NRICH

The Amazing Splitting Plant
Age 5 to 7

We had quite a few submitted solutions to this activity and we start with Jaheim from Woodside Primary Academy in England who sent in this to show what he did:

How does it work?

Well because each of the stalks are splitting into two you have to times by two i.e: 1 changes to 2 2 changes to 4. Join in with my solution and see if you understand.
The number in the beginning is one as there is only the stem.
In the first week the one stem in the beginning has now split to become two stalks so the current number has changed from 1 to 2.
In the second week the two stalks split again so that the branch out in their own directions. The number has changed from 2 to 4.
In the third week the number has changed from 4 to 8.
In the fourth week the number has changed form 8 to 16.
In the fith week the number has changed from 16 to 32.
In the last week the number has changed from 32 to 64 and so the plant will have 64 flowers (that's a lot of flowers!).
I hope you understand.

Yes I do understand Jaheim, thank you.
Now we turn to Nathan from Carr Head Primary School:

This is a table of how I worked it out

Week	Flowers
1	2
2	4
3	8
4	16
5	32
6	64

The amount of flowers doubles every week so if the stem splits into two branches in the 1st week then it doubles, in the 2nd to make four branches then it doubles again and again until it gets to the 6th week and it has 64 branches and every branch grows a flower so there would be 64 flowers.

From Michael at Cloverdale Catholic School in Canada we had;

If the branches grow two more every week, then you are going to end up with twice the amount of flowers.
First week: The plant splits into 2 branches.
Second week: The branches split into two, and so on, and so on.
The method I used was adding the first number again (or multiplying by 2):
The plant split into two branches, so that's 1 (the stem) + 1.
The next week, the branches grow two EACH, so 2 + 2, and so on.
The following pattern is shown below:
2 4 8 16 32 64
Every time the branches grow two more branches, the branch count doubles.
So if the stem grew three branches, then the branch count would triple (e.g. 3+3+3):
3 9 27 81 243 etc.
If you just want an easier way to find out (if you are in upper grades), you might have used exponents, or multiplying repeatedly.
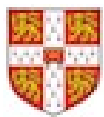Let's say, on the third week. You could have put down two to the power of 3, which is 16,

or 2 with a little three at the top-right corner of the 2.

Then, at the sixth week, all the branches grow one flower. So, we used multiplication to find out that the branches are 64. Thus, the plant grew 64 flowers.

1		1		2
2		2		4
4	**+**	4	**=**	8
8		8		16
16		16		32
32		32		64

Thank you to everyone who submitted their ideas. Most saw that the numbers doubled and wrote down their answers, but I've shown here some of those who described how they went about working it out, and how they recorded their answers.