

You Need

- One [1] 'tablecloth' (or 2) measuring: 36cm (exactly) by 72cm (approximately)
- One [1] board with a picture of a drawer

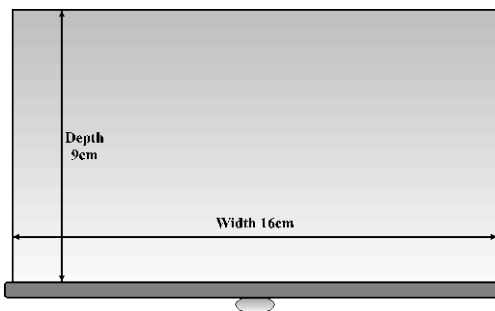
The Story

Doug bought a new tablecloth.

He was very pleased when he unwrapped it and found it exactly fitted the depth of his drawer. It was folded five [5] times and had twenty-four [24] thicknesses of material.

Your Task

1. Fold your material five times so that it exactly fits the depth of the drawer *and* has twenty-four thicknesses.

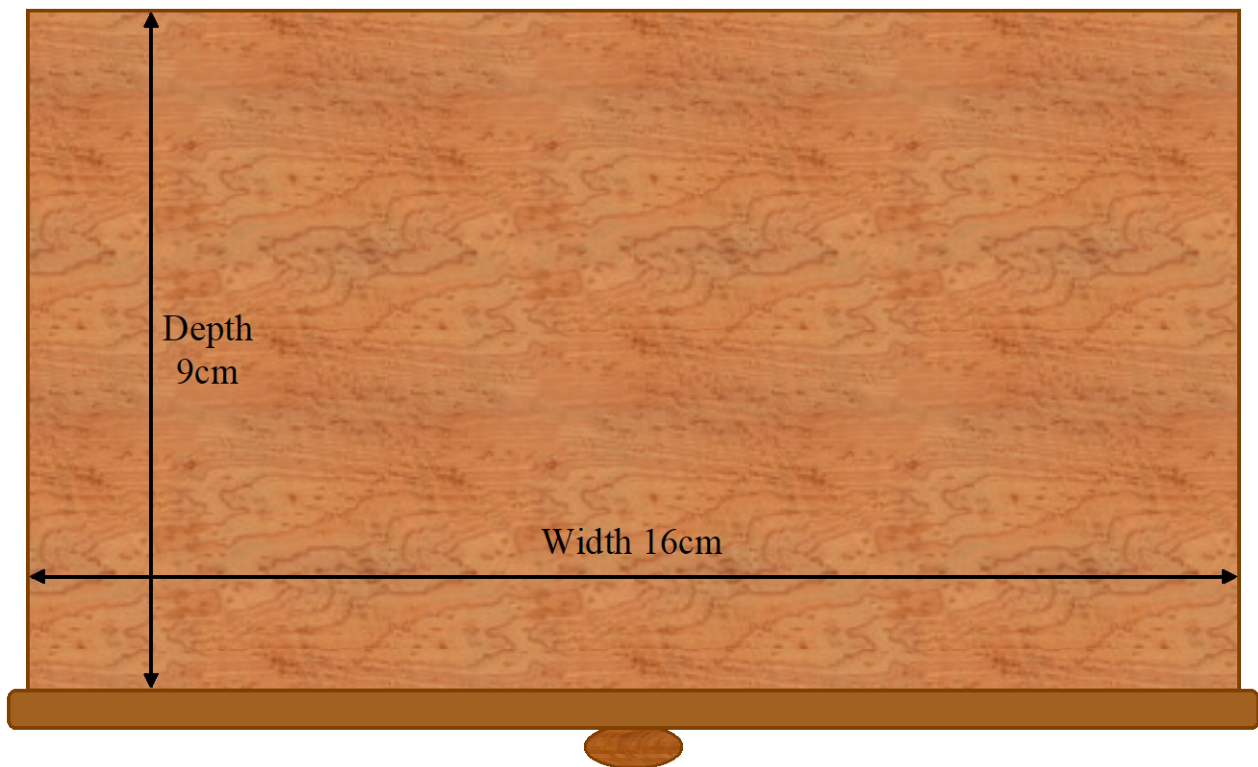


Challenge

How long would the cloth have to be so that it *also* exactly fitted the width of the drawer?

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Doug's Tablecloth Drawer



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Mathematics Task Centre

Task 3

Doug's Tablecloth Drawer



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Mathematics Task Centre

Task 3

You Need

- Twenty [20] triangles
...five [5] red and five [5] blue of each shape below

Draw diagrams (or use a digital camera) to record your answers.

You may trace the pieces.

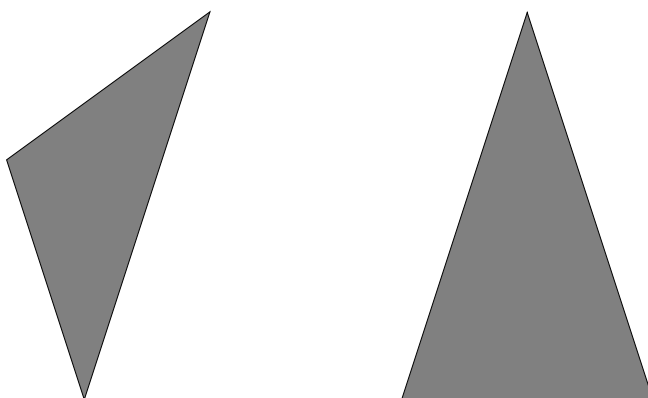
Your Task

1. Use two triangles to make a quadrilateral that *does not* have two sides parallel.
2. Use three triangles to make a regular pentagon.
3. Use ten triangles to make a regular decagon.
4. Use five acute triangles to make a regular pentagon doughnut.
5. Use ten obtuse triangles to make a regular decagon.

What feature does it have?

6. Make a triangle using:

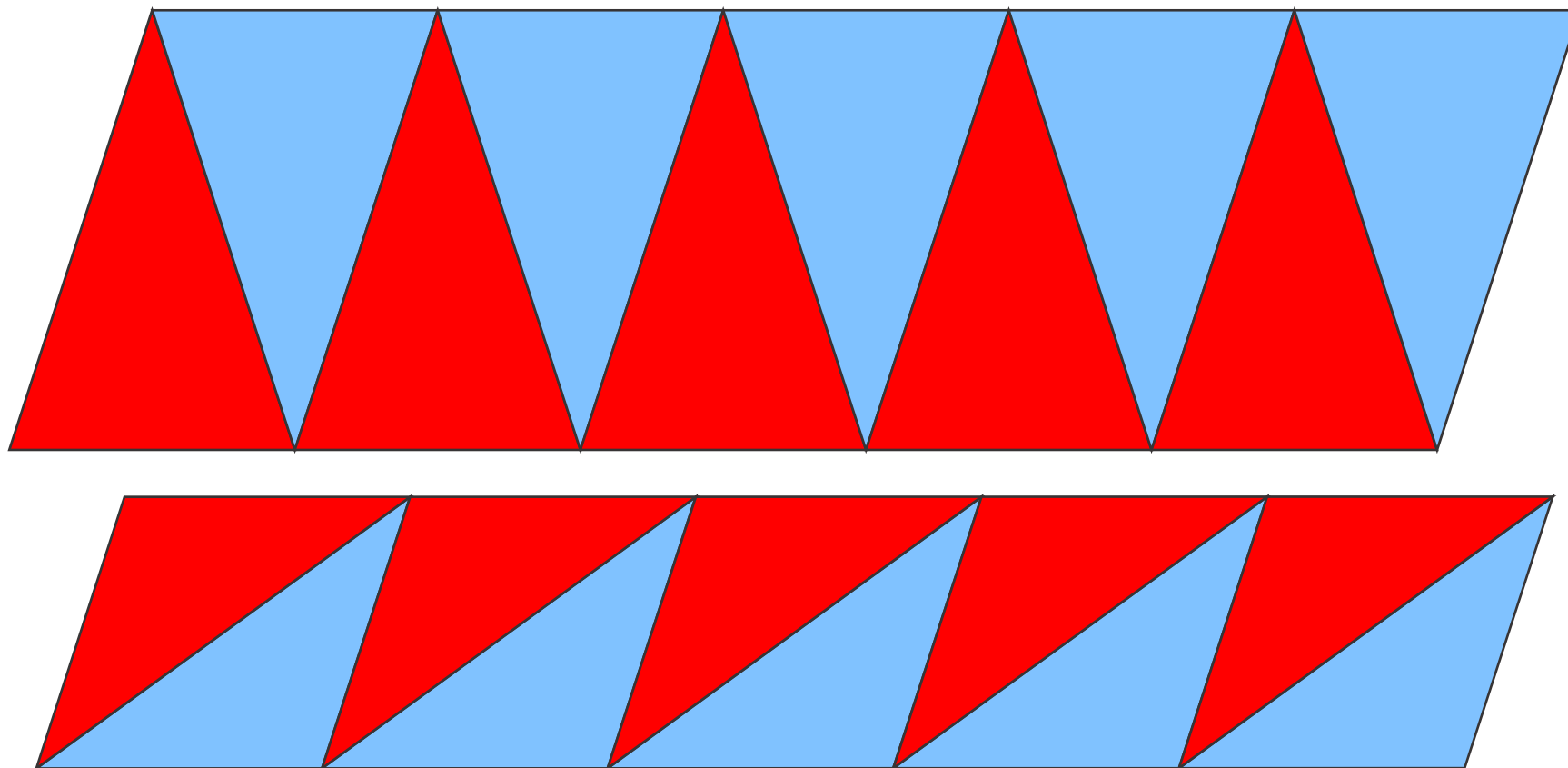
(a) two triangles	(b) three triangles	(c) five triangles
(d) eight triangles	(e) thirteen triangles	
7. What numbers come next in this pattern: 2, 3, 5, 8, 13 ...?
8. Repeat Question 6 so that no two triangles the same colour touch each other edge to edge.



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Pentagon Triangles

- Print in colour if you can, but grey scale will work.
- This page supplies enough material for one task (2 students).
- Printing on card and laminating will create a more permanent set.
- A Men's Shed or other craftsman may be able to create a stronger set. Angles and lengths are critical.



You Need

- Fifteen [15] 'boxes' numbered 1 to 15
Boxes 1 & 8 have the same design.
Boxes 2 & 10 have the same design.
Boxes 5 & 13 have the same design.
All other boxes have different designs.
There are twelve [12] designs altogether.

Your Task

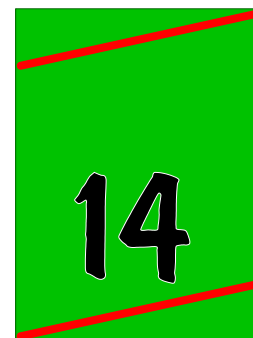
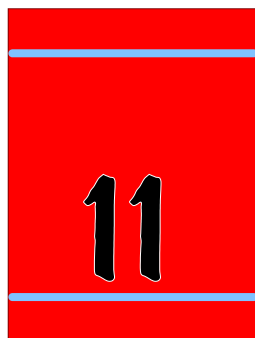
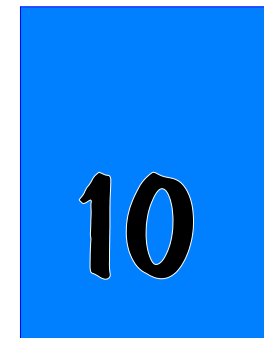
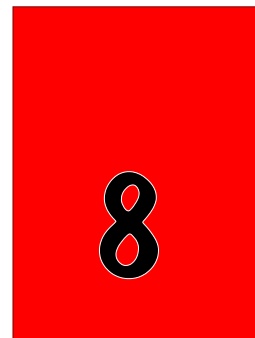
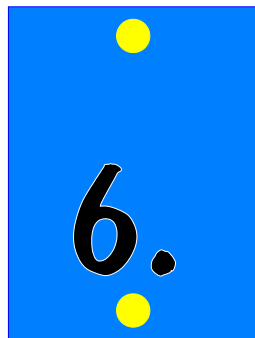
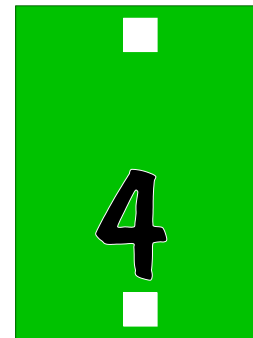
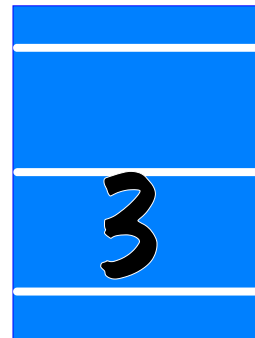
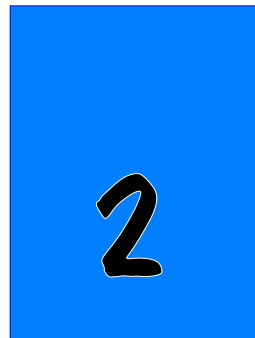
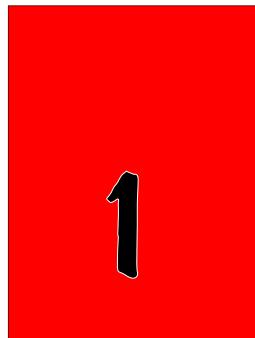
1. Make three [3] different groups of boxes so that:
 - Groups do not have boxes with consecutive numbers.
Example: Boxes 2 & 3 or Boxes 4, 5, 6 & 7 cannot be in the same group.
 - Groups cannot have boxes with the same design.
 - If you add the numbers in the three groups, the three totals are consecutive numbers.

Challenge

- Find another solution.
- How many solutions are there?

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Pick A Box



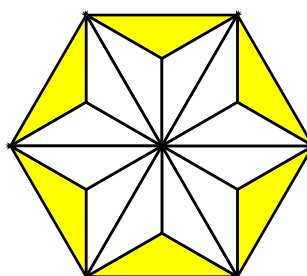
You Need

- Twenty-four [24] equilateral triangles in red, blue, yellow and green

Each triangle has three [3] sections. The twenty-four triangles are made from all the possible ways to put the four colours in the three sections.

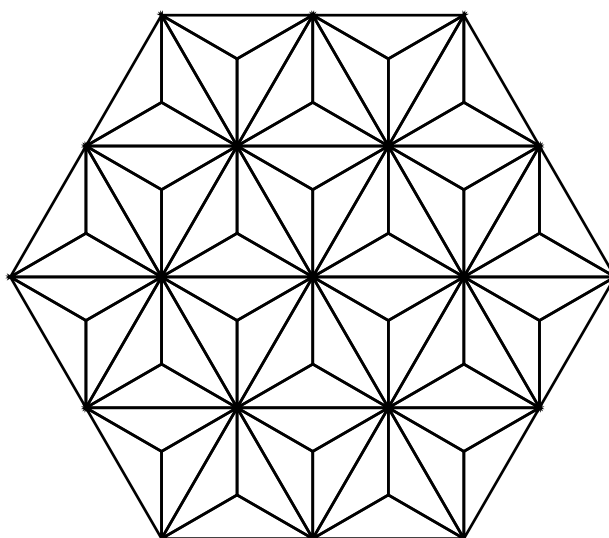
Your Task

1. Arrange six [6] of the pieces into a hexagon.
2. Arrange the pieces of the hexagon so that:
 - colours match at each inside edge (where two [2] triangle pieces meet)
 - outside sections are all the same colour.

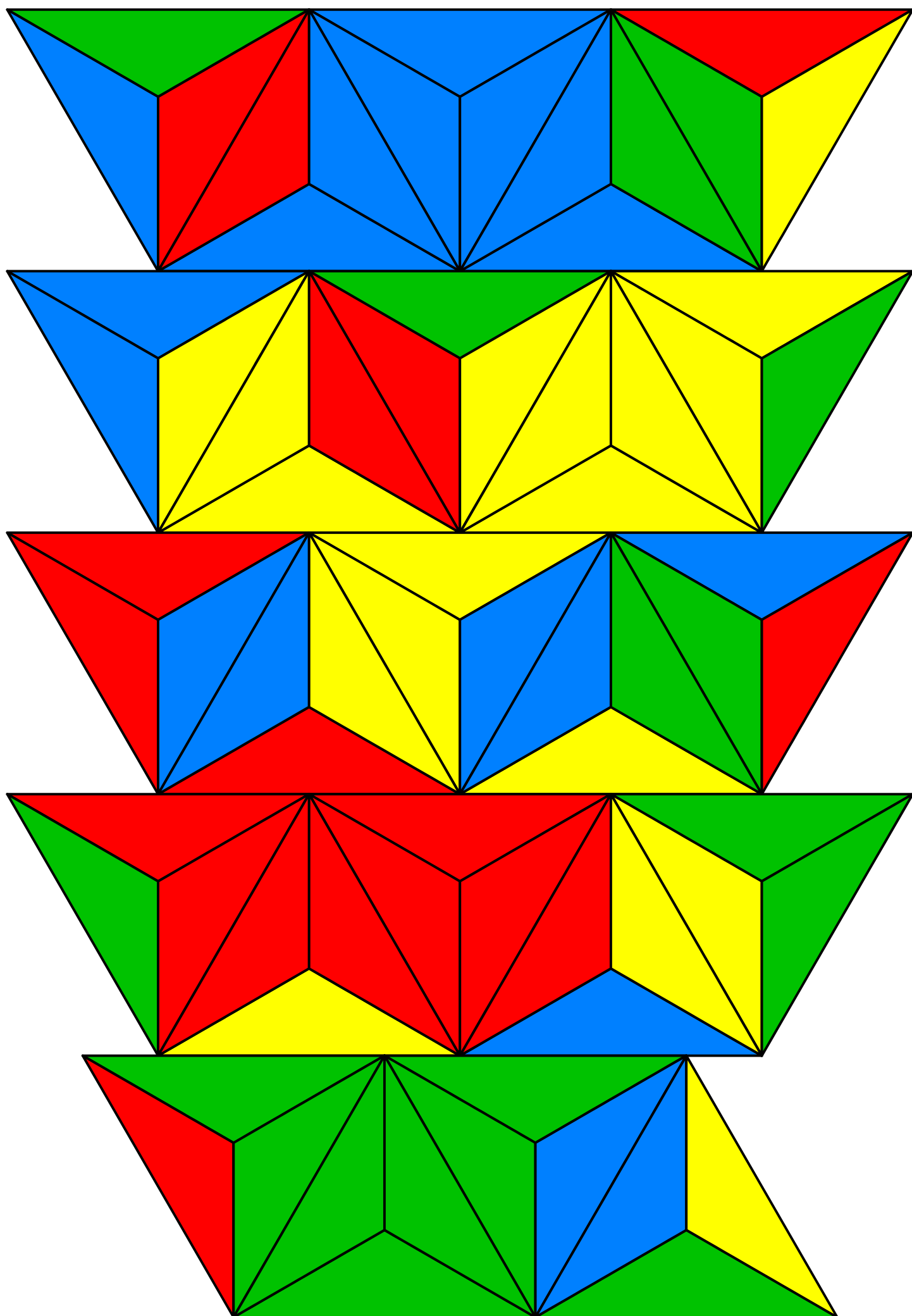


Challenges

1. Make three more hexagons like the one above. When you finish you will have four. The outside of one will be yellow, another will be red, another will be blue and another will be green.
2. Use all the pieces to make one large hexagon the same way. All the outside sections will be the same colour and all the inside edges will have matching colours.



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You Need

- Eighteen [18] cards. Each one is the name of an AFL team.

Australian Rules Football has a national league called the AFL.

After Round 10 in a past season, a person noticed that the ladder of the eighteen teams showed:

- Melbourne was two [2] places above Collingwood.
- Essendon finished nine [9] places above Richmond.
- Adelaide was in seventh [7th] place.
- The Kangaroos were not in the top eight [8].
- Port Adelaide finished exactly between the St. Kilda and the Bulldogs.
- Richmond was lower than Geelong.
- Melbourne was in the top eight.
- The GC Suns finished one [1] place below Melbourne.
- Geelong, Richmond and Collingwood all won the same number of games.
- The team on top was the only one to win all ten [10] games.
- Fremantle finished four [4] places above Sydney.
- Carlton and Brisbane were the only teams to win eight [8] games.
- The Kangaroos finished two [2] places above St. Kilda.
- Collingwood was not in the top eight [8].
- The GWS Giants finished lower than the GC Suns, but higher than the Kangaroos.
- West Coast won the same number of games as St. Kilda.
- Brisbane was one place above Sydney.

Your Task

1. Put the teams in the correct order on the ladder.
2. Which team is not mentioned in the clues?

What place is it on the ladder? How do you know?

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PORT ADELAIDE	BRISBANE
COLLINGWOOD	SYDNEY
MELBOURNE	GEELONG
ADELAIDE	ESSENDON
HAWTHORN	WEST COAST
RICHMOND	KANGAROOS
FREMANTLE	ST. KILDA
BULLDOGS	CARLTON
GWS GIANTS	GC SUNS

You Need

- Ten [10] cards - one [1] for the Sun and one [1] for each of the planets
- At least six [6] metres of string
- Ten paper clips

In this task you make a model of the solar system. The model is not exactly correct, but it does help us to better understand the solar system.

Two inaccuracies in the model are:

- The planets are rarely arranged in a line from the sun.
- The distance of each planet from the sun varies as they orbit.

Your Task

1. Cover the chart below.
2. Stretch out the string on the floor or tie it between objects in the room.
2. Attach the Sun at one end and Pluto about six [6] metres away.
3. *Estimate* where you think the other planets should be placed on the string.

Don't look at the chart yet.

4. Use the information in the chart to improve your estimate.

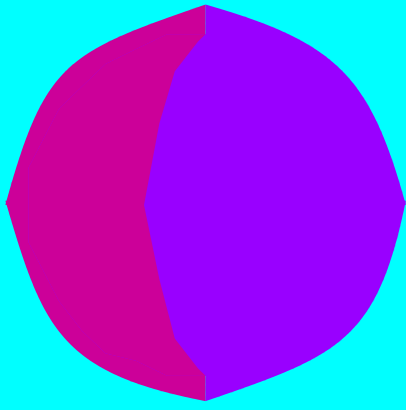
Hint: Round off the numbers and look for patterns.

Challenge

Use a calculator and ruler to check your estimates.

Planet	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
Distance from the Sun - Km	58 million	109 million	150 million	228 million	778 million	1,427 million	2,870 million	4,497 million	5,900 million
Distance along 6m string									

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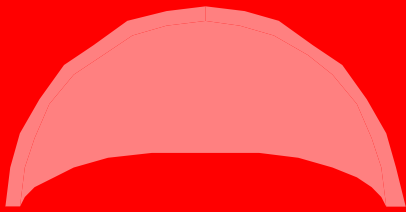
MERCURY



VENUS



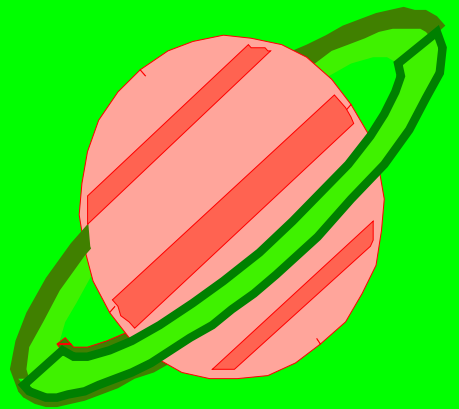
EARTH



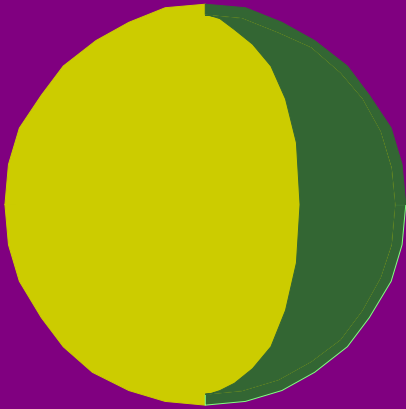
MARS



JUPITER



SATURN



URANUS



NEPTUNE



PLUTO



SUN