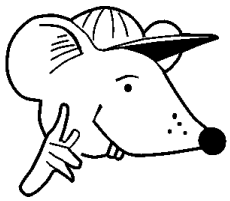
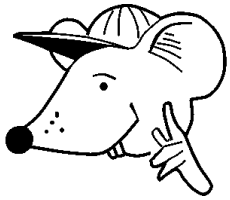
Back to Previous Menu



MATHEMATICS



N.S. Yr. 6 P.105

Making shapes and patterns with increasing accuracy.

Equipment

Paper, pencil, card or thick paper, scissors, glue.

MathSphere

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Concepts

By now children should be able to design simple nets themselves and assemble these (and more complex nets provided) quite accurately.

Where possible, it is worth purchasing good quality card and, after practising the construction of a 3-D shape in paper, allowing children to use the card. This encourages a pride in their work and gives the opportunities for shapes to be used as useful items (desk tidy, pencil holder, calendar etc).

As a practical tip, finished shapes look much better if they are provided with flaps that are glued and not assembled with sticky tape. Patience is needed with gluing, but the result is a much better product!

In this module we give some more complex nets for children to copy and use.

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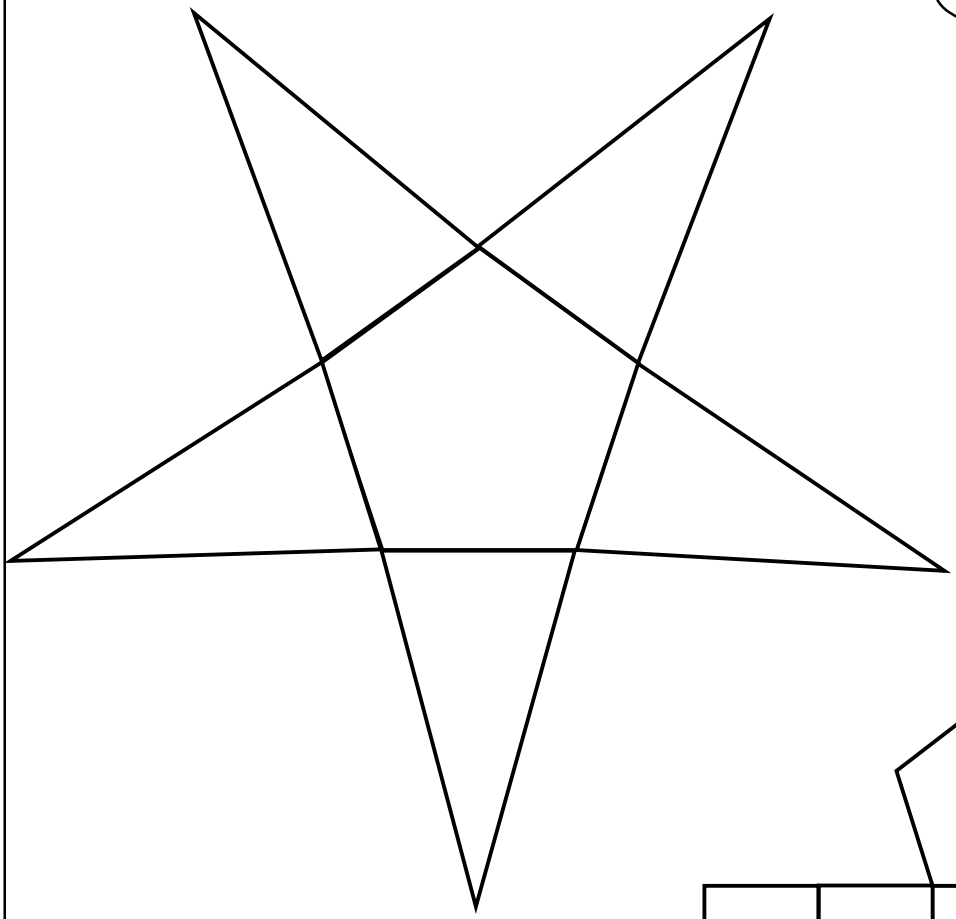
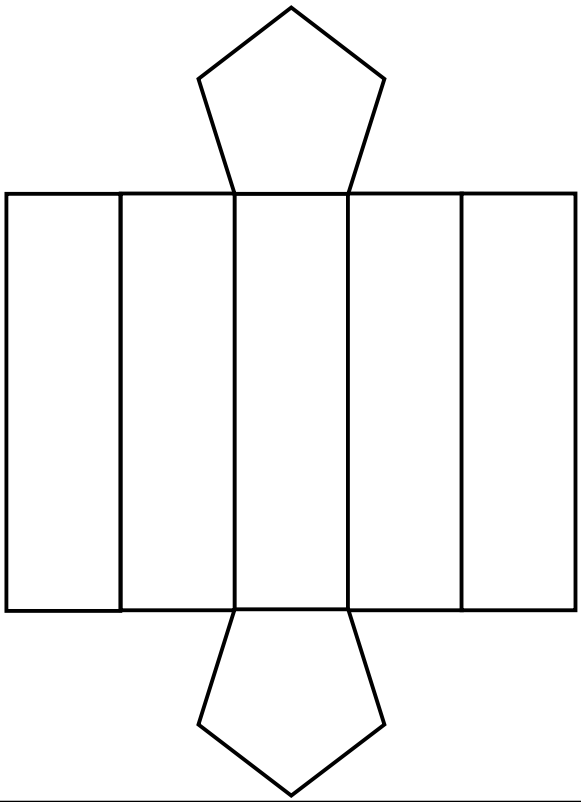
Here are some nets of 3-D objects which you may like to cut out and stick together.

You will have to work out where to put the flaps for sticking them.





Here are some more nets of 3-D objects which you may like to cut out and stick together.

You will have to work out where to put the flaps for sticking them.

Can you find other nets for the same shapes?

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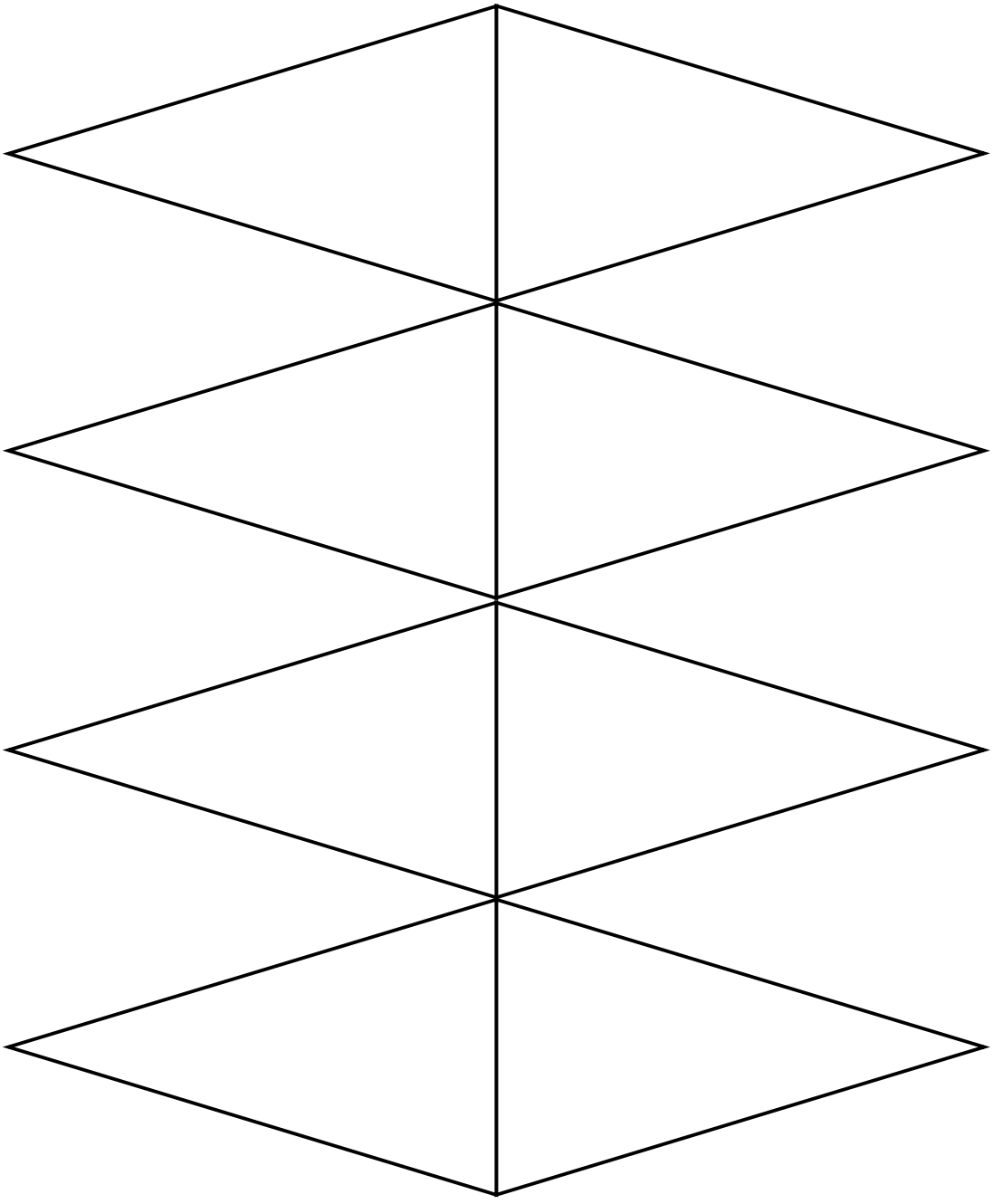
Here is another net of a 3-D object which you may like to cut out and stick together.

You will have to work out where to put the flaps for sticking them.



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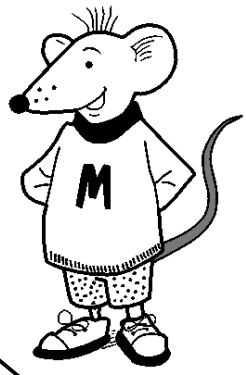
Here is another net of the same 3-D object as on page 5.

Why is this a better net?



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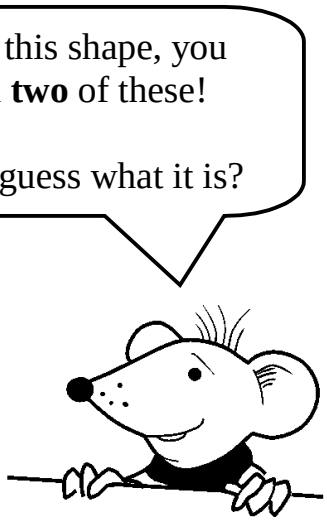
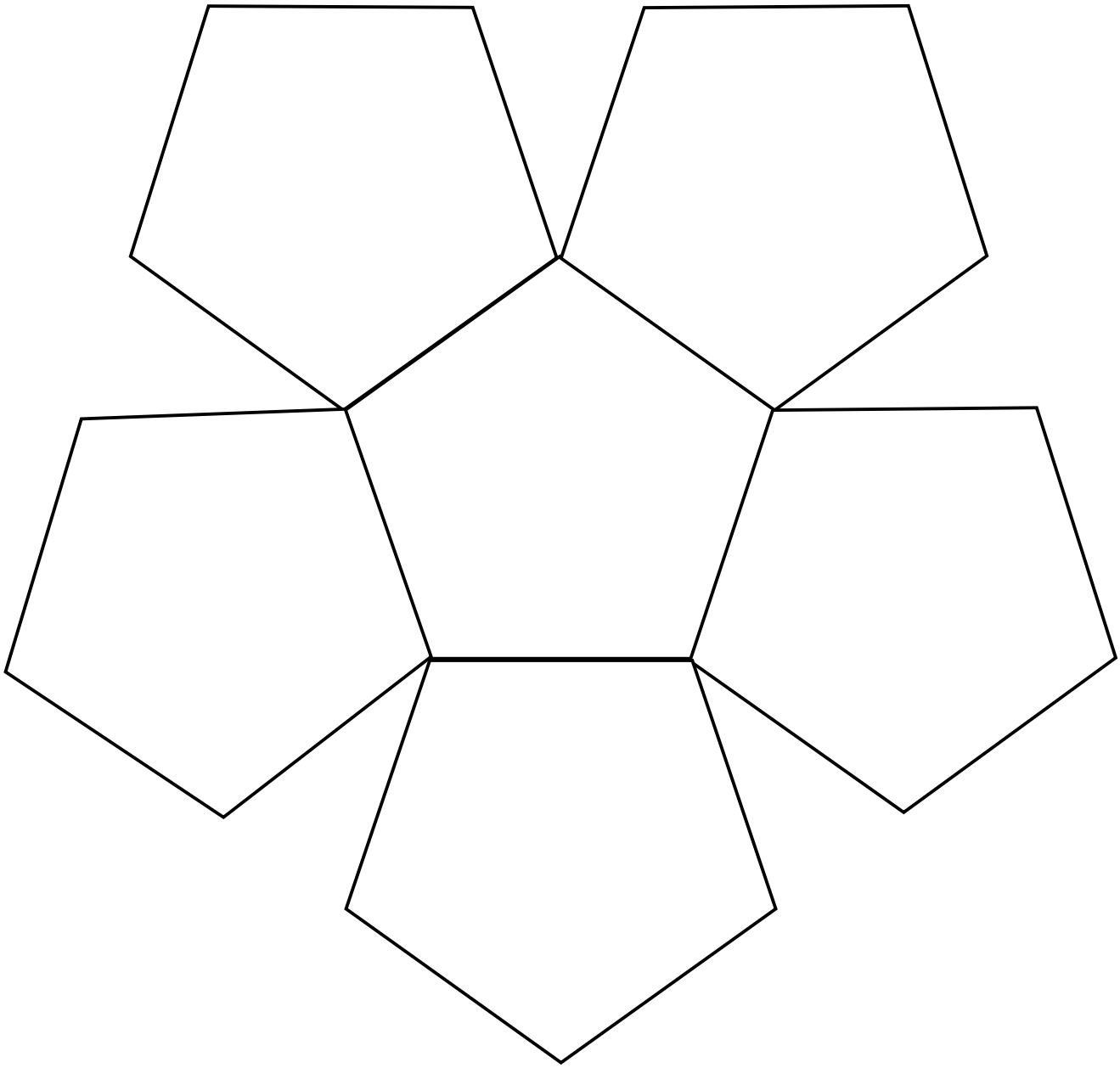
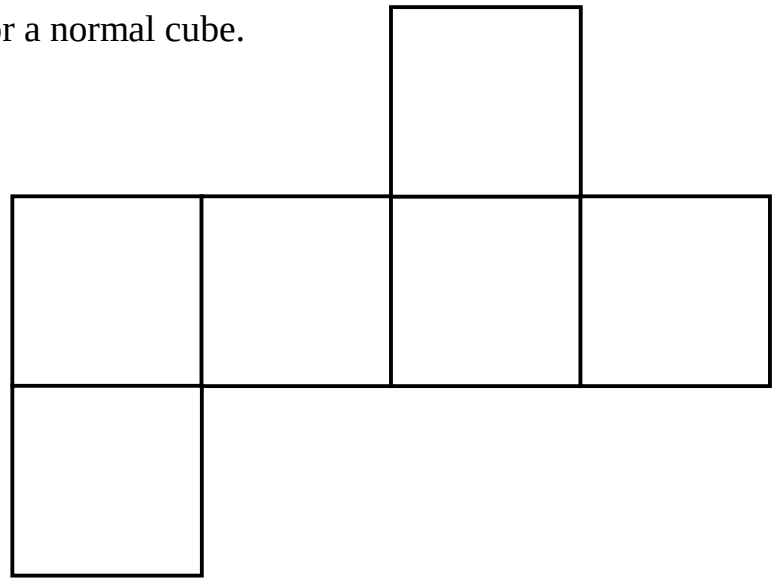
This is the net of a very interesting object!

When you have made a really nice one,
you could put a calendar for each month
on each face and give it to a friend at Christmas.
Don't forget the flaps!





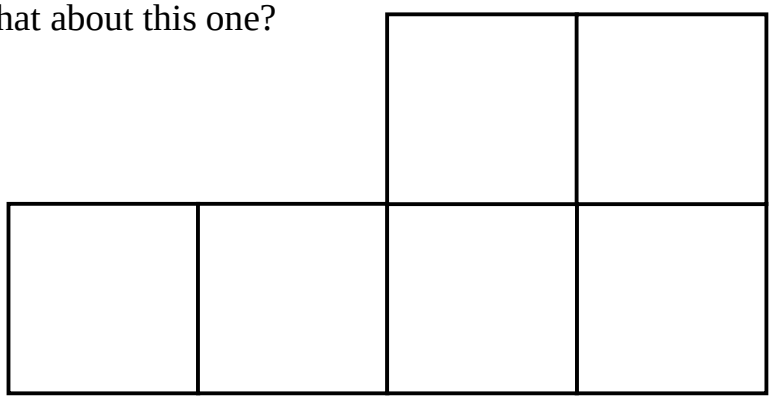
1. Here is one net for a normal cube.



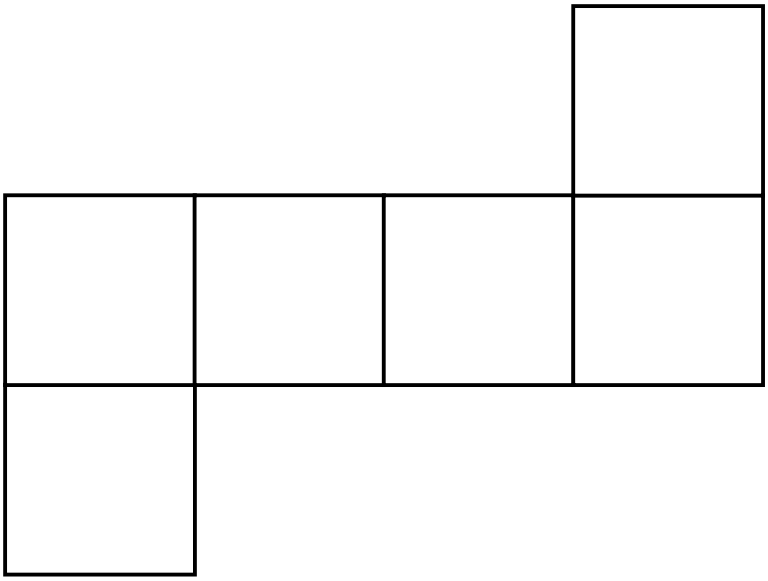
How many other nets for a cube can you work out? Check them with your friends.

If you put six squares together in any way, do they always make a net for a cube?

For example, what about this one?



Or this one?



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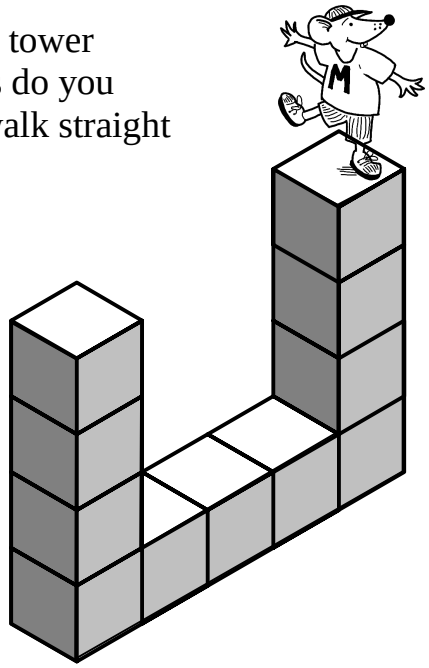
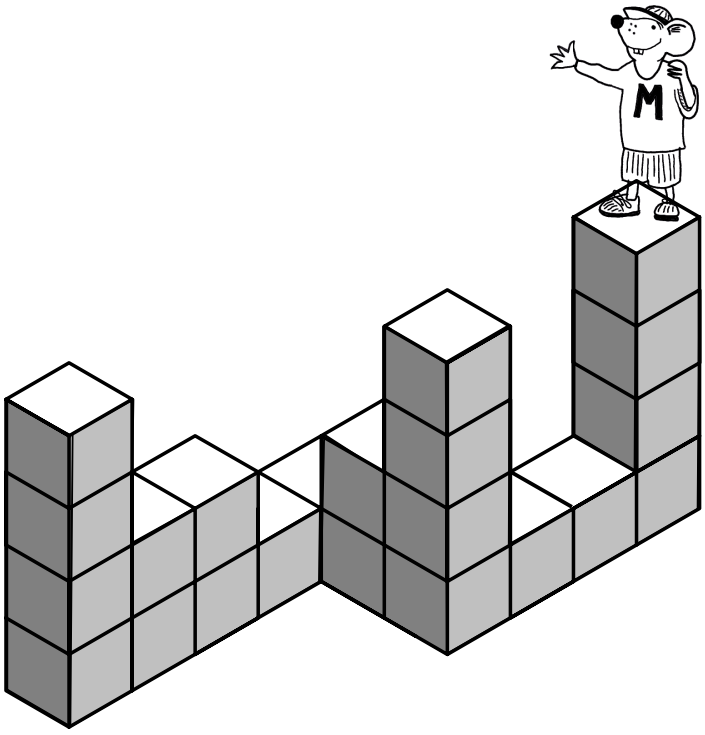
1. Addy wants to walk from the top of one tower to the top of the other. How many cubes do you need to put in the space so that he can walk straight across?



2. How many need to be put in the space in this shape so that Addy can walk from one end to the other?



3. Make up a shape like the ones on this page and ask your friend how many bricks need to put in so that a Maths Rat can walk across from one tower to another.

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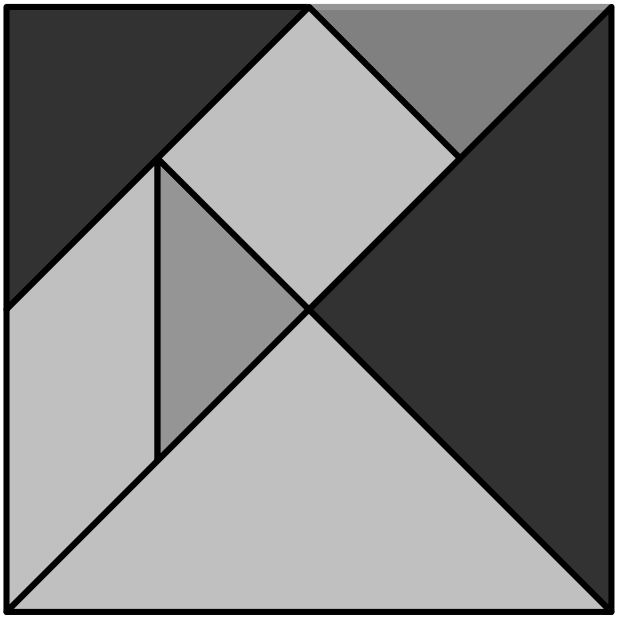
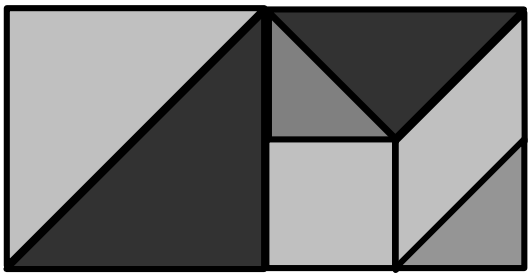
Here is a **tangram**. Cut out the pieces and see if you can fit them together to make different polygons.

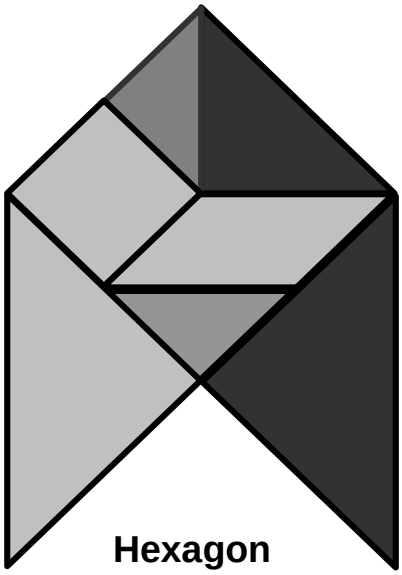
You can turn the pieces over if it helps.



Here are some examples to get you started.



Rectangle



Hexagon

Try making up some of your own tangrams to cut up and make polygons.

Look at the properties of the polygons such as which ones have lines of symmetry.

Answers

Page 3
The nets are those of a pentagonal pyramid (upper) and a pentagonal prism (lower).

Page 4
The nets are those of a tetrahedron (upper) and a hexagonal prism (lower).

Page 5
This is a net of an octahedron, but it is all but useless as it falls apart as you cut out the triangles. This is something that has to be guarded against when making workable nets.

Page 6
A much better net of an octahedron! It Does not fall apart when cut out.

Page 7
This is the net of a dodecahedron (don't forget that you need two halves).

Not easy to assemble, but worth it when finished and glued neatly.

Page 8
Not all combinations of six squares make nets for cubes. Of the two examples at the bottom of the page, the first does not and the second does.

Page 9
1. Nine cubes are needed. **2.** Eighteen are needed.