P5-Task 1

1. Which characteristics are dominant?
2. What was the ratio of green- potted plants to yellow potted plants
3. Draw genetic diagrams to show how these characteristics are inherited and to explain these ratios.
4. Green pods are the most dominant
5. Green potted plants and yellow potted plants ratio is 428:152-🡪107:38🡪3:1

|  |  |  |
| --- | --- | --- |
|  | G | G |
| g | Gg | Gg |
| g | Gg | Gg |

|  |  |  |
| --- | --- | --- |
|  | G | G |
| G | GG | Gg |
| g | Gg | gg |

25% gg is yellow colour

P5-Task 4

Huntington disease is a hereditary disease that is due to the death of brain cells which then cause dementia and other problems to the body. If the child has it then he/she should be told about it when they are mentally mature and capable of handling the stress.

If the child is told at a young age it might be cause them to at first have a lot of fear but eventually they will accept it as they grow up to have a mature mental capacity which would enable acceptance of the disease.

Cystic fibrosis

The gene that shows they are a carrier can be in the individual and they will be unaware and when they find a spouse with the same problem then they will know. There is a quarter of a chance the kids will have a problem and a ½ chance they will have the disease or carrier.

|  |  |  |
| --- | --- | --- |
|  | C | c |
| C | CC-unaffected | Cc-carrier |
| c | Cc-carrier | Cc-affected |

Symptoms include thick mucus in the lungs, lung infections and general respiratory problems.

Key:

C= Functioning gene

C= Cystic fibrosis

**M3-Task 2**

|  |  |  |
| --- | --- | --- |
|  | B | G |
| B | BB | Bg |
| G | Bg | gg |

BB is a quarter , Bg is a half , gg is a quarter

Black dominant is 25% BB

Heterozygote is 50% Bg

Grey receive 25% gg

**P5-Task 3**

9:2.5:3.5:1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | BS | Bs | bS | Bs |
| BS | BBSS | BBSs | BbSs | BbSs |
| Bs | BBSs | BBss | BbSs | Bbss |
| bS | BbSS | BbSs | BbSS | bbSs |
| bs | BbSs | BBss | bbSs | bbss |

B= black , b= white , S= short , s=Long

9 3:3:1

**M3-Task 3**

BbSs ,Bbss bbss, bbSs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Group 1 | Group 2 | Group 3 | Group 4 | Total |
| O | 9 | 2.5 | 3.5 | 1 | 50 |
| e | 9 | 3 | 3 | 1 | 50 |
| o-e | 0 | -0.5 | 0.5 | 0 | 0 |
| (o-e)^2 | 0 | 0.25 | 0.25 | 0 | 0 |
| (o-e)^2/e | 0 | 0.083333333 | 0.083333333 | 0 | 0 |
| x2 | 0 | 0.083333333 | 0.083333333 | 0 | 0.166666667 |

To discover if a dog is dominant (BBSS) you will have to breed with a recessive dog(BbSs) , if all the puppies have the gene type of recessive genotype (BbSs) than it will mean that the breeder is a 100% dominant but if the puppies are 25% recessive (BbSs) and the rest are 75% homozygote/receive then the breeder is recessive (BbSs). Which means it is not a true breeder and that dominant (BBSS) is the required vital genotype to breed 100% dominant dogs with a dominant female dog.

D2-Task 3

4-1=3 in 5%= 7.81

The test has shown us that there isn’t a significant difference between the expected and observed values, which indicates that there is not a significant difference in the null hypothesis.

**M3-Task 5**

Sickle cell anaemia

|  |  |  |
| --- | --- | --- |
|  | S | s |
| S | SS | Ss |
| s | Ss | ss |

S= Dominant

S=Recessive

Parents are both carriers percentage of offspring inheriting and becoming a carrier is = 50%

Parents are both carriers percentage of offspring inheriting and have sickle cell anaemia is = 25%

Parents are both carriers percentage of offspring to be clear and free from the condition is = 25%

**D1-Task**

ATT is codes the same thing as ATC, and it is not a big concern if the bases of AT—T is missing because the amino acids stays in position. Phenylalanine is missing from the table which cystic fibrosis mutated. So ATC can form bases with AT—T but TTT (phenylalanine) cannot form bases because it is missing bases.