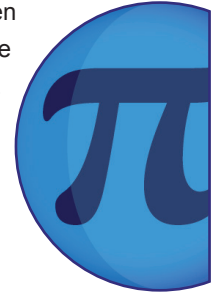




Decimals: Decimal Day

Key Learning Content

This film describes the major changes to British currency made on Decimal Day in February 1971, when the old system of pounds, shillings and pence was replaced by the current system of 100 pence in the pound. Equivalences of old and new coins are given and simple calculations are carried out on screen. Decimal place values are described and the effects of multiplying by powers of ten shown, using examples. The film requires no prior knowledge of mathematics beyond basic arithmetic.



Core Outcomes

Learning Points

- Be able to use decimal notation.
- Be able to carry out calculations using money, including conversion between different currencies.
- Be able to perform multiplication, division, addition and subtraction.

Suggested Activities

- Carry out calculations using place values and multiplication and division by factors of 10.
- Convert between amounts in old and new currencies.

Extension Outcomes

Learning Points

- Be able to understand that the decimal number system is one of many alternative number systems.
- Be able to understand decimal place values and order decimals.
- Be able to carry out calculations using standard metric units.

Suggested Activities

- Order fractions and decimals.
- Learn equivalences within the metric measurement system.



The decimal system uses the figure 10 as its base.

Related Films

To use before the lesson plan:

Why Do We Count in Tens?

This film gives an introduction to decimals, showing why we use base 10 despite other bases being arguably easier to use.

To use after the lesson plan:

How Long Is a Metre?

This film shows that while the metre is the foundation stone of the metric measurement system, its exact properties are surprisingly difficult to establish.

Heptathlon

This film demonstrates that scoring the seven events in the heptathlon requires a range of metric measurements and a complex algorithm to calculate the winner.

Decimal Places: Photofinish

This film shows why, after a closely fought 60m sprint, athletes' times need to be measured to hundredths of a second.

Guide Lesson Plan

Introduction

Describe a currency where there are two alphas to each beta, 12 betas to each gamma, 20 gammas to each delta and 21 gammas to each epsilon. Ask if anyone knows of a country that uses such a currency system. The answer is the United Kingdom before 1971 (halfpenny, penny, shilling, pound, guinea).

Show Film

Decimals: Decimal Day

Main Activity

Foundation

Begin with basic arithmetic practice, testing knowledge of place value and multiplication or division by powers of 10. Also revise basic arithmetic with fractions.

Next, hand out a list of equivalences of old and new (predecimal and decimal) currencies and set questions on converting between the two, e.g. How much is 12 shillings and 5 pennies in decimal money? Reflecting on times before decimals and calculators, set questions where the students need to add up different amounts of pounds, shillings and pennies and give change from, for example, £10.

Advanced

Convert predecimal amounts in pounds, shillings and pennies into fractions of a pound, so that one shilling is one-twentieth of a pound and one penny is one-twelfth of a shilling, expressing the fractions in their lowest terms.

Next, ask students to order different fractions by size, e.g. $\frac{1}{2}$, $\frac{12}{23}$, $\frac{6}{11}$, $\frac{17}{33}$. Then convert fractions to decimals and check answers.

Extension Activity

Decimal Day was part of a wider move to metrication in the United Kingdom that also involved changes to units of length and weight. Hand out equivalences of metres and yards, and kilograms and pounds, and practise conversions between these measures.

Optional Extra

Although most countries in the world now use metric (base 10) systems for standard measurements, almost all countries still have exceptions where old measures are used (for example, LCD TV screens are measured and marketed in inches). Research other cases where non-metric measures are in common use in your country.

$$£3 : 3 \times 20 = 60 \text{ Shillings}$$

$$£3 : 60 \times 12 = 720 \text{ Pennies}$$

$$£3 : 720 \times 2 = 1440 \text{ halfpennies}$$

Before decimalisation there were 20 shillings in £1,
12 pennies in a shilling, and 2 halfpennies in a penny.