Melanie has 4 different colored crayons and 2 different boxes as shown below. How many different ways can Melanie put all 4 crayons into the 2 boxes so that each box has at least 1 crayon?
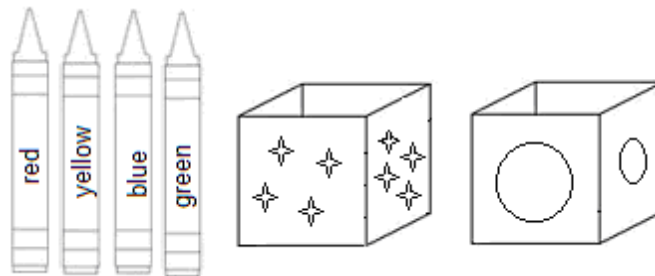
Solution: 14 different ways.

We can count in an organized way. First we put one crayon in the star box and the other 3 in the circle box. This gives us a total of 4 ways. Next we put 2 crayons in each box. This gives us a total of 6 ways. Finally we put 3 crayons in the star box and 1 crayon in circle box. This gives us a total of 4 ways.

the star box	The circle box
R	Y,B,G
Y	R,B,G
B	R,Y,G
G	R,Y,B
R,Y	G,B
R,G	Y,B
R,B	Y,G
G,B	R,Y
Y,B	R,G
Y,G	R,B
Y,B,G	R
R,B,G	Y
R,Y,G	B
R,Y,B	G

In all, there are 4 + 6 + 4 = 14 different ways to put the crayons in the boxes.