4. Task: Lay out a selection of shapes, hold up a cylinder, and instruct pupils to find another shape which “ is a bit like this one”. Ask pupils to explain their reasoning.

Assessment guidance: Practical work, carried out in small groups, provides the most reliable method of assessing whether pupils have met this criterion. Teachers should assess pupils based, not just on their answers, but on the reasoning they use to reach their answers, for example, in question 4, a pupil may choose a cone because “it has a circle too”. When selecting shapes, careful attention should be paid to providing plausible distractors to allow assessment of reasoning. Pupils may use informal language, especially when discussing plausible distractors, for example, the shape presented in question 3 could be a parallelogram, which pupils could describe as being “a bit like a rectangle, but squashed.” Ask pupils to explain why they chose that one.

1G–2 Compose 2D and 3D shapes from smaller shapes

Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.

1G–2 Teaching guidance

The ability to compose and decompose shapes, and see shapes within shape, is a skill which runs through to key stage 3 and key stage 4, and beyond. In year 1, it is vital that pupils work practically, exploring shapes (for example, shapes cut from card, pattern blocks and tangrams) and putting them together to make new shapes.

Pupils must be able to arrange 2D shapes to match an example compound shape. To begin with, the constituent shapes in a given example image should be the same size and colour as the actual shapes that pupils are using. This allows pupils to begin by laying the pieces over the example image, rotating individual pieces to match the exemplars. By the end of year 1, though, pupils should be able to copy a pattern block picture, and make a good attempt at copying a tangram picture, without overlaying the pieces on the example.

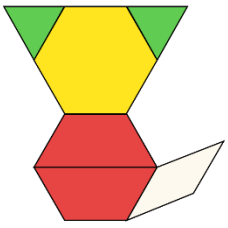

Figure 37: example pattern block picture

Figure 38: example tangram picture

Tangrams are more challenging to complete than pattern block pictures because:

- they contain several different-sized triangles, which pupils must distinguish from one another to complete the task
- placement of the parallelogram may require pupils to turn it over rather than just rotate it

Pupils must also be able to arrange 3D shapes to match an example compound shape, for example joining a given number of multilink blocks to match an example. As a first step pupils can each make their own shape from a given number of blocks, and then compare the different shapes that have been made. Comparing compound shapes, and identifying the ones that are the same, will require pupils to rotate the shapes in various directions, and provides an opportunity to develop spatial language including: left, right, top, middle, bottom, on top of, below, in front of, behind and between.

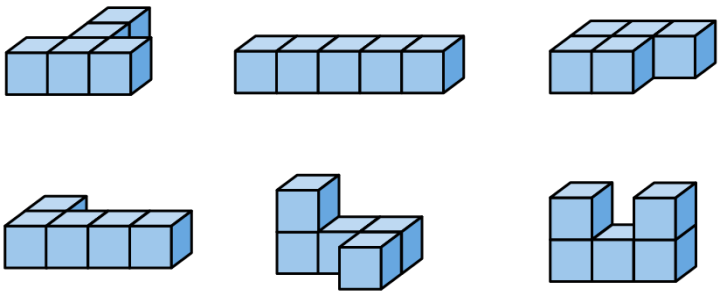

Figure 39: example compound 3D shapes composed of cubes

Pupils must also learn to copy compound shapes composed of other 3D shapes, including cuboids, cylinders, spheres and pyramids.

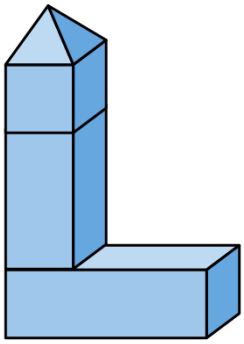

Figure 40: example compound shape composed of 4 different 3D shapes

Making connections

In 1AS–1, pupils learn to compose and decompose numbers to 10. Here children are using composition and decomposition in the context of shapes, recognising that shapes can be combined to form a larger shape and decomposed to return to the original shapes.

1G–2 Example assessment questions

1. Task: Give each pupil some multilink cubes. Present pupils with a shape composed of multilink cubes and ask them to copy it.
2. Task: Give each pupils some pattern block pieces. Present pupils with a pattern block picture and ask them to copy it.
3. Task: Give each pupil some building blocks. Build a tower from different-shaped building blocks, then ask pupils to copy it .
4. Task: Give each pupil a set of identical 2D shapes (for example, equilateral triangles of equal size). Make a pattern from the set of identical shapes and ask pupils to copy it.

Assessment guidance: Practical work, carried out in small groups, provides the most reliable method of assessing whether pupils have met this criterion. Teachers should carefully watch pupils to assess their ability to rotate shapes to match those within the patterns, pictures and arrangements, and to place shapes relative to other shapes.

Calculation and fluency

1NF–1 Fluently add and subtract within 10

Develop fluency in addition and subtraction facts within 10.

The main addition and subtraction calculation focus in year 1 is developing fluency in additive facts within 10, as outlined in the **1NF–1 Teaching guidance**

Fluency in these facts allows pupils to more easily master addition and subtraction with 2-digit numbers in year 2, and underpins all future additive calculation. Pupils should practise carrying out addition and subtraction calculations, and working with equations in different forms, such as those below, until they achieve automaticity. Pupils should begin to recognise the inverse relationship between addition and subtraction, and use this to calculate. For example, if a pupil knows $6+4=10$, then they should be able to reason that $10-4=6$ and $10-6=4$.