Reebops

LT: Identify and analyze genetic traits seen-ed through 3 generations of Reebops

Hypothesis: If we cross 2 heterozygous Reebops then the offspring will most likely have these traits:

- antenna - Aa - 2
- nose - Qq - Orange
- eyes - Ee - 2
- body segments - Dd - 3
- green humps - Mm - 2
- tail - Tt - curly
- legs - Ll - purple

Antenna:

	A	a
A	AA	Aa
a	Aa	aa

	M	m
M	MM	Mm
m	Mm	mm

#green humps

Nose:

	Q	q
Q	QQ	Qq
q	Qq	qq

	T	t
T	TT	Tt
t	Tt	tt

curly tail

eyes:

	E	e
E	EE	Ee
e	Ee	ee

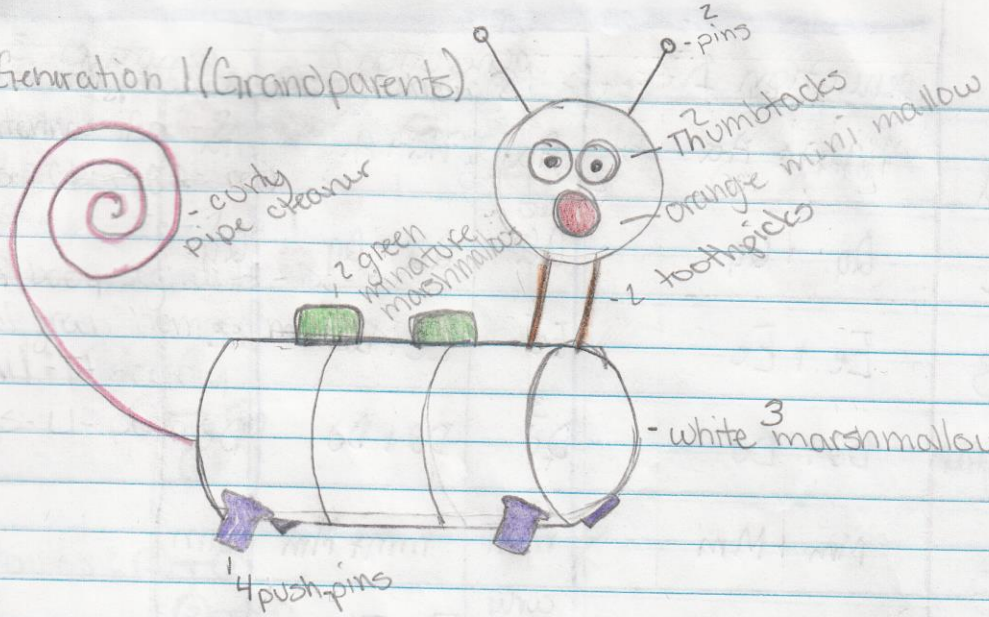
	L	l
L	LL	Ll
l	Ll	ll

color of legs

Body Segments

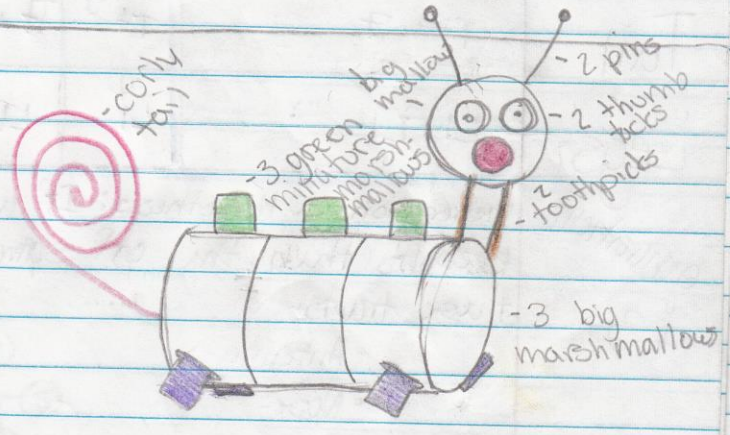
	D	d
D	DD	Dd
d	Dd	dd

Generation 1 (Grandparents)



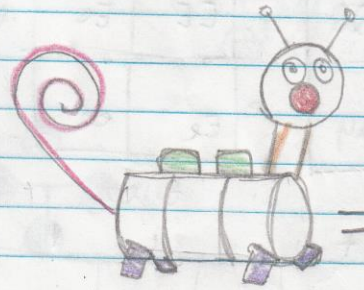
Generation 2

generation 1 + generation 1 =



Generation 3

generation 2 +



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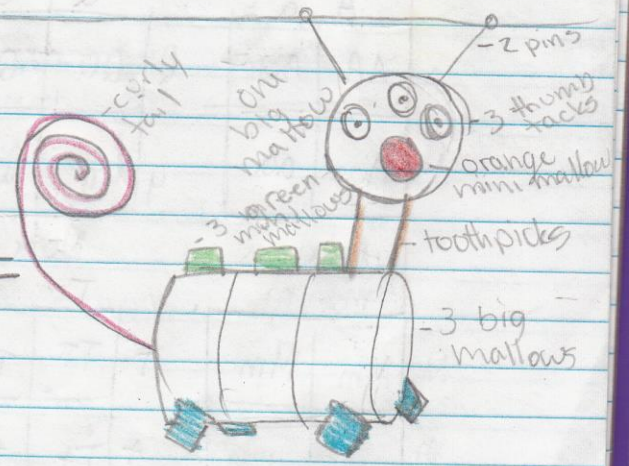


	generation 1	generation 2		generation 3	
Antenna	Aa + Aa	2 Aa	Aa + Aa	Aa	
Nose	Qq + Qq	Red QQ	QQ + Qq	Qq	
Eyes	Ee + Ee	2 Ee	Ee + Ee	ee	
Body Segments	Dd + Dd	3 Dd	Dd + Dd	Dd	
Green Humps	Mm + Mm	3 mm	mm + Mm	mm	
Tail	T+ + T+	curly T+	T+ + T+	T+	
Legs	L1 + L1	4 L1	L1 + L1	11	

generation 3

Generation 3 Hypothesis: If we cross 2 heterozygous Rueblobs then the off-spring will most likely have these traits

- Antenna-
- Nose-
- Eyes-
- Body Segments-
- Humps-
- Tail-
- Legs-

	A	a
A	AA	Aa
a	Aa	aa

Antenna

	Q	Q
Q	QQ	QQ
q	Qq	Qq

Nose

	E	e
E	EE	Ee
e	Ee	ee

Eyes

	Dd	d
D	DD	Dd
d	Dd	dd

Body Segments

	M	m
M	Mm	Mm
m	mm	mm

Humps

	T	+
T	TT	T+
+	T+	++

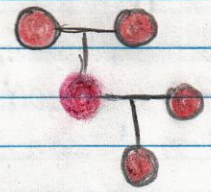
Tail

	L	1
L	LL	L1
1	L1	11

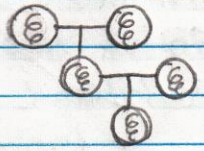
Legs

Pedigree Charts

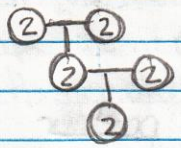
Nose:



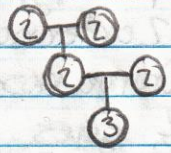
Tail:



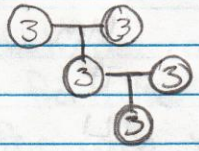
Antennas:



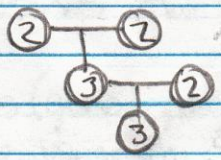
Eyes:



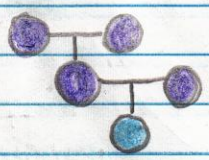
Body Segments:



Green Humps:



Legs:



Genotypes and Phenotypes

Generation 1:

genotype	phenotype
Aa	2 antennas
Qq	Orange nose
Ee	2 eyes
Dd	3 body segments
Mm	2 green humps
Tt	curly tail
Ll	purple legs

Generation 2:

our child		partner	
genotype	phenotype	genotype	phenotype
Aa	2 antennas	Aa	2 antennas
QQ	red nose	Qq	Orange nose
Ee	2 eyes	Ee	2 eyes
Dd	3 body segments	Dd	3 body segments
mm	3 green humps	Mm	2 green humps
Tt	curly tail	Tt	curly tail
Ll	purple legs	Ll	purple legs

Generation 3:

genotype	phenotype
Aa	2 antennas
Qq	Orange nose
ee	3 eyes
Dd	3 body segments
mm	3 green humps
Tt	curly tail
ll	blue legs

Materials:
- 4 big white marshmallows
- a little handful of minature green marshmallows
- a couple minature orange marshmallows
- a couple minature red marshmallows
- a little handful of blue pushpins
- a little handful of purple pushpins
- a little handful of thumbtacks
- toothpicks
- needle pins (antennas)
- a few pipe cleaners
- cards with genotype letters on them

Procedure:

1. Create your first generation Ruebop with the genotypes for each body part

2. Lay out the genotype cards of the first generation for a male and female randomly choose one from each sex for each letter.
   - that represents the 2nd generations genotype.

3. Once all letters (genotypes have been chosen build the Ruebop using the genotypes and Ruebop materials.

4. Find another 2nd generation Ruebop to breed with yours.

5. Get the genotype letter cards for each Ruebop and randomly pull one of each letter for each Ruebop.
   - These letters represent the 3rd generations genotypes

6. Repeat step 3 for your 3rd generation Reebop

7. Create punnet squares for each generation you breed so you can pre-determine (guess) what phenotypes the next generation will have.

8. Put all the Rebop information (genotype and phenotype of body parts for all 3 Reebop generations into a table/chart

9. Draw each Reebop generation using color.

Analysis Paragraph 1:

Reebobs have dominant and recessive traits that pass down through generation by chance. We created Reebobs and conducted a cross between two heterozygous reebobs. We used genes to create 3 generations of Rebops, to discover the possibility of chance on certain phenotypes. By cross breeding two heterozygous Reebobs with Aa as their allels for antennas there were 3 possible outcomes for the 2nd generations antennas. The second generation could have Aa (2 antennas), aa (no antenna), or AA (1 antenna). A punnet square shows the genotype, or the possibilities of what may come from crossing two heterozygous. But by pulling letters we determined the phenotype of our generation 2 Rebop. To create the 3rd generation we crossed two heterozygous Reebops with Aa alleles. The possibility of having a third generation Reebop with 2 antennas was 50%, with 1 antenna 25%, and with no antennas 25%. After pulling letters from each parent, by chance, the third generation Reebop had 2 antennas (an Aa allele).

Analysis Paragraph 2:

We crossed Two heterozygous Rebobs two times to create three generations of Rebops. We conducted a cross between our Reebop with a QQ genotype and a red nose phenotype with another Rebop with a Qq genotype and an orange nose phenotype. This change the probabilities in the punnet square. An orange nose was a 50% possibility while a red nose was also a 50% possibility. By crossing those two Rebops we

changed nose outcome probabilities. Our first generation Reebop with a Qq genotype and an orange nose phuno type produced a Reebop with a QQ genotype and a red nose phunotype. By breeding that generation with another generation that had a Qq genotype and orange nose phunotype we were provided a 3rd generation Reebop with a Qq genotype and an orange nose phunotype. This shows that the orange nose phunotype skipped a generation.

Analysis Paragraph 3:

Each Reebop parent has the possibility of passing their traits down to the next generation. We crossed a Reebop with a QQ genotype and red nose phunotype with a another Reebop with a Qq genotype and an orange nose phunotype we got a Reebop with a Qq genotype and an orange nose phunotype. The dominate trait (Q) was passed through the 2nd generation to the third generation. The recessive trait however is still passed down, just not visible in the phunotype of the third generation Reebop. We can see that the traits are passed through generations because the third generation Reebop has one trait identical to one of its parents (second generation Reebops). Therefore, through the cross breeding of Reebops we can determine that genes are passed through generations.

Conclusion:

In this lab we identified and analyzed genetic traits passed through 3 generations of Peebops. I partway accept my hypothesi because the math and probability was correct but getting that genotype was just a chance. I learned that genetic traits are passed through generations in Peebops (humans/animals). Now I wonder if someone who is missing a chromosome breeds with another person, could their disorder get passed down through to the next generation?