The Amazing Splitting Plant Extension Ideas Continued

3/ Then you can ask the pupils to explore further by introducing the thought "What if you had 10 plants - each branching differently [in 1s, 2s 3s . . . .9s] and you lined them up 1 to 9?"
The pupils could then be asked to look at them after two lots of branching and the number of flowers for each plant.

1 4 9 16 25 36 49 64 81

So they could explore these [square] numbers.

Look at units:
1 4 9 6 5 6 9 4 1

Look at digital roots:
1 4 9 7 7 9 4 1 9

Look at the table of differences:

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1    4    9    16   25   36   49   64   81
   3    5    7    9    11   13   15   17
      2    2    2    2    2    2    2
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4/ Often in opening out activities we move away from the practical situation and get involved with the numbers that are coming out in patterns. So, learners could be asked to look at the numbers you'd get after another year of growth.

But of course three lots of branching means we're cubing the numbers instead of squaring them. Calculators come in useful, even the simple ones of course allow the children to do things like 6 x 6 x 6. This may be one way in which you want to introduce the whole idea of powers.

Four lots of multiplication [to the power 4] of the numbers 1 to 9 would give:

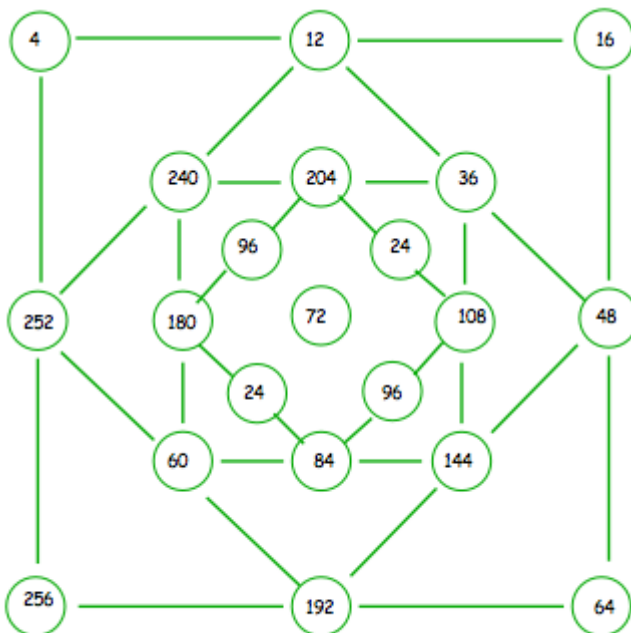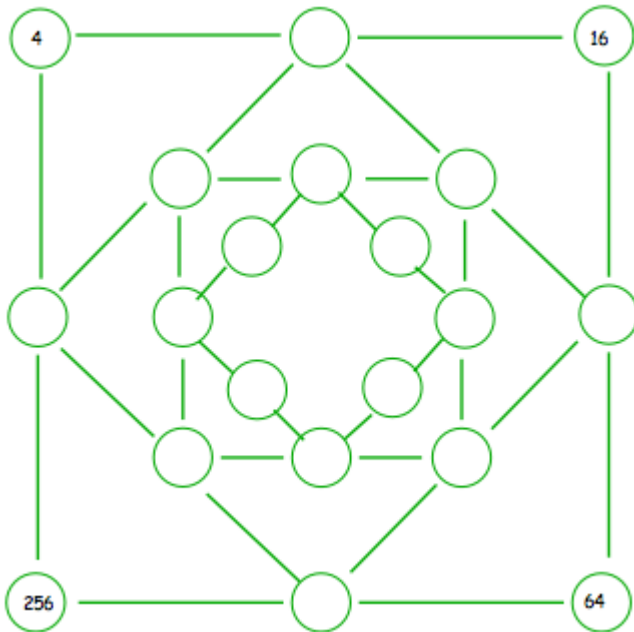1 16 81 256 625 1296 2401 4096 6561

The units will be: 1 6 1 6 5 6 1 6 1
The digital roots will be: 1 7 9 4 4 9 7 1 9
The table of differences would be:

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1      16      81      256     625     1296    2401    4096    6561
   15      65      175     369     671     1105    1695    2465
      50      110     194     302     434     590     770
         60      84      108     132     156     180
            24      24      24      24      24
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All of which can be explored.

5/ Referring back to May 1998's activity [Number Squares](#) use the first 4 figures of the above pattern to start off the square.

Then explore, and then try the powers of 5, 6, 7, etc.

So once you've got some ideas as to how to answer the original question, we look at some answers, and get the pupils to think about "I wonder what would happen if we …?".

In extending this activity producing powers of the number 1 to 9 may be the outcome. Then look at the patterns/sequences in a variety of ways - unit figures, digital roots and lastly special arrangements.