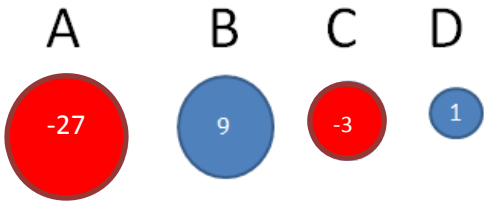
Task Centre – Weights

Names:_____



Imagine you have **two of each** of the 'weights' above.
Different combinations of the weights available make different totals.

Here are some examples:
$B + C = 6$, $B + 2C = 15$, $2A + B + 2C + D = {}^{-}10$

The larges total you can make is 20 (check that you agree)
The smallest total you can make is ${}^{-}60$ (check again that you agree).

Can you all make all the numbers in between? Can you show me how?
Is there a unique way of producing a total, or can different combinations produce the same total?

-60		**-40**		**-20**		**0**	
-59		**-39**		**-19**		**1**	
-58		**-38**		**-18**		**2**	
-57		**-37**		**-17**		**3**	
-56		**-36**		**-16**		**4**	
-55		**-35**		**-15**		**5**	
-54		**-34**		**-14**		**6**	
-53		**-33**		**-13**		**7**	
-52		**-32**		**-12**		**8**	
-51		**-31**		**-11**		**9**	
-50		**-30**		**-10**		**10**	
-49		**-29**		**-9**		**11**	
-48		**-28**		**-8**		**12**	
-47		**-27**		**-7**		**13**	
-46		**-26**		**-6**		**14**	
-45		**-25**		**-5**		**15**	
-44		**-24**		**-4**		**16**	
-43		**-23**		**-3**		**17**	
-42		**-22**		**-2**		**18**	
-41		**-21**		**-1**		**19**	
						20	

Super Challenge:
Imagine you are allowed just three different weights this time (E, F, G) and at least one weight must be a negative weight, but you are allowed to have up to **three of each.**

For example, if you choose $E = 1, F = {}^{-}4, G = 5$ you can make 7 and ${}^{-}10$: $E + F + 2G = 7$ and $2E + 3F = {}^{-}10$.

Choose your three weights and test out what totals you can make.

Which set of three weights allows you to make the largest range of totals with no gaps in between?