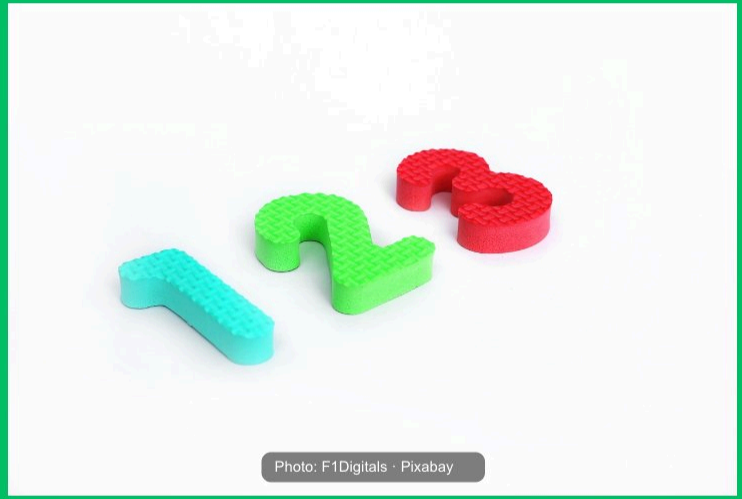
Cracking Numbers: Prime Factors, HCF and LCM

Year 7 Maths • 60 minutes



Created with LessonDino.com · AI lesson planner with checkable sources

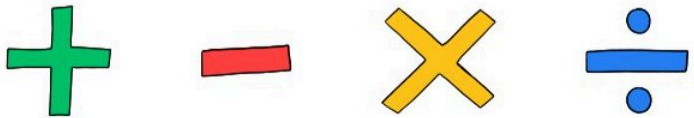
Today we will...

WE ARE LEARNING TO

- Use vocabulary of primes, factors and multiples
- Write numbers using prime factorisation with indices
- Find HCF and LCM from prime factors

SUCCESS LOOKS LIKE

- ✓ I can write numbers as products of primes
- ✓ I can find HCF and LCM correctly

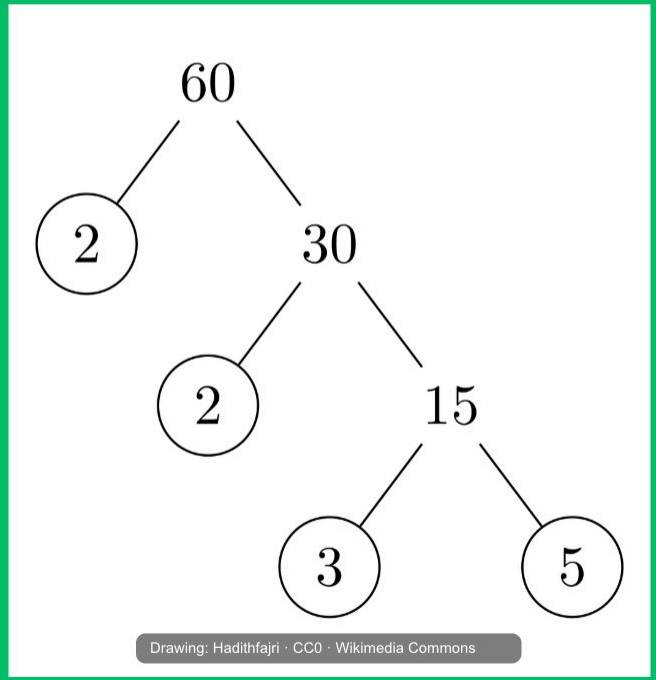


Created with LessonDino.com · AI lesson planner with checkable sources

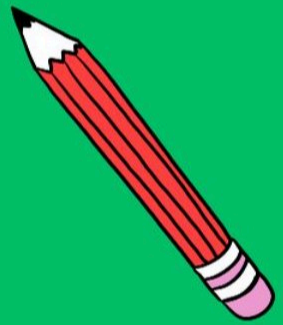
$a^2+b^2=c^2$

BIG IDEA

Every whole number bigger than 1 is built from primes in exactly one way.



Drawing: Hadithfajri · CC0 · Wikimedia Commons



Created with LessonDino.com · AI lesson planner with checkable sources

From number to primes

Step 1

Split number into any factor pair

Step 2

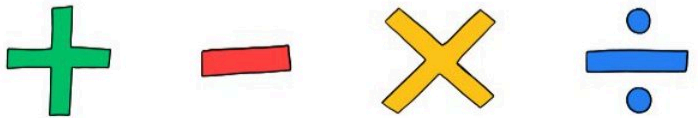
Split any composite branches again

Step 3

Circle primes when finished

Step 4

Write product using x and powers

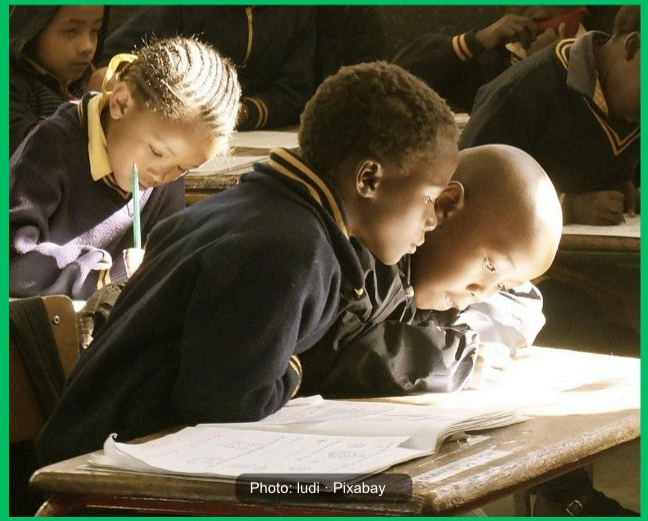


Created with LessonDino.com · AI lesson planner with checkable sources

$a^2+b^2=c^2$

Think, pair, share

Is 1 prime? Is 9 prime? How do you know?





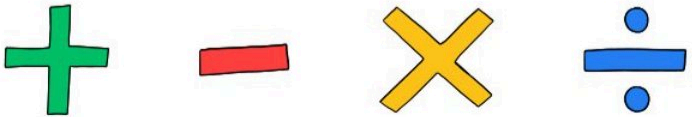
Created with LessonDino.com · AI lesson planner with checkable sources

Prime factors in action



▶ 0:00 – 2:47

- Spot how the factor tree finds all primes
- Listen for product notation like 2 cubed
- Notice how HCF uses only shared primes



Created with LessonDino.com · AI lesson planner with checkable sources

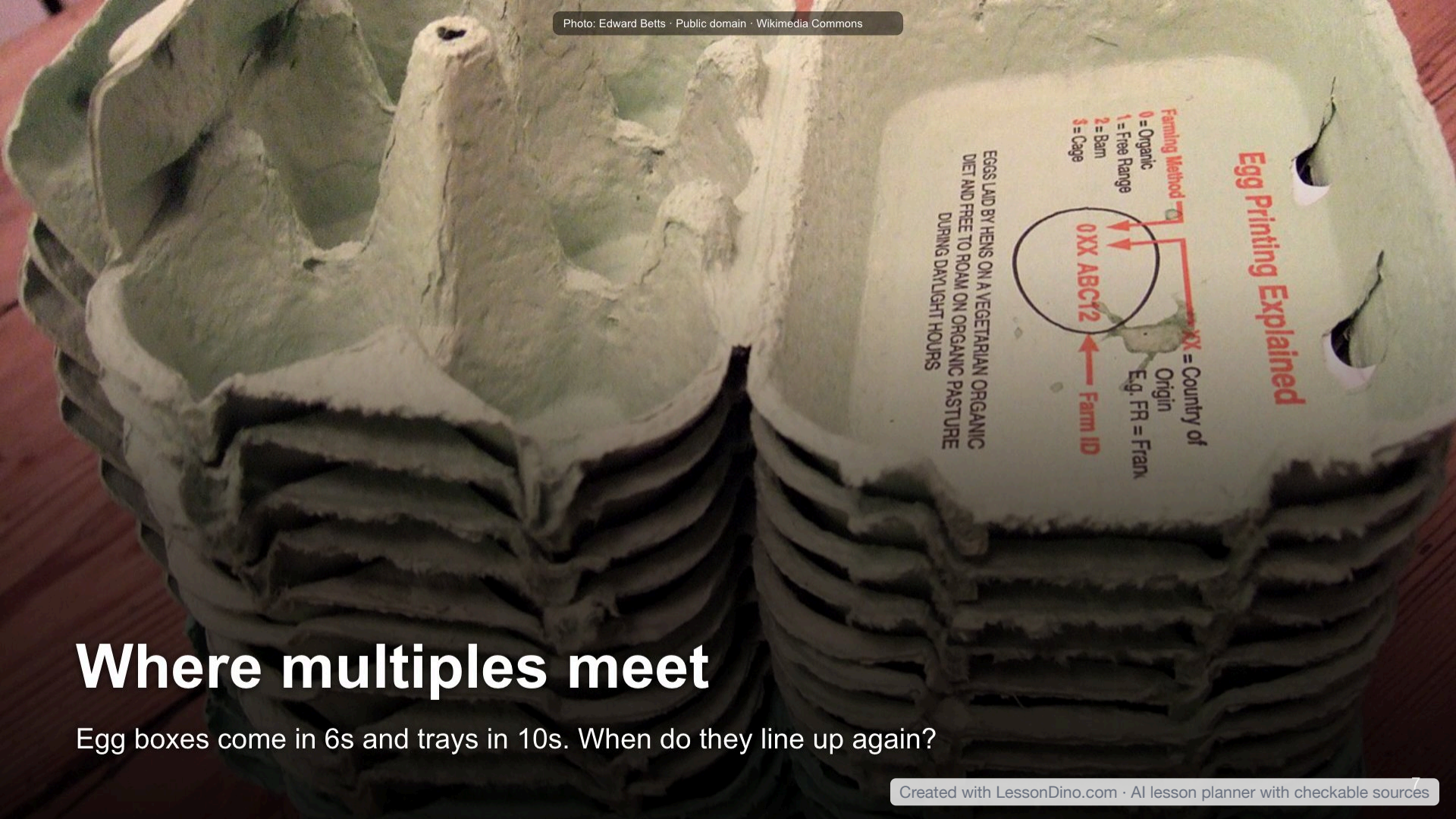


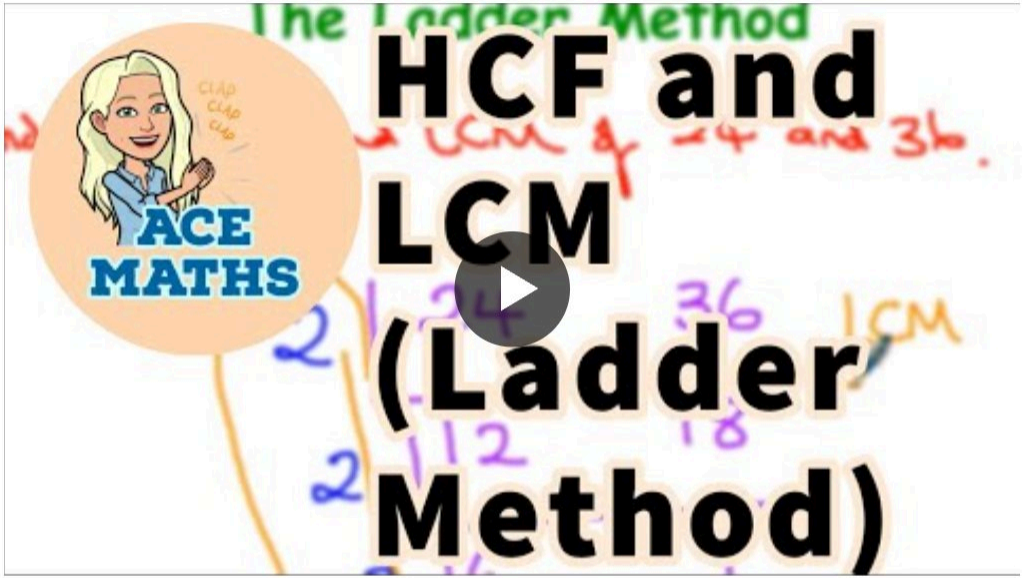
Photo: Edward Betts · Public domain · Wikimedia Commons

Where multiples meet

Egg boxes come in 6s and trays in 10s. When do they line up again?

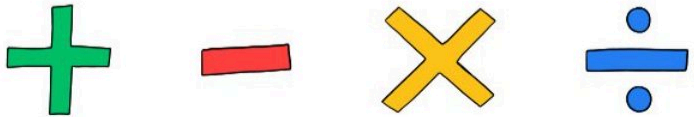
Created with LessonDino.com · AI lesson planner with checkable sources

Fast way with ladders



▶ 0:00 – 4:51

- Watch dividing by primes down the ladder
- See shared factors listed on the side
- Check how LCM uses every factor left



$a^2+b^2=c^2$

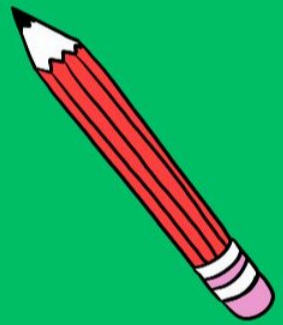
Your task

In pairs, factorise 18 and 30, then find their HCF and LCM.

1. Draw factor trees for 18 and 30
2. Write each as product of primes
3. Draw Venn diagram and find HCF and LCM

10 min

In pairs



Created with LessonDino.com · AI lesson planner with checkable sources

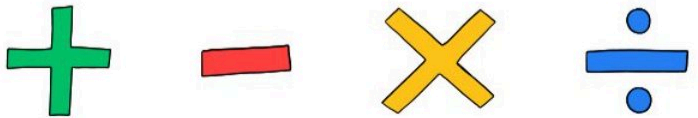
HCF vs LCM

HCF - Highest Common Factor

- Biggest number that divides both numbers
- Uses only overlapping prime factors
- Equal to or smaller than numbers

LCM - Lowest Common Multiple

- Smallest number both numbers divide into
- Uses every prime in the diagram
- Equal to or larger than numbers

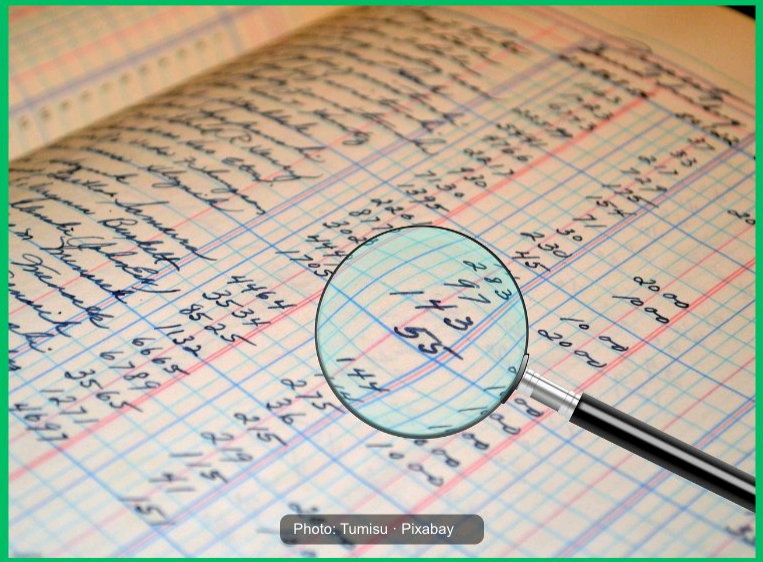


Created with LessonDino.com · AI lesson planner with checkable sources

$a^2+b^2=c^2$

What could this be?

I am 2 x 3 x 3 x 5. I am less than 100. What number am I?





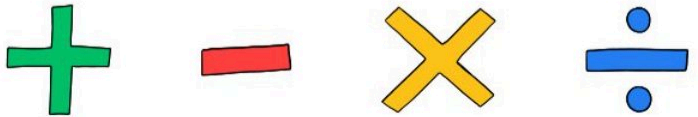
Created with LessonDino.com · AI lesson planner with checkable sources

Exit ticket

1. One thing I learnt today...

2. One use of HCF or LCM...

3. One question I still have...



Created with LessonDino.com · AI lesson planner with checkable sources