

YEAR 10 REVISION - 5 WEEK BIOLOGY COURSE

1.

- a. What does the word extinction mean for the species? No individuals of the sp. exist in the world.
- b. Name 2 animals that have become extinct because of the influence of humans. Dodo, Pig-footed Bandicoot, Thylacine.
- c. What is the only way that a species does not become extinct? Protect BOTH its numbers (to maintain VARIABILITY) and its habitat.

2. Name 3 differences between sexual and asexual reproduction.

- | | |
|--|---|
| i. <u>TWO INDIVIDUALS INVOLVED</u> | iv. <u>MEIOSIS FORMING GAMETES (SEXUAL REPRODUCTION ONLY)</u> |
| ii. <u>MIXING OF GENES FROM BOTH PARENTS</u> | |
| iii. <u>VARIABILITY IN OFFSPRING</u> | |

3. Give 4 different types of asexual reproduction and explain how each produces new offspring.

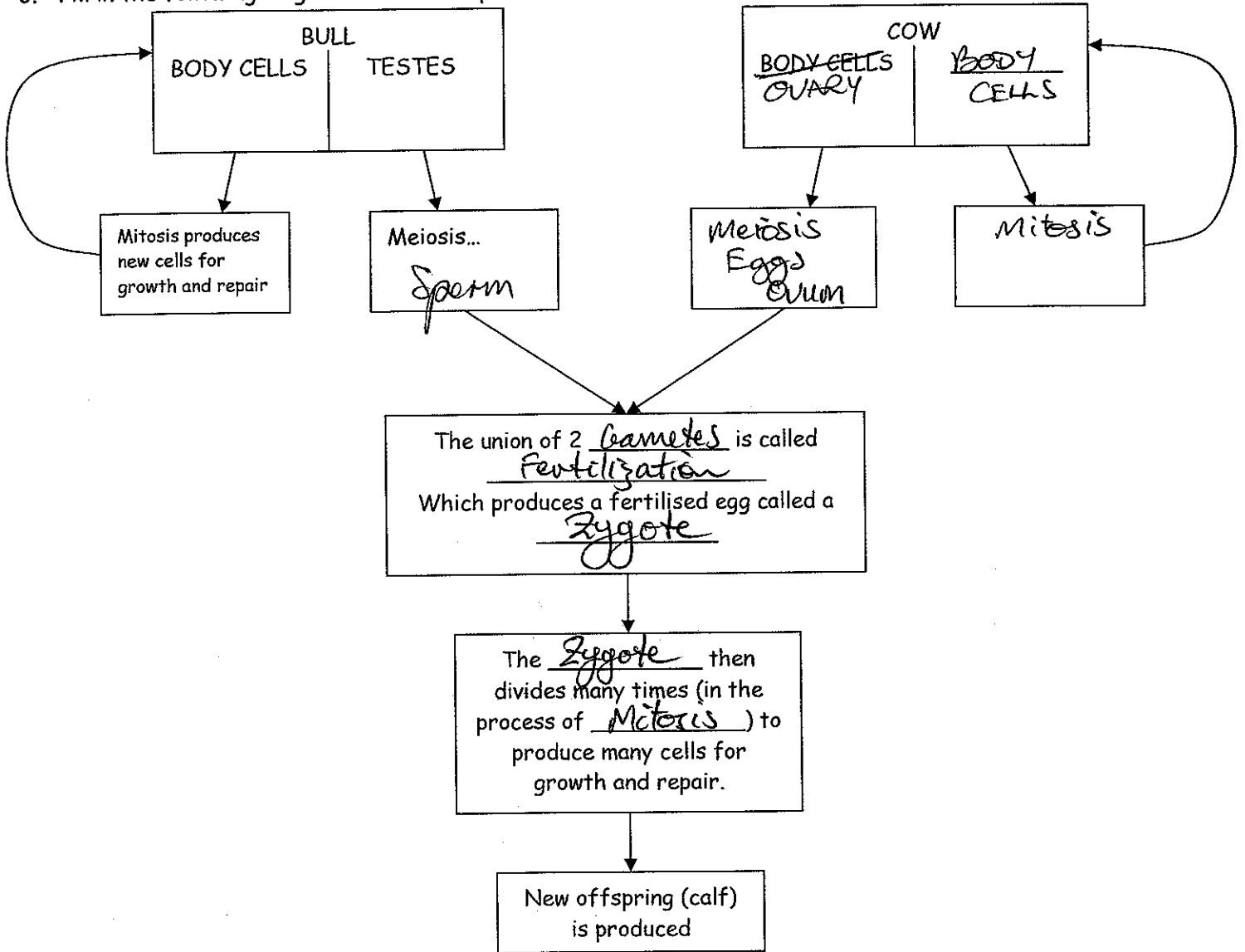
- i. Binary Fission - split one cell into two. Cell parts are shared between the two daughter cells.
- ii. Budding - A new individual grows off to the side of the adult. It eventually breaks off, and grows into a new individual.
- iii. Regeneration - Physical chopping/breaking apart of an animal (or part of) will encourage the missing part to grow.
- iv. Spores - special reproductive cell (resistant to drying out) that can regenerate a new individual.

4. Fill in the following table. Give 2 different types of sexual reproduction and explain how each produces new offspring. What are the advantages and disadvantages of each method?

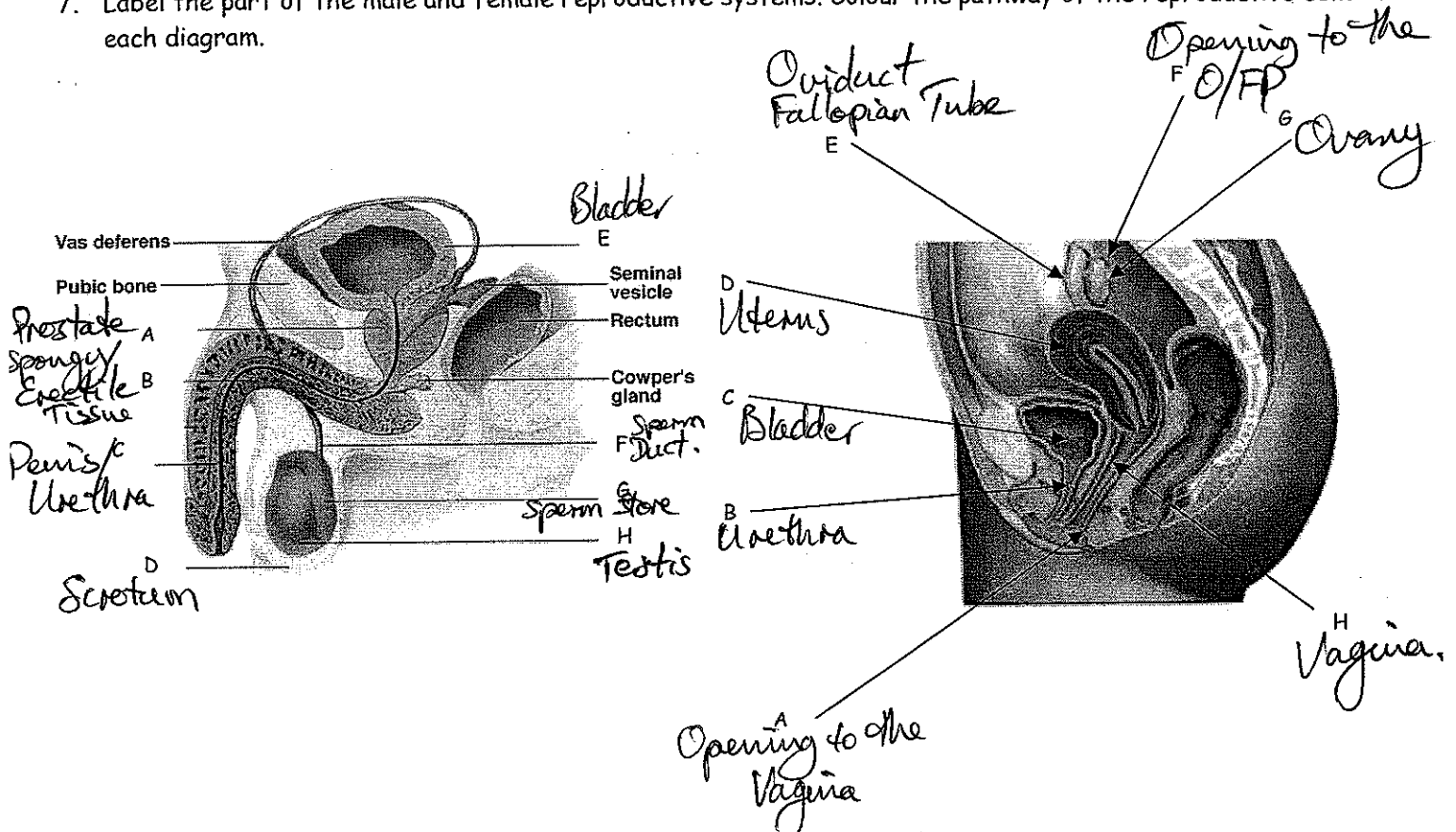
SEXUAL REPRODUCTIVE METHOD	ADVANTAGES	DISADVANTAGES
<p>1. <u>External Fertilization</u></p> <p>The new offspring are produced by... <u>eggs deposited then sperm.</u></p>	<ul style="list-style-type: none"> • <u>No need to produce extra bits that fit together</u> • <u>Physical Joining is not needed (Easier).</u> • <u>less likely to be preyed upon!</u> 	<p>The eggs could be washed away or <u>Eaten</u> by another animal so the potential losses could be great.</p>
<p>2. <u>Internal Fertilization</u></p> <p>The new offspring are produced by... <u>Sexual Intercourse</u></p>	<p>The gametes remain in a watery environment during transfer and therefore they don't dry out.</p>	<ul style="list-style-type: none"> • <u>More effort in courtship</u> • <u>↓ mobility so more prone to predation</u>

5. Which type of reproductive method is the best? Why? (Explain your answer.) Both have Adv/Disadv. Internal as more efficient. less eggs need to be made due to the accuracy of sperm deposition.

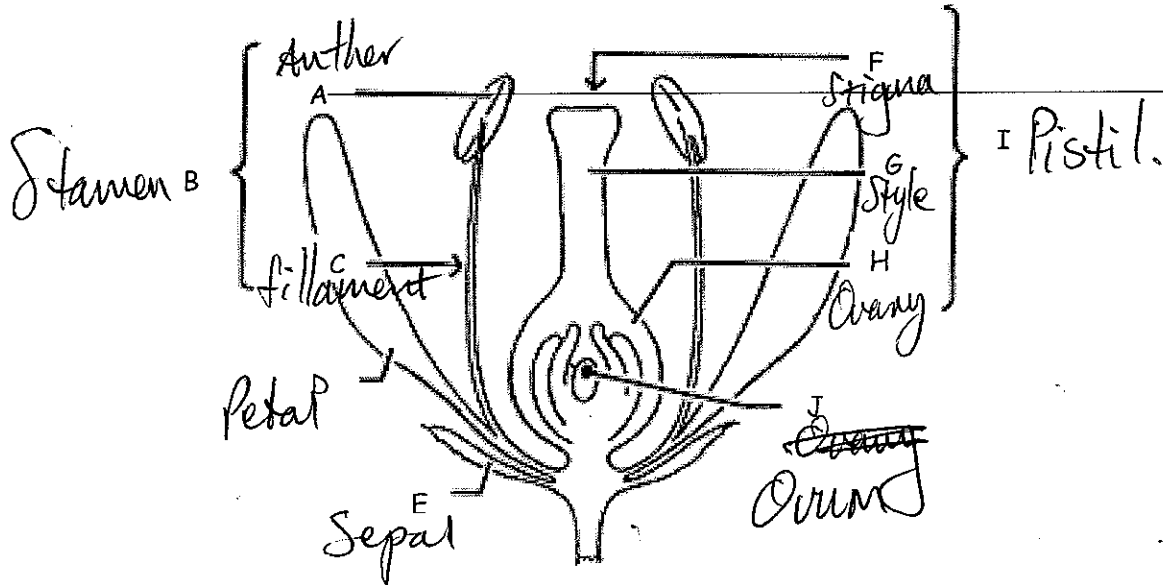
6. Fill in the following diagram on sexual reproduction with the correct words.



7. Label the part of the male and female reproductive systems. Colour the pathway of the reproductive cells in each diagram.

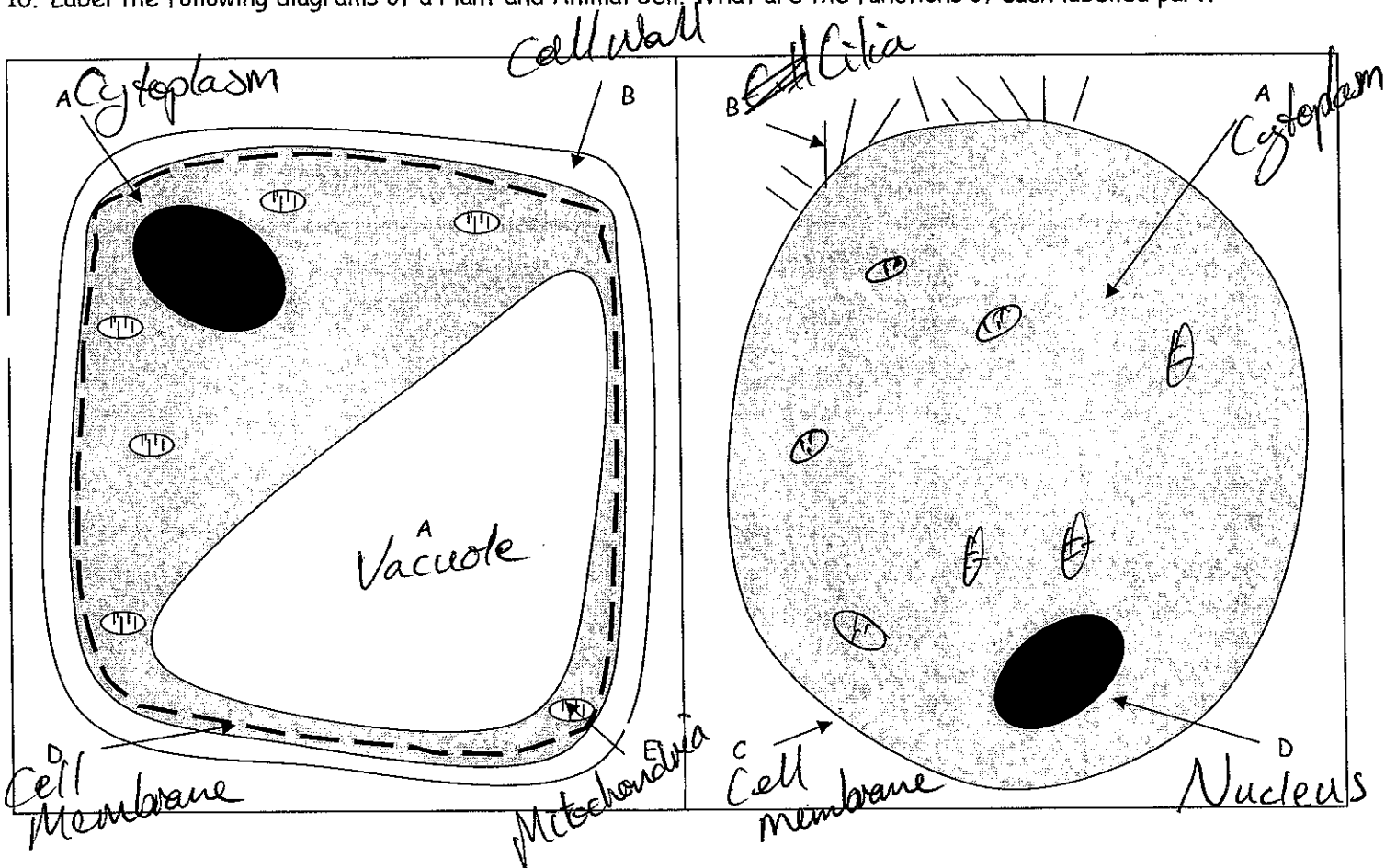


8. Label the parts of the flower in the following diagram. Draw arrows representing "Self-pollination" and "Cross-pollination" in the diagrams.

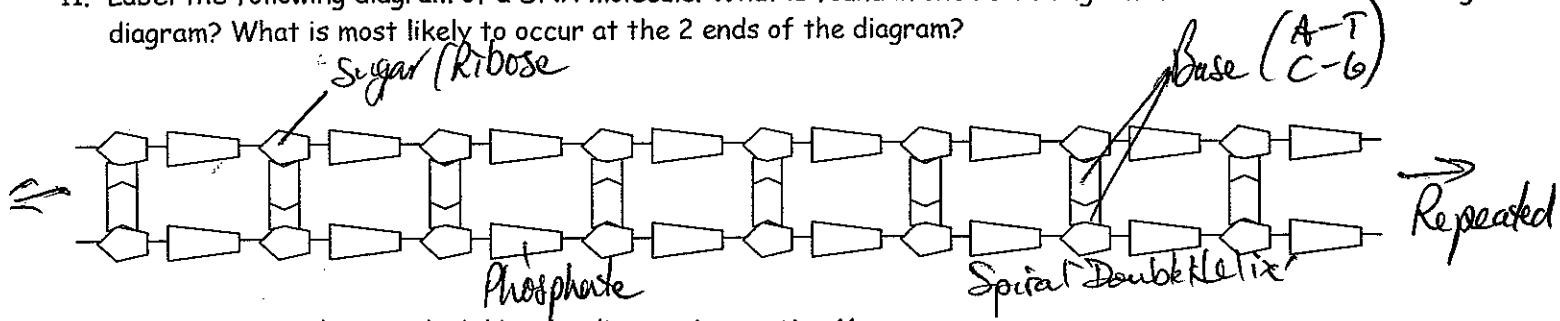


- What is pollen? Why is it important for 'drier' land plants to use pollen to transfer gametes between flowers?
- Microscopic Male cells carrying male reproductive cells (sperm).
 - A pollen 'package' prevents the male reproductive cells from drying out (as would happen if they were released individually)

10. Label the following diagrams of a Plant and Animal Cell. What are the functions of each labelled part?

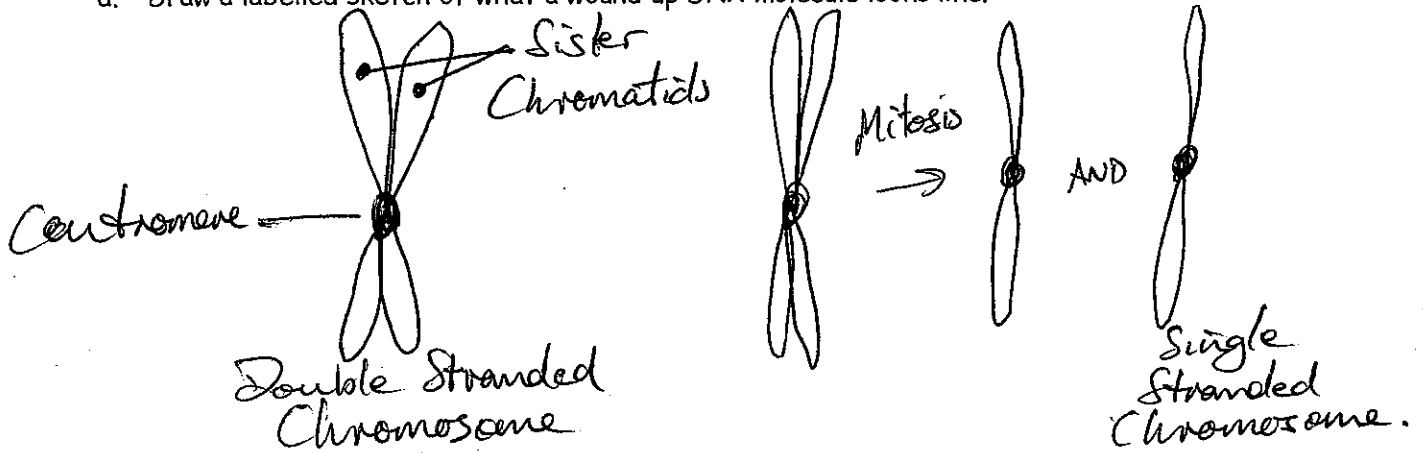


11. Label the following diagram of a DNA molecule. What is found in the real thing but not shown in the following diagram? What is most likely to occur at the 2 ends of the diagram?



12. Wound up DNA does not look like the diagram in question 11.

a. Draw a labelled sketch of what a wound up DNA molecule looks like.



b. Why are there 2 forms of DNA? One wound up and the other unwound.

Wound up when DNA needs to be shifted around,
Un-wound when the DNA (it's genes) needs to
be used to change some functionality of the cell/body.

13. Fill in the following table which shows the difference between Meiosis and Mitosis.

	MITOSIS	MEIOSIS
WHERE OCCURRING	All body cells	Gonads - Ovary (♀) - Testis (♂)
No. OF DIVISIONS	One	Two
No. CELLS PRODUCED	Two	Four
HAPLOID/ DIPLOID CELL	Diploid	Haploid
USED FOR	Growth / Repair	Gamete formation.

14. In guinea pigs, short hair is dominant over long hair. What will be the F1 and F2 genotypes and phenotypes of a cross between a homozygous short hair guinea pig with a long haired guinea pig? (Show all your working)

PARENT PHENOTYPE: HOMO. SHORT HAIR x HOMO. LONG HAIR

" GENO: $SS \times ss$

	s	s
S	Ss	Ss
S	Ss	Ss

F₁ Offspring geno: ~~All~~ Ss

Offspring Pheno: All Short Hair
G.P.

Hetero. Hetero.
PARENT PHENO Short Hair x Short Hair

" GENO $Ss \times Ss$

	S	s
S	SS	Ss
s	Ss	ss

F₂ Offspring geno: $\frac{1}{4} SS + \frac{1}{2} Ss + \frac{1}{4} ss$

" Pheno $\frac{3}{4}$ Short Hair + $\frac{1}{4}$ Long Hair

15. In guinea pigs, short hair is dominant over long hair. Two guinea pigs are mated and produce equal numbers of both short and long haired offspring. What are the genotypes of the parents? Explain.

Work with the Punnett Square First + Work backward.

	S	s
s	Ss	ss
s	Ss	ss

The only way of producing long haired G.P. (ss) is by having a Heterozygous Short haired & Long hair parents.

16. The offspring of a cross between 2 Andalusian Chickens produced black, white-splashed, and blue (intermediate) offspring. What were the genotypes of the parents? Explain.

As per working backwards above!

	B	W
B	BB	BW
W	BW	WW

Explain
As per given in punnett square. [Heterozygous Blue Andalusian Chickens]