



Roman Engineering and Legacy

罗马的工程与遗产 · Ancient Rome, part 2



All roads lead to Rome

- Romans built tens of thousands of kilometers of stone-paved roads.
- Roads were straight where possible, with a curved top so rain ran off.
- A legion could march fast, and traders and letters moved across the empire.



The Via Appia, a Roman road started in 312 BC. You can still walk on it.

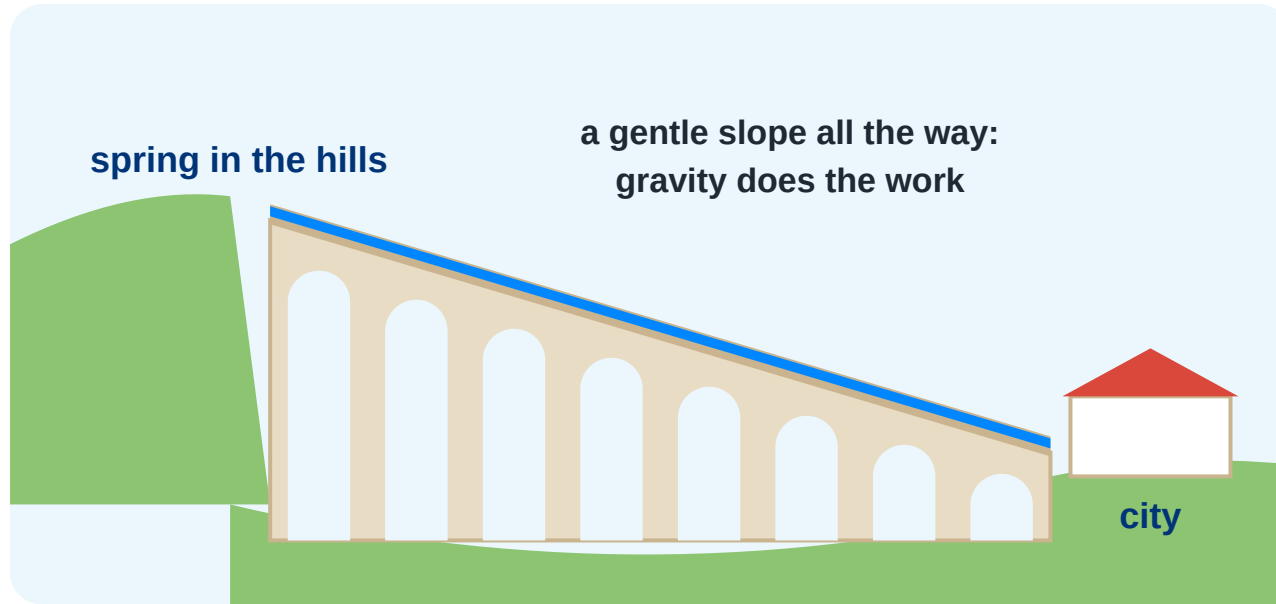


Speaker notes

“All roads lead to Rome” is still a saying in many languages, meaning “there are many ways to reach the same goal”. Ask: is there a similar saying in Chinese?



Water from the hills: the aqueduct



An aqueduct has **no pumps**. The channel slopes gently downhill the whole way, so gravity moves the water.



Speaker notes

The Pont du Gard in France carried water about 50 km to the city of Nîmes and still stands today. You'll design your own aqueduct on the challenge sheet.



Concrete and the Colosseum

- Romans made strong concrete with volcanic ash.
- With it they built domes, harbors and arenas.
- The Colosseum held about 50,000 people.
- Crowds watched a gladiator fight there.



The Colosseum today. Earthquakes and stone robbers took part of its outer wall.



The forum

- Every Roman town had a forum: the main square.
- People shopped, heard news, went to court and worshipped there.
- In Rome, the senate met in a building on the Forum.



Words and numbers

Latin became Italian, Spanish, French, Portuguese and Romanian. English borrowed thousands of Latin words:

- *aqua* (water) → **aquarium**, **aqueduct**
- *civis* (citizen) → **city**, **civil**

Roman numerals

I	V	X	L	C	D	M
1	5	10	50	100	500	1000

$$XII = 10 + 1 + 1 = \mathbf{12} \cdot IV = 5 - 1 = \mathbf{4}$$



Try it

What number is XIV?



16



14



9

0 votes

Show results

Reset



Speaker notes

$X = 10$, then $IV = 4$ (I before V subtracts), so 14.



The end of the western empire

- The empire grew too big to defend and to run.
- In **AD 476**, the last emperor in the west was removed.
- The eastern half, with its capital at Constantinople, lasted almost 1,000 years more, until 1453.



Exit ticket

How well can you explain how an aqueduct works?



Got it



Sort of



Not yet

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