Victor and Victoria's
How quickly can Matilda's cat family grow?

Hi I'm Matilda

Female

Female Male

Female Male

Female Female Male Male

Female Female Male Male

Female Female Male Male

Female cats can have a litter before they are one year old.

Let's say that each female cat can have a litter of 2 females and 2 male kittens a year for 5 years.

Can you calculate how many cats would be in Matilda's family after 5 years?

You may wish to draw a diagram or make a model that helps show your answer.

Present your result to the rest of your class.

Before you start, write your guess down here

_____

Extension Activity One

How big would Matilda's family grow in 7 years instead of 5?
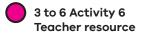
Before you start, write your guess down here

_____

Extension Activity Two

How big would Matilda's family grow in 5 years if she had 4 females and 4 males every year?

Before you start, write your guess down here

_____

Helpful Hints

Don't forget that the female cats from the previous years will still be having kittens. You must count all of the cats and their litters. from the previous years into the total.

Victor and Victoria's
How quickly can Matilda's cat family grow?

Hi I'm Matilda

Can you calculate how many cats would be in Matilda's family after 5 years?

	Total existing cats	Fertile females each year	Total fertile females	Litters	Females born that year	Males born that year	Total
Year 1	1	1	1	1	2	2	5
Year 2	5	1+2	3	3	6	6	17
Year 3	17	1+2+6	9	9	18	18	53
Year 4	53	1+2+6+18	27	27	54	54	161
Year 5	161	1+2+6+18+54	81	81	162	162	485

Extension Activity One
How big would Matilda's family grow in 7 years instead of 5?

	Total existing cats	Fertile females each year	Total fertile females	Litters	Females born that year	Males born that year	Total
Year 1	1	1	1	1	2	2	5
Year 2	5	1+2	3	3	6	6	17
Year 2	17	1+2+6	9	9	18	18	53
Year 4	53	1+2+6+18	27	27	54	54	161
Year 5	161	1+2+6+18+54	81	81	162	162	485
Year 6	485	1+2+6+18+54+162	243	243	486	486	1457
Year 7	1457	1+2+6+18+54+162+486	729	729	1458	1458	4373

Extension Activity Two
How big would Matilda's family grow in 5 years if she had 4 females and 4 males every year?

	Total existing cats	Fertile females each year	Total fertile females	Litters	Females born that year	Males born that year	Total
Year 1	1	1	1	1	4	4	9
Year 2	9	1+4	5	5	20	20	49
Year 2	49	1+4+20	25	25	100	100	249
Year 4	249	1+4+20+100	125	125	500	500	1249
Year 5	1249	1+4+20+100+500	625	625	2500	2500	6249