



project.org

STUDENT HANDOUT

RED LEVEL
GO DEEPER

The Numbers in the Coins

Grades 5–8 • Math

James Tissot (1836–1902), Brooklyn Museum

ADMIT ONE

NAME _____

DATE _____

CLASS _____

Every coin in *In Their Hands* carries numbers: dates, reigns, weights, sizes, amounts. To work with the dates you need one rule that surprises most people: **there is no year zero**. The year 1 BC is followed straight away by AD 1.

PART 1

O1

Prove the rule



A number line has a zero; the calendar does not. Fix it by relabeling: call 1 BC year **0**, 2 BC year **–1**, and so on, so that b BC becomes $1 - b$. AD years keep their numbers.

- Use the relabeling to write an expression for the number of years from b BC to a AD, and simplify it. Test it on 1 BC to AD 1.
- What number does 27 BC become? Use it to find how long Augustus ruled (27 BC–AD 14).

PART 2

O2

Multi-step dates

- Herod the Great died in 4 BC. His grandson Herod Agrippa I was made king in AD 41. How many years apart?
- The lepton was first minted from 103 to 76 BC, and was still in use when the widow gave hers, about AD 30. The exhibition says it circulated *for over a century*. Check that claim.
- Pilate's coin was made in AD 29/30. The stone carved with his name was found in 1961. For how many years was the coin evidence before the stone?

PART 3

03

Build a timeline to scale

The coins span from 103 BC (the first leptons) to AD 62 (the last year of Festus' coins). Use the scale **1 cm = 10 years**.

- How long must your line be? _____ cm
- How far apart are 1 BC and AD 1 on it? _____ cm
- Draw the line below and mark 27 BC, 1 BC, AD 1, AD 29 and AD 62 at the right distances from the start.
- What is the smallest whole number of years per centimeter that fits the line in 15 cm? _____

YOUR TIMELINE • 1 CM = 10 YEARS

PART 4

04

The widow's gift, in algebra

They all gave out of their wealth; but she, out of her poverty, put in everything — all she had to live on.

MARK 12:44

Let a giver's wealth be W , the gift G , and the fraction given $f = G/W$. The widow gave two lepta, all she had, so for her $f = 1$.

Invented numbers, not from history: a rich giver puts in **600 lepta**, and that is **5%** of his wealth.

- Write and solve an equation for W .
- How much does each giver keep?
- His gift is how many times hers in amount? Her fraction is how many times his?
- Write an expression for what any giver keeps, using W and f .
- In two sentences, use your answers to explain Mark 12:44.

MINI MUSEUM CONNECTION

The exhibition says of the widow's mite: *the object is not the coin but the proportion*. Find her two lepta in Case 7, the same case as Pilate's coin from the year of the Passion.

minimuseumproject.org/exhibitions/in-their-hands