Consider the following conditions:

1. you are given four identically shaped marbles that one of them weighs differently
2. you don't know if the divergent is lighter or heavier
3. you have a balance scale which is the only scale on earth capable of telling the difference between a normal marble and the divergent marble
4. you also have access to 8 other extra normal marbles. (that makes it 4 potential candidates and 8, certainly, normal marbles.)

How do you use the scale, no more than two times, to spot the fake marble?

Sample answer:

Well, we compare three of the candidates with three of those normals that we have; They either balance or differ. If they balance, the divergent is the candidate that is left out and we have found with using the scale just once. If they don't balance, the candidates are either lighter or heavier than normals and we have another chance to use the scale.

We will solve it for the case that the candidates are heavier and the other case should be solved similarly.

So now, we have three candidates, one chance to use the scale, and we know that the divergent is heavier. Well, it's easy, we put one of the divergent on the left bucket and another one on the right bucket. If they balance, the divergent is the one that is left out. If they don't balance, the heavier is the fake marble.