

Full lesson transcript for Mrs Durand of school A

Lesson 2: Genetics and Inheritance on 29 June 2020.

Details

- This lesson transcript represents 44:49 minutes teaching time.
- A South African female white teacher was teaching the topic meiosis 25 male and female learner participants, all in grade 12.
- The lesson took place at a former model C co-educational High School in Johannesburg East district in Gauteng on 29 June 2020.
- When used by the teacher, the learners' names have been changed to protect anonymity.
- The textbook utilised during the lesson is Understanding Life Sciences Grade 12 Learner's book published by Pulse Education Services.
- Used PowerPoint, coloured markers and white board.

Transcription conventions

Symbol	Signification
T:	A verbal contribution belonging the teacher
L:	A verbal contribution belonging to any individual learner
Ls:	A verbal contribution belonging to two or more learners
...	Noticeable pause of less than 1 second in a turn, which could be due to reformulation or hesitation
—	Sound abruptly cut off e.g false start Truncated word Formal made shorter e.g S-
/ /	Words between slashes show uncertain transcription (not clearly known or understood).
/ ? /	Inaudible utterances
[]	Words in brackets indicate non-linguistic information eg [pause for 1 second] Laughter, throat clearing, smile, applause, sigh happily/ wearily/deeply, contentedly, swallowing, nodding, shaking head dance or movement towards/away

()	Parenthesis around tone units indicate words spoken in a sotto voice under one's breath (in a very quiet voice)
,	Slight pause
?	High rising intonation
.	Falling intonation at the end of tone unit
:	Colon following a vowel, indicates elongated vowel sound or extending length of sound e.g Die:d
::	Extra colon indicates longer elongation
↑	A step up in pitch/ high pitch (high quality sound)
↓	A shift down in pitch (low quality sound)
^	A caret indicating high pitch level e.g ^weird
-	Low pitch level
--	Self-interruption or repair
abc	Best guess transcription
ALL CAPS	Utterance is louder/said with extra stress/emphasised compared with surrounding words
/	Rise tone e.g ...saying something, /
\	Fall tone
V	Fall-rise-tone
Λ	Rise-fall-tone
CAPS	Prominent syllable e.g sOn or FAthEr

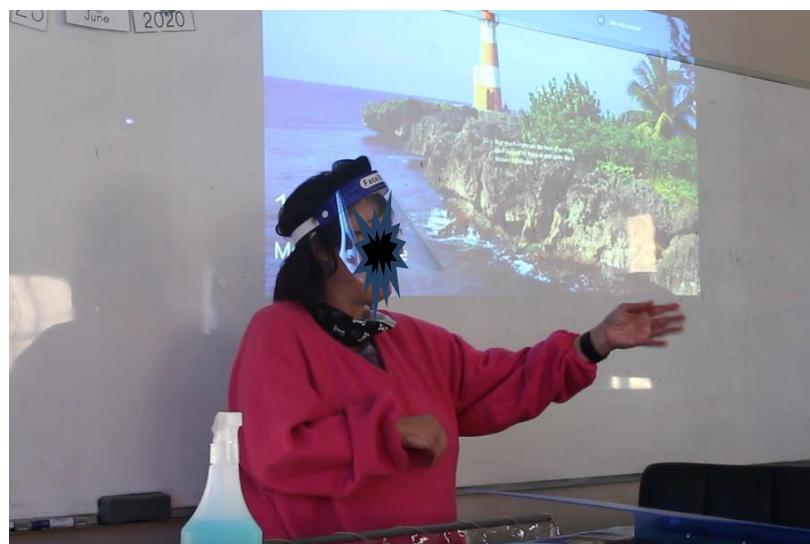
EPISODE 1: INTRODUCTION TO GENETICS

1. Mrs Durand: This topic we left for last, the main reason being it is a big topic but there is such a lot of small...

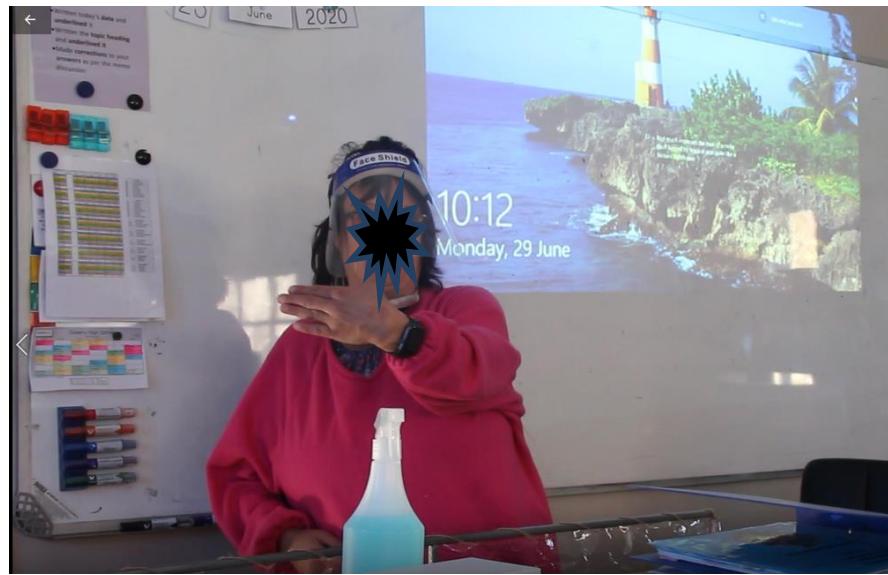


...topics in it.

2. If you get the first one wrong...



...you can be wrong all the way through.



3. So, you need to get it right as from today.
4. You are getting a handout that I put in for printing.
5. There are quite a few notes and to make your life easier.
6. There is going to be fill in worksheets and its stuff that we bought from overseas to make your life easier because it covers exactly what we are doing.
7. This is a universal topic; it is done all over the world okay, and you see as we go through because today, we going to focus basically on what genetics is all about and we are also going to do a lot of terminology.
8. You are going to see-- you are going to get a terminology worksheet.
9. Some of it is going to be underline the words...



...and some of them what is the word?

10. So, all...all aspects of the terminology are covered...



...because the terminology here people is so diverse.

11. If you are going to have to look at the amount of terminology that you are supposed to know, and I mean my worksheet does cover all the si-- all the ehh...single words.
12. It will come up as we through as well.
13. Okay, so please do not, we are not going to do a lot of writing because all of them are on the worksheets.
14. I mean we are going to start looking at ehh... where does genetics come from?
15. Where did it originate?
16. So, what happened at a time frame when ehh...this person was alive, studying portions of genetics.
17. Why we are still using his name today in this modern day in time we are living in and you can go back...



...and start thinking about what made you different.

18. Okay, you know about variation, but what made you different from your brothers and sisters?



19. What made you different?
20. Your genetic make-up okay.

21. We are going to run that through quite a bit and like I said there are going to be diagrams to be drawn within the whole section, but it is very little.
22. Most of it is genetic crosses.
23. In other words, we are going to take, if this gene is like this and that one is like this.

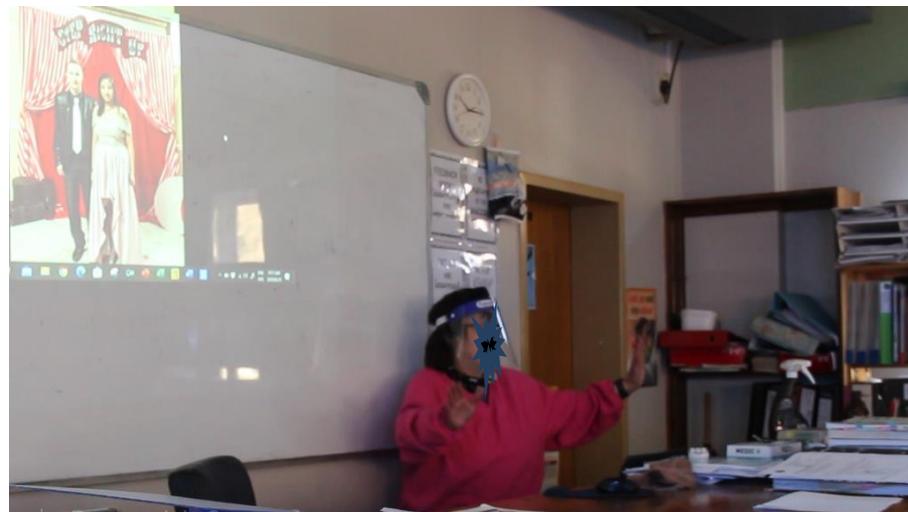


What will the children look like...?



...and you need to say offspring because it could be plants or animals okay?

24. So, let us use the term offspring.
25. ↑There is somebody sitting here talking!
26. I get there is quite a few people absent today.
27. You know what, absenteeism...I wash my hands...



...because I am at school and you are at school.

27. So, please, think of what I am going to do because some of this stuff I cannot repeat.
28. You are also going to see what I am going to do today as well on the board by the end of the lesson as well.

EPISODE 2: GENETICS PROBLEM METHOD AND EXAMS

29. How do we write genetics problem?
30. This method,



...you must use it with every single question you get when it is a genetics question.

31. You deviate from the method...



...you will lose marks because two marks...



...two out of six is based on the method.

32. You can score two marks even if everything is wrong, two could be the difference between pass or fail or distinction or no distinction.
33. Just remember that okay.

EPISODE 3: MENDEL'S HISTORY

34. Let me start with ehh... I am going to start with where it originated, or we are going to talk a little bit about an Austrian Monk.
35. We all know where Austria is.
36. We all know where Austria is.
37. It is very close to Germany okay.
38. Austrian Monk, he studied the traits in plants.
39. Now I am using the word trait,



...a trait also refers to characteristic.

40. He-- I mean his work ehm...what strike me is that ehh...the principles he used in the eighteen hundred,



...we are still using today.



41. This why whenever you do ahh...any form of studying, that your record keeping...



...is absolutely hundred percent,

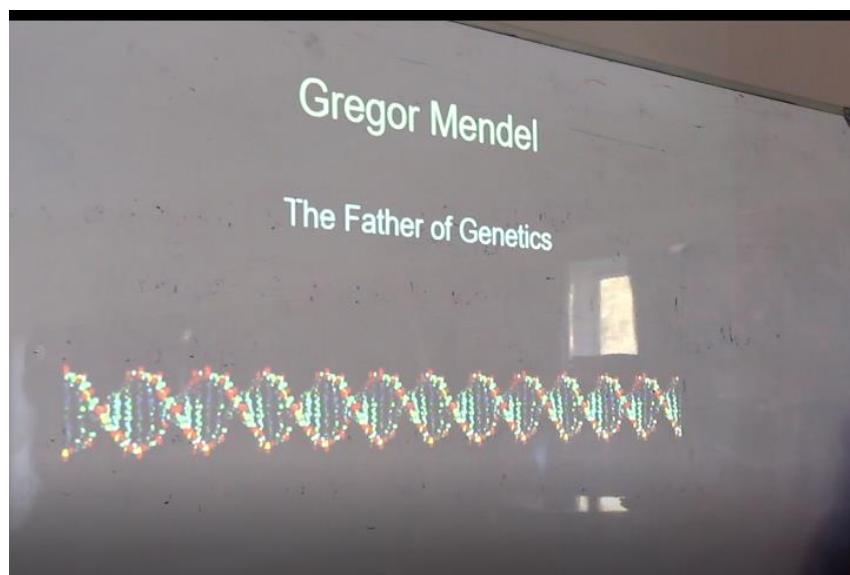


...because based on his work, experiments were repeated ...

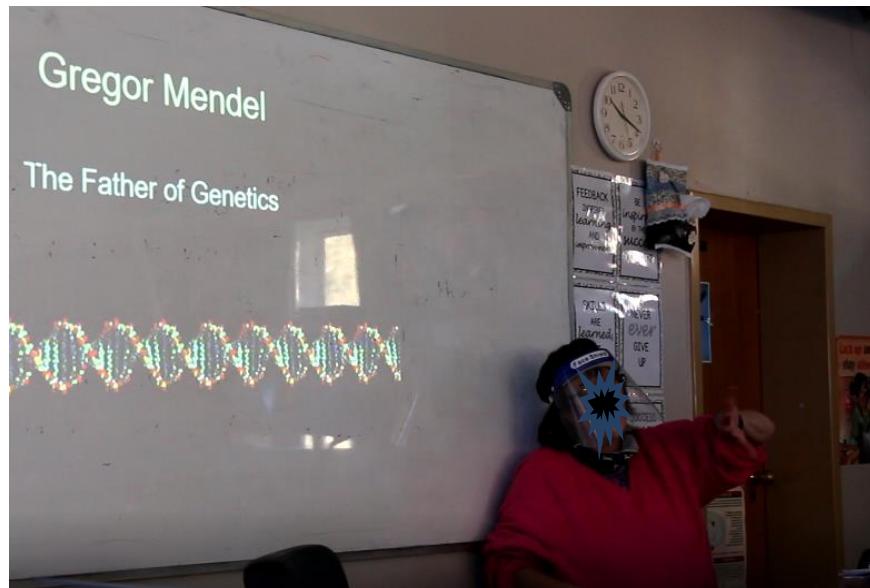


...and the same results were obtained, but that only happens if a strict record is kept.

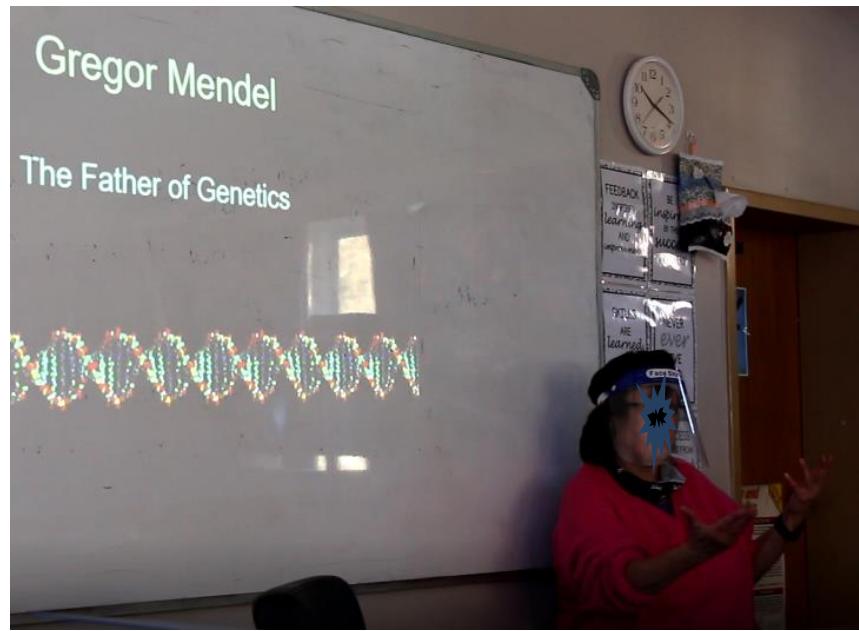
42. Okay so, all the worksheets you see, have been put in for copying so that you will have something to work from.
43. Why? People there is going to be a lot of work to be done in the classroom in this section.
44. So, we will be doing worksheets in class, where we do the actual crosses.
45. If-- like I said, if you do it wrong now and you do not fix the problem, you might have serious problems when it comes to exams.
46. Okay, we are going to start with this man.
47. Gregor Mendel referred to as...it come up now...



- ...as the ‘Father of Genetics’ you can make your own notes, it is not going to be much writing.
48. There is going to be a question on his life history and his work.
49. We are going to discuss the minimal because you do not have to know everything okay.
50. Ehm...Gregor Mendel as I said, is an Austrian Monk that was born in the early eighteen hundred in a very poor family, but he was a very brilliant scholar.
51. Ehm...and that time it was quite tasking, if they found a child that was clever, they suggested that they go into a Monastery.
52. We all know what a monastery is.
53. Ls: No!
54. Mrs Durand: Do you know what a monk is?
55. Ls: No!
56. Mrs Durand: Alright!
57. It is part of the Catholic ehh...



...religion okay...that a monastery...a monast-- is a man that is a priest...

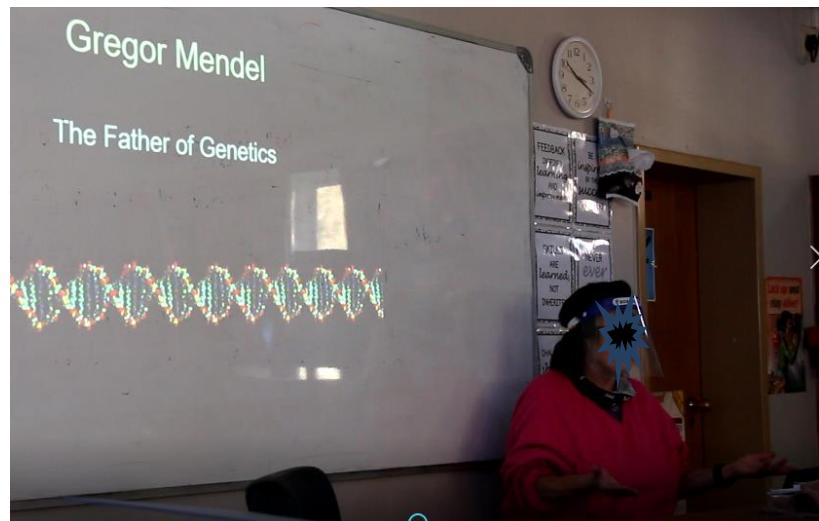


...and is a syllable, you know what that means?

58. Ls:

Yes!

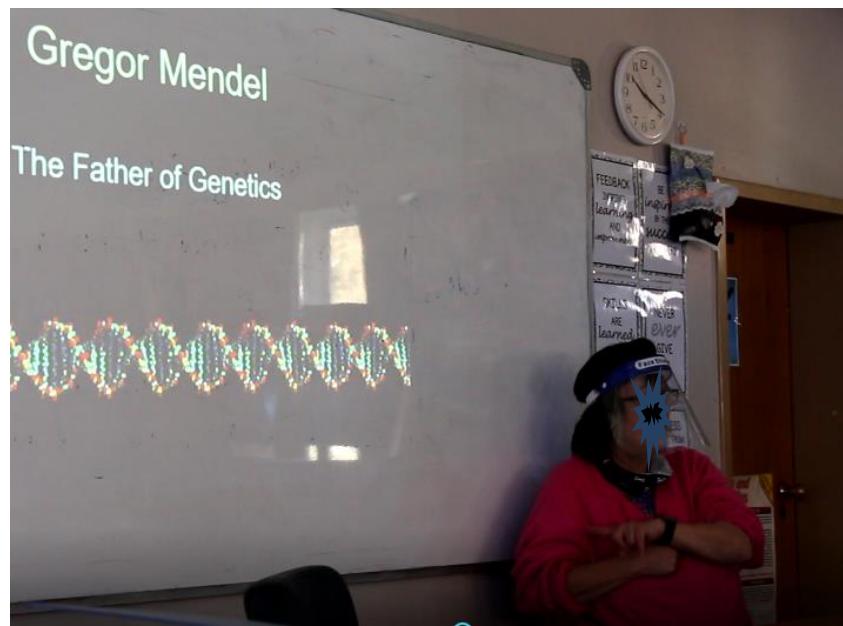
59. Alright, they do not marry, and they do not engage in sexual relationships.



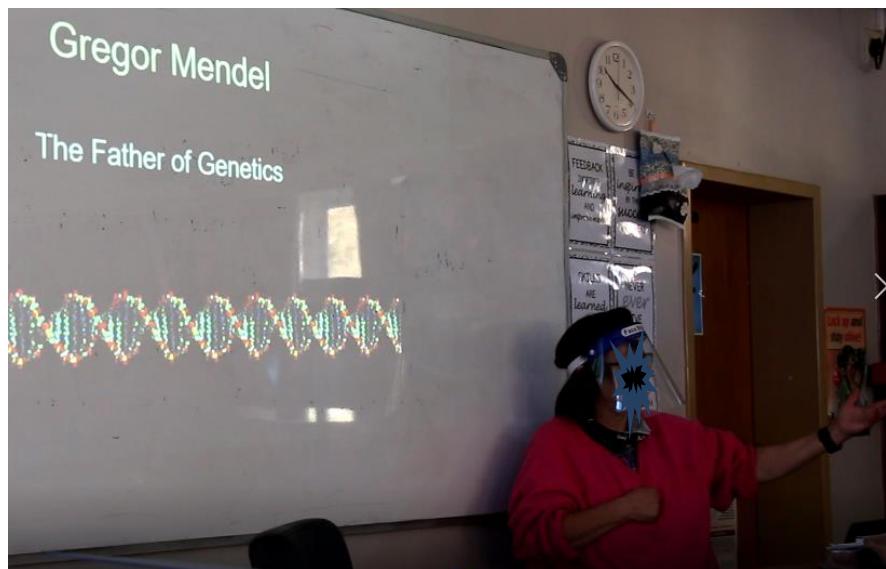
60. Ls: [Noise]

61. They are monks, now the opposite of a monk is a nun who makes a vow that she is married to God.

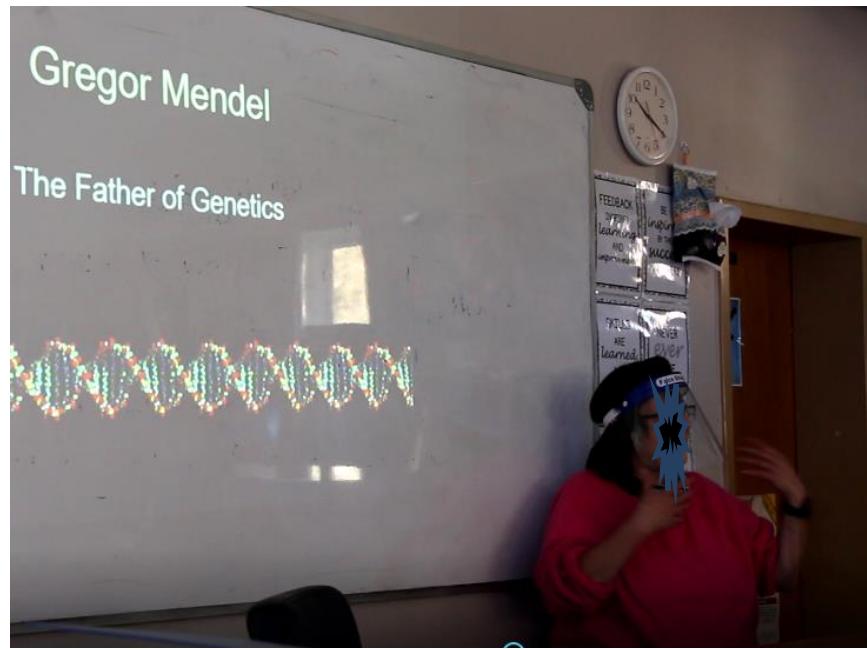
62. So, there are also no sexual relationships, the opposite of a monk is a nun...



...who makes a vow that they are married to God, so there are no sexual relationships.

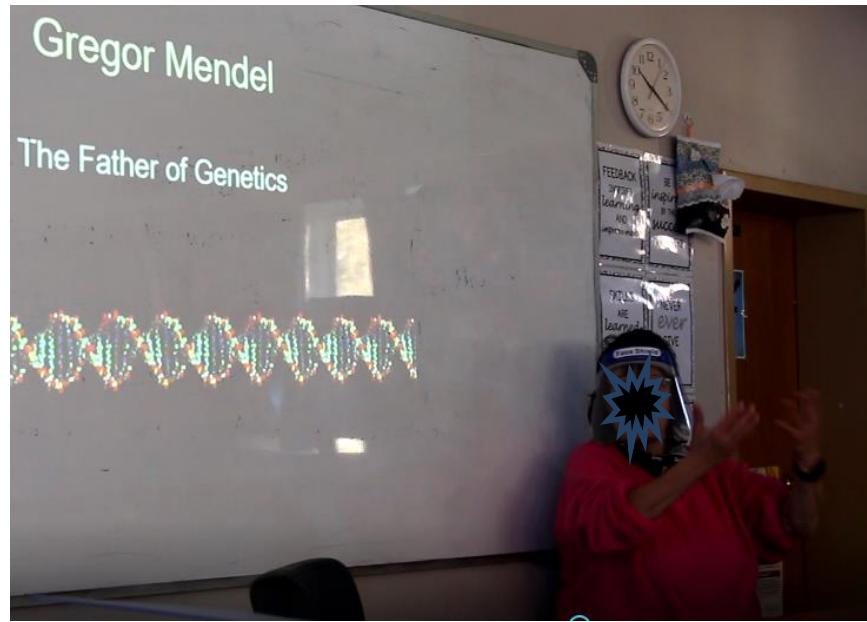


63. Ls: [Noise]
64. Mrs Durand: So, they dedicate their lives to Christ okay, that is what it basically comes down to.
Now he / ? / to the monastery, the man's side of the church.
65. He became a priest, but it was customary that time and I think it is still done nowadays, where you can go and study because the church pays...



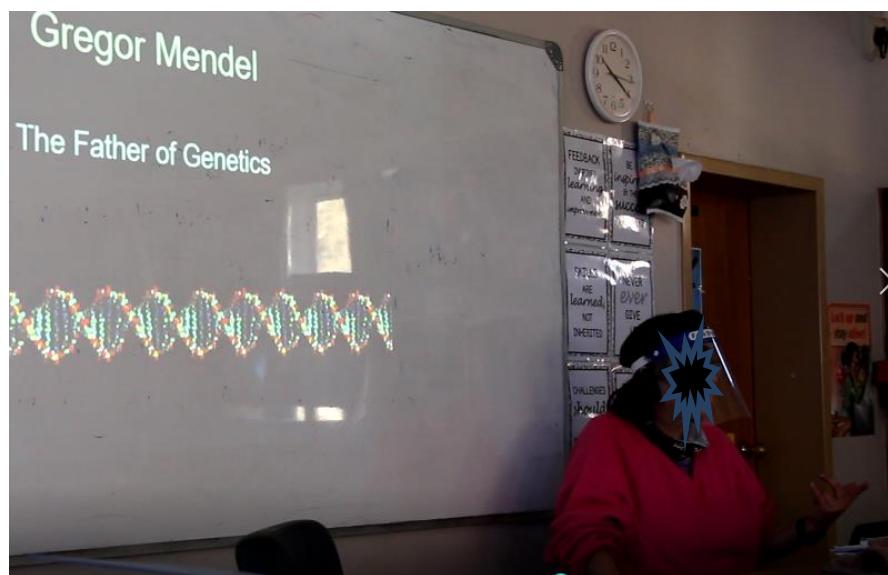
...for your studies and you become a teacher as well in the long run.

67. His main subject was natural sciences.
68. So, he became a natural science lecturer but living in the monastery that never pay monks [unclear] he conducted quite a lot of groundwork in genetics because he had a very inquisitive mind.
69. Wondering what would happen, why are plants the way they are.
70. Alright, and he also studied bees so, he like...so it was such a diverse way,

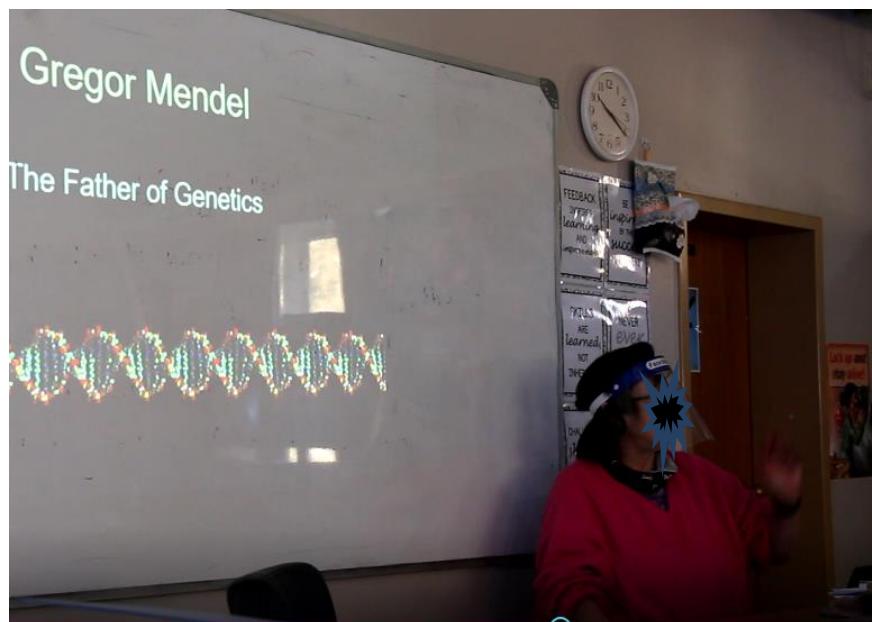


...the way he looked at things.

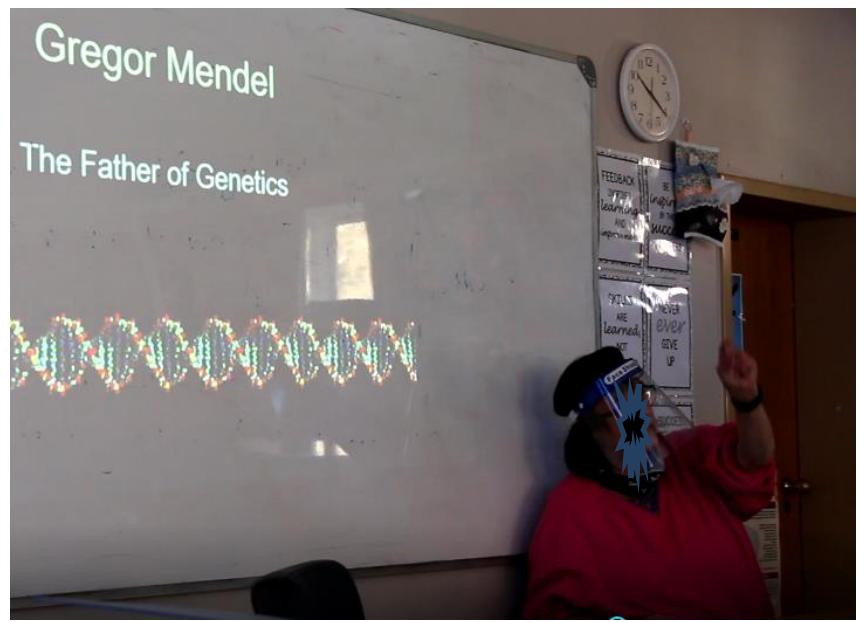
71. And he started working on pea plants...the pea that you eat.
72. Those plants because they grow fast.



73. They come in two varieties,

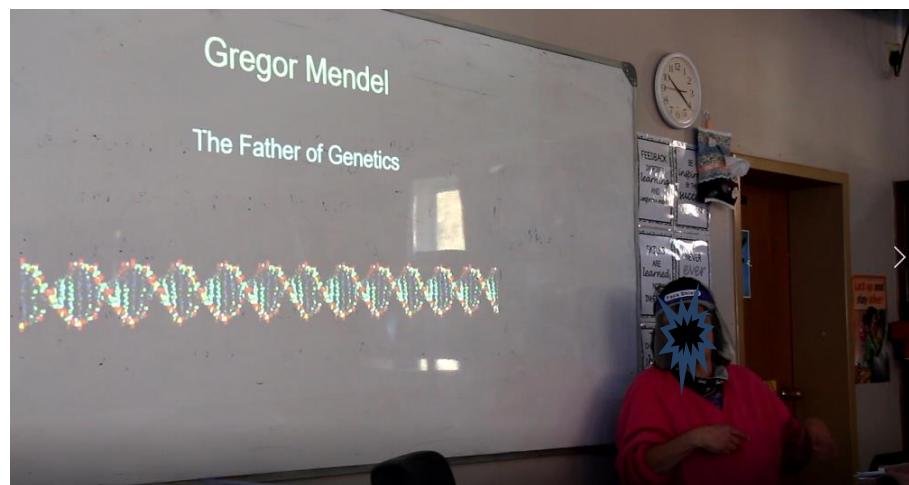


...basically, in the white and the purple... he started crossing when he removed stamens of the one and he would artificially pollinate...



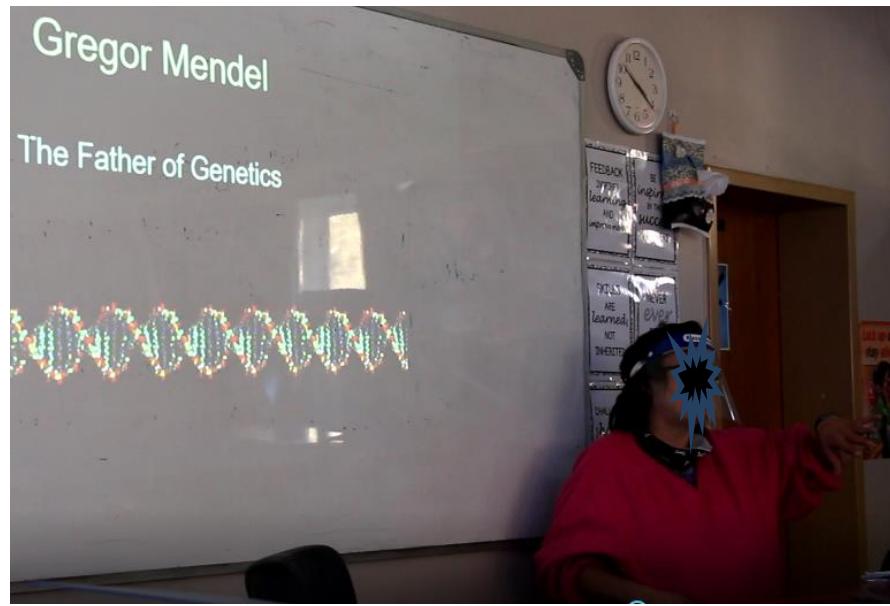
...the pea plants.

74. He controlled it very strictly and then looked at the offspring.
75. Now that time there was no word for genes.
76. Okay, they just knew that there was something was happening.
77. It is only later this...



...word of genetics was becoming a proper topic.

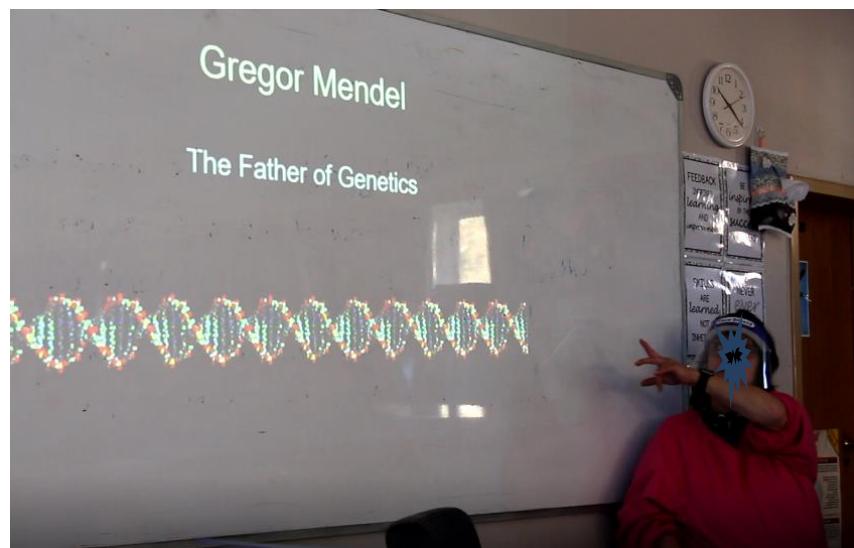
78. Here if you go back to like ehh...



...the early nineteen hundred right up to nineteen sixty, there is this race amongst scientists about who could map the human genome and that when the whole thing about DNA all came into play.

79.

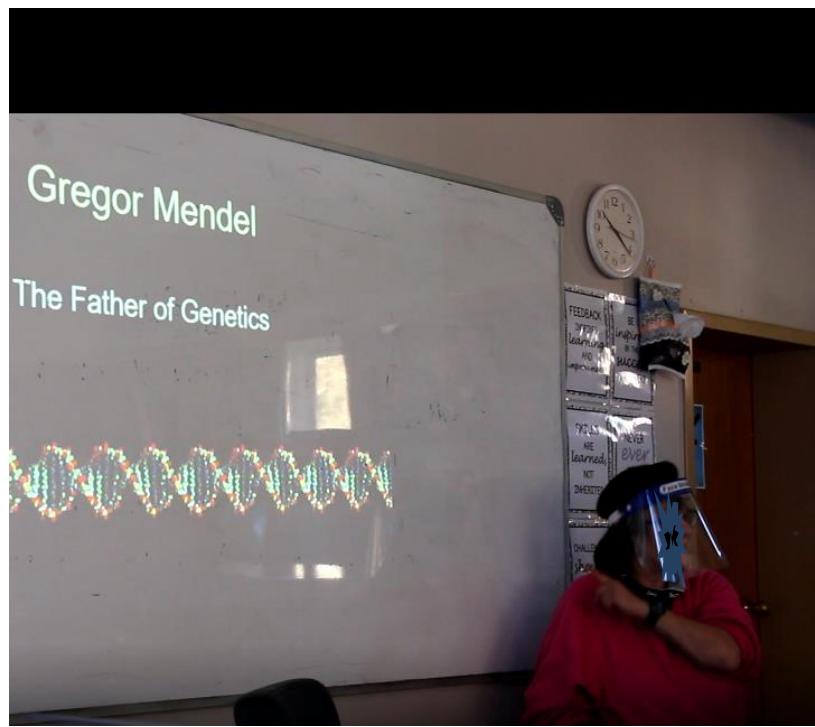
A lot of this work that we look at come from this man...



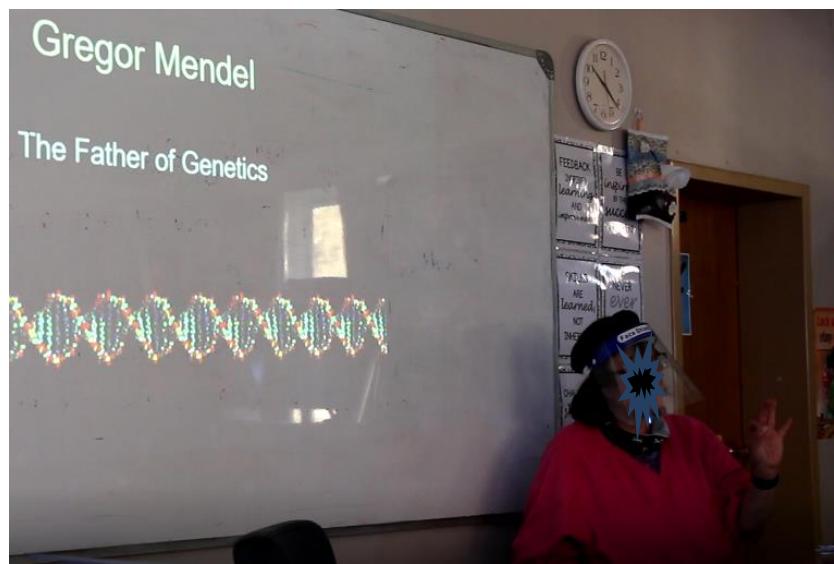
...and that is why he is called 'Father of Genetics'.

80.

Whatever he did, all the laws he wrote out.



81. There are three laws that you need to know but you will get to know them.
82. What you do not know, do not think about it yet.
83. You will see when we get to it okay.
84. The three principles...



...or laws that we still use today okay.

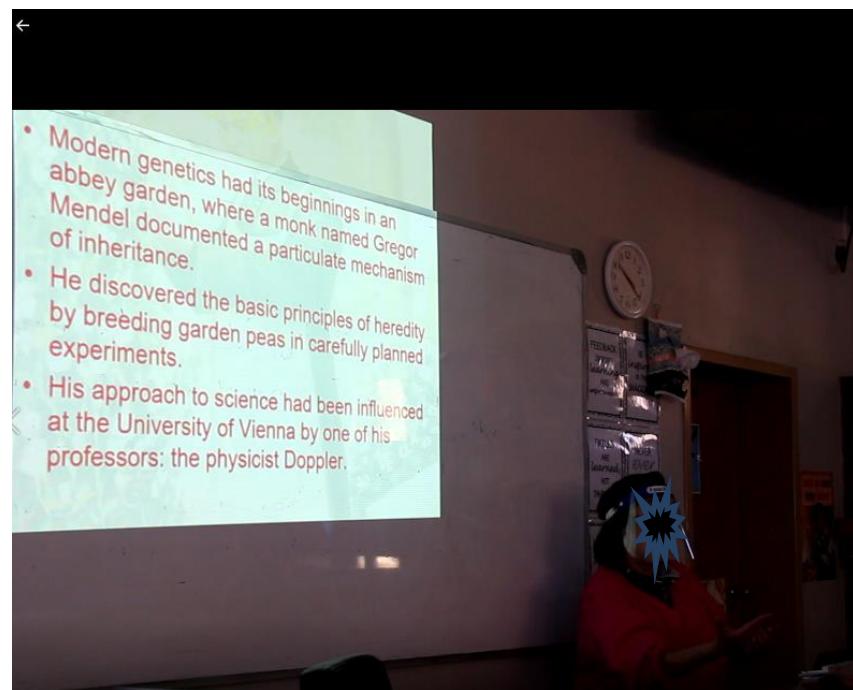
EPISODE: MENDEL'S DISCOVERIES

85. So, okay this is basically ehh...what he discovered...

- Modern genetics had its beginnings in an abbey garden, where a monk named Gregor Mendel documented a particulate mechanism of inheritance.
- He discovered the basic principles of heredity by breeding garden peas in carefully planned experiments.
- His approach to science had been influenced at the University of Vienna by one of his professors: the physicist Doppler.

...he discovered heredity of plants and as I said, his experiments were very well documented.

86. That they could take his work, repeat,

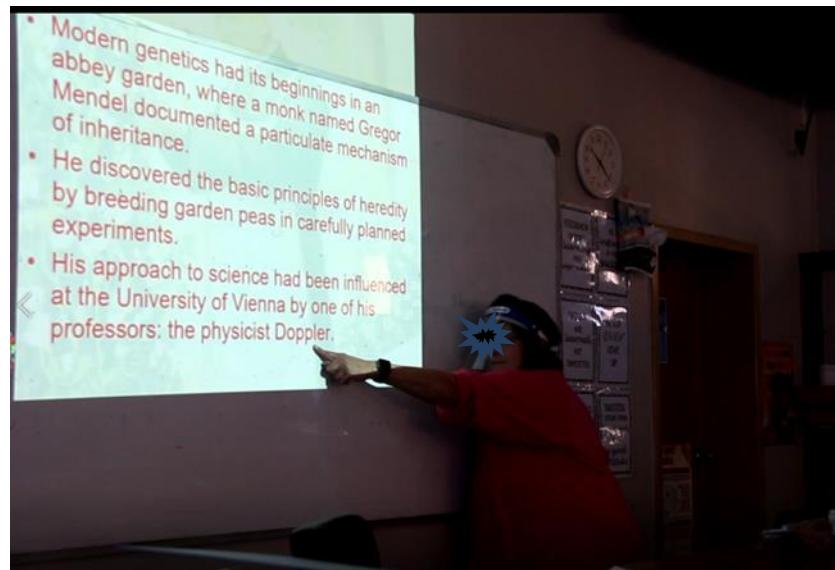


...and get the same results because that is what a good experiment is all about.

87. Ehm...he actually...now you know this hey, the doppler effect okay.

88. Ehm...he conducted his experiments.

89. You, the science people should know what the doppler effect is okay.



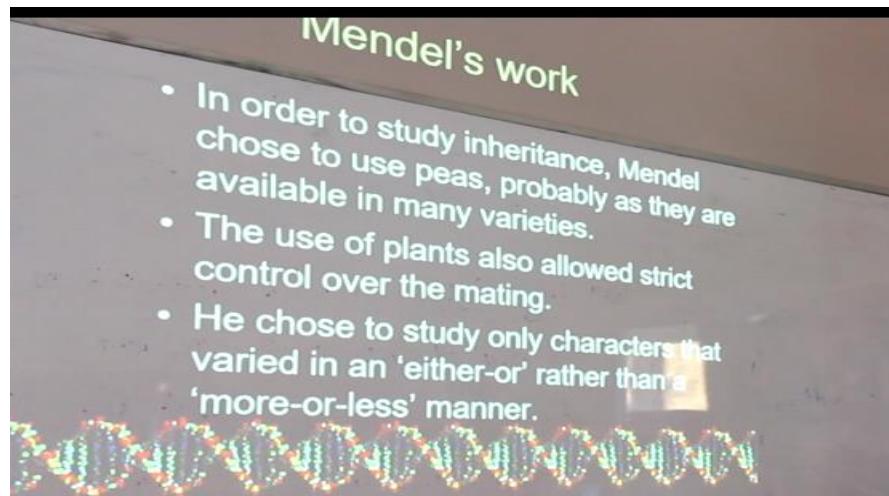
90. Okay! Alright!

91. Ls: [Noise]

EPISODE 5: MENDEL'S WORK

92. Now, why did he basically use peas?

93. Is the main question.



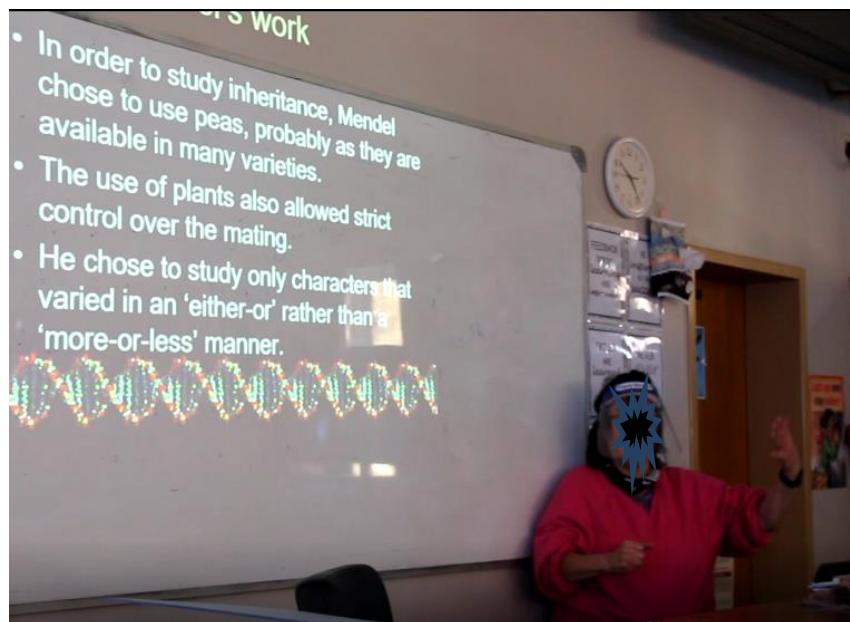
94. Okay, because you get many types, you can control them and if you have a...look at the last sentence.

95. He chose to study only characteristics that occurred in either or rather 'than more or less'.

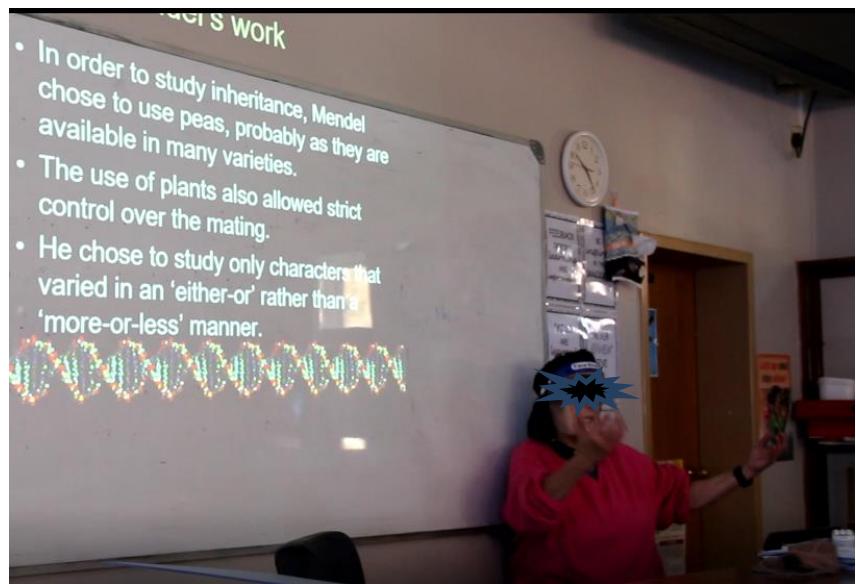
96. Okay, either that or that not more of this than this.

97. You will see when we start looking at it.

98. I am going to show you how he started his experiments okay because we are going to look at terms like, what is a hybrid?
99. Have heard of a hybrid?
100. Ls: No!
101. Mrs Durand: You are all hybrids!
102. You are hybrids because male and female okay.
103. The two sexes are free in an individual; therefore, you are a hybrid.
104. You get X from father if you are a girl and the X from the mother, two different individuals.
105. Guys a Y from the father and the X from the mother, two different individuals and guys a Y from the father...



...and a X from the mother.

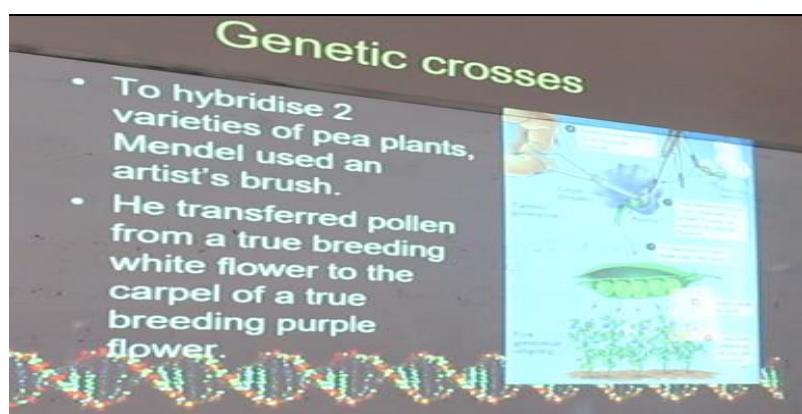


106. These females are clearer than males because we are XX alright.

107. So, that is what a hybrid is.

EPISODE 6: GENETIC CROSSES

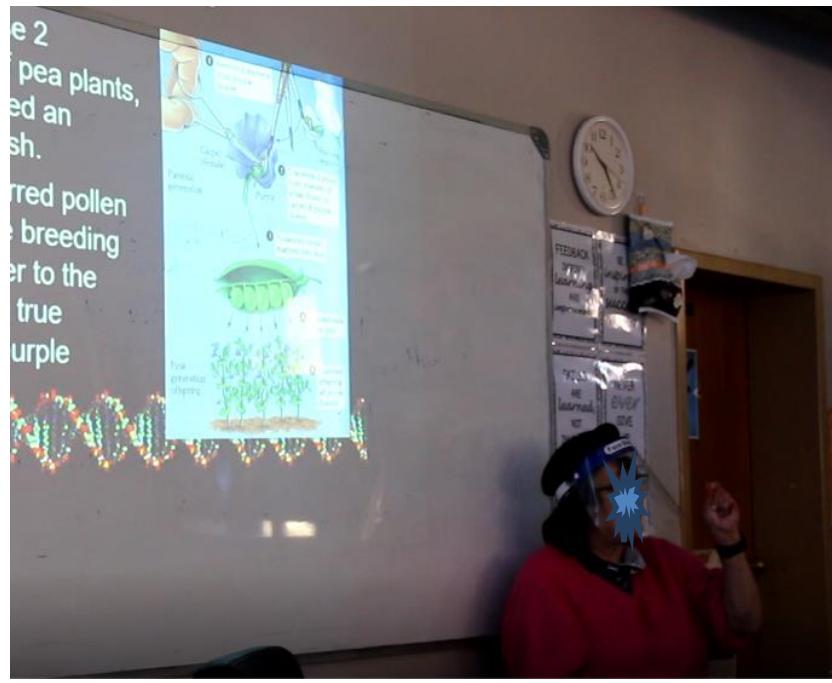
108. A hybrid eeh...is where you look— now this is basically what he did...



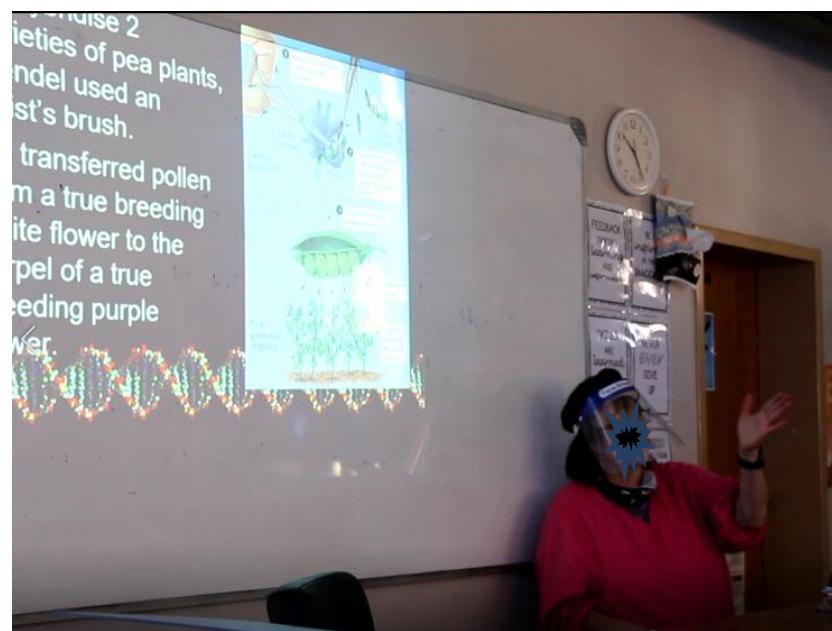
...and now your pea plants.

109. He removed the stamens and what he did not allow was self-pollination to happen at all okay.

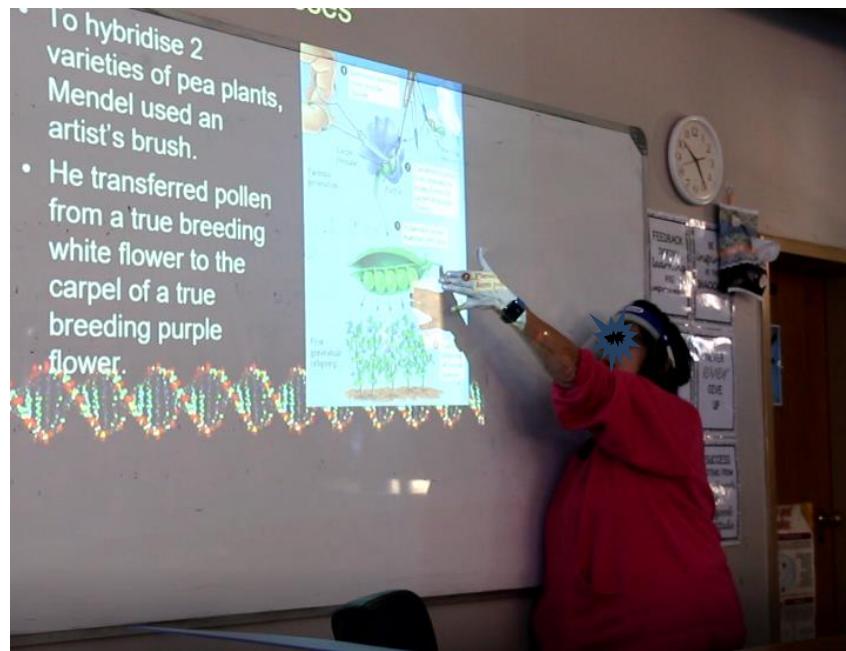
110. So, he removed the stamens, and he would pollinate the flower himself using a little paint brush.



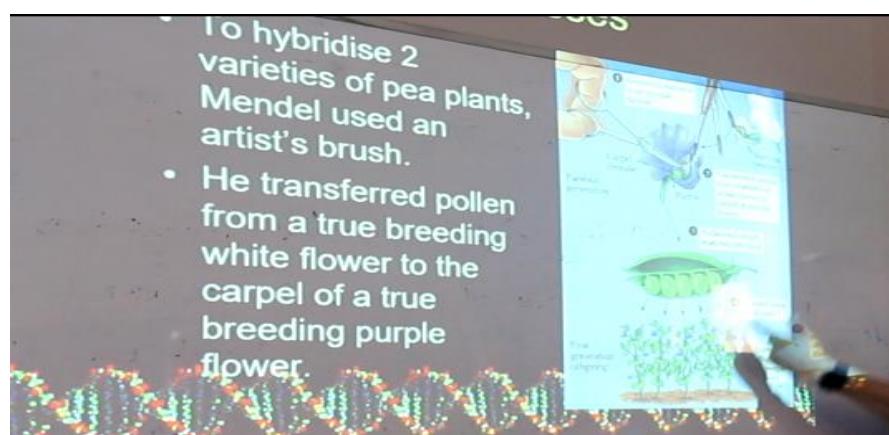
111. You do not use the paint brush from one plant to the next.
112. So, in between he cleaned the paint brush or use a new paint brush to transfer...



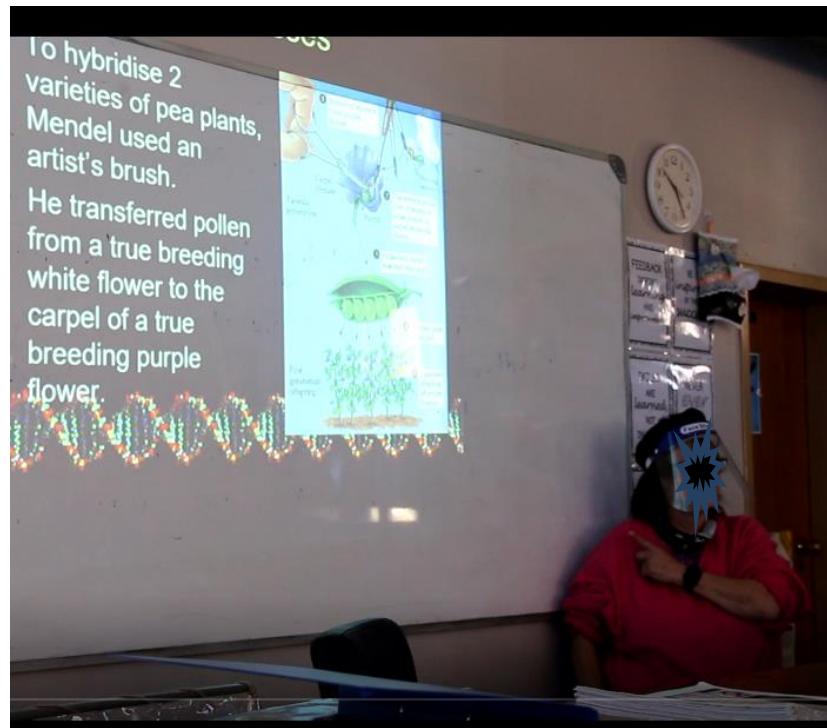
...the pollen and he would look at...when he planted new seeds what comes up and here, we basically could see what he did here.



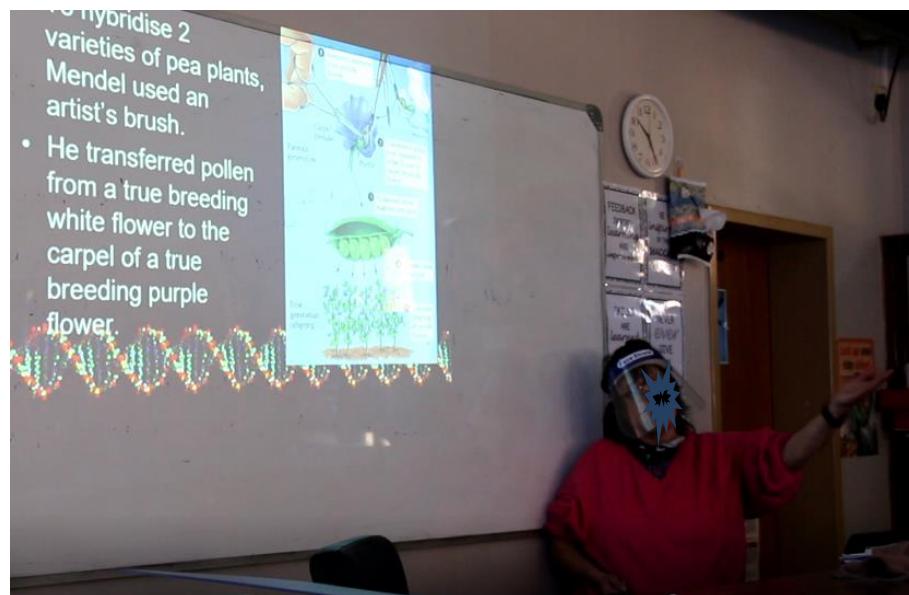
113. He used a white flower and the purple flower but why were the offspring were purple?



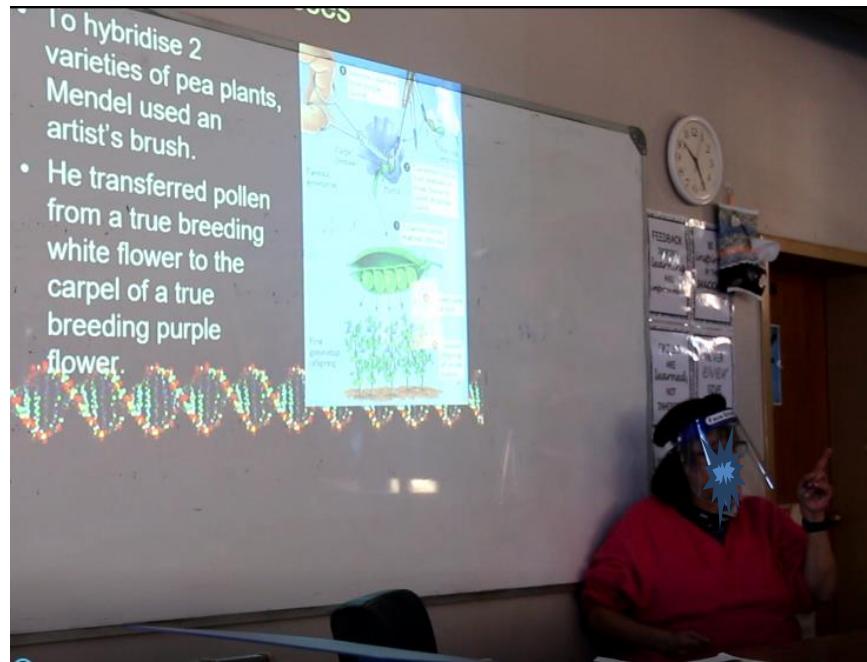
114. But there was a white parent.



115. You see the inquisitive mind now.
116. Okay, I cross the two but why are my offspring only purple?
117. So, certain traits are going to come through eventually.

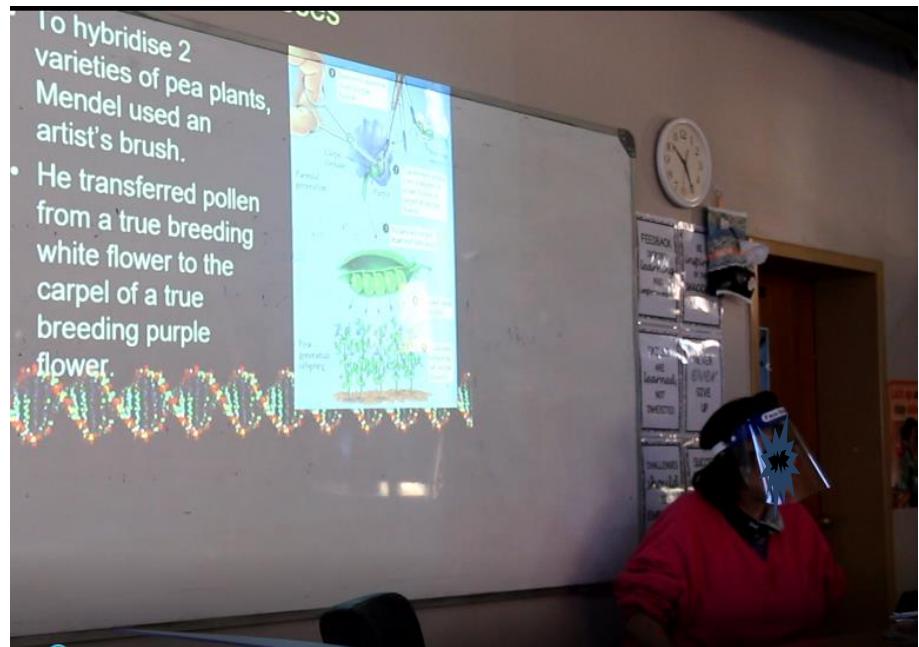


118. The word trait...

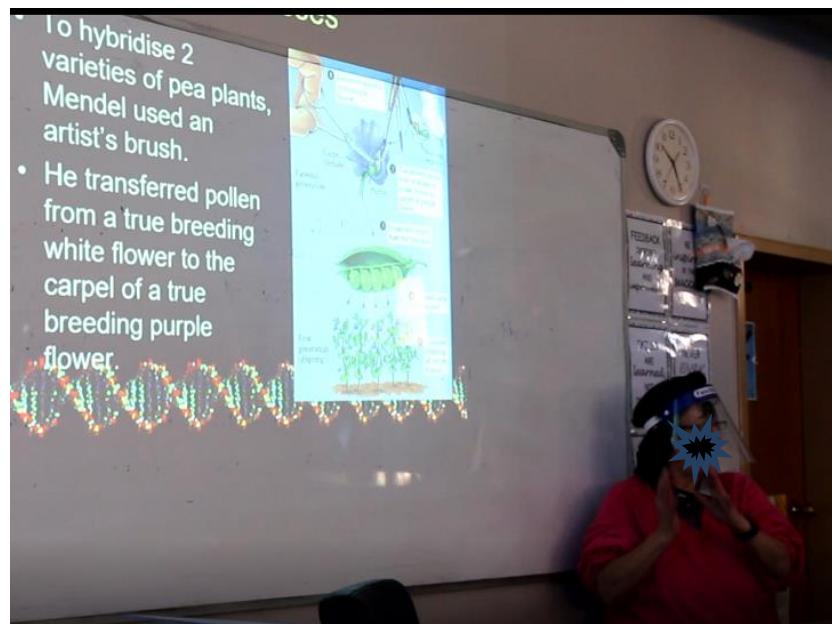


...is now referred to as characteristic okay, we are going to be looking at that.

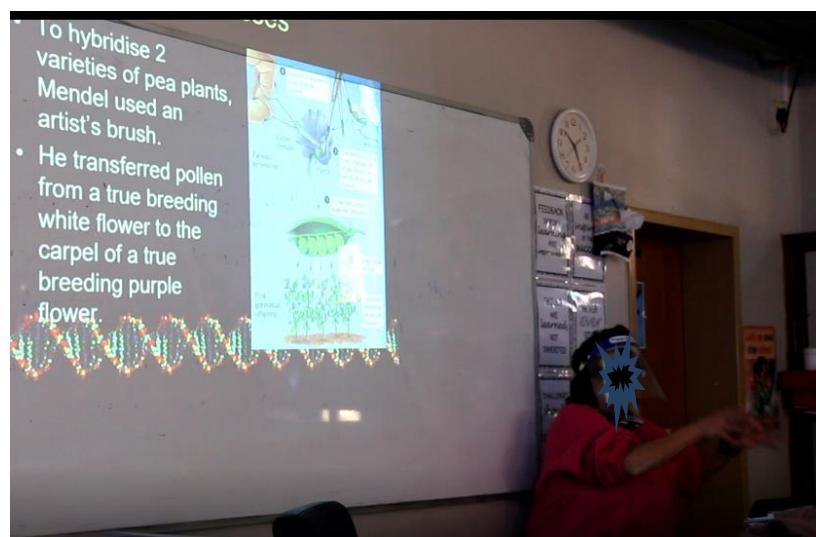
119. SO, / ? / there is a term on the board.
120. It is true breeding, white flower to the carpel of a true breeding purple flower.
121. Okay guys, this is going to be where you need to think.
122. We used the true breeding for something that is pure. [Using head]



123. In other words, the purple comes from only purple parents,

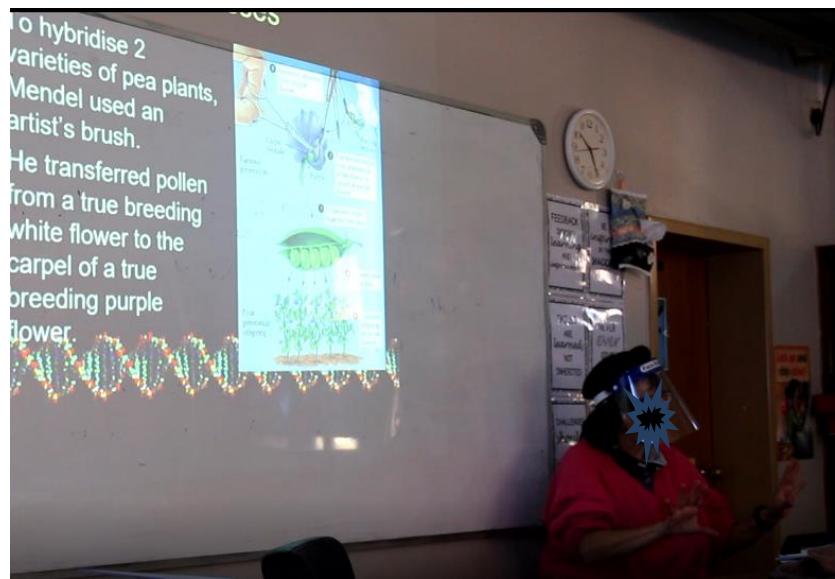


...the white comes only from white parents.

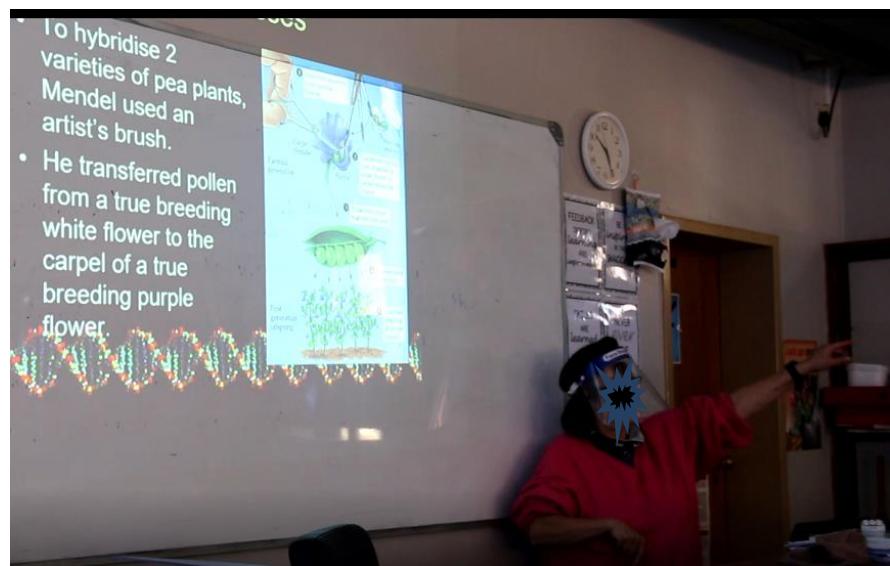


124.

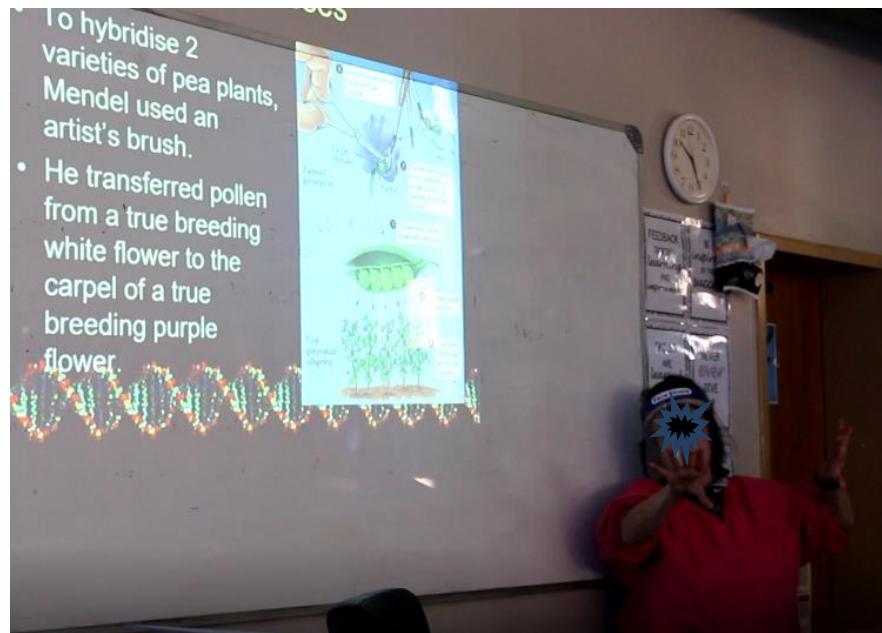
Okay so, they are genetically the same.



125. I can draw that on the board for you, to say this is what it means.
126. I am going to come back to that.
127. Now, when you cross these two, the pure white.

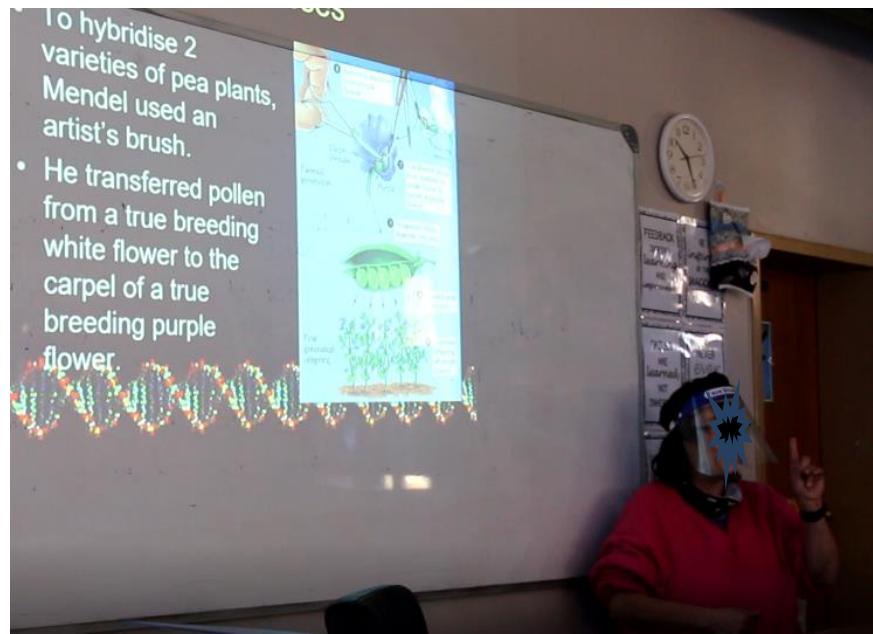


128. A pure purple...



...and my offspring are only purple why?

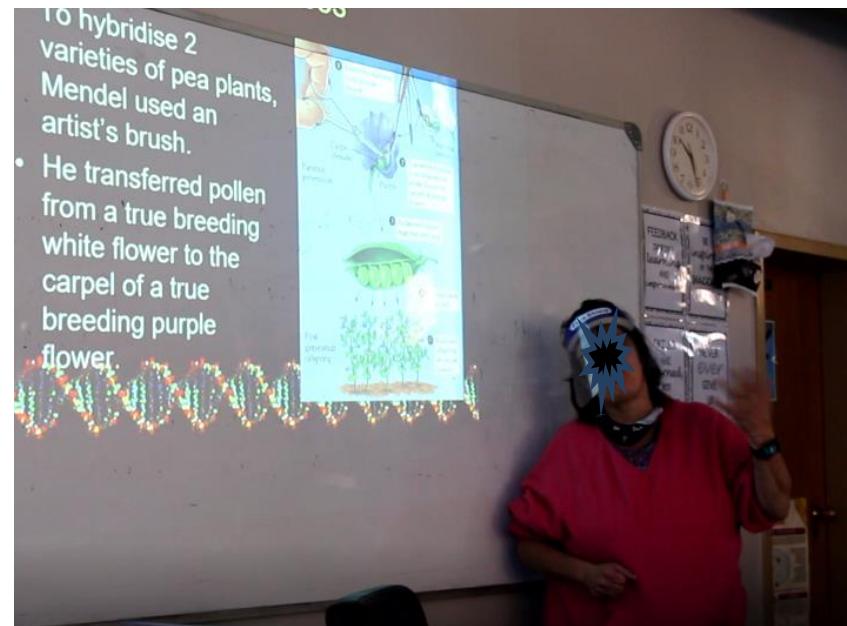
129. What on earth is happening?
130. Are they not supposed to be white and purple?
131. Mpilo: Ma'am maybe the genes in the purple are a bit stronger than those in white.
132. Mrs Durand: [Smiling] Okay, there is nothing like stronger or weaker.



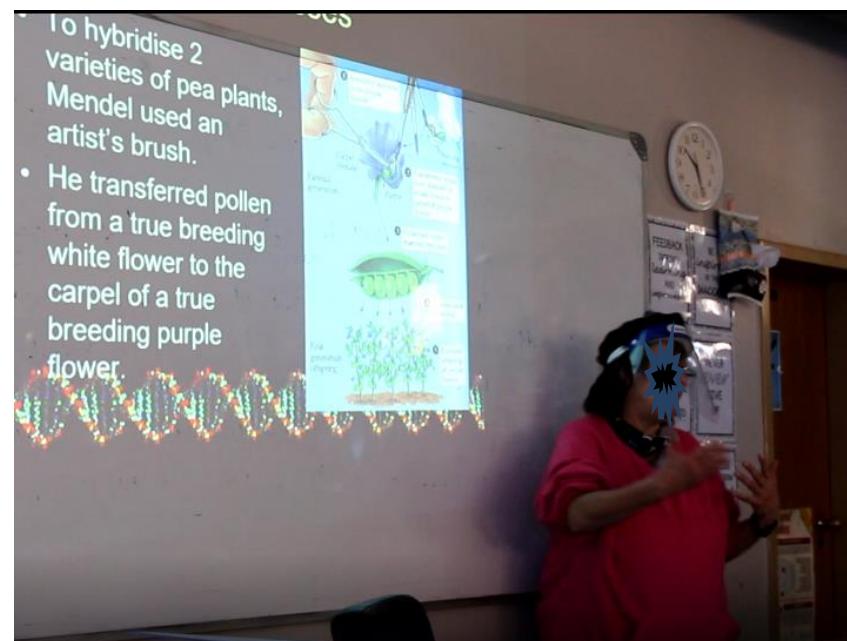
133. Think now, there is nothing like stronger or weaker.

EPISODE 7: BACK TO TERMINOLOGY

134. Right! Let me introduce some terminology [standing up] because that is a good way of trying to put but there is nothing as a stronger gene...

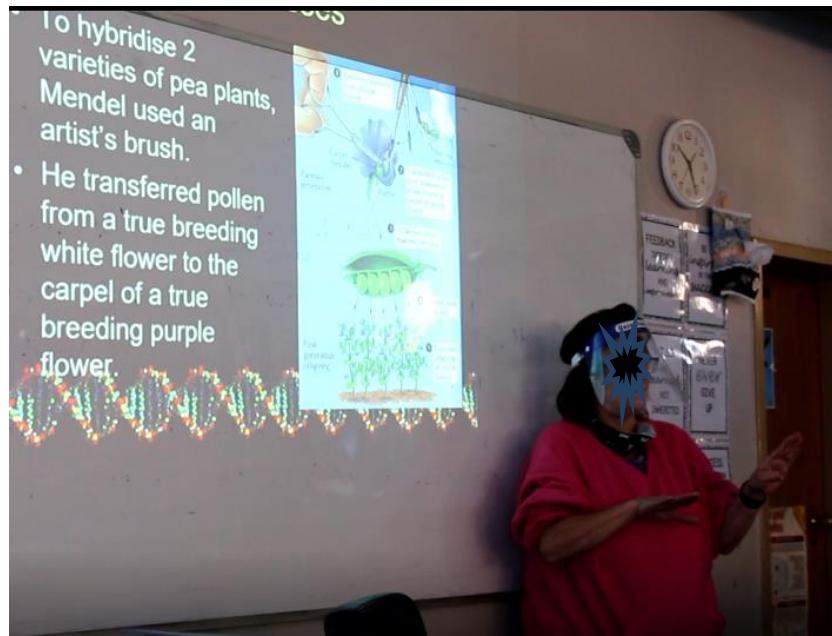


...or weaker gene.



135. Some genes are masked by other genes.

136. In other words, some genes do not always come out,



...only in rare conditions they come out.

137.

I can mention one, the eye colour blue.

138.

Did you know that parents with brown eyes cannot have brown-eyed children?

139. Ls:

No!

140. Mrs Durand:

It is genetically impossible.

141.

Does that make sense?

142. Ls:

No!

143. Mrs Durand:

No! I am going to draw it on the board for you so that you understand those terms okay.

144.

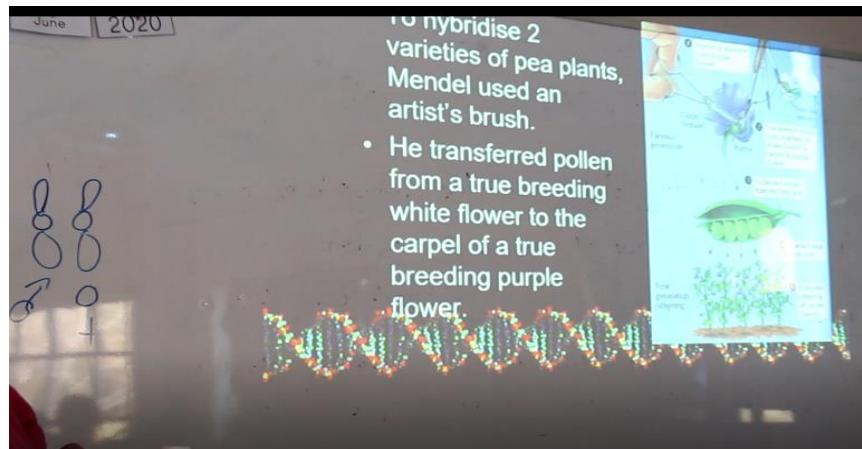
↑Now every term-- you know that all your...chromosomes are paired?

145. Ls:

Yes!

146. Mrs Durand:

Alright! [Drawing]

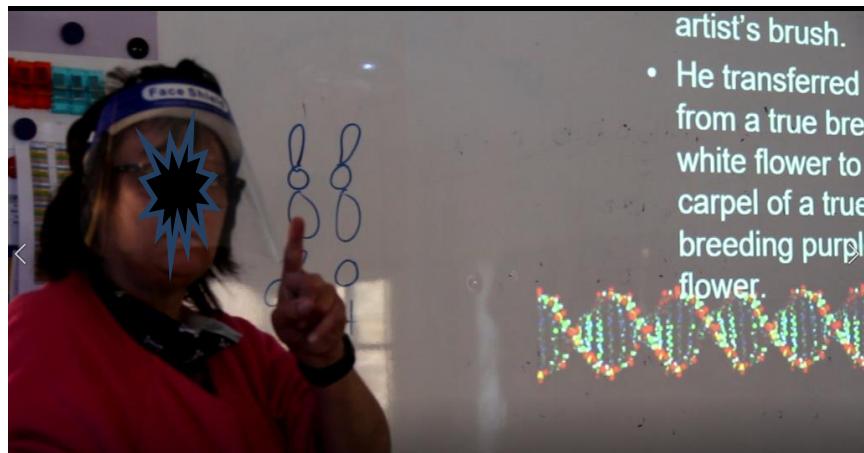


147.

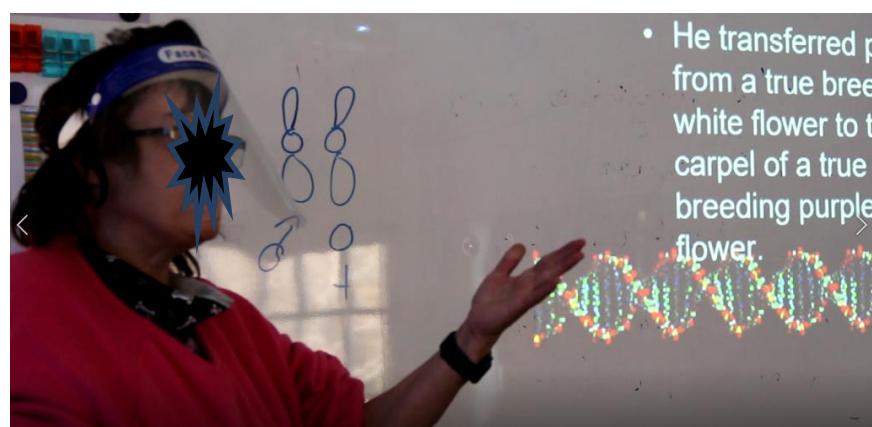
Here is one from the father, here is one from the mother.

148.

Now all you have, all your genes are paired,

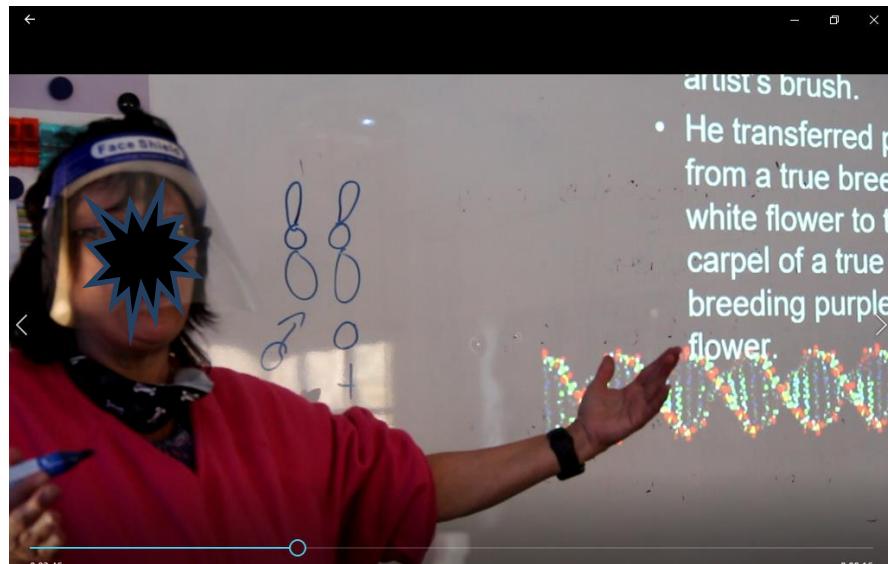


...what does it mean?



149.

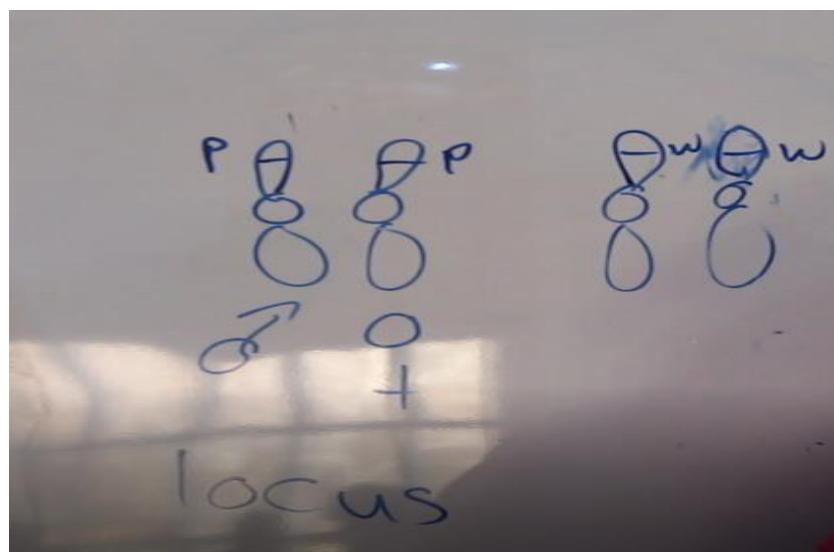
One from each parent,



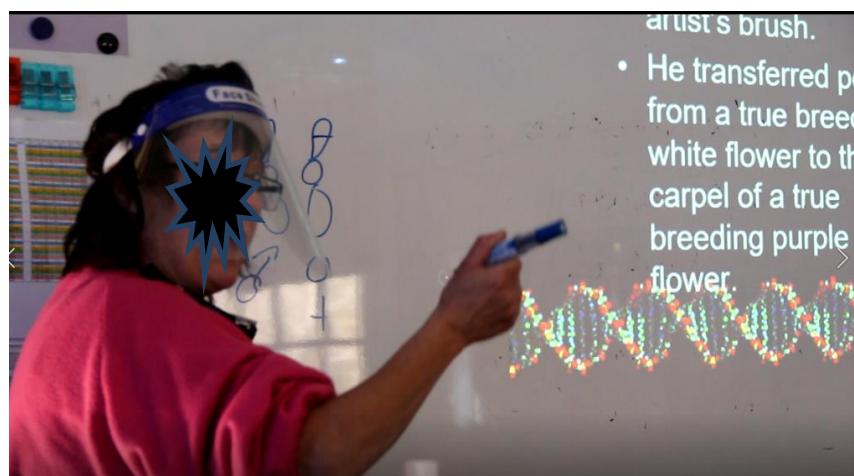
...and then we talk about true breeding okay.

150. This position of a gene on a chromosome, a LOCUS not a LOCUST.

151. A locus okay is spelt like this [showing on the board]



...there is no 't', in the finals...



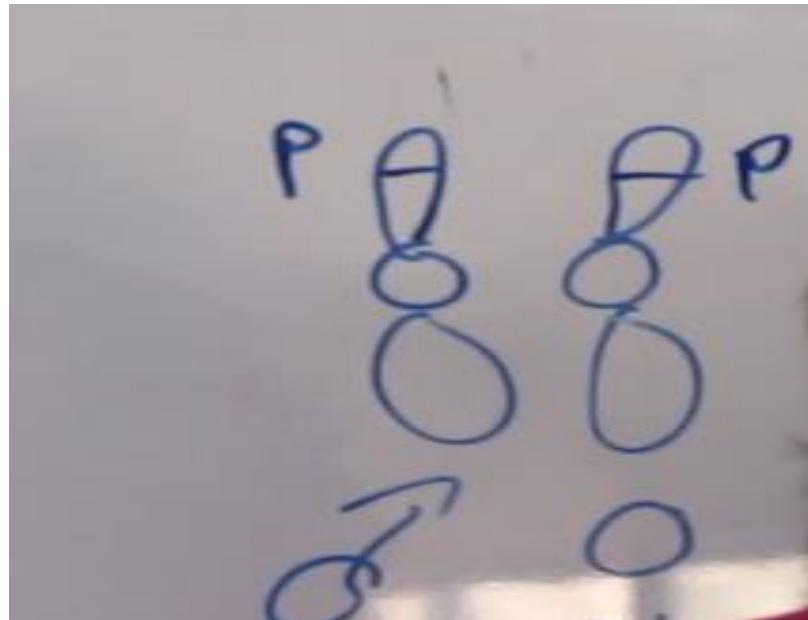
...people put a 't', and they marked it wrong okay.

152.

Otherwise, if you put a 't' it is a grasshopper okay.

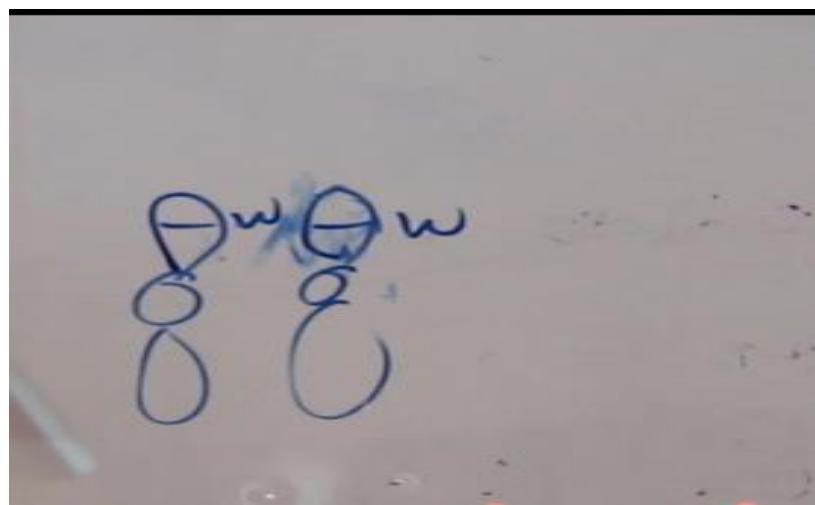
153.

So, the position of a gene on the chromosome will always be on the same position.



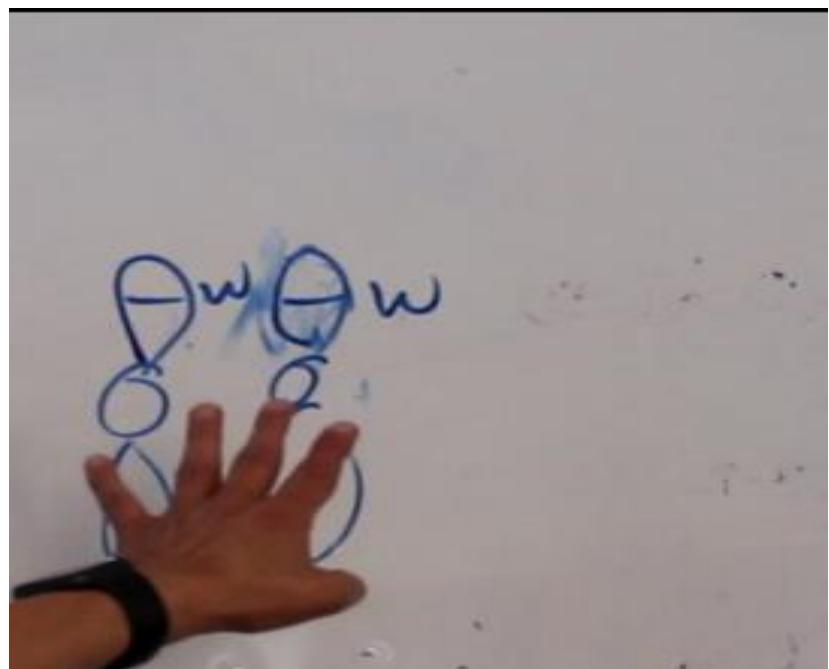
154.

In this case where they say they are true breeding; they are the same and can be the same in this case for the white.



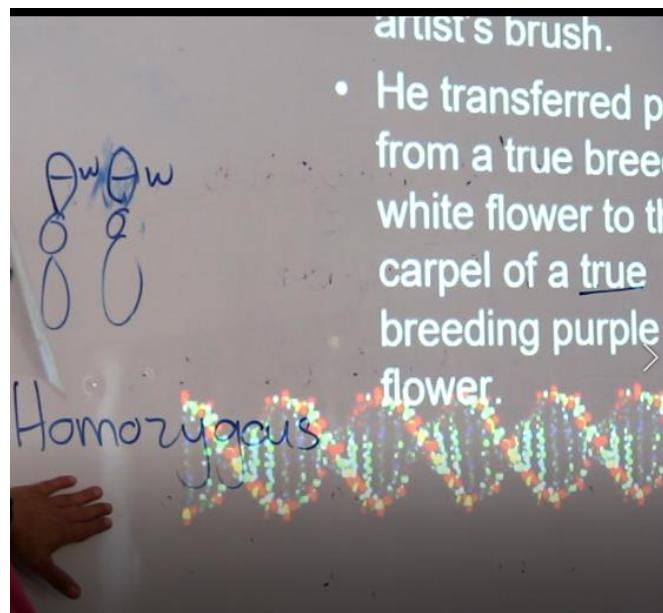
155.

They are the same, this is called pure.



156. So, there is another term that is associated with this word 'true' and that is the word homozygous. [Underlining the word true and writing homozygous]

157. The term homo— means the same.
158. Now when you got to look at some of the terms but remember this term hey. [Pointing to the board homozygous]

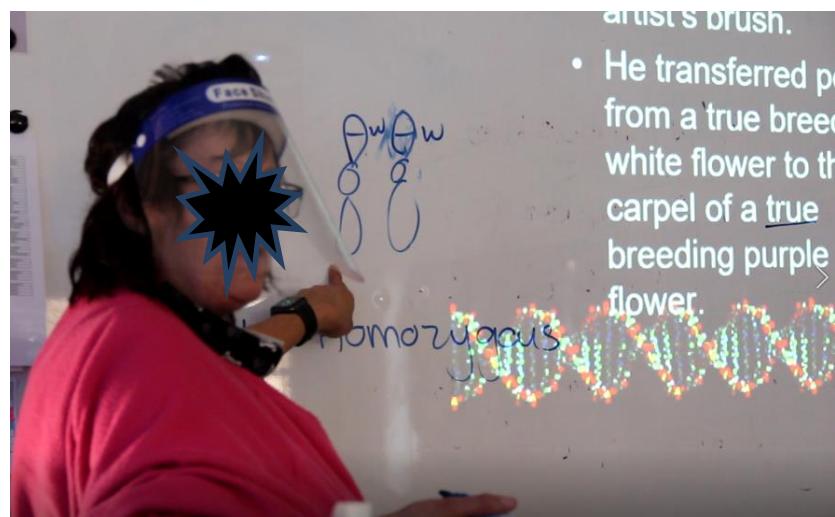


159

It means they are the same but, in this case, he says use a white flower with a purple flower, why are our offspring purple...why are they not white?

160.

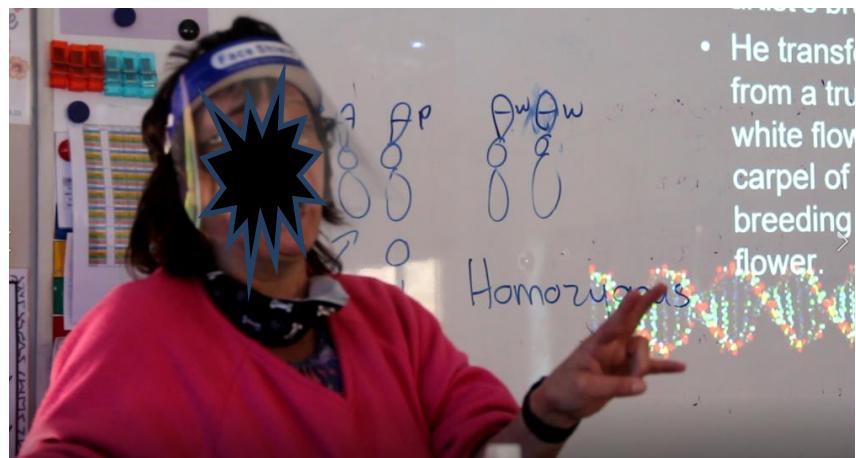
In modern day, we are going to say that white is going to be recessive...[pointing]



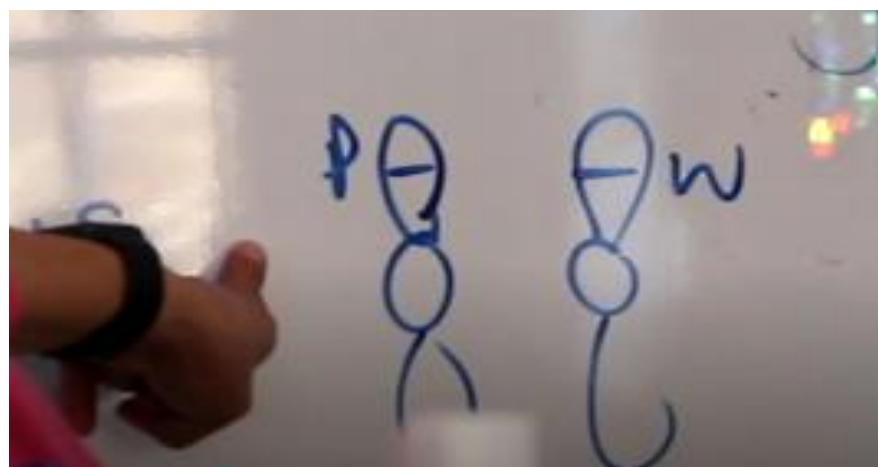
...to purple.

161.

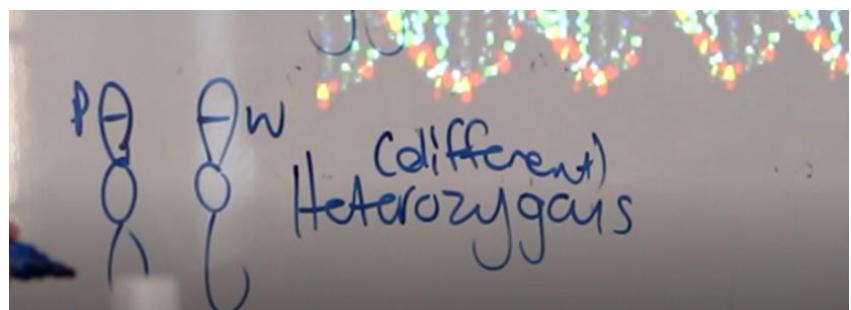
In other words, it is a masked gene, it is a gene like the one in eyes that it only comes out when they are two blue eyes.



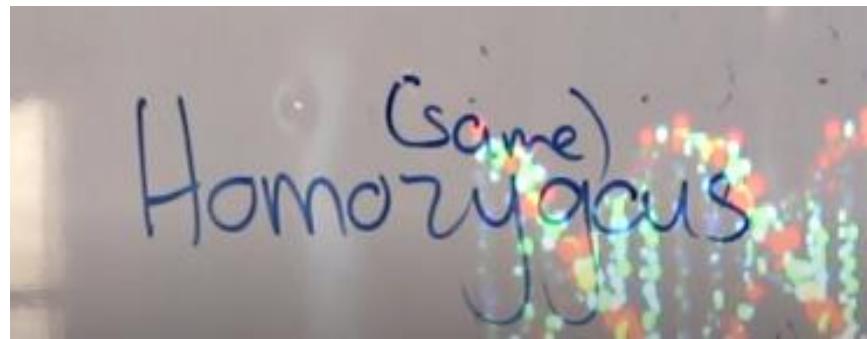
162. The children will have blue eyes but the parents...two brown eyed parents can have blue eyed children because they carry the gene for blue eyes.
163. They are now therefore referred to as hybrid okay.
164. So, hybrid genes and we now refer to those genes as...now that will look...if I now draw...



- the...what I am talking about now.
165. I am going to give you a term for that.
166. That is what a person will look like and we refer to this as HETEROZYGOUS different okay.

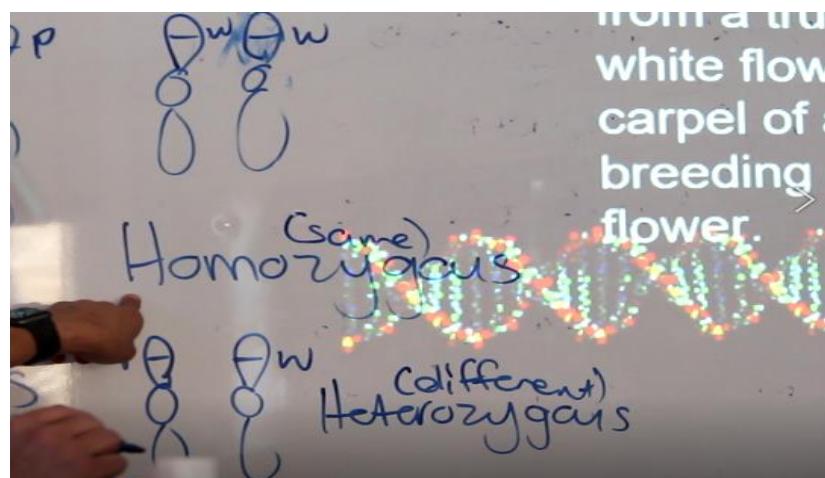


167. So, here [showing]



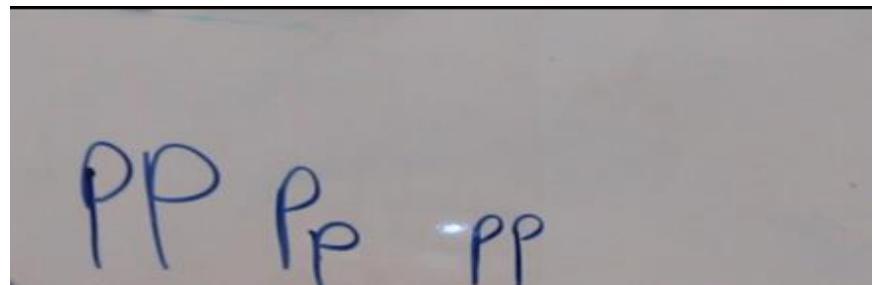
...same, here different.

168. It is very important to distinguish between these terms now okay.
169. I then mentioned about recessive.
170. Recessive is also a homozygous gene... [pointing]

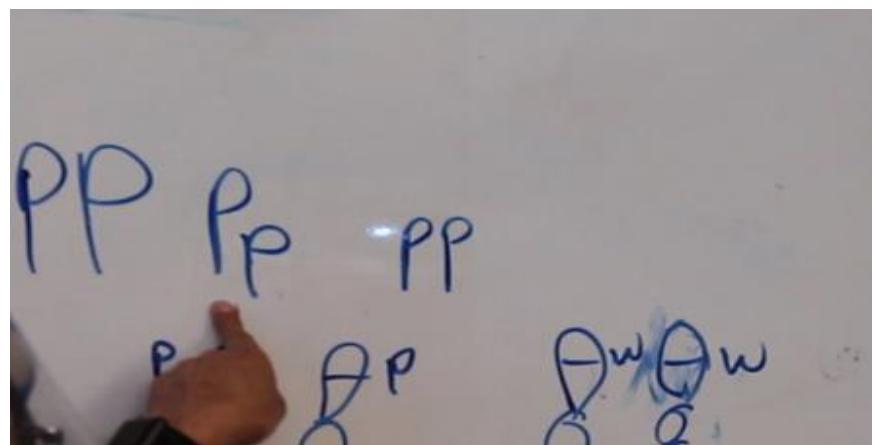


...but it is not a dominant gene.

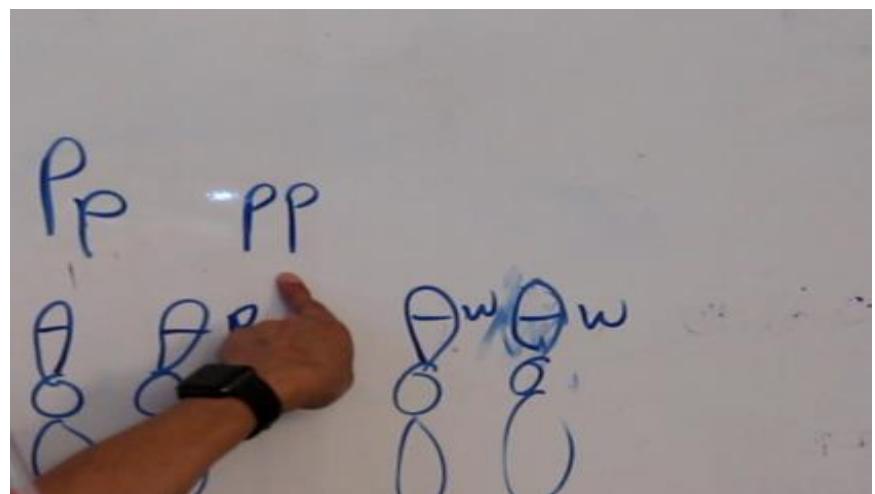
171. Now I bring in another term, dominant.
172. What is dominant?
173. It is a gene that will be expressed more.
174. It is not stronger.
175. It is usually a gene that is more common...that your recessive.
176. So, I am now going to wipe it off or you are going to write this down, can I wipe?
177. Okay, if we look at recessive, now you will see we are going to be using a lot of capitals and a lot of lower cases in what we do because that tells us what we are working with okay.
178. So, I am introducing some terminology which is very important okay.
179. If we go and we say capital P, lower case p...



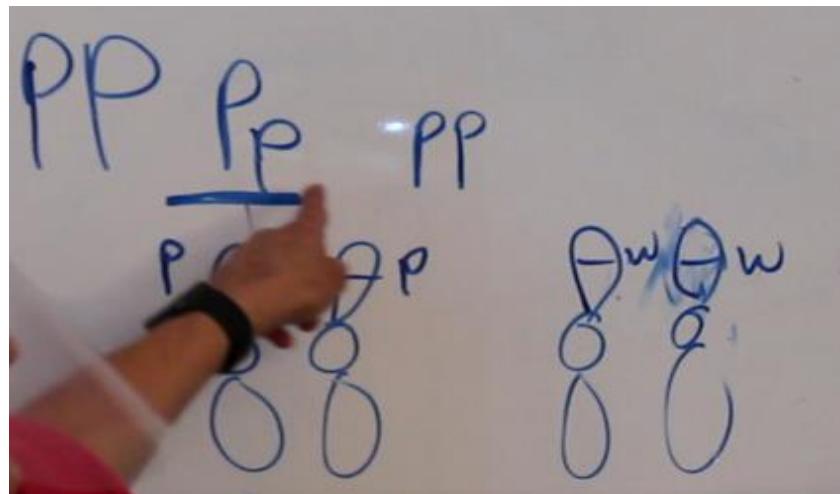
...homozygous dominant, heterozygous dominant...



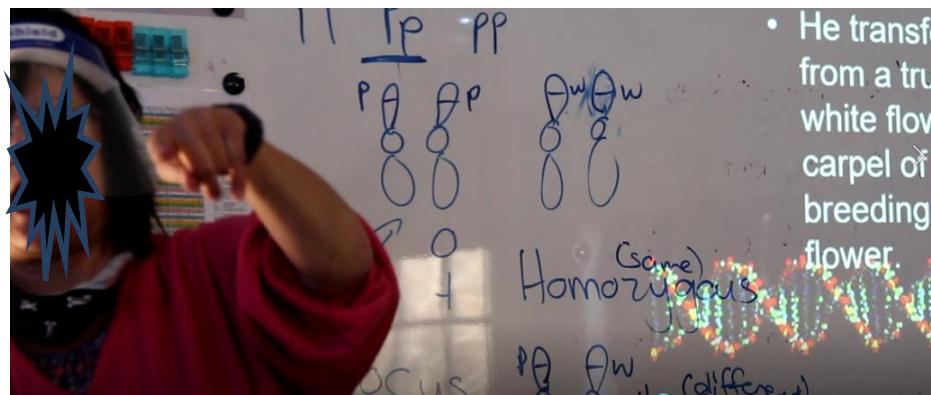
...and recessive.



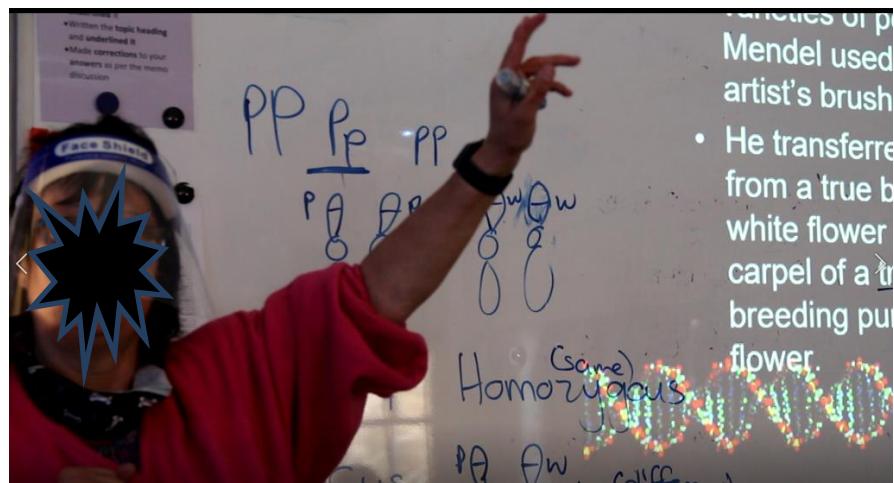
180. Can you see where the difference lies here?
181. In the heterozygous?
182. Where the one gene is going to mask the other gene.



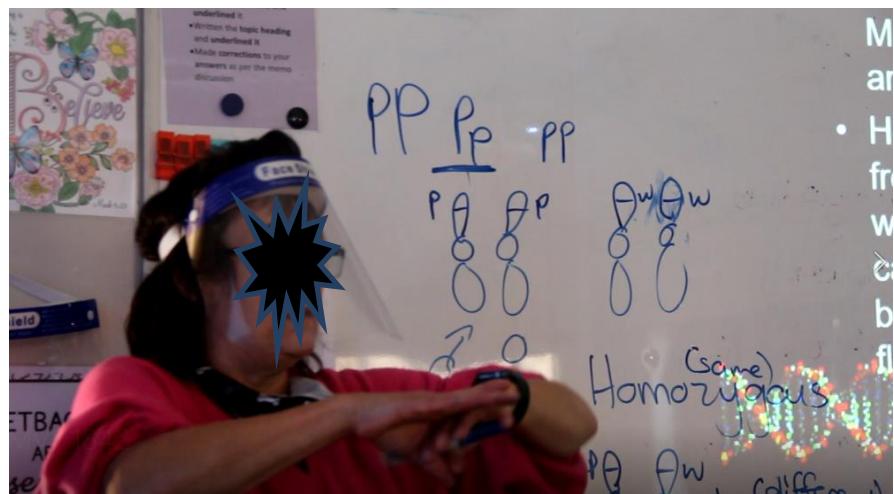
183. Okay, go back to your eyes, brown-eyed people can have blue-eyed children, blue-eyed people cannot have brown-eyed children.
184. This is because brown is a dominant gene over blue okay, you understand that?
185. Ls: Yes, ma'am!
186. Mrs Durand: Any questions? Yes!
187. Tshiamo: Why is this eye thing, why is it not... / ? / .
188. Mrs Durand: But there is also variance in the brown, you are not all the same brown.



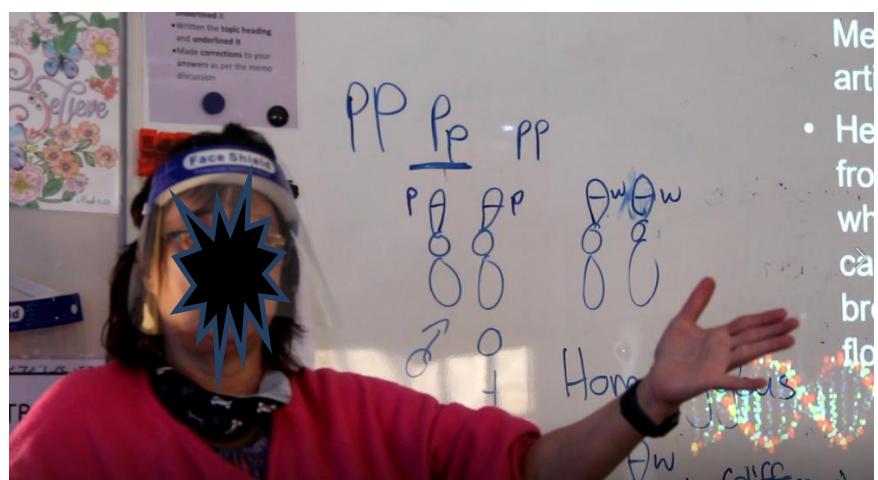
189. Some people have light-- and some darker.
190. Ls: [Noise]
191. Mrs Durand: Ahm...there is a lot to do with the environment hey.
192. Remember, where did white originate from?



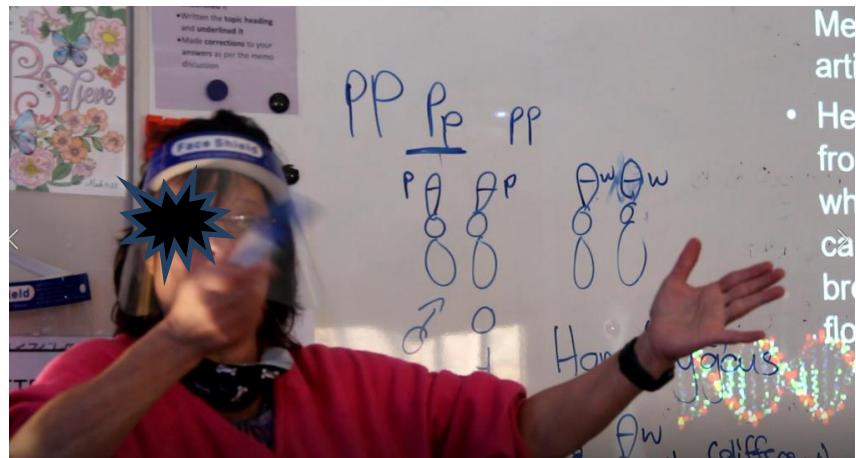
193. / ? / Light eyes would reflect the snow whereas your...let us put in your Mediterranean...



...darker eyes to see in the heat.



194. You do not actua-- need to reflect but to see clearly...



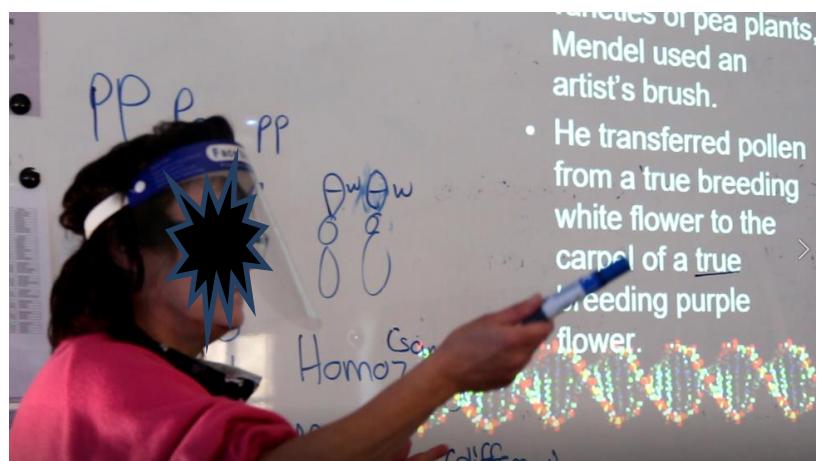
...whereas blue eyes would see clearly in a...snow environment.

195. So, it is basically the environment that eh...their populations originated from.

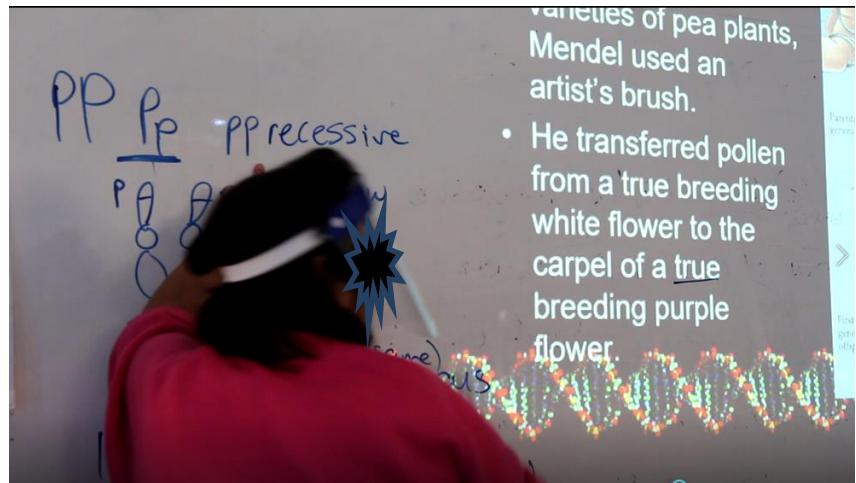
196. Ls: Yes, ma'am.

197. Mrs Durand: There is a bit of evolution in there okay.

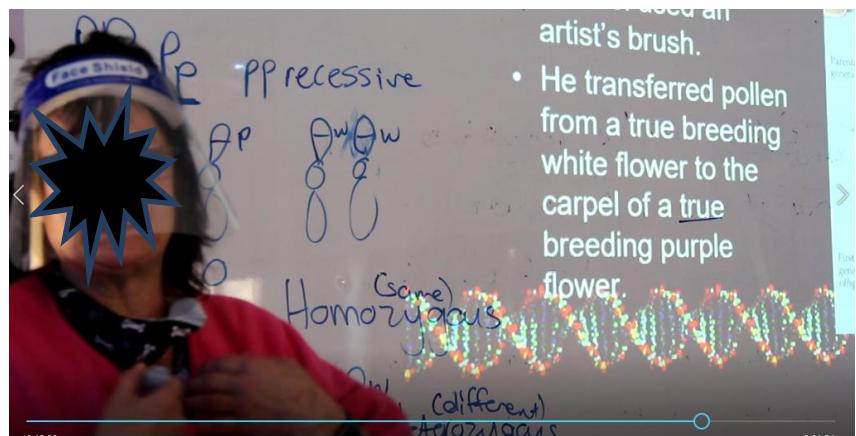
198. /Alright!



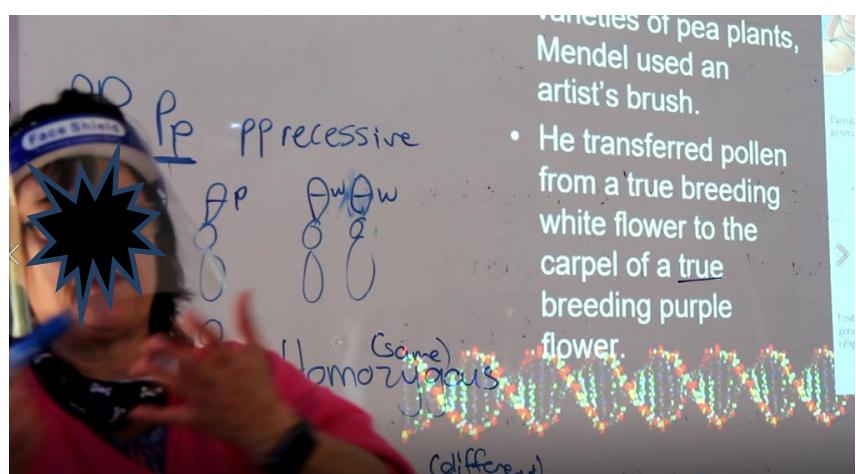
199. Ivan: Ma'am can you please spell the word [hesitantly] rece—ssive.
I am going to write it for you now. [Writing]



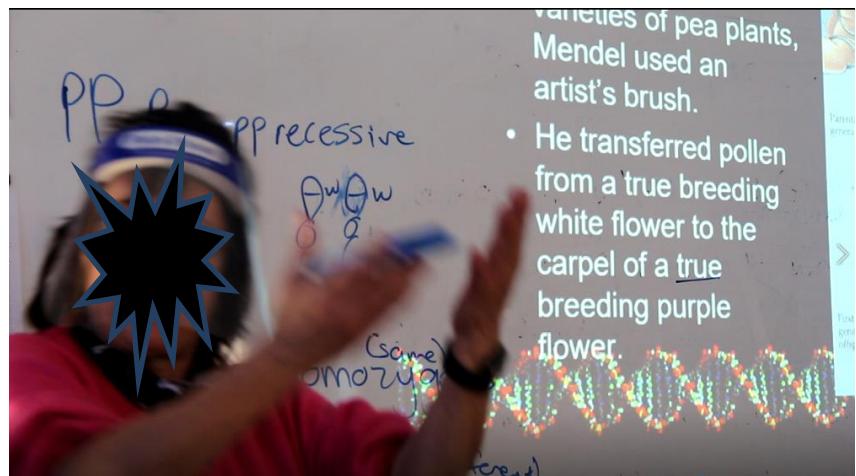
200. So, this one means lower case, we say it is recessive.
201. We do not put the word homozygous in there because recessive can only be homozygous, it is only homozygous gene.
202. For example, I have got blue eyes,



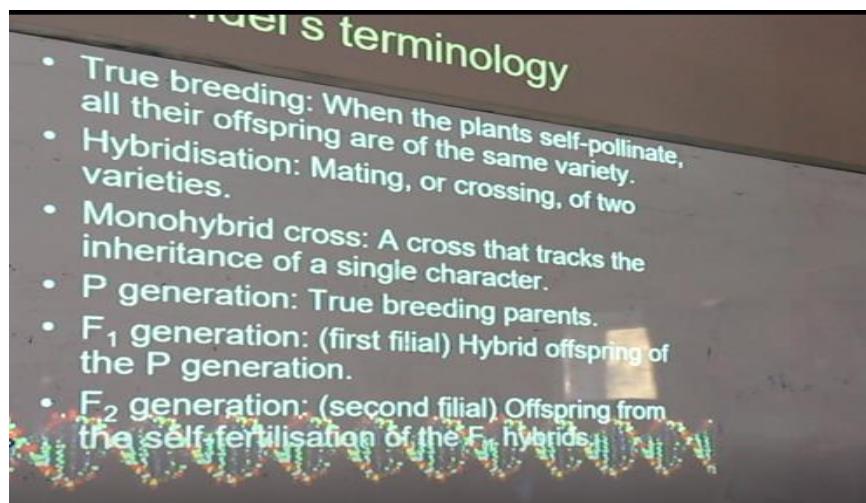
...my husband has blue eyes,



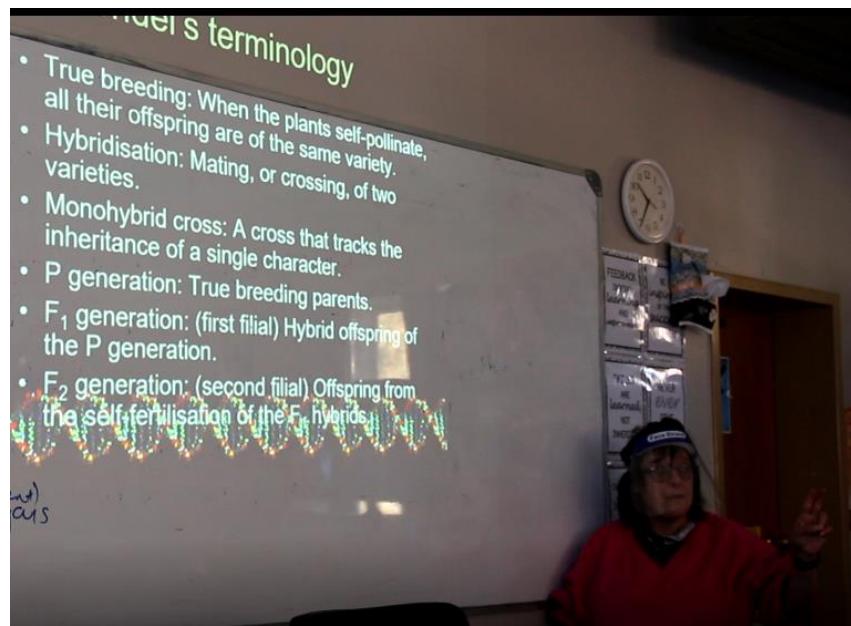
...and my child has got blue eyes okay.



203. So, if there / ? /.
204. [Silence] Okay do you understand what I am saying?
205. Ls: Yes, ma'am!
206. Alright so, let me carry on, this is just to give you a little bit of introduction.
207. There is going to be slide coming up now which is going to mention [erasing board] again what true breeding is etcetera.
208. Okay, here is some of the terminology that is going to be very, very important that we are going to look at.



209. Okay, true breeding or always must be the same variety [coughing] and hybridisation, hybrid...it is two varieties okay.

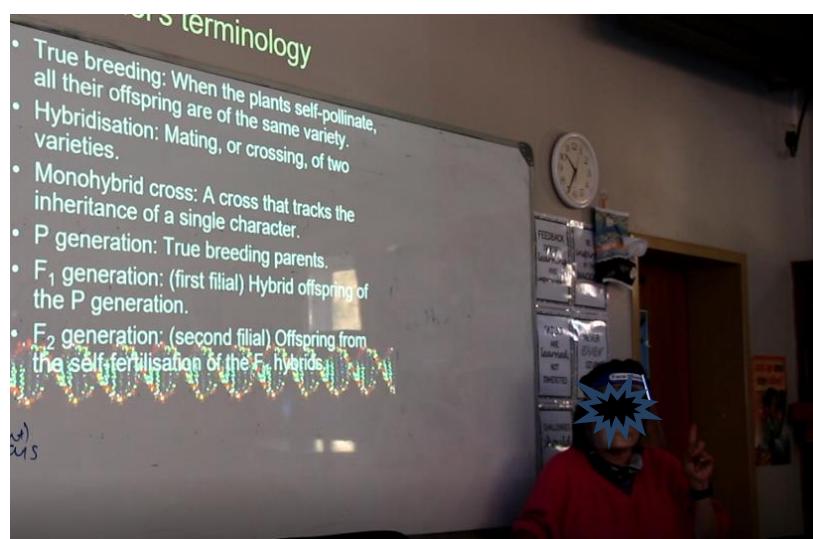


210.

We are going to be looking at what is a monohybrid cross.

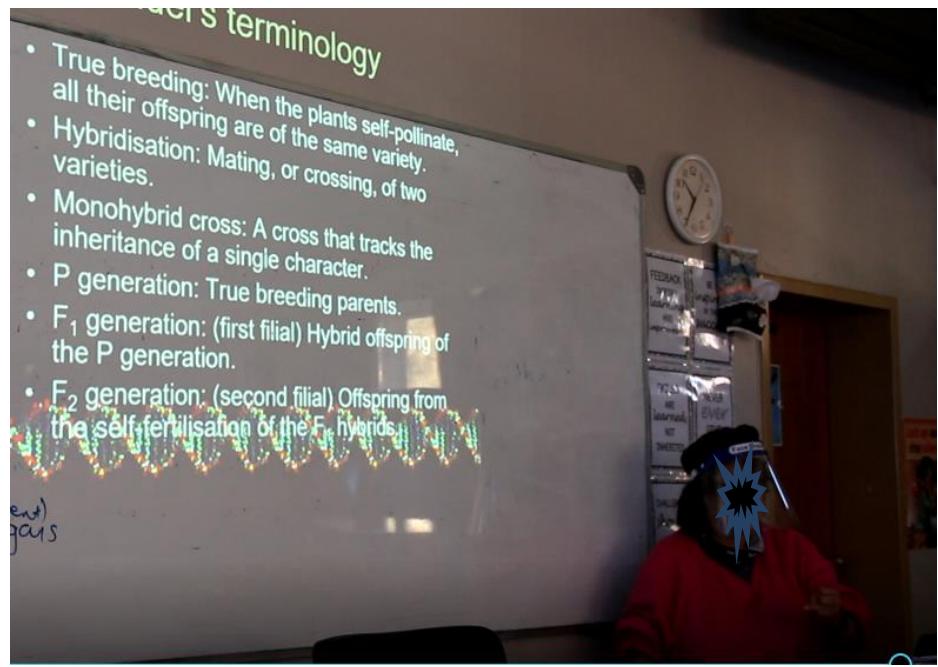
211.

Now it does not make sense, but we are going to be looking at one characteristic.



212.

Whether it tall or short,



...one characteristic whether brown or blue, it is one characteristic okay.

213. Colour, height, wrinkled, smooth, it is one thing every time, one characteristic alright!
214. Now you will see when I am going to do that whole block now because when I talk about monohybrid cross P generation, F₁ generation.
215. It is very important because P₁ will stand for parent generation okay.
216. I will show you how you do genetics problems.
217. I am going to switch off because I am going to need the board.
218. Guys our genetics problems must be written out in a specific way.
219. I will put this backwards okay; the method is extremely important.
220. You do not have to write all this, you are going to get it now in any case, the terms.
221. Okay, when we actually-- how we talk about what an organism is going to look like...



...and what it looks like is determined by its genes,



...is that true?

222. Ls: Hmm.
223. Mrs Durand: But there are two words...



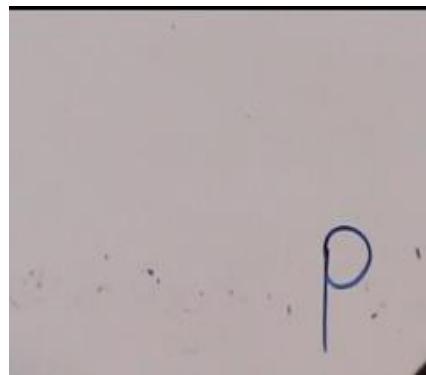
...associated with that namely phenotype,



...physical appearance and genotype...genetic make-up.

EPISODE 8: GENETICS PROBLEMS

224. So, whenever we write out the genetics problem, we are going to start!
225. Now I cannot...my arm cannot go too high.
226. So, I am going to write a bit lower okay. [Writing]



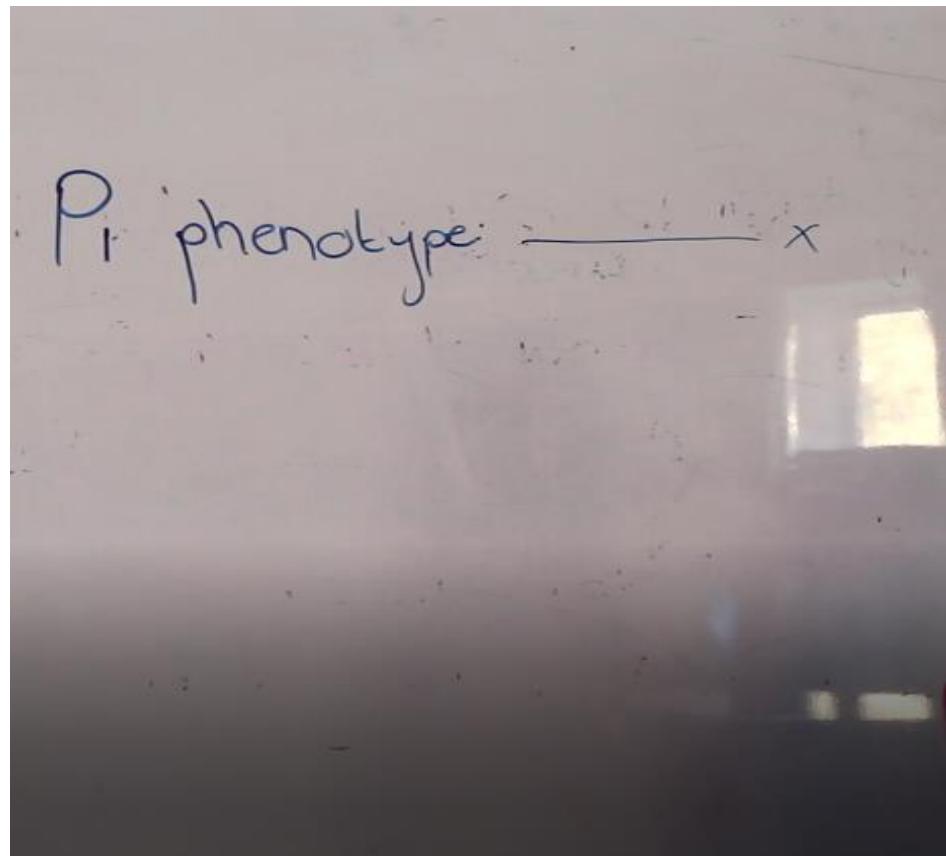
227. I will show / ? / we are always going to put a 'P' down and with this 'P' depending on where we are in our crosses, it can either be 1 or 2 but what we are going to do now, we are going to call parent 1...



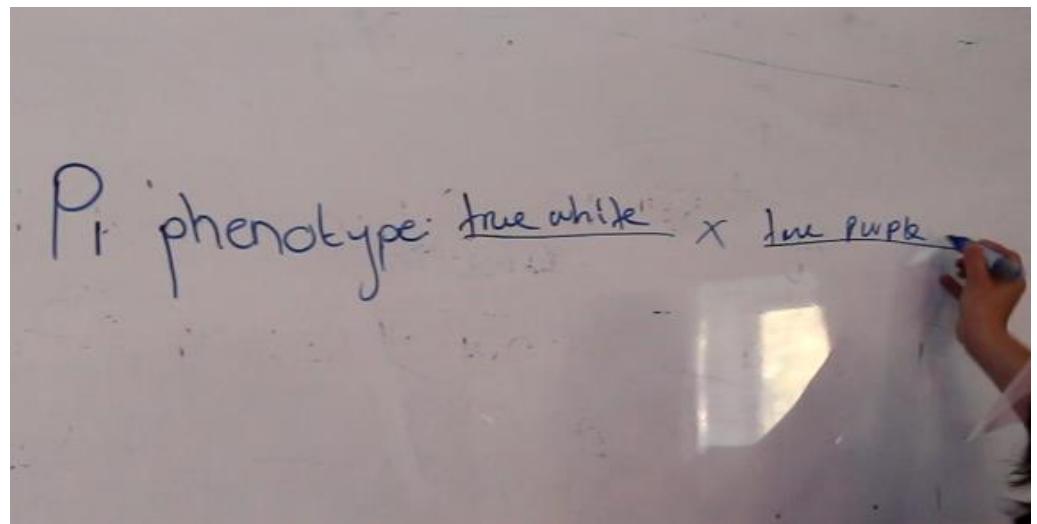
...our first set of parents right...



228. ...here we are going to first look at; what do the parents look like?
Geno-- ehh...phenotype okay remember that okay... [writing]



229. We are going to have a sentence, or something written down words okay.
230. In this case I can say, true white crossed with true purple.

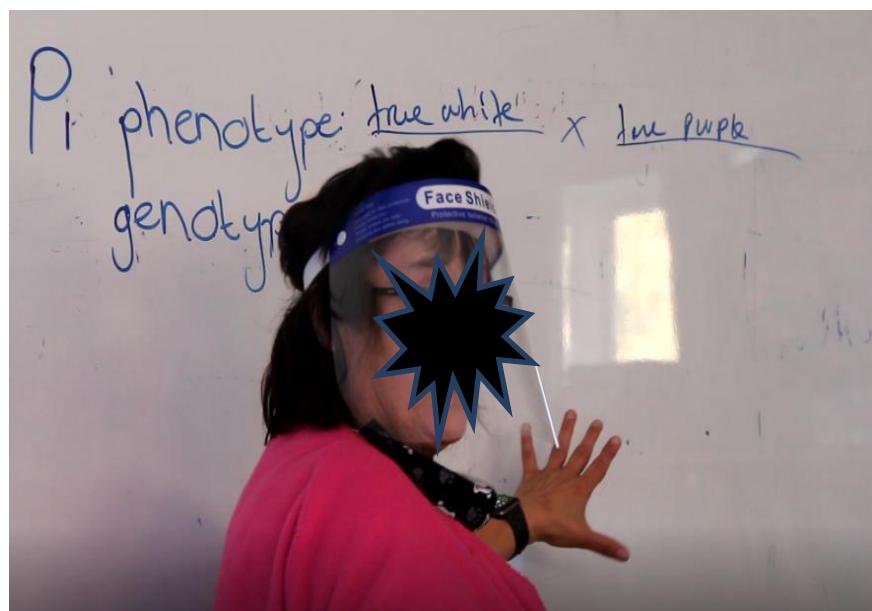


231. If I use Mendel's experiments, okay this is my example okay you understand it?
232. Now we are going to say; what is it the genetic make-up of these parents?
233. Here we are going to put in genotypes.

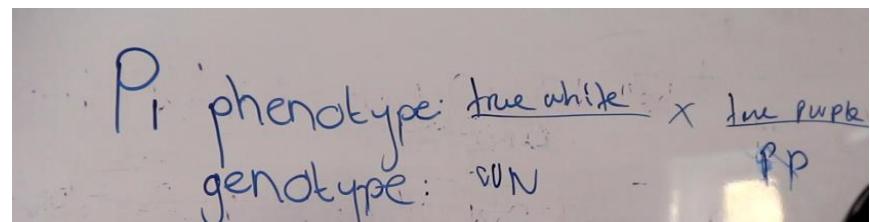
234. Okay, I am just going to put stuff down, do not worry because we will work out the cross eventually okay.
235. So, we are going to say okay, ehm...this is going to be a thing to remember.
236. You always use the same symbols...



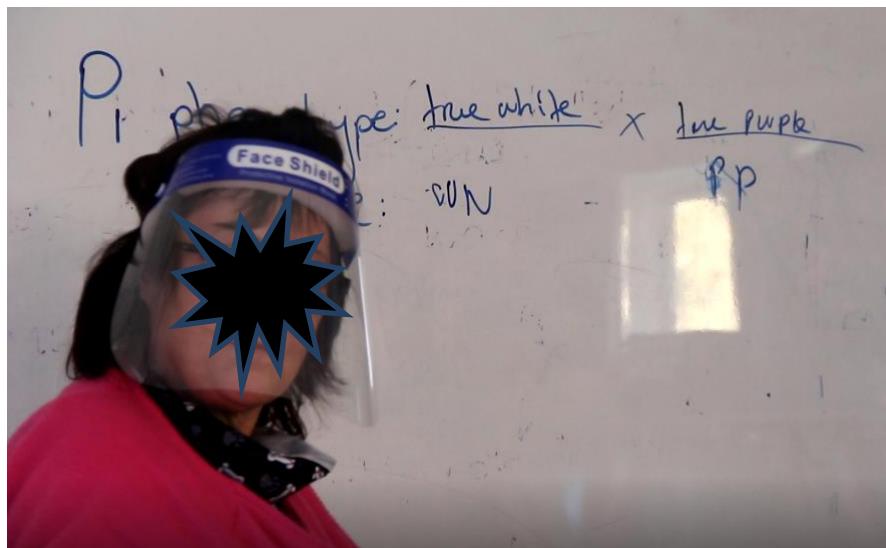
...for whatever characteristic you look at in this section of your work.



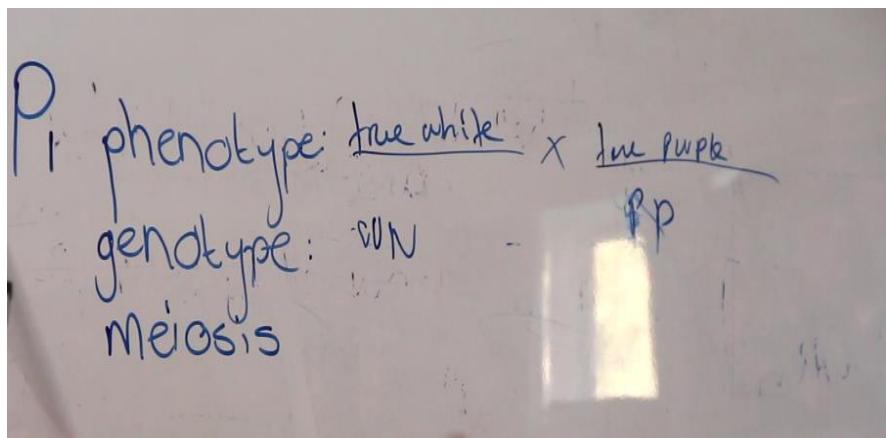
237. So, we are going to say our white crossed with purple, but we do not know anything yet.
238. So, for now just say; okay let us just say a white and a purple and we are just going to put a W and a W, a P and a P... those are the genes.



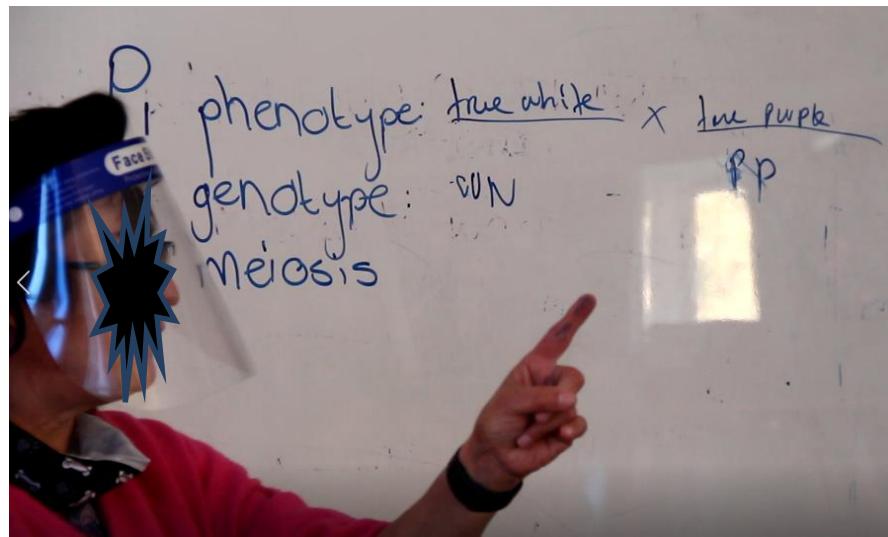
239. Now we are going to say; if these are the genes what happens in the sperm, what will happen in the ovum?
240. To form a sperm what is going to happen?
241. What is going to happen? [Stares at learners]



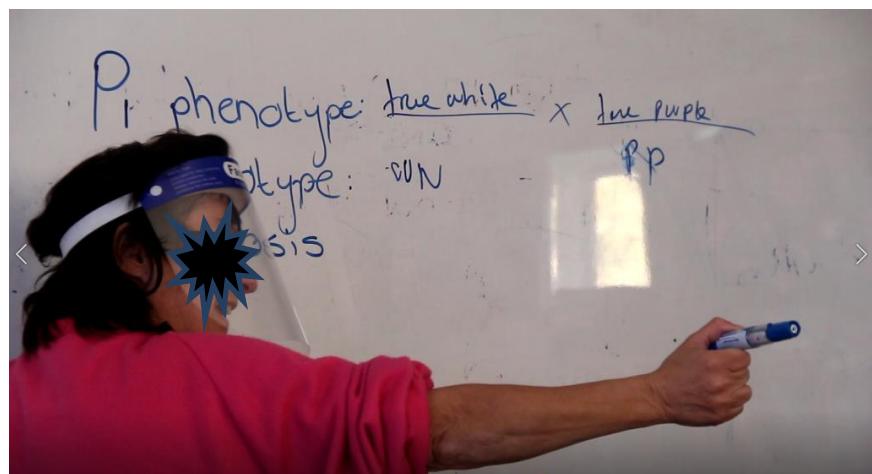
242. We are going to have meiosis taking place...



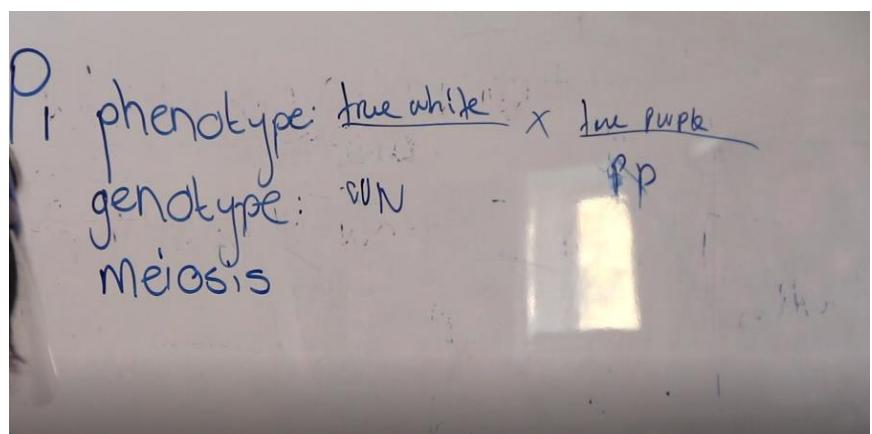
- ...and what is meiosis going to give us?
243. No! What is the word for sperm and ovum?



244. Ls: [Noise]
245. Mrs Durand: Now that is a nice word.
246. Mpilo: Gamete!
247. Mrs Durand: Gametes,

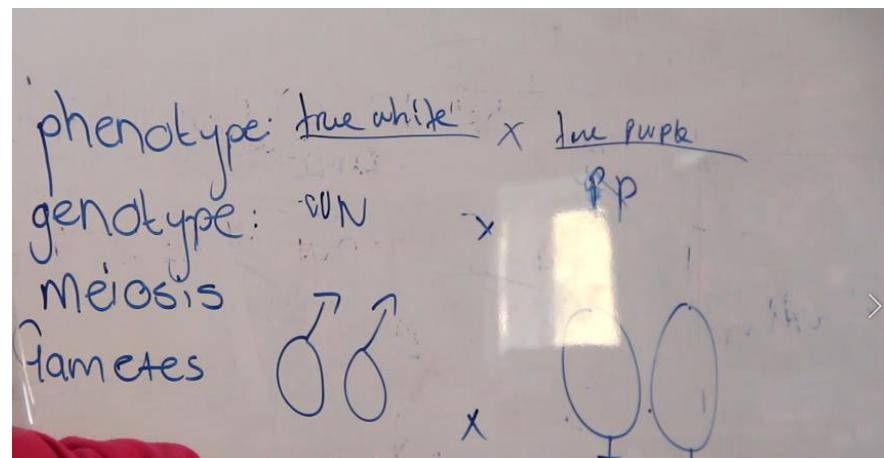


...there you go!

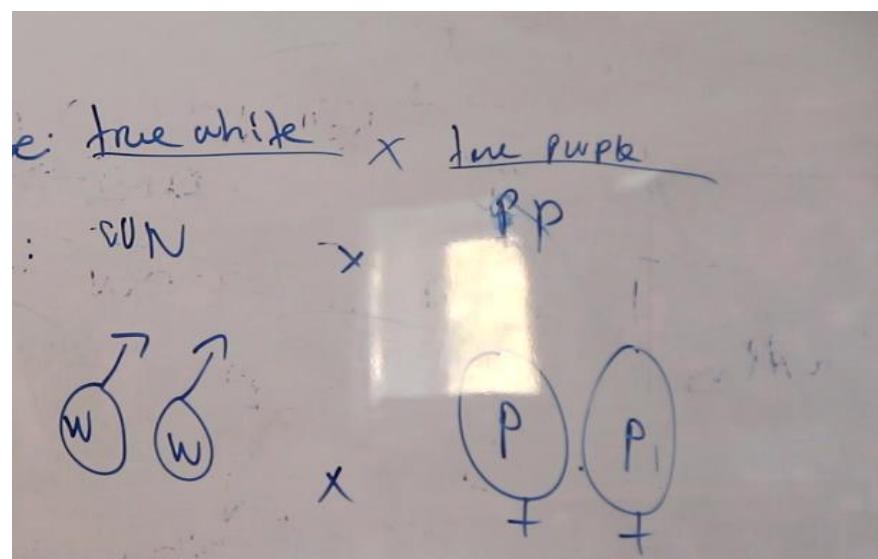


248. Now ↑to make it easy to remember okay you will draw this.

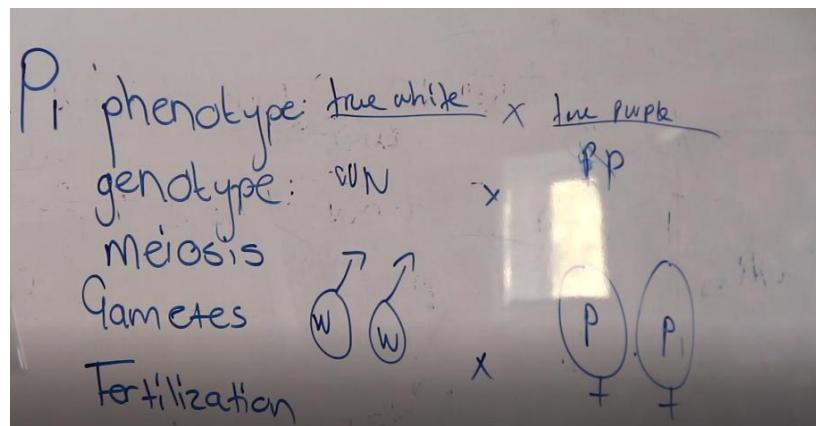
249. Every time you do a genetic cross, you are going to draw a sperm okay and an ovum. [Drawing]



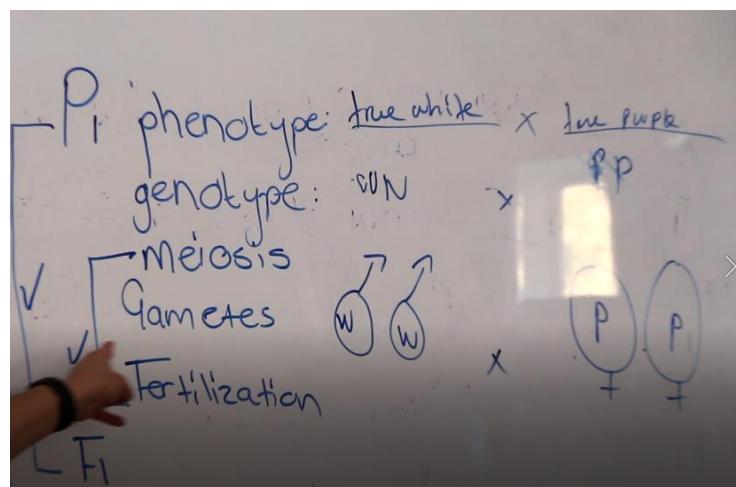
250. It does not matter what the question says, you are going to draw that because meiosis is going to give us a 'w' here and a 'w' there and this is going to give...we have a 'P' and a 'P' you see that [showing].



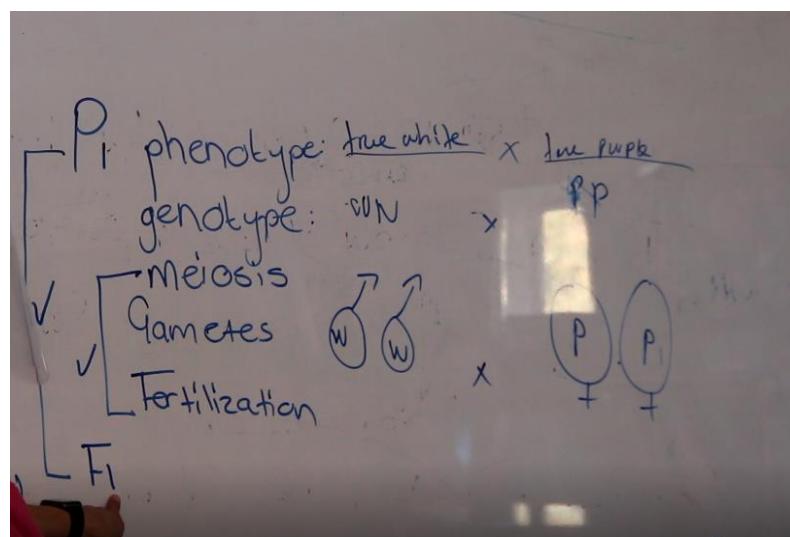
251. So, then I will separate it out.
252. Do not worry about how many daughter cells are formed at this point we are...we are only working with what the question is giving us.
253. ↑Now we are going to come and say fertilization... [writing]



254. ↑What happens when this is fertilized?
255. Now we are going to start...now where do the marks come from?
256. Your cross...just showing F_1 and P_1 is one mark and showing...you are already guaranteed two marks just for showing only up to this point okay.

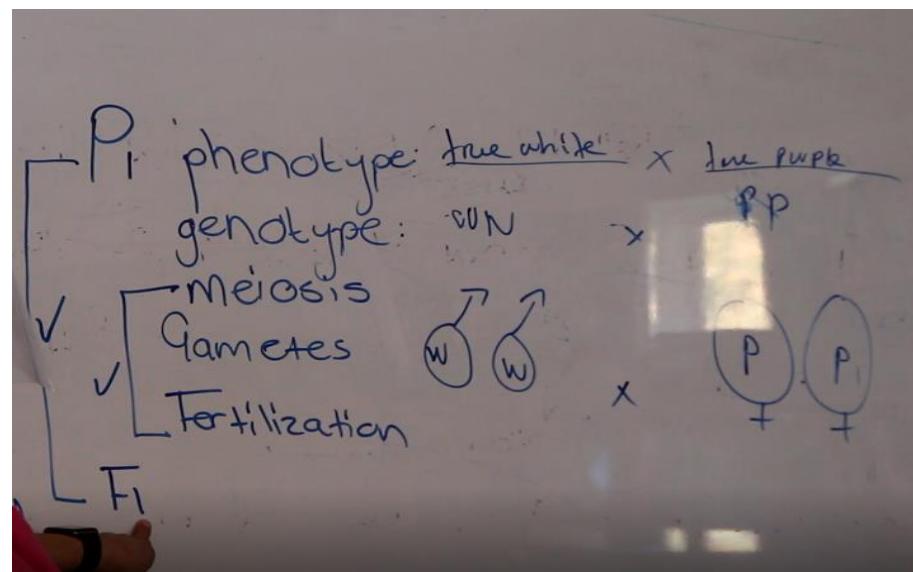


257. So, we are going to get our first level offspring... [pointing]

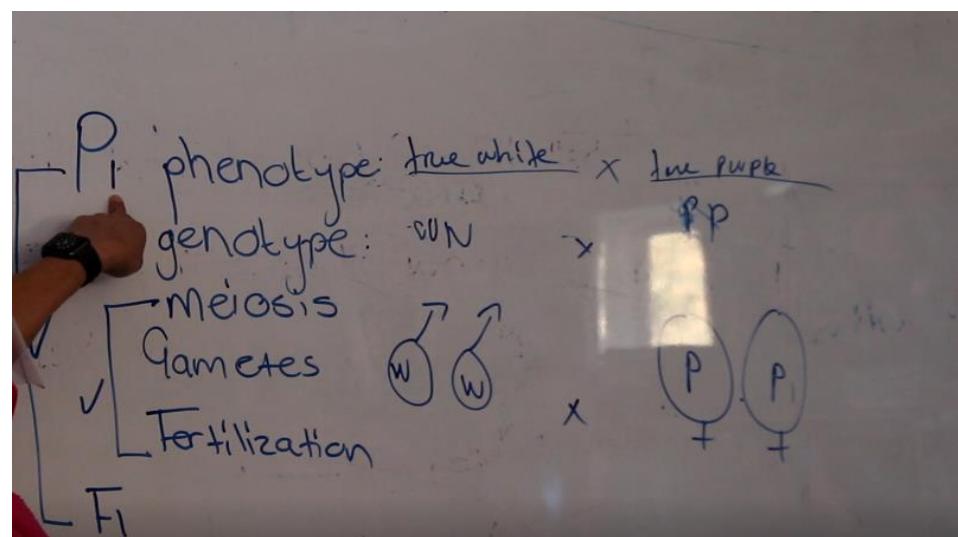


258.

First filial means first level offspring and sometimes you can be asked to determine the offspring to the second generation and this changes to a 2...



....and this to 2 [showing on the board]



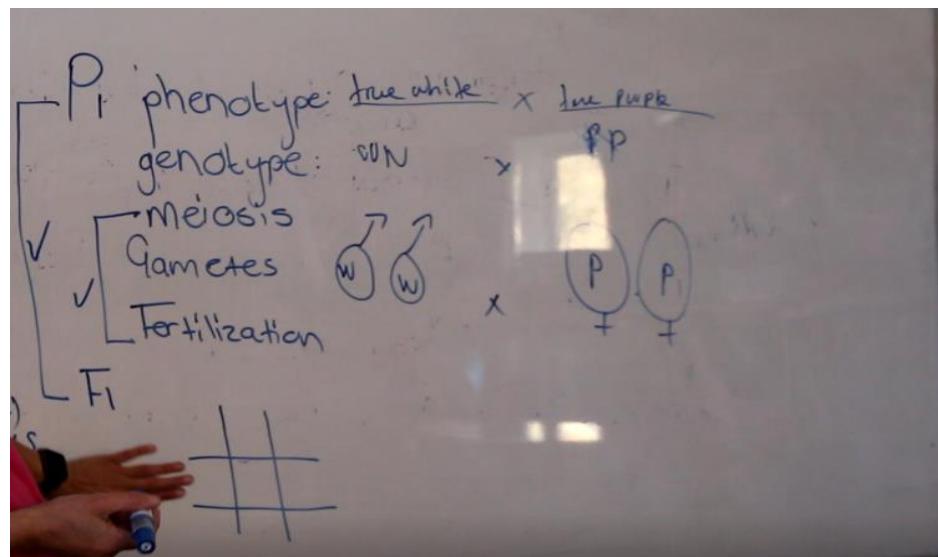
...as well okay, it is simple.

259.

We use a punnet square alright!

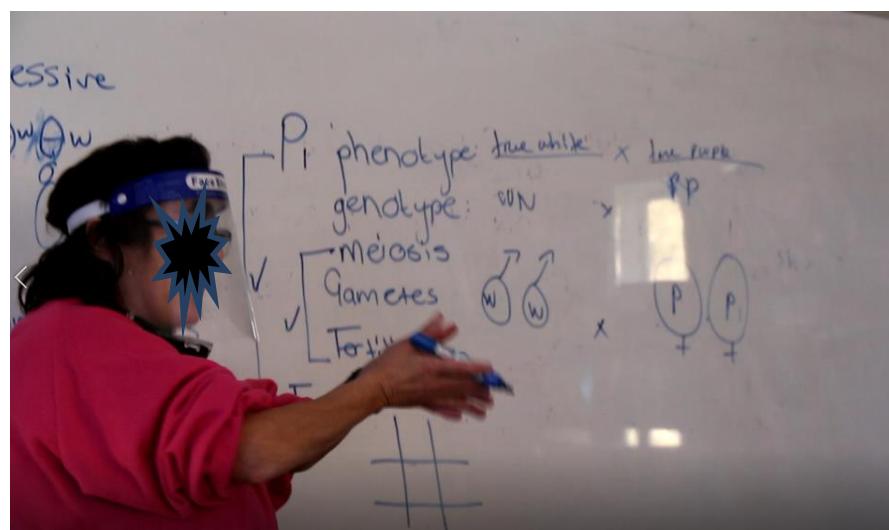
260.

I use a punnet square.



261.

There are many ways; where they draw lines...



... joining one another but you must use different coloured pens and people get confused with the lines, the boxes are easier.

262.

Okay, now each box here represents one of the gametes again, be consistent, consistency makes you remember easily. [Showing]

263.

There is the one, there is the other gene.

264.

Here is the next one.

265.

Okay, you see that...so, these ones here.

267.

I have just put you into context...each one has their own little space okay.

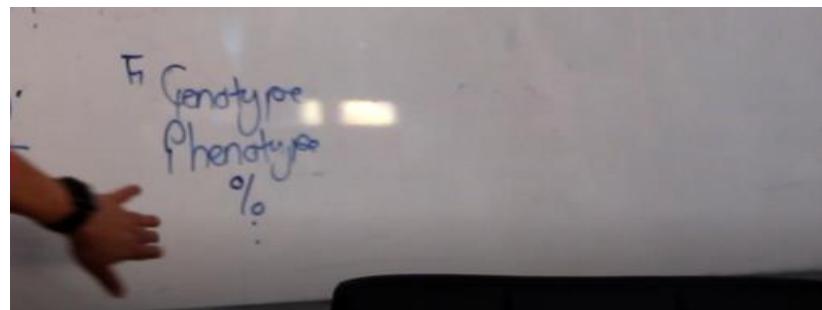
268.

We are not going to do a crossing here...I am not!

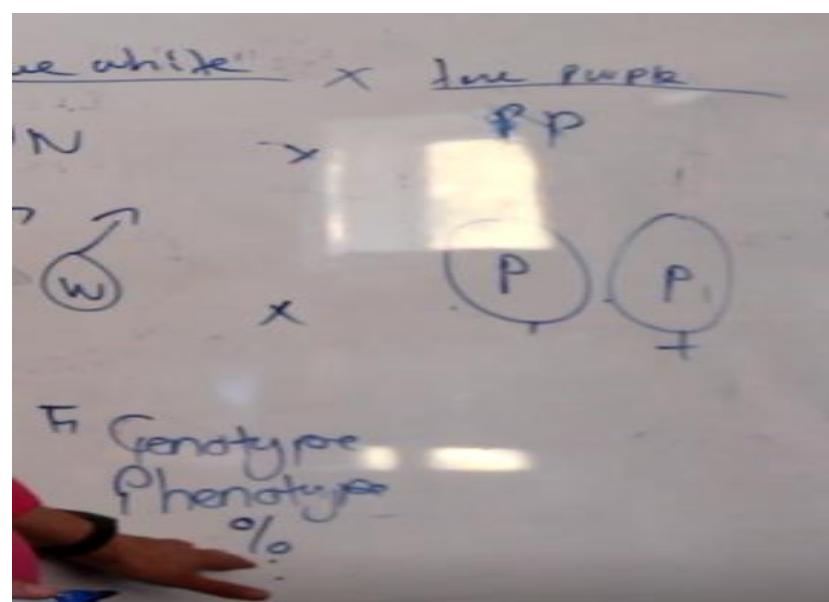
269.

The method...the method is what is important here.

270. Okay now, we are going to write down what is the phe-- the phenotype of the offspring, what is the offspring's phenotype.

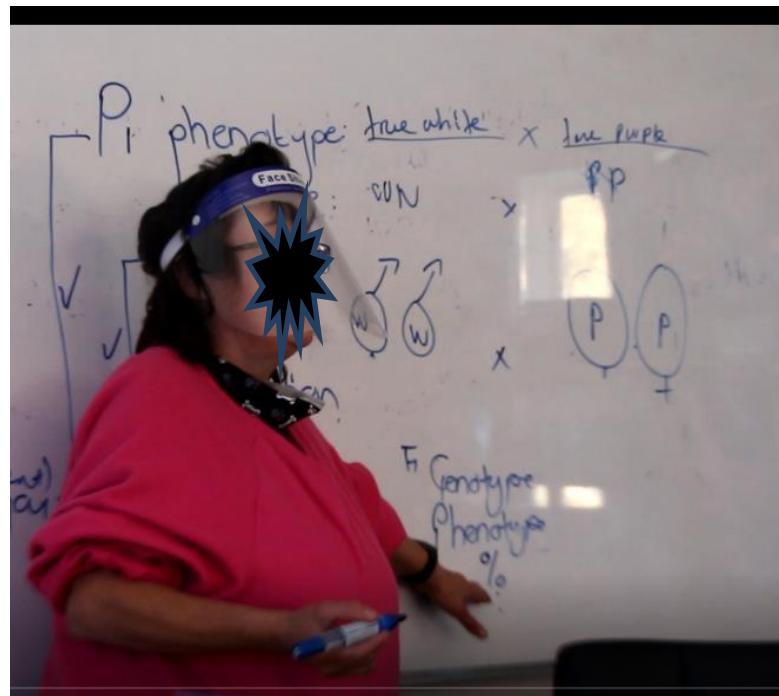


271. We are bringing in percentage and ratio. [Showing on the board]

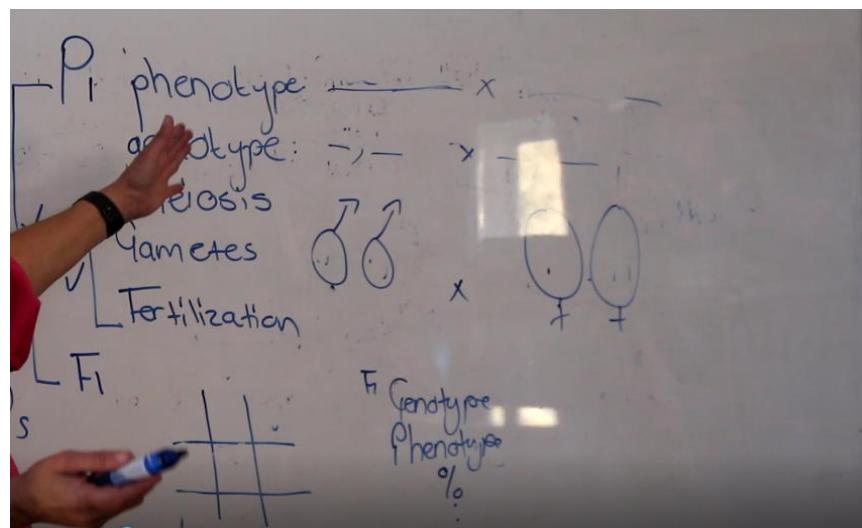


272. Ahh...simple, this in each box here is twenty-five percent each one.
273. So, four twenty-fives give you!
274. Ls: Hundred!
275. Mrs Durand: A hundred!
276. Sometimes you are asked; if there are 25 offspring and 30 is this and 20 is what you work out based on here [learner coughing] so, each box is 25.
277. Okay / ? / I do not have space for writing here.
278. We are first going to look at F₁ genotype then we are going to look at phenotype.
279. In other words, what are their genes, what do they look like, we are going to work out ehm...the percentage and or ratio...
280. Okay you see what I have done.

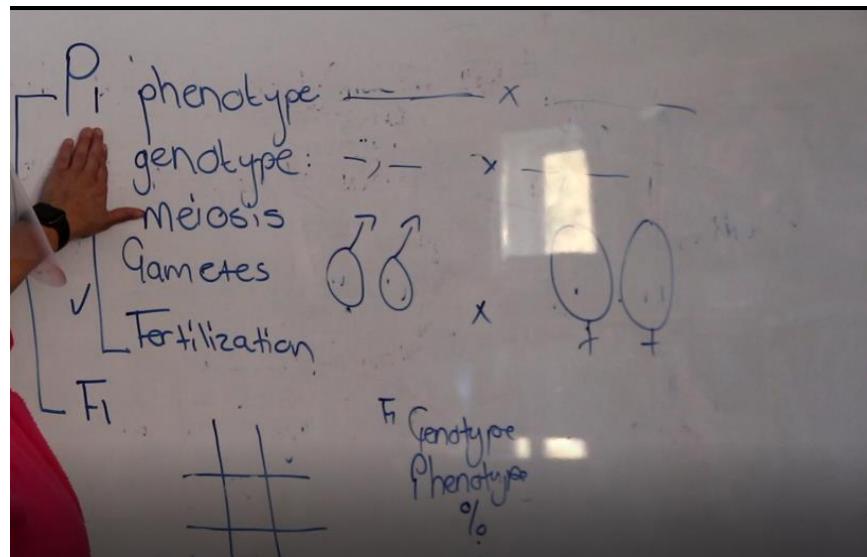
281. Sometimes you must use both, or they will ask you to give ratio or percentage.



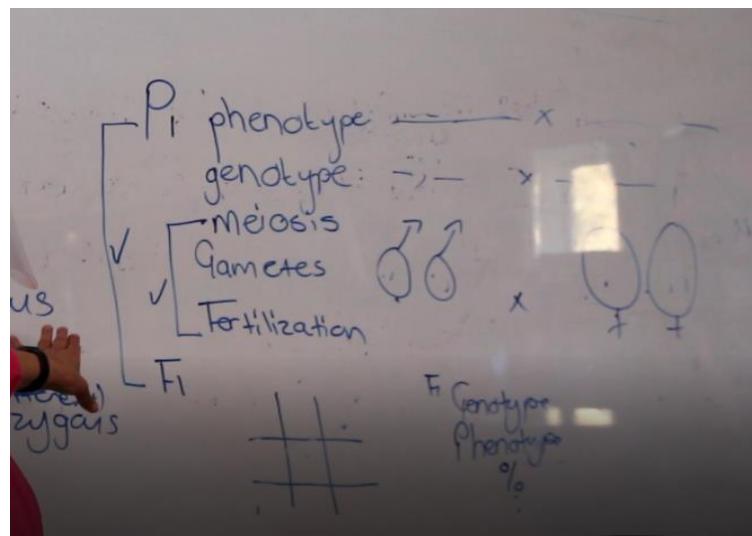
282. Guys, this is your method that you are going to use.
283. I am going to wipe out [erasing] all these things so that it is blank alright!
284. This is how you will be writing out your genetic crosses.
285. Okay, ehm...we are going to do this, in the beginning we will be writing it out like this all the time so that you get used to the method.
286. Later on, when you are so confident in this, we will start skipping portion out when we are just doing normal crosses.
287. You still must do the method when it comes to test and exams okay.



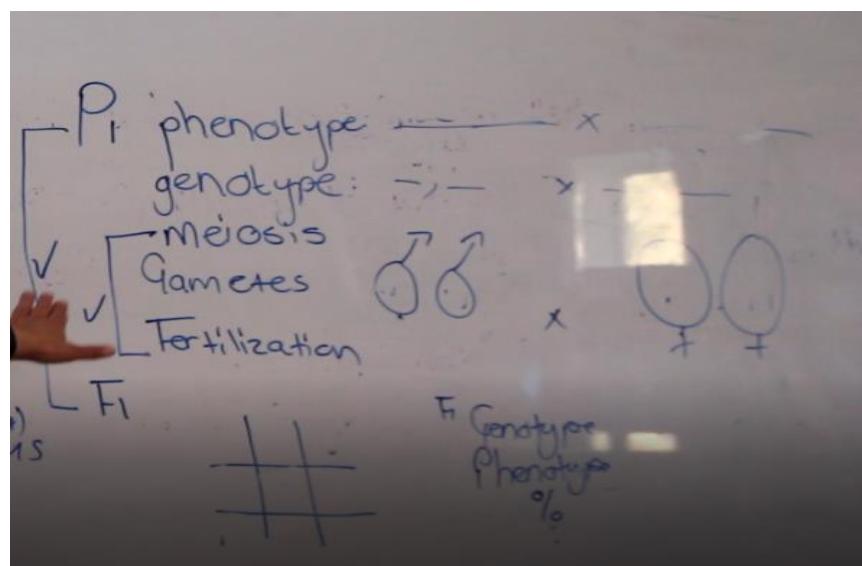
288. So yes, we are going to take short cuts eventually but not in the beginning...the beginning part is going to take a bit longer.
289. Okay, I am going to put back those terms, but they should make sense now.
290. ↑P is a parent [showing] ...



- ...whether it is first generation parent or second generation parent.
291. Think about your own families, grandparents are P₁.
292. If you work directly from there, your parents are P₂.
293. Right, you are...
294. Ls: Chorus.
295. Are you F₁ or F₂?
296. Ls: [Chorus]
297. Mrs Durand: Haa...haa...your parents, grandparents P₁.
298. Right then your parents become F₁, they are now adults, they have reproduced, they become P₂ and you become...
299. Ls: [Chorus]
300. Mrs Durand: F₂ and you got this from your parents, P₁ and you are F₁ okay.
301. You always have to go generations back.
302. Please read your questions eventually very, very carefully when it comes to that sort of thing.
303. Okay, your method for writing the genetic cross, VERY IMPORTANT!



304. Okay so, there are two marks. [showing]



...and there is usually a mark for this point here a mark, a mark here alright!

305. Sometimes they skip this mark, and they give you two marks for that.

306. It depends on the examiner, what they are going to count for, but this are standardised two marks that you get.

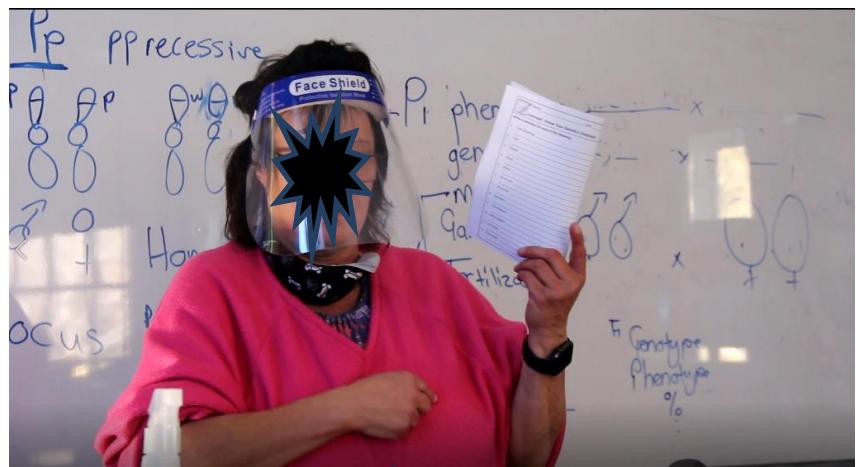
307. Alright, so that is why I have put the ticks there.

308. As I said, just doing the method will give you two out of six already.

309. Some of them will fetch two out of eight.

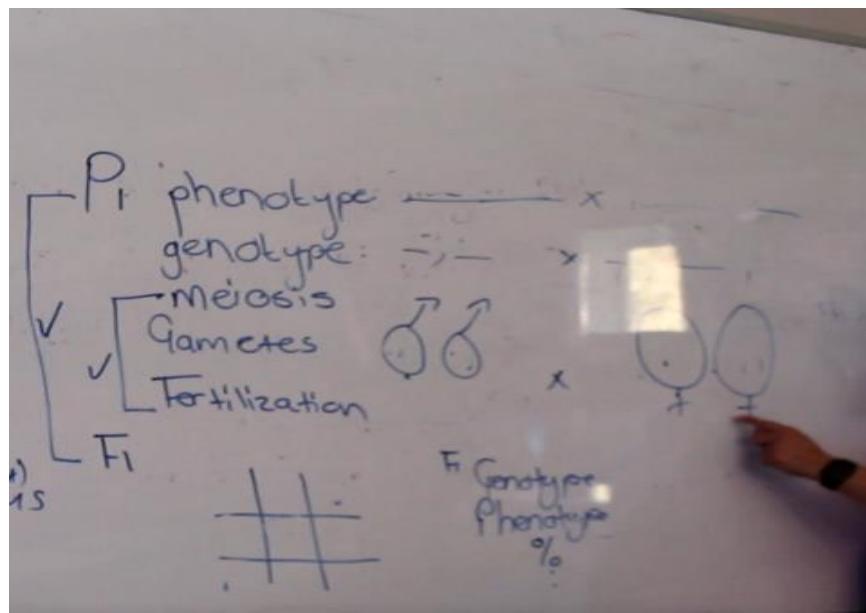
310. It depends on the examiner, if they ask for these things here / ? / alright can I wipe off, are you done?

311. Ahm...when you actually...tomorrow, no Wednesday when I see you, you will be each getting a page like this [showing]



...alright that are double pages.

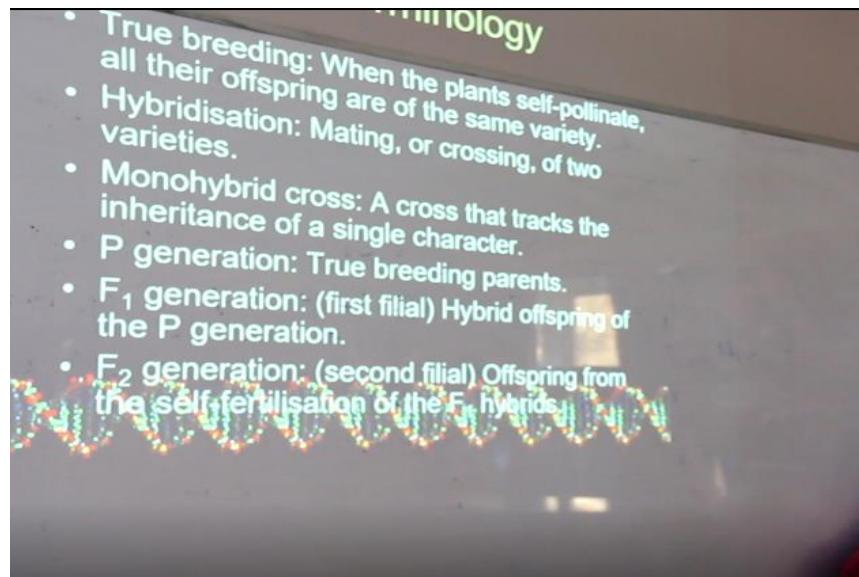
312. We must cut them into half where you will be filling in your definitions.
313. So, that is why I am not so much worried about writing definitions down.
314. A lot of them will be in the notes that you will get.
315. Are there any questions?
316. Are there-- I would like to carry on with Mendel's experiments because they form the basis of the work.
317. Like I said, I want to go ahead because when you come back on Wednesday, you do not know what I will be talking about.
318. Any questions?
319. Ls: No!
320. Mrs Durand: I can tell you...when we started doing this [pointing]



- ...in this portion of gametes people got it right from the beginning.
321. When they now see it is one sperm and another sperm, one egg and another egg.
322. Otherwise, they put two things in one block, in one thing.
323. Then you talk about mutations and we are not dealing with mutations now. [Silence]
324. Alright, can I wipe it out now?
325. I want to put on the projector again.
326. I am now going to give you some of the background things to do now.
327. I am not going to stand and try to talk for two hours here okay.
328. So, some of the terms that are now being mentioned will become easier as we go through.
329. It is unfortunate that they had not printed the notes when I was there before.
330. Any questions? [Clearing throat] I did request that you return the books, today I see some people returned theirs for some people I took them when you were not here.
331. I have got the list; I am going to do the register now.
332. I have got the list of who was here and who was not here.
333. So, the people who were absent, your books are in the front because we collected them off the desks.
334. The four, five people that did not take books, your books are also in the front.
335. Okay, people can I switch on again?
336. Ls: Yes!
337. Mrs Durand: Okay, I want to clear the board as well just to run through for the last couple of minutes.
338. Ls: [Talking]

EPISODE 10: RECAPPING TERMINOLOGY

339. Mrs Durand: Alright, you all are seeing now...now what true breeding would be.



340. That true breeding is when the variety is exactly the same alright and that is always a similar symbol that you would use.
341. Okay, P₁ generation is the parental generation okay and F₁ is the first filial, the first set of offspring.
342. Now whatever Mendel did in all these things guys is ehm...or could easily apply in everything on earth, all life forms.
343. Whether you are human or a fish, a bird whatever it could be, the principle stays the same.
344. Also because of the way he has done this, we can say that Mendel did his hypotheses testing.
345. That is why you got one in your cycle test.
346. Any questions?
347. You do not have to write anything down guys.
348. Ls: [Chorus]
349. Mrs Durand: You do not!
350. You are going to get this work.
351. You are going to have to copy onto your worksheets.
352. Alright, I just want you to-- if you are not done, I am going to give you a minute or so to finish.
353. Then I am going to give you work for the next hour to do.
354. I am not standing, standing talking for two hours.
355. No, I am not, I do like my throat.
356. Ls: [Talking]

EPISODE 10: MARKING THE REGISTER

357. Mrs Durand: Right, khensani
358. Khensani: Yes, ma'am.
[Teacher continues to mark the register]
359. Alright!
360. Ehm...ehm...guys, please you gonna get work to do, now
background reading also helps along.
361. So, take your green books, you were supposed to be having them back
/ ? /
362. The people that were absent when the textbooks were taken were.
363. Tshepo was absent okay, Oratile did you take your textbook?
364. Okay so, I have got your book.
365. Ahh...Fortunate was absent, Lillian was absent, Tshepiso did not take
the book.
366. Thabiso was absent ehm...Salvatore did not take the book, Patricia you
were absent, Andesa was absent.
367. Hloni, ehm...John, Ziyanda and Akhona were absent.
368. So, those books, I have here okay.
369. So, we gonna...what I am gonna do is, just spread them widely.
370. Put them back on the desks, so everybody else can have their books.
371. Patricia: Ma'am are we done?
372. Mrs Durand: Yes!

END!