

# Discussion Problems

## Step 3: Making Shapes

### National Curriculum Objectives:

Mathematics Year 4: (4M7b) [Find the area of rectilinear shapes by counting squares](#)

### About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

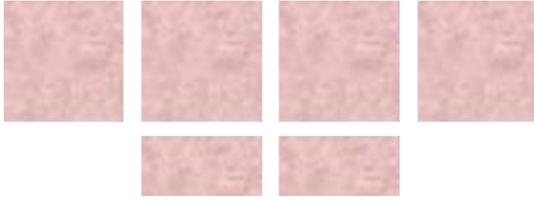
We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 4 Area](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

# Making Shapes

1. Archie the Archaeologist is digging at an old Roman site. He finds 6 mosaic pieces: 4 full squares and 2 half squares. He wants to put the mosaic back together but is unsure of how to make it.



Investigate the shapes that Archie could make.

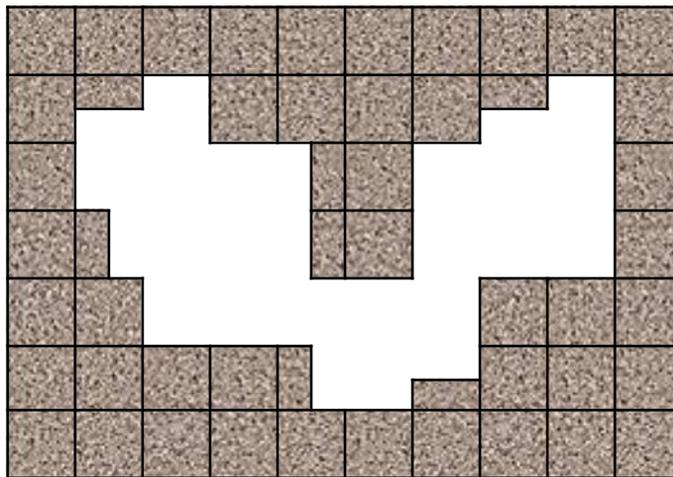
He decides that the 2 half squares must actually be a broken piece and places them together.

Explore how this changes the number of mosaics that can be made.

DP

2. Maintenance Mick is retiling his bathroom. So far, he has completed part of the wall below. He has 19 square tiles and 17 half square tiles left to complete the wall.

Use the tiles to complete the wall.

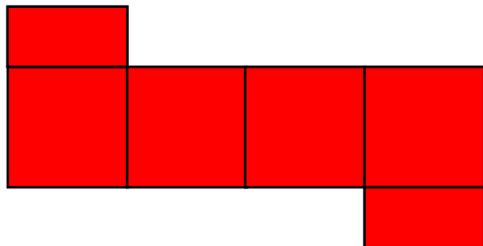


What is the smallest amount of tiles that can be used to fill the area?

DP

# Making Shapes

1. Archie the Archaeologist is digging at an old Roman site. He finds 6 mosaic pieces: 4 full squares and 2 half squares. He wants to put the mosaic back together but is unsure of how to make it.



Investigate the shapes that Archie could make.

**Various answers, for example: as shown above.**

He decides that the 2 half squares must actually be a broken piece and places them together.

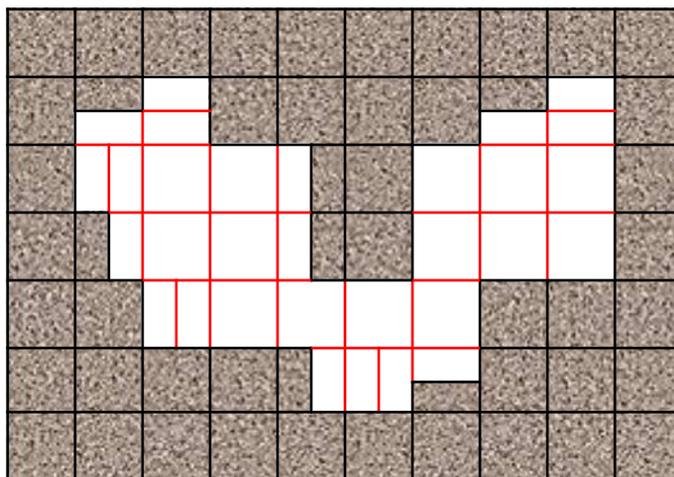
Explore how this changes the number of mosaics that can be made.

**The number of mosaics that can be made reduces. There are 12 different shapes.**

DP

2. Maintenance Mick is retiling his bathroom. So far, he has completed part of the wall below. He has 19 square tiles and 17 half square tiles left to complete the wall.

Use the tiles to complete the wall.



What is the smallest amount of tiles that can be used to fill the area?

**19 square tiles and 7 half square tiles**

DP