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**MATHEMATICAL SCIENCE: MMSC4  
LESSON 13**

**UNIT STANDARD: 7749  
SPECIFIC OUTCOME: 5**

**TOPIC: Critically Analyze Use of Mathematics & Mathematical Language & Relationships in Political Relations.**

**By the end of this lesson, you should be able to:**

- **Illustrating data on graphs**
- **Critically analyze data displayed on graphs**
- **Determine percentages**

**INTRODUCTION**

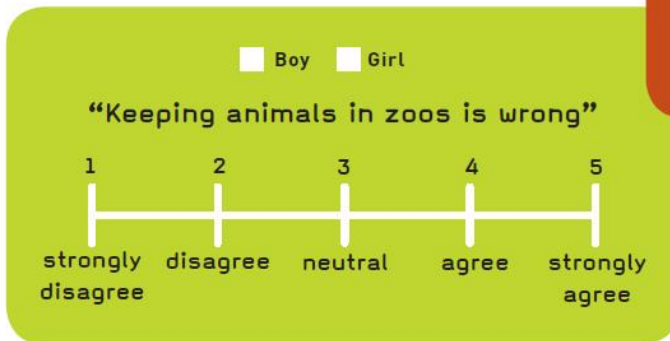
**First we need to familiarize ourselves with the following concepts:**

- **Income distribution** is a description of the fractions of a population that are at various levels of income. The larger the differences in income, the "worse" the income distribution is usually said to be, the smaller the "better".
- **An Elections** is a formal group decision-making process by which a population chooses an individual to hold public office.
- **Opinion** polls often simply referred to as a poll or a survey, is a human research survey of public opinion from a particular sample
- **A census** is the process of obtaining information about every member of a
- Population (not necessarily a human population).
- Voting it as activity of choosing someone or something in an election



## Activity 1

Rapata's group have designed this class opinion poll for their classmates to complete:



*Our group is interested in animal rights, so our poll is about zoos.*



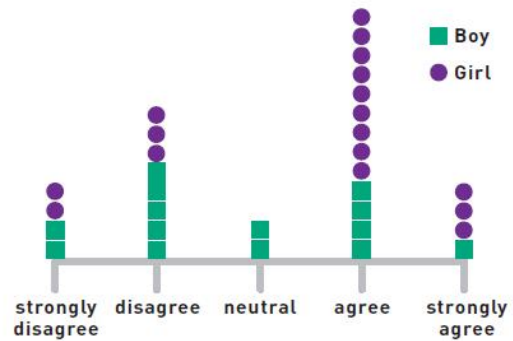
Rapata's group use a tally chart to sort the data they get:

**"Keeping animals in zoos is wrong"**

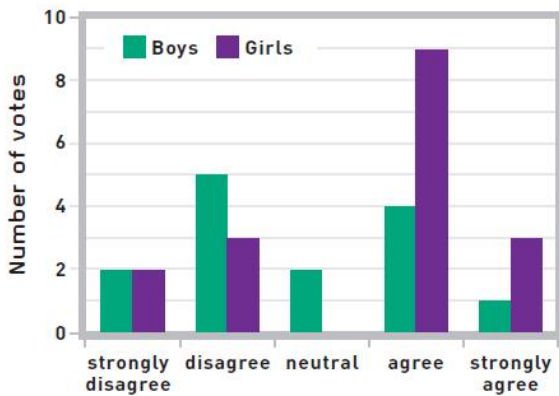
	Boys	Girls
Strongly disagree		
Disagree		
Neutral		
Agree		
Strongly agree		

Then they display it in three different graphs:

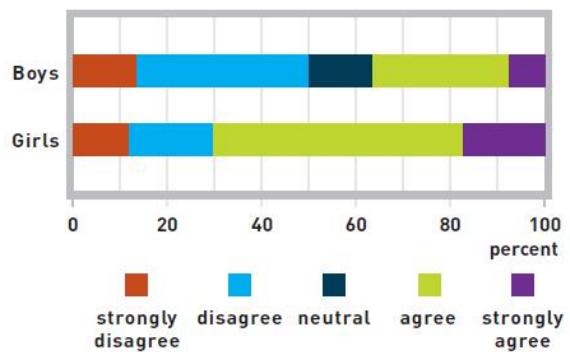
i. **"Keeping animals in zoos is wrong"**



ii. **"Keeping animals in zoos is wrong"**



iii. **"Keeping animals in zoos is wrong"**





- 2.1 What do the tally chart and graphs show about the opinions of Rapata’s classmates on this issue?
- 2.2 What patterns can you spot?
- 2.3 What might be the reasons for these patterns?
- 2.4 What information does each graph show most clearly?

## Activity 2

### AGE DISTRIBUTION

Table 2.9: Population by five-year age groups and province (number)

Age Group	WC	EC	NC	FS	KZN	NW	GP	MP	LP	SA
0 – 4	564 800	767 216	121 918	295 896	1 198 134	404 347	1 191 418	461 559	680 163	5 685 452
5 – 9	460 161	715 992	114 007	262 522	1 042 528	332 303	905 501	402 772	583 964	4 819 751
10 – 14	438 843	684 282	109 448	240 497	1 038 857	303 713	812 012	396 348	570 885	4 594 886
15 – 19	480 122	740 514	107 676	262 898	1 119 535	316 532	924 588	424 278	627 334	5 003 477
20 – 24	583 551	608 372	104 631	282 479	1 102 388	343 391	1 374 623	427 541	547 565	5 374 542
25 – 29	592 548	490 306	100 373	251 668	980 929	327 662	1 480 847	393 096	441 889	5 059 317
30 – 34	481 600	388 587	85 996	205 740	729 230	271 683	1 224 772	297 563	343 839	4 029 010
35 – 39	436 638	359 404	75 222	178 980	612 615	236 739	1 012 021	255 908	300 239	3 467 767
40 – 44	395 037	327 336	68 424	161 378	499 102	204 926	819 854	216 839	255 723	2 948 618
45 – 49	347 866	308 608	61 819	146 990	454 637	187 119	683 092	193 839	236 314	2 620 283
50 – 54	292 685	290 805	53 979	125 330	384 397	160 567	562 852	156 680	190 994	2 218 289
55 – 59	228 098	242 405	43 976	102 422	325 571	128 578	438 401	129 362	158 595	1 797 408
60 – 64	178 558	196 630	33 622	78 033	271 326	94 537	309 674	94 442	128 946	1 385 768
65 – 69	125 210	140 470	23 792	54 101	175 673	71 692	201 628	64 216	101 022	957 805
70 – 74	93 193	125 950	17 243	40 084	137 821	51 710	142 909	51 763	87 658	748 331
75 – 79	59 940	81 236	11 474	27 459	86 378	34 216	89 355	31 215	59 993	481 267
80 – 84	36 435	53 727	6 487	15 755	62 126	21 483	55 460	23 550	47 895	322 916
85 +	27 448	40 211	5 774	13 357	46 054	18 754	43 255	18 970	41 848	255 673
Total	5 822 734	6 562 053	1 145 861	2 745 590	10 267 300	3 509 953	12 272 263	4 039 939	5 404 868	51 770 560

Almost one in three or 29.6% of the population of South Africa is aged between 0-14 years and a further 28.9% is aged between 15 – 34 years.

The table above was extracted from Stats SA about census that was conducted in 2011. The table is about the population data, collected and arranged according to age group per province. The advisor to Minister of education used the data to determine how many new school should be built in each province. Study the above table and answer the following questions.



2.1 Summarize the data for Gauteng, Western Cape and SA in the table by rounding off values to the nearest 1000. Use the age groups in the table.

2.2 Display the data for each of the above mentioned provinces and SA in question 2.1 on histogram.

2.3 Compare the three histogram and:

2.3.1 Describe the birth pattern in each.

2.3.2 Give your opinion on the three histogram about the building of new school. Would you advice the minister to build new school or not? Give your reason.

2.4 Study the table below

Table 2.21: Distribution of persons aged 20 years and older by highest level of education completed and province (number)

Level of education	WC	EC	NC	FS	KZN	NW	GP	MP	LP	SA
No schooling	102 242	375 754	76 861	115 380	621 199	248 516	301 311	325 540	499 073	2 665 874
Some Primary	401 362	653 118	116 115	262 576	784 305	353 753	612 990	271 726	334 189	3 790 134
Completed Primary	208 798	223 075	43 111	86 950	240 411	111 439	277 528	96 770	125 813	1 413 895
Some Secondary	1 430 909	1 300 491	236 956	563 698	1 802 050	697 908	2 714 950	726 904	1 007 709	10 481 577
Grade 12/Std 10	1 055 442	707 524	154 008	435 291	1 784 358	529 121	2 832 448	670 343	645 578	8 814 113
Higher	539 827	310 872	50 765	158 799	537 664	162 815	1 492 322	223 579	273 469	3 750 112
Other	18 304	8 815	1 746	4 762	16 097	5 256	45 418	6 270	6 918	113 586
Total	3 756 884	3 579 649	679 562	1 627 455	5 786 084	2 108 808	8 276 967	2 321 133	2 892 750	31 029 291

2.4.1 Calculate the percentage of each province of persons aged 20 years and older with no schooling.

Use the formula  $Percentage = \frac{\text{Total number of persons with no schooling}}{\text{Total number of persons of each province}} \times 100$

2.4.1 Organize the above data obtain in 2.4.1 in a bar graph.

2.4.2 Name the provinces with least and high percentage of persons aged 20 years and older with no schooling.

2.4.3 What advice would you give to the persons with no schooling?



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