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Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

GAUTENG
Community Education and Training
CET COLLEGE

MATHEMATICAL SCIENCE: MMSC4
LESSON 12

UNIT STANDARD: 7449 SO3

TOPIC: Critically analyse the use of mathematics in social relations.

By the end of this lesson, you should be able to:
- **Analytically apply mathematics skills to solve social issues**
- **Calculate ratios and percentages**

INTRODUCTION
In our next lesson, we are going to critically analyse the use of mathematics in social relations. In other words we will be showing how mathematics is applied in our everyday life. Mathematics makes our life orderly and prevents chaos. Now Imagine life without mathematics, during this trying times in the middle of a coronavirus pandemic. Would we be able to determine the infection, death and recovery rates? Would we be able to determine the most vulnerable people in our society who are likely to die from the covid-19? Because of mathematics, we are able to make informed decisions, allocate human resources and funds to the provinces or areas where the pandemic has the highest infection rate.

TERMS

- **Chaos** a state of confusion and complete disorder
- **Human resources** describe the people (e.g. doctors and nurse) who make up the workforce of an organization, industry and hospital etc.

WHAT IS THE MEANING OF GENDER PARITY
- **Gender parity** is a statistical measure that provides a numerical value of female-to-male or girl-to-boy ratio for indicators such as income or education. For example, if there are equal number of girls and boys who completed primary education in a specific country, the **gender parity** ratio for that indicator is one

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Activity 1

The map of South Africa below clearly illustrate the infection, death and recovery rates for each province, study it and complete the table

COVID-19 STATISTICS IN SA

403018	12739	5676	238	665
TESTS CONDUCTED	POSITIVE CASES IDENTIFIED	RECOVERIES	DEATHS	NEW CASES

THURSDAY 14 MAY 2020

GAUTENG
CONFIRMED CASES: 2135
DEATHS: 24
RECOVERIES: 1547

LIMPOPO
CONFIRMED CASES: 55
DEATHS: 3
RECOVERIES: 35

MPUMALANGA
CONFIRMED CASES: 67
DEATHS: 0
RECOVERIES: 34

NORTH WEST
CONFIRMED CASES: 58
DEATHS: 1
RECOVERIES: 28

FREE STATE
CONFIRMED CASES: 145
DEATHS: 6
RECOVERIES: 108

KWAZULU-NATAL
CONFIRMED CASES: 1444
DEATHS: 44
RECOVERIES: 689

NORTHERN CAPE
CONFIRMED CASES: 31
DEATHS: 0
RECOVERIES: 19

EASTERN CAPE
CONFIRMED CASES: 1569
DEATHS: 31
RECOVERIES: 632

WESTERN CAPE
CONFIRMED CASES: 7235
DEATHS: 129
RECOVERIES: 2573

UNALLOCATED
CONFIRMED CASES: 0

Learn more to Be READY for #COVID19:
www.sacoronavirus.co.za

NICD Hotline: 0800 029 999
WhatsApp 'Hi' to 0600 123 456

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1.1 Complete the table below using the information on the map and express your answers as a percentage, to two decimal places.

Province	Number of infection	Recovery rate	Death rate
Eastern Cape			
Free State			
Gauteng			
Kwa-Zulu Natal			
Limpopo			
Mpumalanga			
North West	e.g.58		
Northern Cape			
Western Cape			

1.2 Give two provinces with highest rate of infection.

1.3 Provide two possible reasons why there is high infection rate in the two provinces given above?

1.4 Mention two provinces with the least death rate.

1.5 Calculate the ratio of test conducted to positive identified people

Sports, is one of the industry that has been badly affected by the spread of the coronavirus. So much that most leagues are unable to complete their seasons as they are waiting for the corona curve to come down or flatten. Usually, the teams that amassed more points wins, their respective league. And this has been the norm with no disputes whatsoever. The question is since the end of the season is near what measures or method must the PSL use to determine the winner?
Some leagues, like in France, they declared the leading team the winner and three bottom team are effectively relegated.

In soccer, a team is awarded three points for a win, draw between two teams means each is awarded a point and nothing for the team that losses the match. Now in South Africa sixteenth team is automatically and penultimate team goes to the play off.

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Activity 2

Coronavirus has made difficult for teams to complete their season. This is how the 2019/20 PSL standings looked prior to Covid-19 halting the season. Study the table and answer the questions below.

	Team	P	W	PTS
1	Kaizer Chiefs	22	15	48
2	Mamelodi Sundowns	21	13	44
3	Super Sport United	24	11	40
4	Orlando Pirates	23	11	40
5	Maritzburg United	24	10	39
6	Wits	21	11	38
7	Golden Arrows	23	8	32
8	Highlands Park	24	8	31
9	Bloemfontein Celtic	23	7	28
10	Cape Town City	23	6	27
11	Stellenbosch	24	7	27
12	Chippa United	24	6	26
13	Baroka FC	24	6	23
14	Polokwane City	24	7	23
15	AmaZulu	24	6	23
16	Black Leopards	24	5	20

2.2 Calculate the points per game (ppg) for both Chiefs and Sundowns

2.1 In your opinion, give a reason why Kaizer Chiefs should be given the title?

Hint: $ppg = \dfrac{Total\ points\ accumulated}{Total\ games\ played}$

2.3 If ppg were to be considered, the final league standing would be

	Team	P	W	PTS
1	Kaizer Chiefs	30	23	65.45
2	Mamelodi Sundowns	30	22	62.85

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2.4 Determine how points for each team were calculated?

2.5 Do you think a point per game system was a fair way of determining the league winners?

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