

**Analyzing
Graphs & Data**


AS – 10.4.4

Reading graphs critically

Businesses often display their data in such a way that it presents their best image.

Advertising companies display their data to visually influence you to buy.

Politicians often use statistics to convince the people to vote for them.



Be careful. Graphs can be misleading.

How ?

Pizza expenses
for company X

Graph A


| Year | Expenses (Rand) |
|------|-----------------|
| 1 | 5 |
| 2 | 6 |
| 3 | 8 |
| 4 | 10 |
| 5 | 15 |

Graph B

| Year | Expenses (Rand) |
|------|-----------------|
| 1 | 5 |
| 2 | 6 |
| 3 | 8 |
| 4 | 10 |
| 5 | 14 |

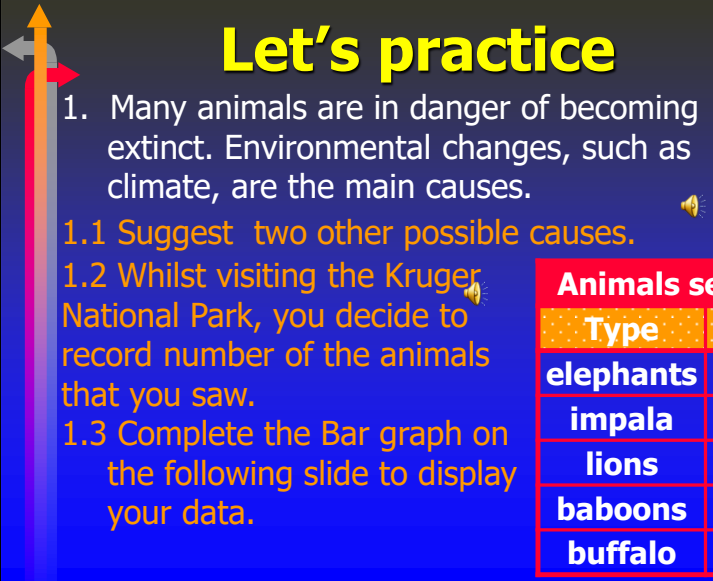
What graph might company X use to persuade you that an increase in the price of a pizza is justified? Explain.

Graph B – looks as if expenses rose sharply.



So, look at

- What information does the horizontal axis of the graph show?
- What is the grouping interval in the histogram?
- What do the values on the vertical axis show?
- What scale is used on the vertical?
- What comparisons can you make?
- What trend does the graph visually display?
- What statistical average is the most useful?




Let's practice

- Many animals are in danger of becoming extinct. Environmental changes, such as climate, are the main causes.
 - Suggest two other possible causes.
 - Whilst visiting the Kruger National Park, you decide to record number of the animals that you saw.
 - Complete the Bar graph on the following slide to display your data.

| Animals seen | |
|--------------|-----|
| Type | No. |
| elephants | 15 |
| impala | 60 |
| lions | 8 |
| baboons | 43 |
| buffalo | 26 |


2. **Sixty** flowering bushes are planted. At their flowering peak, the number of flowers are counted and recorded. The results are shown in the table below.

| | | | | | | | | | |
|------------------------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|
| flowers on bush | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| frequency | 0 | 0 | 0 | 6 | 4 | 6 | 10 | 16 | 18 |



What is the minimum number of flowers per bush?

What is the maximum number of Flowers per bush?




| | | | | | | | | | |
|------------------------|---|---|---|---|---|---|----|----|----|
| flowers on bush | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| frequency | 0 | 0 | 0 | 6 | 4 | 6 | 10 | 16 | 18 |


1. Calculate the **mean**, **median** and **mode** of the number of flowers per bush.

Total flowers =
Mean =
Mode =
Median =

2. Which of the above would be the most useful when advertising the bush to potential buyers?




3. Obesity is on the increase amongst South African children.
It is becoming a serious health problem.
Urgent intervention is needed.
Exercise and a healthy affordable diet will go a long way to solve the problem.



Food provides us with energy while any physical activity uses energy.

3.1 Which is the most popular activity?

3.2 What do you think the "other" activities are?



3.3 How many boys prefer soccer?


3.4 Complete the table to show the number of boys in each activity.

| activity | soccer | rugby | running | cycling | other |
|----------|--------|-------|---------|---------|-------|
| No. | 79 | | | | 24 |

3.4 Pieter plays rugby. After his exercise he always eats **two** of his favourite chocolate bars per week. The label on the bar states that the energy it contains is 2130 kJ.

Could this possibly lead to him putting on weight over time?

Explain.



4.

Source
Interim Road
Traffic and
Fatal Crash
Report
For the Year
2006
RTMC

Number of Crashes and Fatalities

| Year | Crashes | Fatalities |
|------|---------|------------|
| 2001 | 9000 | 11000 |
| 2002 | 10000 | 13500 |
| 2003 | 10200 | 12500 |
| 2004 | 10500 | 13000 |
| 2005 | 11500 | 14500 |
| 2006 | 12500 | 15500 |

■ Crashes ■ Fatalities

1. What trend do you notice for both graphs ?
2. Discuss why you think we still have so many accidents in spite of Arrive Alive campaigns.

task

