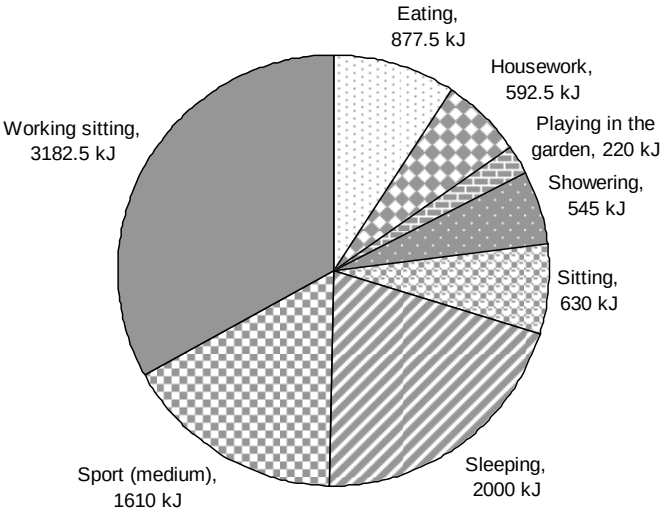
ACTIVITY	kJ/h	Total time	Total kJ	0h00	1h00	2h00	3h00	4h00	5h00	6h00	7h00	8h00	9h00	10h00	11h00	12h00	13h00	14h00	15h00	16h00	17h00	18h00	19h00	20h00	21h00	22h00	23h00
Arguing with somebody	440																										
Dancing (active)	1675																										
Driving a car	500																										
Eating a meal	585																										
Exercise, some sweating	1045																										
Gardening (lawn mowing)	1235																										
Gardening (weeding)	960																										
Grocery shopping	375																										
Housework (light)	395																										
Housework (heavy)	940																										
Playing in the garden	440																										
Showering	1090																										
Sitting (reading, writing, TV)	315																										
Sitting (talking, concentrating)	500																										
Sleeping	250																										
Sport (light)	1425																										
Sport (medium)	1610																										
Sport (heavy)	2930																										
Standing still	420																										
Walking (comfortable pace)	545																										
Walking (fast)	1780																										
Working sitting (using a machine)	335																										
Working standing and walking	850																										
Working (hard manual labour)	1020																										
	Total																										



Time spent on daily activities by Marc



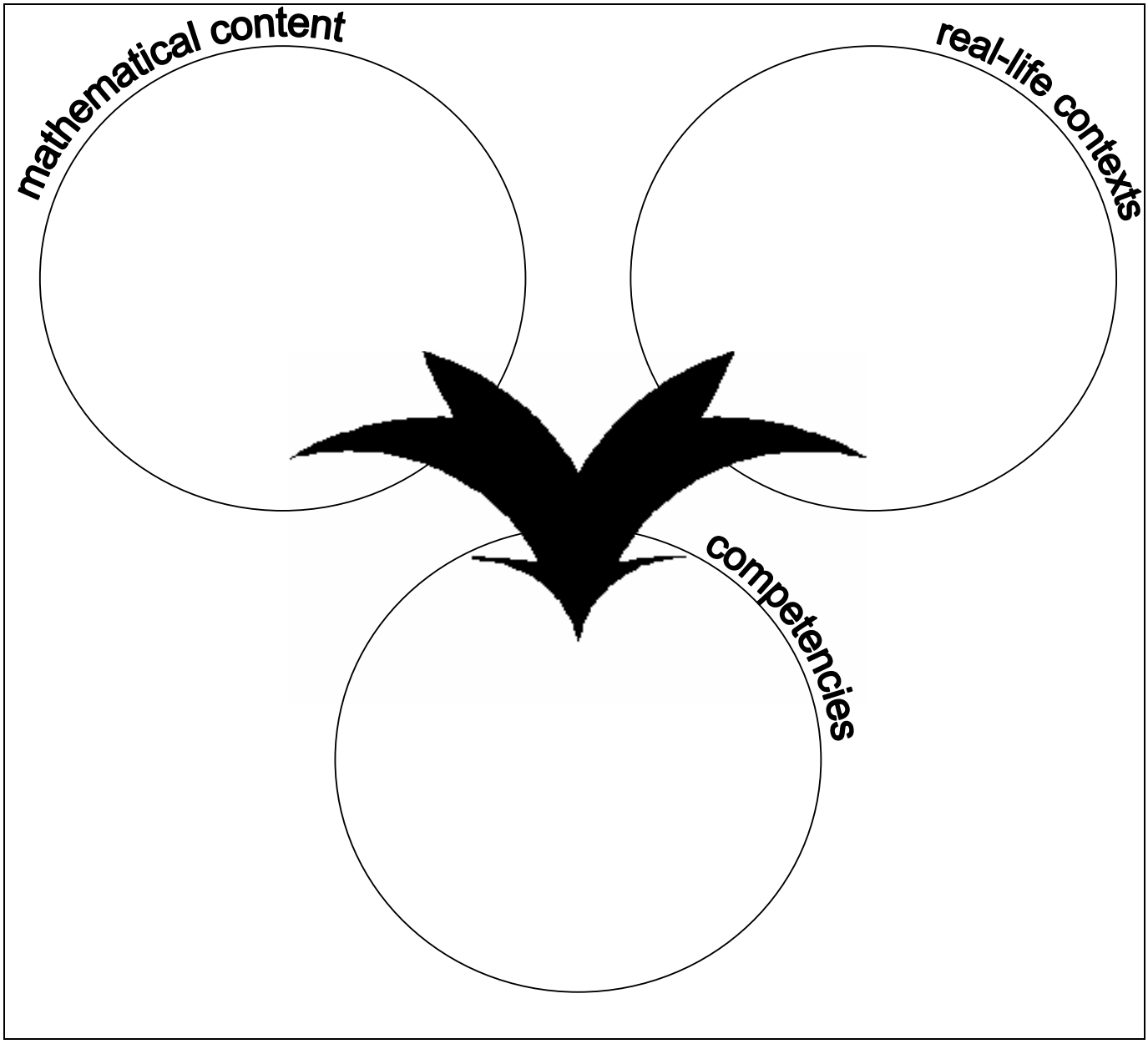
Energy Burned by Marc



Burning Energy – group data collection sheet

		Member 1		Member 2		Member 3		Member 4																		Group average	
ACTIVITY	kJ/h	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ	Total time	Total kJ
Arguing with somebody	440																										
Dancing (active)	1675																										
Driving a car	500																										
Eating a meal	585																										
Exercise, some sweating	1045																										
Gardening (lawn mowing)	1235																										
Gardening (weeding)	960																										
Grocery shopping	375																										
Housework (light)	395																										
Housework (heavy)	940																										
Playing in the garden	440																										
Showering	1090																										
Sitting (reading, writing, TV)	315																										
Sitting (talking, concentrating)	500																										
Sleeping	250																										
Sport (light)	1425																										
Sport (medium)	1610																										
Sport (heavy)	2930																										
Standing still	420																										
Walking (comfortable pace)	545																										
Walking (fast)	1780																										
Working sitting (using a machine)	335																										
Working standing and walking	850																										
Working (hard manual labour)	1020																										

content—context—competencies



Mathematical Literacy