



Maths Exercise - Work to become a Senior EU Analyst

Preamble

This Maths Exercise relates to the “Passport to the European Union” learning resource provided free by the European Commission, Representation in the UK.

This resource has been created to be accessible to a range of students so please feel free to miss out questions not relevant to your students.

Students will need access to the Passport in order to answer the questions.

To get free copies of the Passport follow the link www.europe.org.uk/passport where you can either download a PDF or order hard copies (subject to stock being available).



Introduction

In this Maths exercise you are working to become Senior Analyst employed by Eurostat, the statistical office of the European Union in Luxembourg. You will provide important statistics, which will help make decisions that affect the entire European Union.

However, you need to start your career as a Trainee Analyst working on simple figures relating to the population and land mass within the European Union.

If successful (80% pass rate) you will be promoted and become a Qualified Analyst on the specific areas of European Languages.

There are three stages to then becoming a Senior Analyst working for the European Union:

- 1) A Trainee Analyst working on Population and Land Mass.
- 2) A Qualified Analyst working on Language.
- 3) A Senior Analyst working on a variety of different issues.



Each stage follows with its own worksheet. Once each stage is completed with an 80% success rate you are promoted to the next level.

Good Luck!



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Exercise 1 - Trainee Analyst

Congratulations on your new role working for Eurostat.

As a Trainee Analyst, your role will be to help prepare statistics and background information on a range of issues relating to the European Union.

Recently we have had a request to provide an analysis of the population of all European Union member states along with figures relating to their respective land mass (size).

Your first role as Trainee Analyst will be to record the data effectively from the *Passport to the European Union*, for easy use in both preparing this current report and any future reports that may rely on this information.

(Trust us - this will also be useful for additional questions throughout your career as an EU Analyst!)

Skills required: Data collection and analysis, averages – mean, median and range, bar charts, pie charts.

All answers are based on the information provided in the passport, 2009 Edition.

Data Collection

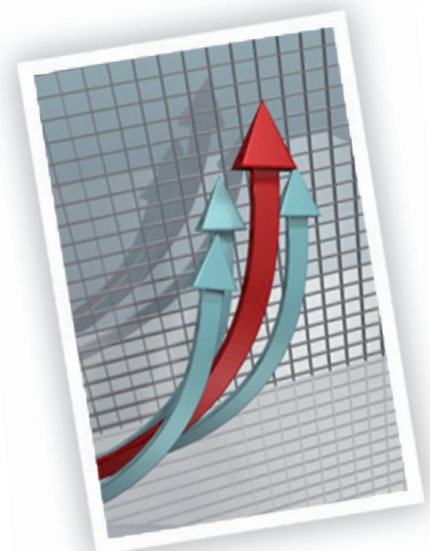
We suggest drawing up a grid as the example below and populating all of the columns before attempting to answer any questions. The effective recording of information is crucial to achieving correct answers and results.

EU Countries	Population (millions)	Surface Area (km ²)
Belgium		
Bulgaria		
Czech Republic		
etc		
etc		

Information we suggest you record at this stage include:

- Population by country
- Surface Area by country

Hint: You will need to add additional columns in further stages.





Population and Surface Area Analysis

Primary Questions:

- How many countries are there in the EU?
- What is the total EU population across these countries? (exact answer)
- What is the total surface area across the EU? (kms²) (0.386102 mi²)

Secondary Questions:

- What is the mean (average) population of an EU country?
- Which country has a population closest to the mean population of an EU country?
- What is the median population of an EU country?
- What is the range of population within the EU?
- What is the mean (average) surface area of an EU country?
- Which country has a surface area closest to the mean surface area of an EU country?
- What is the median surface area of an EU country?
- What is the range of surface area within the EU?

Final Analysis:

- Please prepare a pie chart that shows the populations of France, UK, Germany, Spain, Italy, Poland and 'other EU countries' (All other EU countries should be grouped together).
- Please prepare a bar chart that illustrates the surface areas of the following countries; UK, France, Romania, Greece, Spain, Germany and Hungary.

On this bar chart please also add another column that shows the mean surface area of an EU country.

Remember...

The European institutions are likely to make decisions worth possibly millions of Euros based on your analysis so you need to ensure your records and answers are correct!





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Exercise 2 – Qualified EU Analyst

Congratulations on your promotion!!

The report you prepared on population and land mass was excellent – you totally deserve this promotion!

Now as a Qualified Analyst you have new responsibilities! Your work is important in helping guide the European institutions in making decisions that affect millions of people.



In this stage, the European Commission’s Directorate General for Education and Culture wants to fund a number of learning programmes aimed at encouraging language learning. But before they start planning any aspects of the new language programmes they need some figures relating to the different languages spoken across the EU.

Your new role will involve preparing a report looking at the number of different languages spoken across the European Union. For the purpose of this exercise please only count the languages mentioned in the passport. In fact people in the EU speak so many languages, nobody really knows for certain how many.



Data Collection

On the grid you have already prepared you will need to add a new column showing how many different languages are spoken in each European country, according to the passport.

EU Countries	Population (million)	Surface Area (km ²)	No of Languages
Belgium			
Bulgaria			
Czech Republic			
etc			

You will also need to prepare a list of all the different languages along with a tally chart showing how many different countries speak a language. See the example below for reference.

Language	no of countries
Dutch	I
French	II
German	II
Bulgarian	I
etc	





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Primary Questions:

- Which country hosts the most languages?
- Name the countries hosting 3 or more languages.
- How many countries host more than one official language?

Secondary Questions:

- According to the Passport to the European Union, how many different languages are spoken within the 27 EU member countries?
- Which language is spoken within the largest number of different countries?
- How many different countries have French as an official language?
- How many have English?
- How many have German?

Final Analysis:

- Create a bar chart illustrating the number of different countries that speak French, English, German, Swedish and Greek. (All devolved nations within the UK should be counted separately.)
- If you speak English and French, in how many countries will you be able to 'communicate' effectively?
- If you speak German and Italian, in how many countries will you be able to 'communicate' effectively?
- Let's assume that the European Commission is going to fund a programme that addresses the four most popular languages in a way that affects as many member states as possible. It will only set up operations in a member state that speaks at least one of the four most popular languages. How many countries will be involved in the programme based on this rule?
- If the European Commission sets up a different centre for each of the four languages in each member state that is not spoken in that country how many centres will there be in total? (Tip: for example, it would not fund a Greek Language centre in Greece).





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Exercise 3 – Senior EU Analyst

Wow! You really are a rising star in the EU!

Your previous reports have been read by hundreds of officials and MEPs and your analysis of the languages in use has been crucial in helping European institutions reach a decision on funding a new programme to promote multilingualism.

Everyone has noticed your work - in particular the Office of the President of the European Commission who has requested that you join their small elite research team, responsible for providing the President with all nature of information to help him in his daily duties.

Congratulations on your new role!

With your promotion there are obviously new responsibilities.

The key elements of your new role are:

- Liaising with other teams of EU Analysts
- Accessing previous reports and providing a more detailed analysis based on the information provided.
- Preparing reports and analysis for the President as required.
- Preparing reports and analysis for other EU institutions as requested from time to time.

In this stage, there are a number of different tasks to fulfil on behalf of the President. **Good Luck in your new role!**

Task 1 -President's Diary

The President of the European Commission sends a letter of congratulations to the President and/ or Prime Minister of each member state on their National Day as a gesture of goodwill.

You have been given the task of filling the President's official diary with all important dates for each member state to ensure that the President doesn't forget to write the letters! Rely on the Passport which only mentions one National Day per country, some member states do in fact celebrate several days throughout the year.





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Data Collection

You will need to add another three columns to the original graph to include the day, month and year of National Day for each member state – see the image below.



EU Countries	Population (Million)	Surface Area (km ²)	No of Languages	National Day	National Month	National Year
Belgium						
Bulgaria						
Czech Republic						
etc						
etc						

Once you have recorded the data, you will need to advise the President the following information:

- 1) Which country's National Day is first in the calendar every year?
- 2) Which month has the most National Days?
- 3) Which country has the oldest National Day?
- 4) Which country's National Day is last in the calendar every year?
- 5) Which country has the youngest National Day?



Task 2 – Report on the Euro

The President will shortly be attending an important meeting at the European Central Bank in Frankfurt/Germany to discuss the possibility of more EU countries introducing the Euro as their currency.

Data Collection

You will need to add another column to your graph with the title Euro. Simply put a tick or a cross in the column for each member state dependent on whether they have the Euro as their official currency.

You will need to prepare a preliminary report outlining the Key facts:

EU Countries	Population (Million)	Surface Area (km ²)	No of Languages	National Day	National Month	National Year	Euro currency
Belgium							
Bulgaria							
Czech Republic							
etc							
etc							

- 1) How many countries currently have the Euro as their currency? What percentage of the EU population does this represent?





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Continued...

- 2) How many do not? What percentage of the EU population does this represent?
- 3) The President would like a potential plan on current member states joining the European Monetary Union EMU over the next 10 years. In order to ensure financial stability across Europe, a suggestion is that the remaining countries join in three groups roughly equal in terms of population numbers.

Can you make a proposal over the next 10 years on the basis that it takes 3 years to prepare to introduce the Euro and there should be 3 year breaks between each group doing so.

(Member states must join the EMU as soon as they fulfill the stability criteria unless they have an opt out like the UK and Denmark).

Task 3 – Preliminary Report on EU Development fund for all Member States

The President of the European Commission is planning for yet another meeting. This time the meeting relates to the development fund being prepared by the European institutions for use by all member states.

The fund needs to be distributed based on a number of criteria set by the European Commission previously. These are set out below:

- Any member with a population of less than 150,000 inhabitants per km² receives the maximum allowance of 5% of the total fund.
- All other member states split the remaining money according to the size of their populations.
- However each member state that joined the EU from 2004 onwards receives an additional contribution from the fund of 10 million Euros.

The President would like to allocate 1 billion Euros to the development fund in total.

Based on this level of funding what amount (to the nearest Euro) would each member state receive?

(Tip: before working out the percentages of funding based on population size, remove the 'guaranteed funds' from the total fund).





For further information:

- **How the European institutions work**
http://europa.eu/institutions/index_en.htm
- **Eurostat**
<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home>
- **Languages of the European Union**
http://ec.europa.eu/education/languages/index_en.htm
- **President of the European Commission**
http://ec.europa.eu/commission_2010-2014/president/index_en.htm
- **European Central Bank**
<http://www.ecb.europa.eu/ecb/orga/escb/html/index.en.html>
- **European Monetary Union/Euro**
http://ec.europa.eu/economy_finance/euro/index_en.htm
- **European Regional Policy**
http://ec.europa.eu/dgs/regional_policy/index_en.htm



Publications and resources:

- **“How the European Union works”**
http://ec.europa.eu/unitedkingdom/information/publications/index_en.htm
- **“Price stability: why is it important for you?”** video and leaflet produced by the ECB
<http://www.ecb.europa.eu/ecb/educational/html/index.en.html>