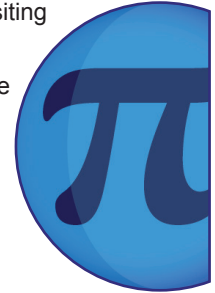




Ratios: Currency Exchange

Key Learning Content

This film shows currency being traded by bankers in international financial markets, and by a tourist visiting India from the United States. It defines an exchange rate as a ratio, and shows, using examples, how money can be made (and lost) through exchange rate fluctuations. Basic economic drivers of exchange rates are mentioned. Students should be aware that different countries have different currencies, and should be confident in working with ratios. No other specific mathematical knowledge is assumed.



Core Outcomes

Learning Points

- Be able to use ratio notation including reduction to its simplest form 1:n.
- Be able to carry out calculations using money, including conversion between different currencies.
- Be able to use the rules of multiplication, division, addition and subtraction.

Suggested Activities

- Convert between currencies at different exchange rates.
- Calculate the exchange rate between A:C given rates for A:B and B:C.

Extension Outcomes

Learning Points

- Be able to draw and interpret straight line conversion graphs, to include currency conversion graphs.
- Be able to understand the concept of risk in financial transactions.
- Be able to identify economic drivers of exchange rates.

Suggested Activities

- Sketch exchange rate graphs showing the effect of economic shocks and policy changes.
- Plot scatter diagrams of changes in exchange rates and changes in other economic variables in order to identify correlation.



The value of a country's currency changes because of many varying factors, from how much money is in circulation to interest rates.

Related Films

To use before the lesson plan:

Ratios: The Maths of Baking

This film gives an introduction to ratios, showing how to make as large a cake as you wish by scaling-up the ratios of the ingredients.

To use after the lesson plan:

The History of the Golden Ratio

This film tells the story of one of the most famous ratios in mathematics and its influence on culture through the ages.

Decimals: Decimal Day

This film explains how one country coped with changing all its currency in just one day.

Beating the Stock Market

This film shows how currency fluctuations and other factors can defeat even the most sophisticated investor.

Fractional Reserve Banking

This film explains how banks cope with uncertainty when lending money.

Guide Lesson Plan

Introduction

Currency fluctuations and their consequences make world headlines regularly. Using a news-based web search engine, find stories of currency crises that illustrate the volatility of exchange rates. Then ask: how do exchange rates work, and what drives them?

Show Film

Ratios: Currency Exchange

Main Activity

Foundation

Describe a trip around the world where the students visit many different countries. Provide current exchange rates and local-currency living costs for the countries visited. Get students to calculate how much they need for their travels. Next, set the task of converting given exchange rates, expressed in terms of ratios to the national currency, to exchange rates versus another currency (theory of combining ratios).

Main Activity cont ...

Advanced

Sketch graphs of local exchange rates in relation to US\$ or Japanese Yen, given economic shocks, e.g.

- Higher than expected local inflation
- Falls in local interest rates
- Earthquake or other natural disasters in the US or Japan
- Influx of Japanese and US tourists to the local country

Get students to calculate the multipliers between consecutive ratios in the list 1:1, 9:8, 81:64, 4:3, 3:2, 27:16, 243:128

– what pattern do they notice?

Extension Activity

Plot scatter diagrams of exchange rate changes, and changes in other economic variables such as inflation and interest rates for given countries, in order to identify correlations between exchange rate movements and other economic variables.

Optional Extra

Research task: find out how much is traded every day on currency exchanges, and the margin (% profit) typically made on these trades. Compare this with the difference between buy and sell rates (spread) at a local currency exchange.



New Zealand

NZD 1.40



Euro

EUR 0.55



Indian Rupee

IND 77.94



GBP 1.00

The exchange rate is the ratio at which a unit of one currency is exchanged for another.