

Games and activities

Pupils can use the following activities and games to generate their own exercises using six-sided blank dice. These can be given different values to target specific skills. Such involvement helps pupils' motivation but needs care because:

- each game should precisely target the particular skill required
- the multiplications generated will not be well graded and easier problems may not come first
- assessment should be built into the activity.

Pupils should have a basic competence before trying these activities. Assessment could take the form of self- and peer-assessment with pairs of pupils working together to throw the dice, do the division and then compare answers.

Steps 7 to 10: Three- or four-digit \div 11, 12 or 13 with remainders

Ask the pupils to work in pairs.

- Pupil A has three dice labelled 400 to 900 and 20 to 70 and 1 to 6.
- Pupil B has one die labelled 11, 11, 12, 12, 13, 13.
- Pupil A rolls the three dice and generates a three-digit number, such as 471.
- Pupil B rolls the one die and generates a divisor with two digits, such as 13.

They write the long division and calculate the answer separately, including any remainder. They compare their answers. If they agree, they continue with another division. If they disagree, they work out the correct answer before continuing.

If Pupil A has four dice labelled 4000 to 9000, 200 to 700, 0 to 50 and 1 to 6 and Pupil B has an unchanged die, then the long division has four digits divided by 11, 12 or 13.

Step 16: Four-digit \div two-digit with remainders

Ask the pupils to work in pairs.

- Pupil A has four dice labelled 4000 to 9000, 200 to 700, 0 to 50 and 1 to 6.
- Pupil B has two dice labelled 10 to 60 and 1 to 6.

The activity proceeds as for Steps 7 to 10.

In all the above, answers can be checked using multiplication.

Division in context

Division can arise in many contexts. Examples include finding the cost of one item from the total cost of a batch of items, sharing a lottery win equally amongst several winners, or calculating an average speed from distance and time. Answers can involve remainders, fractions or decimals. The context can affect the way the answer is treated.

For example, $198 \div 12 = 16.5$ can arise in the following scenarios.

- £198 is spent on 12 identical items. Each item costs $\pounds 198 \div 12 = \pounds 16.50$.
- 198 apples are put into bags holding a maximum of 12 apples. The number of bags required is 17. (16.5 is rounded up and the last bag is not full.)
- £198 is spent on concert tickets costing £12 each. The maximum number of tickets that can be bought is 16. (16.5 is rounded down and a little money is left unspent.)