

# Can I use my tables to work out multiplication and division facts with decimals?

## Teaching guidance

### Key vocabulary

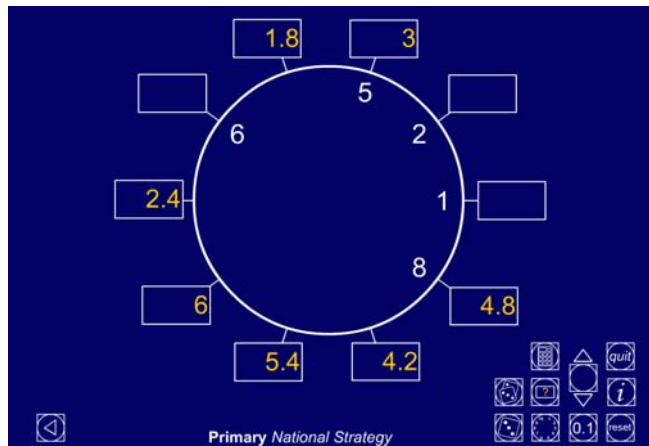
times, multiply, multiplied by, product, multiple of, divide, divided by, divisible by, quotient, factor, inverse

decimal, decimal point, tenths, hundredths, thousandths

### Models and images

Use the *Number dials* and *Multiplication tables* ITPs to explore multiples of decimal numbers.

Explore known multiplication facts, such as multiples of 6, before exploring related facts such as multiples of 0.6.

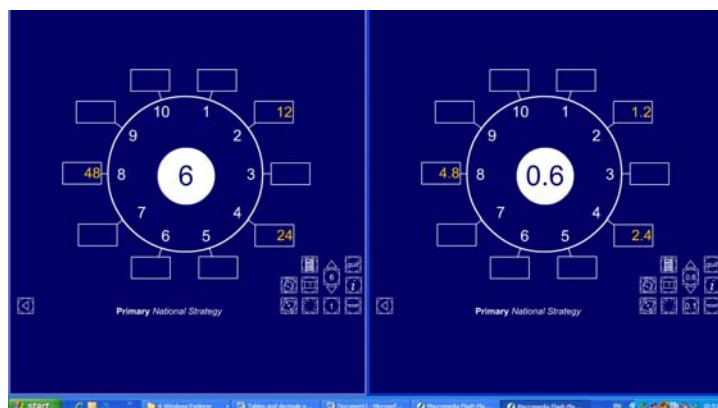


Number dials ITP

What multiplication table does this diagram represent? How do you know?

What are the missing numbers? What division facts do you know by using this diagram?

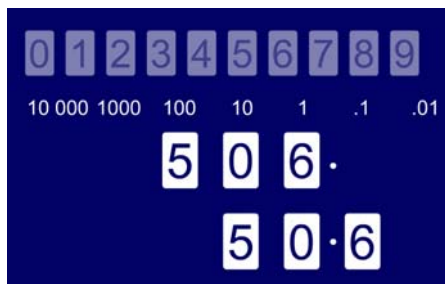
Open two versions of the ITP and display them next to each other to explore related multiples.



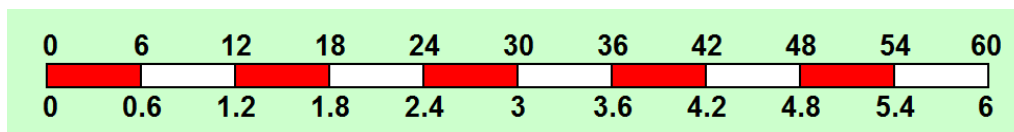
Number dials ITP

## Teaching tips

- Ensure children can confidently multiply and divide by 10 and 100 and that they understand that multiplying by 10 or 100 gives an answer that is bigger than the original number and all the digits move to the left, while dividing by 10 or 100 gives an answer that is smaller than the original number and all the digits move to the right. Emphasise that the decimal point does not move. (See the teaching guidance 'Can I multiply and divide by 10 and 100 and 1000?', in the Calculating strand).



- Start with known multiplication facts before relating these to decimal multiplication facts; for example, count on and back in steps of 6 before relating this to counting on and back in steps of 0.6. Encourage children to explain the relationship between the two sets of numbers. A labeled counting stick or the *Counting stick* spreadsheet can be used to model this. Ask children to create their own related sequences for whole numbers then numbers with decimal fractions.



- Ensure that children meet and can interpret missing number multiplication and division calculations involving decimals that are written in a variety of different ways, for example:
  - $\times 0.8 = 5.6$                        $9 = 5.4 \div \bullet$                        $0.3 \times 8 = 6 \times \star$
- Reinforce the division facts corresponding to multiplication facts; for example:
  - $8 \times 0.7 = 5.6$                        $0.7 \times 8 = 5.6$                        $5.6 \div 0.7 = 8$                        $5.6 \div 8 = 0.7$
- When solving a missing-number question, it is helpful to write down the other three number sentences and then decide which one is most useful to use to help find the missing number.
- Model the use of jottings and encourage children to use these to help keep track of the stages within a mental calculation.