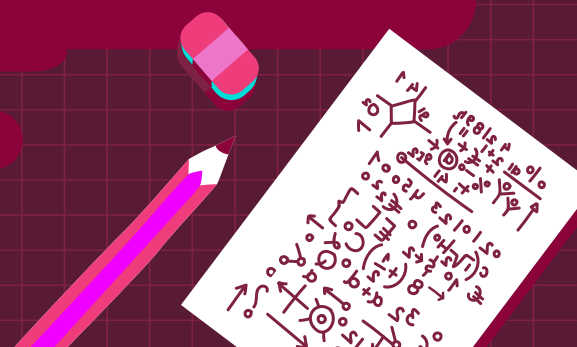




MTQ 2023

Question: What is the value of
other currencies compared to
the Australian dollar?

By: OLSC's Math Extension Group



Topic - Aim

What do you want to find out?

We wanted to find out the worth of different currencies compared to the *Australian* Dollar for our topic. We chose this topic by first narrowing down the options to global economy, and then further narrowing down that topic to creating a comparison between the Australian Dollar and other currencies.

Topic - Predict

What do you think you will find out?

We would love to find out about the other currencies the world uses and gather that interesting knowledge and prepare to use it in the future...

We believe that our final product and knowledge will be about the differences to the standard Australian Dollar compared to other currencies. We are hoping to find out about the prices of standard objects in other countries compared to the prices used here in Australia. We discussed and chose Coca Cola is a very popular consumptive used in many countries. We predict the cheapest Coca Cola is in India.

Topic - Hypothesis

What do you think the answer will be?

We thought that most currencies would be lower than the Australian Dollar. Our thinking was based on the current and past events that may have affected the value of the currency, such as the war between Ukraine and Russia that affects their value of currency.

Topic

Why did we choose this topic?

Our group chose this topic on a democratic vote, by first choosing a major topic, and then separated this topic into questions. We had another vote for which question we would pick. Ultimately, our finalized choice became the question of: “What is the value of other currencies compared to the Australian dollar?”.

Plan of the investigation

What math strategies did you use?

We looked at different currencies in the world and rounded them to the millionths. We had to find out the names of all the currencies and get the average by adding all of the monthly currencies over 12 months and dividing them equally. Then you have the average of the currency over the 12 months. Then we ordered them from the strongest currency to the least strong currency compared to the Australian Dollar.

Results

1. What did you find out throughout your investigation?

We found out the value of countries currencies and how much it is worth compared to an Australian Dollar.

2. What is the final result?

We found out the worth of each currency and how much it is worth to an Aussie when compared to all of the currencies. The Pound Sterling is worth the least to an Aussie, whereas the Indonesia Rupiah is worth the most.

3. How are you going to present your results and mathematical work?

We will present our results and mathematical work by presenting it in an informative slideshow.

Accuracy

How to get the Average?

We get average by adding all the numbers together and dividing the total by the amount of numbers used to create the total.

Rupees	0.018 000	0.018 000	0.018 000	0.018 000	0.019 000	0.018 000	0.018 000	0.019 000	0.019 000	0.018 000	0.018 000	0.017 000	0.018 000
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$$18 \times 9 = 162$$

$$19 \times 3 = 57$$

$$17 \times 1 = 17$$

$$\begin{array}{r} 162 \\ 57 \\ + 17 \\ \hline \end{array}$$

$$\begin{array}{r} 236 \\ \div 13 \\ \hline 18.1538461538 \end{array}$$

Accuracy

Link to project data: [MTQ Currency Project 2023](#)

Country	Currency	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Average	Range	Largest	Smallest
Indonesia	Rupiah	0.000096	0.000094	0.000100	0.000096	0.000098	0.000970	0.000098	0.000100	0.000098	0.000095	0.000093	0.000096	0.000099	0.00016	0.00087	0.00097	0.00010
Madagascar	Malagasy Ariary	0.000340	0.000350	0.000350	0.000350	0.000340	0.000340	0.000360	0.000370	0.000340	0.000340	0.000340	0.000350	0.000350	0.00035	0.00003	0.00037	0.00034
South Korea	South Korea Won	0.001200	0.001100	0.001100	0.001100	0.001100	0.001100	0.001100	0.001100	0.001100	0.001200	0.001200	0.001100	0.001200	0.00113	0.00000	0.00120	0.00120
Ivory Coast	West African CFA Franc	0.002300	0.002300	0.002300	0.002300	0.002300	0.002200	0.002200	0.002300	0.002400	0.002400	0.002300	0.002400	0.002400	0.00232	0.00010	0.00240	0.00230
Sri Lanka	Sri Lankan Rupee	0.009100	0.004100	0.004000	0.004000	0.004000	0.004000	0.004100	0.004400	0.004100	0.004100	0.003900	0.004000	0.004600	0.00449	0.00450	0.00910	0.00460
Bangladesh	Bangladeshi Taka	0.015700	0.015400	0.016300	0.015700	0.016000	0.015000	0.015500	0.015400	0.015500	0.014300	0.014200	0.013200	0.014200	0.01511	0.00210	0.01630	0.01420
India	Rupees	0.018000	0.018000	0.018000	0.018000	0.019000	0.018000	0.018000	0.019000	0.019000	0.018000	0.018000	0.017000	0.018000	0.01815	0.00100	0.01900	0.01800
Russia	Russian Ruble	0.012000	0.016000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.01992	0.00900	0.02100	0.01200
Philippines	Philippine Peso	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.02900	0.00000	0.02900	0.02900
Ukraine	Ukrainian Hryvnia	0.045000	0.045000	0.047000	0.047000	0.050000	0.039000	0.040000	0.042000	0.042000	0.042000	0.040000	0.043000	0.040000	0.04323	0.01000	0.05000	0.04000
Czech Republic	Czech Koruna	0.058000	0.060000	0.060000	0.060000	0.062000	0.059000	0.062000	0.062000	0.063000	0.063000	0.065000	0.065000	0.068000	0.06208	0.01000	0.06800	0.05800
Seychelles	Seychellios Rupee	0.110000	0.096000	0.110000	0.110000	0.100000	0.100000	0.120000	0.100000	0.120000	0.110000	0.110000	0.110000	0.110000	0.11046	0.01000	0.12000	0.11000
Ghana	Ghanian Cedis	0.190000	0.180000	0.190000	0.180000	0.180000	0.170000	0.150000	0.120000	0.110000	0.170000	0.120000	0.120000	0.130000	0.15462	0.06000	0.19000	0.13000
China	Chinese Yuan	0.210000	0.210000	0.210000	0.210000	0.220000	0.210000	0.210000	0.220000	0.210000	0.210000	0.210000	0.210000	0.210000	0.21000	0.01000	0.22000	0.21000
Poland	Polish Zloty	0.310000	0.320000	0.320000	0.330000	0.310000	0.310000	0.310000	0.320000	0.330000	0.340000	0.330000	0.330000	0.350000	0.32385	0.04000	0.35000	0.31000
Malaysia	Malaysian Ringgit	0.320000	0.320000	0.320000	0.310000	0.330000	0.320000	0.330000	0.330000	0.330000	0.340000	0.330000	0.340000	0.330000	0.32692	0.02000	0.34000	0.32000
Qatar	Qatari Riyal	0.370000	0.360000	0.390000	0.380000	0.400000	0.390000	0.400000	0.430000	0.430000	0.400000	0.400000	0.390000	0.410000	0.39615	0.06000	0.43000	0.37000
UAE	United Arab Emirates Dirham	0.370000	0.370000	0.410000	0.390000	0.390000	0.400000	0.410000	0.430000	0.410000	0.410000	0.390000	0.400000	0.410000	0.39923	0.06000	0.43000	0.37000
Ireland	Irish Pound	0.826300	0.837000	0.838100	0.853500	0.863100	0.837400	0.861800	0.876100	0.859800	0.858800	0.885000	0.889100	0.887100	0.85947	0.06280	0.88910	0.82630
New Zealand	NZ Dollars	0.940000	0.940000	0.910000	0.900000	0.910000	0.900000	0.900000	0.880000	0.920000	0.940000	0.920000	0.910000	0.920000	0.91462	0.02000	0.94000	0.92000
Singapore	Singapore Dollar	1.000000	0.980000	1.020000	1.000000	1.050000	1.050000	1.050000	1.090000	1.100000	1.090000	1.090000	1.090000	1.110000	1.05538	0.11000	1.11000	1.00000
Canada	Canadian Dollar	1.070000	1.060000	1.100000	1.100000	1.140000	1.110000	1.120000	1.130000	1.150000	1.900000	1.080000	1.050000	1.090000	1.16154	0.83000	1.90000	1.07000
USA	US Dollar	1.350000	1.350000	1.400000	1.420000	1.440000	1.400000	1.480000	1.610000	1.490000	1.470000	1.440000	1.450000	1.480000	1.44462	0.26000	1.61000	1.35000
Europe	Euro	1.490000	1.450000	1.510000	1.530000	1.470000	1.440000	1.480000	1.550000	1.500000	1.590000	1.560000	1.560000	1.620000	1.52308	0.13000	1.62000	1.49000
Great Britain	Pound Sterling	1.760000	1.750000	1.770000	1.770000	1.770000	1.700000	1.750000	1.810000	1.790000	1.810000	1.760000	1.750000	1.850000	1.77231	0.09000	1.85000	1.76000

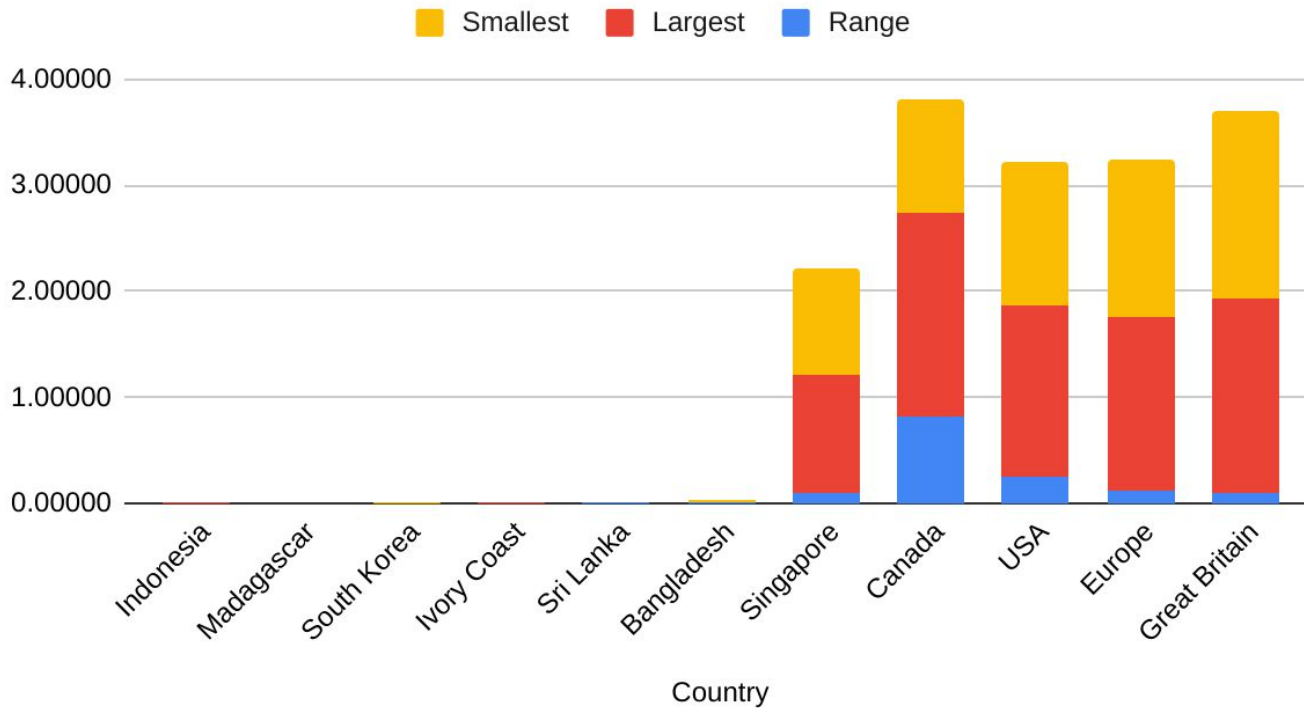
Understanding

How did the maths help us with our investigation?

First, we went on google and found out the value of each currency. We put this into a [google sheet](#). Next, we used our math to write the decimals out correctly with the same amount of decimal places. We went up to millionths. This made it much easier to understand the numbers. Then we used addition and division to calculate the average. After that, we ordered the averages and compared them to the Australian Dollar.

Graphing our data

Range, Largest and Smallest



Coca Cola Prices

Indonesia - \$0.39

USA - \$2.14

Madagascar - \$0.87

Europe - \$1.96

South Korea - \$1.49

Great Britain - \$2.03

Ivory Coast - \$0.47

Australia - \$2.14

Sri Lanka - \$0.44

Singapore - \$1.08

Canada - \$1.50

* These prices are based on the comparison between the Australian Dollar and other currencies*

References

References where we got the information and data about each currencies:

- [Google Finance](#)
- [Google Sheets](#)
- [MTQ](#)
- [Coca Cola Prices](#)

The people who helped us with ideas:

- Bec- Learning and Teaching Leader and Maths Extension Teacher

Evidence- Initial Thinking

This is how we decided what topic we would do

Initial thinking:

- Qatar's investment into the world cup stadium vs. the returns on their investment
- cost of buying a gaming computer
- Project Compassion - how does this impact people
- cost of living - how it changes depending on what he is doing - how it's changed in the last 10 years + the impact of inflation - would it be cheaper to grow or buy vegetables
- Bitcoin stock growth over ten years
- how covid impacted Australian economy
- Global economies
- Fibonacci numbers and where they are all around us
- what should be the Australian Government's financial plan? - which countries have the best financial plans. - how much should the gov. put towards public facilities - what is the future plan
- Energy costs - comparing solar panels and no solar panels - how could decreasing our carbon footprint impact our living
- How does global warming affect the world
- How mercury is the closest to average to all other planets. Ratios of planets and moons. Will people be buying planets in the future.
- How does money travel around the world?

US	SP	SA
UK	ET	SK
FR	AK	ES
SV	AK	PS
IN	AK	SA
IN	AK	SA
IN	AK	SA

Evidence - Global economy questions

- Questions about global economies:
1. * How much the government spends each year in different countries. ||
 2. * Economics in fortunate and less fortunate countries - difference and how it could be improved.
 3. * How does importing and exporting affect a countries budget? |||
 4. * How much could the ^{gov} government save on things we don't need?
 5. * When covid ends how will it impact the Aus. economy? |||
 6. * How does global economics change the world? |
 7. * How inflation affects the cost of money - Aus. ||
 8. * How do different economies use their budgets to solve environmental situations?
 9. * How does inflation affect the worth of money across the || world?
 10. * How does pollution affect a countries budget? |||
 11. * What is the average salary in each country? (compare |||)
 12. * What necessities can different economies use their budget for?
 13. * Compare the worth of different currencies. ||| ||| |||
 14. * What are the Aus. Gov. priorities (budget) and should they change?

These are some of the questions we thought of based on our topic, Global Economics. This led us to deciding the question "What is the value of other currencies compared to the Australian dollar?".

Evidence - Our Question

This is how we figured out what countries currencies we would be comparing to Australian currencies. We chose countries in which our ancestors are from and countries that have significant events happening in them. We also chose to look at some of Australia's allies. We also wrote some questions related to the topic.

Global Economies

Comparing the worth of different currencies.

- 10 Major countries vs 10 minor countries.
- compare all to Aust. dollar
- graph the values over the last 12 months
- Which currency is worth the most to an Aussie?
- The difference between the highest & lowest why?

India

Ghana

Czech Republic

South Korea

Malaysia

Ireland

Italy

Canada

Qatar

Poland

Indonesia

China

Philippines

Singapore

Côte d'Ivoire (Ivory Coast)

Scotland

England

Wales

NZ

Ukraine

UAE

Bangladesh

USA

Russia

Europe

France

Germany

Madagascar

Seyshelles

Sri Lanka

Rubric



2023 Rubric

	5 Exemplary	4 Superior	3 Proficient	2 Developing	1 Inadequate	0 Not evident
1. Investigation aim: Provides an appropriate aim that explains how and why they chose to investigate this topic, with links to the impact the topic has on mathematical concepts in financial and other real world contexts.						
2. Methodology and mathematical thinking: Lists and describes the mathematical strategies and content and how these were used to complete the investigation.						
3. Uses correct and accurate language, terms, symbols and calculations to complete the investigation.						
4. Makes clear connections between the mathematics/financial literacy in the investigation.						
5. Appropriately analyses and explains the mathematics/financial literacy and their investigation findings and connects the to the initial aim .						
6. Selects and uses appropriate mathematical tools, including digital technologies, to clearly represent and communicate findings.						
7. Reflects on the mathematical and/or financial literacy learning achieved in the investigations.						
8. Draws on general capabilities considering, ethical, intercultural, social and personal, creative and critical thinking and or technology to explore the mathematics and financial literacy within the investigation.						
9. Acknowledges resources and research used (including reference materials and assistance from other people including peers and teachers).						
10. Provides detailed evidence of work (such as drafts, written calculations, journal entries, annotated photographs) ensuring the investigation is a true representation of the student's learning.						
Total (maximum 50)						

Country	Currency	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Average	Range	Largest	Smallest
Indonesia	Rupiah	0.000096	0.000094	0.000100	0.000096	0.000098	0.000970	0.000098	0.000100	0.000098	0.000095	0.000093	0.000096	0.000099	0.00016	0.00087	0.00097	0.00010
Madagascar	Malagasy Ariary	0.000340	0.000350	0.000350	0.000350	0.000340	0.000340	0.000360	0.000370	0.000340	0.000340	0.000340	0.000350	0.000350	0.00035	0.00003	0.00037	0.00034
South Korea	South Korea Won	0.001200	0.001100	0.001100	0.001100	0.001100	0.001100	0.001100	0.001100	0.001100	0.001200	0.001200	0.001100	0.001200	0.00113	0.00000	0.00120	0.00120
Ivory Coast	West African CFA Franc	0.002300	0.002300	0.002300	0.002300	0.002300	0.002200	0.002200	0.002300	0.002400	0.002400	0.002300	0.002400	0.002400	0.00232	0.00010	0.00240	0.00230
Sri Lanka	Sri Lankan Rupee	0.009100	0.004100	0.004000	0.004000	0.004000	0.004000	0.004100	0.004400	0.004100	0.004100	0.003900	0.004000	0.004600	0.00449	0.00450	0.00910	0.00460
Bangladesh	Bangladeshi Taka	0.015700	0.015400	0.016300	0.015700	0.016000	0.015000	0.015500	0.015400	0.015500	0.014300	0.014200	0.013200	0.014200	0.01511	0.00210	0.01630	0.01420
India	Rupees	0.018000	0.018000	0.018000	0.018000	0.019000	0.018000	0.018000	0.019000	0.019000	0.018000	0.018000	0.017000	0.018000	0.01815	0.00100	0.01900	0.01800
Russia	Russian Ruble	0.012000	0.016000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.021000	0.01992	0.00900	0.02100	0.01200
Philippines	Philippine Peso	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.029000	0.02900	0.00000	0.02900	0.02900
Ukraine	Ukrainian Hryvnia	0.045000	0.045000	0.047000	0.047000	0.050000	0.039000	0.040000	0.042000	0.042000	0.042000	0.040000	0.043000	0.040000	0.04323	0.01000	0.05000	0.04000
Czech Republic	Czech Koruna	0.058000	0.060000	0.060000	0.060000	0.062000	0.059000	0.062000	0.062000	0.063000	0.063000	0.065000	0.065000	0.068000	0.06208	0.01000	0.06800	0.05800
Seychelles	Seychellios Rupee	0.110000	0.096000	0.110000	0.110000	0.100000	0.110000	0.120000	0.110000	0.120000	0.120000	0.110000	0.110000	0.110000	0.11046	0.01000	0.12000	0.11000
Ghana	Ghanian Cedis	0.190000	0.180000	0.190000	0.180000	0.180000	0.170000	0.150000	0.120000	0.110000	0.170000	0.120000	0.120000	0.130000	0.15462	0.06000	0.19000	0.13000
China	Chinese Yuan	0.210000	0.210000	0.210000	0.210000	0.220000	0.210000	0.210000	0.220000	0.210000	0.210000	0.210000	0.210000	0.210000	0.21000	0.01000	0.22000	0.21000
Poland	Polish Zloty	0.310000	0.320000	0.320000	0.330000	0.310000	0.310000	0.310000	0.320000	0.330000	0.340000	0.330000	0.330000	0.350000	0.32385	0.04000	0.35000	0.31000
Malaysia	Malaysian Ringgit	0.320000	0.320000	0.320000	0.310000	0.330000	0.320000	0.330000	0.330000	0.330000	0.340000	0.330000	0.340000	0.330000	0.32692	0.02000	0.34000	0.32000
Qatar	Qatari Riyal	0.370000	0.360000	0.390000	0.380000	0.400000	0.390000	0.400000	0.430000	0.430000	0.400000	0.400000	0.390000	0.410000	0.39615	0.06000	0.43000	0.37000
UAE	United Arab Emirates Dirham	0.370000	0.370000	0.410000	0.390000	0.390000	0.400000	0.410000	0.430000	0.410000	0.410000	0.390000	0.400000	0.410000	0.39923	0.06000	0.43000	0.37000
Ireland	Irish Pound	0.826300	0.837000	0.838100	0.853500	0.863100	0.837400	0.861800	0.876100	0.859800	0.858800	0.885000	0.889100	0.887100	0.85947	0.06280	0.88910	0.82630
New Zealand	NZ Dollars	0.940000	0.940000	0.910000	0.900000	0.910000	0.900000	0.900000	0.880000	0.920000	0.940000	0.920000	0.910000	0.920000	0.91462	0.02000	0.94000	0.92000
Singapore	Singapore Dollar	1.000000	0.980000	1.020000	1.000000	1.050000	1.050000	1.050000	1.090000	1.100000	1.090000	1.090000	1.090000	1.100000	1.05538	0.11000	1.10000	1.00000
Canada	Canadian Dollar	1.070000	1.060000	1.100000	1.100000	1.140000	1.110000	1.120000	1.130000	1.150000	1.900000	1.080000	1.050000	1.090000	1.16154	0.83000	1.90000	1.07000
USA	US Dollar	1.350000	1.350000	1.400000	1.420000	1.440000	1.400000	1.480000	1.610000	1.490000	1.470000	1.440000	1.450000	1.480000	1.44462	0.26000	1.61000	1.35000
Europe	Euro	1.490000	1.450000	1.510000	1.530000	1.470000	1.440000	1.480000	1.550000	1.550000	1.590000	1.560000	1.560000	1.620000	1.52308	0.13000	1.62000	1.49000
Great Britain	Pound Sterling	1.760000	1.750000	1.770000	1.770000	1.770000	1.700000	1.750000	1.810000	1.790000	1.810000	1.760000	1.750000	1.850000	1.77231	0.09000	1.85000	1.76000