Graphs
| FOSSIL, LEXICOGRAPHY, PALEONTOLOGY, LINGUISTICS, LINGUISTIC ANTHROPOLOGY |
|---|---|
| **LINGUISTIC ANTHROPOLOGY** | **HOW LANGUAGE AFFECTS SOCIAL LIFE** |
| **PALEONTOLOGY** | **HISTORY OF LIFE ON EARTH SEEN IN THE GEOLOGICAL PRESENT** |
| **FOSSIL** | **REMAINS OR TRACE OF ORGANISMS THAT LIVED IN THE GEOLOGICAL PAST AND ARE PRESERVED IN THE CRUST OF THE EARTH** |
| **LINGUISTICS** | **SKILLED IN LANGUAGES** |
| **LEXICOGRAPHER** | **EDITOR OF A DICTIONARY** |
How many living languages do you think there are in the world?

a) There are around 7,000 languages

b) Now with cultural influence such as rap, music today in general and technology, there are in excess of 11,000 languages being spoken

c) The world is estimated to have at least 16,000 known languages

d) It’s impossible to guess. We have no possible way of being able to know.
HOW CAN WE BE CONFIDENT THAT THERE ARE AROUND 7,000 LANGUAGES?

• BECAUSE PEOPLE STUDY HUMAN HISTORY, CULTURE AND LANGUAGE (i.e. LINGUISTS, PALEONTOLOGISTS, ANTHROPOLOGISTS)

• ORGANISATIONS HAVE BEEN ESTABLISHED TO PRESERVE SUCH THINGS – FOR EXAMPLE, UNESCO, ECRML (THE EUROPEAN CHARTER FOR REGIONAL OR MINORITY LANGUAGES)
APPLYING SKILLS

EXAMPLE [1]
There are at least 2,301 living languages in the world.

- 2,301 in ________________
- 2,138 in ________________
- 1,313 in ________________
- 1,064 in ________________
- 286 in ________________

• WHAT TYPE OF INFORMATION CAN YOU WRITE IN THE GREEN BOXES?

> NUMBER, PLACES (COUNTRIES, REGIONS, ETC)
There are at least 7100 living languages in the world.

- 2,301 are in Asia
- 2,138 in Africa
- 1,313 in the Pacific
- 1,064 in the Americas
- Europe 286

• TIP: EUROPE, AFRICA, ASIA, AMERICAS, PACIFIC
There are at least **7100** living languages in the world.

- **2,301** are in Asia
- **2,138** in Africa
- **1,313** in the Pacific
- **1,064** in the Americas
- **Europe**: **286**

**NUMBER OF LIVING LANGUAGES IN THE WORLD**
WHICH NUMBER UNDER THE GREEN LINE REPRESENTS THE ITALIAN LANGUAGE?
WHAT DO THESE 12 LANGUAGES REPRESENT?

ALMOST TWO-THIRDS OF THE WORLD SPEAK ONE OF THESE 12 LANGUAGES AS THEIR NATIVE LANGUAGE

- Arabic: 467M
- Hindi-Urdu: 588M
- Chinese (all dialects): 1.39 billion speakers
- Spanish: 389M
- English: 527M
- Bengali: 250M
- Portuguese: 193M
- Italian: 67M
- German: 132M
- Japanese: 123M
- French: 118M
- Russian: 254M
Almost two-thirds of the world speak one of these 12 languages as their native language.
WHAT IS A SUITABLE TITLE FOR THIS GRAPH?

THE 12 MOST WIDELY-SPOKEN LANGUAGES SPOKEN BY NATIVE SPEAKERS

Arabic 467M
Spanish 389M
Chinese (all dialects) 1.39 billion speakers
Hindi-Urdu 588M
Bengali 250M
English 527M
Portuguese 193M
Italian 67M
German 132M
Japanese 123M
French 118M
Russian 254M
THIS RANKING IS ALSO COMMONLY-ACCEPTED.

MANDARIN 14.40M
SPANISH  6.15M
ENGLISH  5.43M
HINDI    4.70M
ARABIC   4.43M
PORTUGUESE 3.27M
BENGALI  3.11M
RUSSIAN  2.33M
JAPANESE 1.50M
EXAMPLE [3]
GREENBERG’S DIVERSITY INDEX

MAKE AN ASSUMPTION
IF YOU SELECT TWO RANDOM PEOPLE FROM CHINA, THERE IS A 51% CHANCE THEY WILL HAVE DIFFERENT MOTHER TONGUES.
WHAT IS THE MOST LANGUAGE-DIVERSE COUNTRY IN THE WORLD?

PAPUA NEW GUINEA
AND THE THREE LEAST LANGUAGE-DIVERSE ACCORDING TO GREENBERG’S DIVERSITY INDEX?
EXAMPLE [4]
WHAT’S AN APPROPRIATE TITLE?

The number of countries the most spoken languages are spoken in:

- English: 101 countries
- Arabic: 60 countries
- French: 51 countries
- Chinese: 33 countries
- Spanish: 31 countries
- Persian: 29 countries
- German: 18 countries
- Russian: 16 countries
- Malaysian: 13 countries
- Portuguese: 12 countries
EXAMPLE [5]
ABOUT 3 PERCENT OF THE WORLD'S POPULATION ACCOUNTS FOR 96 PERCENT OF ALL LANGUAGES SPOKEN TODAY.

OUT OF ALL LANGUAGES IN THE WORLD, 2,000 OF THEM HAVE FEWER THAN 1,000 NATIVE SPEAKERS.

BECAUSE MOST LANGUAGES ARE SPOKEN ONLY BY A HANDFUL OF PEOPLE, THAT IS WHY ABOUT HALF OF THE WORLD'S LANGUAGES WILL DISAPPEAR BY THE END OF THE CENTURY.
INTERPRET THE MAP

LANGUAGES OF THE WORLD

- Critically endangered
- Seriously endangered
- Endangered
WHICH COUNTRIES ARE AT GREATEST RISK?

- The Amazon
- Sub-Saharan Africa
- South-East Asia
- Australia
- Oceania
- West Coast USA
IS THIS A GOOD TITLE: ‘NUMBER OF LANGUAGE LEARNERS WORLDWIDE’?
BY THE MOST COMMONLY LEARNED LANGUAGES

- English: 1.5 billion learners
- Chinese: 30M
- German: 14.5M
- Spanish: 14.5M
- Italian: 8M
- Japanese: 3M

French: 82M
CHOOSE: ENGLISH IS **REALLY** / **BY FAR** / **SO MUCH** / **A LOT** THE MOST COMMONLY STUDIED LANGUAGE.
ENGLISH LEARNERS OUTNUMBER THOSE STUDYING THE OTHERS COMBINED. TRUE OR FALSE.

TRUE
CORRECT? THERE ARE THE SAME NUMBER OF SPANISH LANGUAGE LEARNERS AS GERMAN.
EXAMPLE [7]
WHAT LABEL CAN WE GIVE THE X-AXIS?

YEAR AT SCHOOL

ESL STUDENTS NEEDING ENGLISH CLASSES
ESL STUDENTS NEEDING ENGLISH CLASSES

NUMBER OF STUDENTS

WHAT LABEL CAN WE GIVE THE Y-AXIS?
ESL STUDENTS NEEDING ENGLISH CLASSES

IF A STUDENT NEEDS ESL CLASSES, THEY MUST TAKE ESL CLASSES FOR EVERY YEAR OF SCHOOL.

DON’T KNOW. THIS GRAPH DOES NOT GIVE THIS INFORMATION.
ESL STUDENTS NEEDING ENGLISH CLASSES

STUDENTS ARE NOW TAKING LESS TIME TO LEARN ENGLISH.

WE ONLY KNOW THE NUMBER OF ESL STUDENTS PER GRADE.
COMPARE 2008 TO 2014. THE PERCENTAGE DIFFERENCE OF ESL STUDENTS IN GRADES K AND 12 IS SIMILAR.
ESL STUDENTS NEEDING ENGLISH CLASSES

STUDENTS NEED ESL TO FINISH HIGH SCHOOL AND FOR WORK, SO MORE STUDENTS ARE STUDYING IT IN THEIR FINAL YEAR.

DESPITE THE SLIGHT INCREASE IN 12TH GRADERS IN 2014, WE DON'T KNOW WHY IT IS.
LESS STUDENTS NEED ESL AS THEY PROGRESS THROUGH HIGH SCHOOL.

THIS GRAPH ONLY COMPARES THE NUMBER OF ESL STUDENTS BY GRADE; IN 2 YEARS
ESL STUDENTS NEEDING ENGLISH CLASSES

LESS STUDENTS NEED ESL AS THEY PROGRESS THROUGH HIGH SCHOOL.

This graph tells us nothing about student motivation nor success.
ESL STUDENTS NEEDING ENGLISH CLASSES

THERE WERE SIMILAR NUMBERS OF STUDENTS IN THE 5TH GRADE IN 2008 AND 2014.

This is indicated by where the blue and brown lines cross.
ESL STUDENTS NEEDING ENGLISH CLASSES

THE NUMBER OF ESL STUDENTS TAKING PART IN CLASS DECREASES DEPENDING ON THEIR AGE.

IN GENERAL, YES EXCEPT GRADE 12 (2014). WE ASSUME STUDENTS DON'T REPEAT A YEAR)
ESL STUDENTS NEEDING ENGLISH CLASSES


2008 PLATEAU: GRADES 8+9
2014 PLATEAU: GRADES 9+10
SO, WHAT DOES THE DATA ON THE GRAPH SHOW?

A COMPARISON OF THE NUMBER OF STUDENTS TAKING ESL CLASSES BY GRADE (K TO 12) FOR TWO YEARS (2008 AND 2014)
TODAY’S FOCUS

Skills’ Building

GRAPHS + VISUALS | PART 2
WHICH IS / ARE TRUE?

☐ THERE ARE MISTAKES WITH THE X AXIS

☐ THERE ARE MISTAKES WITH THE Y AXIS

☐ THERE ARE NO MISTAKES. THE AXES ARE LABELLED CORRECTLY.
 THERE ARE MISTAKES WITH THE X AXIS

• THE Y-AXIS HAS NO LABEL. WHAT DOES 99 REFER TO?
• THE Y-AXIS SHOULD START AT 0. WHILE AXES MAY START AT VALUE, THE AXIS MUST SHOW A SQUIGGLE:
• THE SPACES BETWEEN THE VALUES ON THE Y-AXIS DON’T CORRESPOND TO THEIR VALUES.

THERE ARE 3 SPACES BETWEEN THE NUMBERS 23 AND 31 (REPRESENTING A VALUE OF 8); AND ALSO 3 SPACES BETWEEN 31 AND 99 BUT THE VALUE REPRESENTS 68. SO IT’S NOT A CLEAR VISUAL TO INTERPRET.

GRAPH 1
BASIC TREND ANALYTICS

• WHAT IS THE TREND OF THIS GRAPH? THE GRAPH SHOWS A DOWNWARD TRENDS.
• WHAT HAPPENED BETWEEN 1995 AND 1998? ATTENDANCE FELL BY 1500 PUPILS (FROM 3000 PUPILS TO 1500 DURING THESE FOUR YEARS).
• ESTIMATE ATTENDANCE FOR 1999. IF WE ASSUME THE SAME TREND WILL CONTINUE (IE. NO CHANGE), WE SIMPLY EXPAND THE GRAPH TO 1999, CONTINUE THE TREND LINE DOWN, THEN READ ACROSS TO THE CORRESPONDING VALUE ON THE Y-AXIS, WHICH IS 1000.
WHICH DIAGRAM SHOWS HOW THE HEIGHT OF LIQUID IN A CONTAINER CHANGES AS THE VOLUME STEADILY INCREASES?

Why?

- **GRAPH A** MAKES NO SENSE HERE. IT SAYS THAT THERE IS NO CHANGE IN HEIGHT OF THE LIQUID IN THE CONTAINER AS MORE LIQUID IS ADDED TO THE CONTAINER. IN OTHER WORDS, REGARDLESS OF HOW MUCH VOLUME (OR LIQUID) WE ADD, IT DOESN’T CHANGE HOW MUCH THE CONTAINER FILLS UP.
WHICH DIAGRAM SHOWS HOW THE HEIGHT OF LIQUID IN A CONTAINER CHANGES AS THE VOLUME STEADILY INCREASES?

Why?

• GRAPH B SHOWS A STEADY INCREASE IN VOLUME AND HEIGHT – PROPORTIONATELY (CONSISTENTLY).

WHICH DIAGRAM SHOWS HOW THE HEIGHT OF LIQUID IN A CONTAINER CHANGES AS THE VOLUME STEADILY INCREASES?

Why?

- **GRAPH C** IS CORRECT. IT HAS A STEADY INCREASE IN WATER VOLUME AND HEIGHT (PROPORTIONATELY) AS THE SIDES OF THE CONTAINER WIDEN UNIFORMLY. THE LINE CHANGES IN VOLUME:HEIGHT RATIO (REPRESENTING THE STRAIGHTENING SIDES OF THE CONTAINER), AND IT FILLS UP MORE QUICKLY.
The chart represents increases in age (X-axis) and in weight (Y-axis) of two people, A (Jo) and B (Flo).

Point B is further along the X-axis (which represents age) than A. So, B is older and A is younger.

- Flo is older than Jo.
- Jo is younger than Flo.
- Flo is not as young as Jo.
- Jo is not as old as Flo.
THIS GRAPH SHOWS INFORMATION ABOUT JO (A) AND FLO (B). INTERPRET IT.

POINTS A AND B SIT ON THE SAME LINE ON THE Y-AXIS (WEIGHT), SO THEIR VALUES, THEREFORE THEIR WEIGHTS, ARE THE SAME.

• JO AND FLO ARE THE SAME WEIGHT (AS EACH OTHER).
• JO AND FLO WEIGH THE SAME (AS EACH OTHER).
THIS GRAPH SHOWS HOW FAR IT IS FROM 5 FRIENDS’ HOUSES TO THE TENNIS COURTS, AND THE LENGTH OF TIME IT TAKES TO GET THERE.

- LET’S LOOK AT MAHMET.
- HOW LONG DOES IT TAKE HIM TO GET TO THE TENNIS COURTS?
  > IT TAKES MAHMET 10 MINUTES.
- HOW FAR IS IT FROM MAHMET’S HOUSE TO THE TENNIS COURTS?
  > THE TENNIS COURT IS TWO KM FROM HIS HOUSE COURT.
• MAHMET LIVES 2KM AWAY FROM THE COURT. HE CYCLES THERE.

• JOHN AND ELLA LIVE 3KM AWAY. NINA AND HUGH ARE CLOSEBY.

• HUGH AND ELLA CYCLE TO THE TENNIS COURT TOGETHER WHILE NINA WALKS. JOHN GOES BY CAR.

• WHICH POINTS REPRESENT:

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<th>Hugh</th>
<th>尼娜</th>
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<td>1或2</td>
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CAR (FAST)  CYCLE  CYCLE  WALK (SLOW)
APPLYING SKILLS

WALKTHROUGH 1
Male graduates, science faculty, Callum University

- The number of male graduates has been increasing from 1995 to 2005, peaking around 2005.
- There was a significant drop in graduates from 2005 to 2011.

Key Features:
- The peak in male graduates occurred around 2005.
- The trend shows an overall increase from 1995 to 2005, followed by a decrease.
Male graduates, science faculty, Callum University

LINE GRAPH
CIRCLE THE MAIN FEATURES
THE NUMBER OF MEN OBTAINING DEGREES IN SCIENCE FROM CALLUM UNIVERSITY 1 ________ (RISE) SINCE 1995, HOWEVER, THE TREND 2 ________ (NOT ALWAYS BE) STEADY.

BETWEEN 1995 AND 1997, THE UNIVERSITY 3 ________ (EXPERIENCE) A SLIGHT INCREASE FROM JUST OVER 4,000 SCIENCE GRADUATES TO JUST UNDER 5,000.

THIS WAS FOLLOWED BY A PERIOD DURING WHICH NUMBERS 4 ________ (DROP) A LITTLE AND THEN 5 ________ (REMAIN) STABLE.

THE NUMBER OF MEN OBTAINING DEGREES IN SCIENCE FROM CALLUM UNIVERSITY ¹ HAS Risen SINCE 1995, HOWEVER, THE TREND ² HASN’T ALWAYS BEEN STEADY.

BETWEEN 1995 AND 1997, THE UNIVERSITY ³ EXPERIENCED A SLIGHT INCREASE FROM JUST OVER 4,000 SCIENCE GRADUATES TO JUST UNDER 5,000.

THIS WAS FOLLOWED BY A PERIOD DURING WHICH NUMBERS ⁴ DROPPED A LITTLE AND THEN ⁵ REMAINED STABLE.

APPLYING SKILLS

WALKTHROUGH 2
MULTIPLE LINE GRAPH

REPORT THE MAIN FEATURES.COMPARE + CONTRAST.

University graduates, Canada, 1992–2007

- Females
- Males

number of graduates

MULTIPLE LINE GRAPH
REPORT THE MAIN FEATURES. COMPARE + CONTRAST.

University graduates, Canada, 1992–2007

- Females
- Males

number of graduates

WHICH OF THESE DESCRIBE THE MAIN FEATURES OF THE GRAPH?

1. The number of graduates fell between 1996 and 1998.
2. The overall rise in numbers was not always steady.
5. In 2007, there were nearly 150,000 female graduates.
6. The gap between the number of male and female graduates widened over the period. At the end
7. The trends for male and female graduates were similar.
WHICH OF THESE DESCRIBE THE MAIN FEATURES OF THE GRAPH?

2. THE OVERALL RISE IN NUMBERS WAS NOT ALWAYS STEADY.
3. JUST UNDER 75,000 MALE STUDENTS GRADUATED IN 1992.
5. IN 2007, THERE WERE NEARLY 150,000 FEMALE GRADUATES.
6. THE GAP BETWEEN THE NUMBER OF MALE AND FEMALE GRADUATES WIDENED OVER THE PERIOD. NEAR THE END
7. THE TRENDS FOR MALE AND FEMALE GRADUATES WERE SIMILAR. NO, PLATEAUS + END NUMBERS DON’T MATCH
APPLYING SKILLS
What does this graph show?

Energy consumption by fuel between 1970 and 2025.
Multiple Line Graph

Make some comments using the graph shown.

Projected consumption does not reflect historical trends in consumption. It is predicted that there will be more dependence on petroleum-based energy, while natural gas and coal will continue to be used. Coal is the steady preference.

Petroleum accounts for double the consumption of all other energy types, including nuclear, hydro, and non-hydro renewables.

The most consistently consumed energy source is: coal, hydro, or non-hydro.
SCATTER DIAGRAM (PLOT) SHOW HOW MUCH ONE VARIABLE IS AFFECTED, OR NOT, BY ANOTHER.

THE RELATIONSHIP BETWEEN THE TWO VARIABLES (ONE ON THE X-AXIS, THE OTHER ON THE Y-AXIS) IS THEIR CORRELATION.

- WHICH ONE HAS NO CORRELATION?
  C. FOR AN INCREASE IN 'X', THERE IS NO REACTION IN 'Y'.

- WHICH ONE HAS A POSITIVE CORRELATION?
  A. AN INCREASE IN 'X' HAS A CORRESPONDING INCREASE IN 'Y'.

- B IS THE NEGATIVE CORRELATION (X INCREASES > Y DECREASES)
SCATTER DIAGRAM (PLOT)
MAKE SOME COMMENTS USING THE GRAPH SHOWN.

YOUR MATHS+SCIENCE MARKS ARE SIMILAR. YES. IT’S A POSITIVE+SMOOTH CORRELATION
SCATTER DIAGRAM (PLOT)
MAKE SOME COMMENTS USING THE GRAPH SHOWN.

THIS IS CALLED A LINE OF 'BEST FIT'.
IT SHOWS THE TREND BY DIVIDING
THE DATA PLOTS (THE Xs) EVENLY ON
EITHER SIDE OF THE LINE.
SCATTER DIAGRAM (PLOT)
MAKE SOME COMMENTS USING THE GRAPH SHOWN.

DESCRIBE THE TREND:
POSITIVE, NEGATIVE OR NO CORRELATION
SCATTER DIAGRAM (PLOT)
MAKE SOME COMMENTS USING THE GRAPH SHOWN.

USE THE LINE OF BEST FIT TO WORK OUT THE
SCIENCE MARK WHEN THE MATHS MARK IS 76

THE SCIENCE MARK IS 78
SCATTER DIAGRAM (PLOT)
MAKE SOME COMMENTS USING THE GRAPH SHOWN.

USE THE LINE OF BEST FIT TO WORK OUT THE MATHS MARK WHEN THE SCIENCE MARK IS 82

THE MATHS MARK IS 80.
SCATTER DIAGRAM (PLOT)
MAKE SOME COMMENTS USING THE GRAPH SHOWN.

SCIENCE RESULTS ARE HIGHER THAN MATHS
YES. WE NEED TO LOOK AT SEVERAL SETS OF DATA TO MAKE CERTAIN.
APPLYING SKILLS

WALKTHROUGH 4
MULTIPLE BAR CHART
REFERENCE

Immigrants to Australia, 1992 and 2002: Region of Origin

- Europe & former USSR
- Southeast Asia
- Northeast Asia
- India, Sri Lanka, Pakistan
- Oceania
- Middle East & North Africa
- South & Central America
- Africa (excl. Nth Africa)
- North America

1992 Number
2002 Number
APPLYING SKILLS | REPORT WRITING

NOTE TAKING

[NOT NOT DIC TATION]
The chart shows changes in Australian immigration between 1992 – 2002. Overall, immigration has dropped and the number of immigrants from Europe and Asia has declined.

The biggest single group of immigrants in both years is from Europe. In 1992, almost 27,000 Europeans moved to Australia. This represented 25% of all immigrants to Australia, but it dropped to just 17,000 or 20% in 2002. Immigrants from Northeast and Southeast Asia accounted for 41% of new citizens in 1992, though this figure plunged to just 28% in 2002 with just 25,000 people. Furthermore, there was a drop in both the number and proportion of immigrants from North and South America and from the Middle East.

However, the number of immigrants from Africa went up sharply. In 1992, only 3% of immigrants to Australia were African. By 2002, this figure had shot up to 9,300 or 10%. Another large increase was in immigration from Oceania, the islands neighbouring Australia. By 2002 they made up the largest single group, at 19,000 which equates to 22%.

In conclusion, although Europe is still an important source of people seeking to live in Australia, immigration has dropped overall, and applicants from regions such as Africa and Oceania have become more numerous.