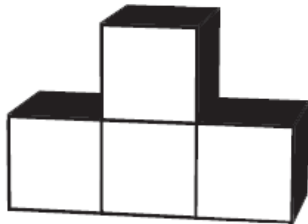


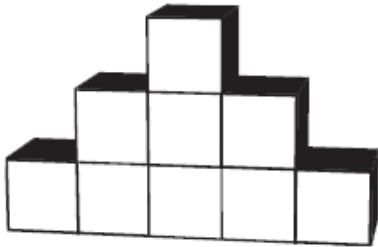


## ★ Problem

At the Olympic Games the winners stand on boxes to get their medals.  
For three medal winners four boxes are needed to give the medals.



So that 5 people can get medals more boxes are added.



For 7 people to get medals more boxes again will be added.

How many boxes would they need for 7 people?

## ★★ Problem

A hundred S2 pupils are playing a game. The pupil who wins the game gets to choose who they will sit beside in class. Each pupil is given a card with a number and all the pupils stand up. The numbers on the cards are from 1 to 100.

The teacher gives clues. If the number each pupil has does not agree with the clue then they have to sit down.

The winner is the pupil who is left standing.

From the clues decide which pupil number wins.

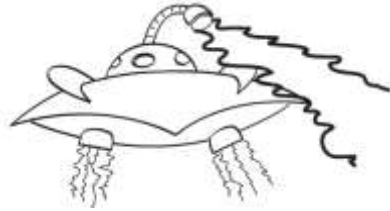
*The number has two digits.*

*The number is odd.*

*The sum of the two is 5*

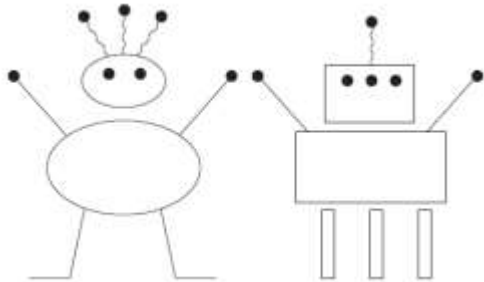
*The digits differ by one.*

## ★★★ Problem



A TV producer has asked a class of pupils to design an alien for a new science fiction programme.

One pupil designs one alien with circles and another with squares.



The pupil decides to mix up the heads, body and legs of the two aliens.  
How many different combinations are possible

## ★★★★ Problem

As part of the S4 work experience programme Stacey and Farzad join a team of archaeologists who are digging in the grounds of Crookston Castle to look for any ancient artefacts.

Before they begin to dig they mark out the ground into a grid of squares so that they can map out where any finds are made. Stacey and Farzad have the task of getting the pegs for the squares. Unfortunately they are not sure how many pegs are needed.

The archaeologist asks for a square with 3 pegs on every side to be mapped out. Stacey draws a sketch and tells Farzad that they need 8 pegs.



a) Draw a square that has 4 pegs on every side. How many pegs are needed?

b) The archaeologist then asks for a square that uses 28 pegs. How many pegs are on each side?