



eduresourceza.com

***PLEASE can you mark this worksheet as accurately as possible

Lesson 1

Question 1 [9]

Genotype

✓ TT (homozygous)

✓ Tt (heterozygous)

✓ tt (homozygous)

Phenotype

✓ Tall plant

✓ Tall plant

✓ Short plant

Question 2 [12]

2.1 When a trait ✓ is determined by one pair of alleles ✓

Characteristic ✓ determined by one gene ✓

Cross ✓ between two pure breeding parents ✓

One characteristic ✓ passed from one generation to the next ✓ (2)

2.2 Dominant alleles show their effect even if the individual has only one copy of the allele, ✓ e.g. tall / green seedpod / round seed ✓

Recessive alleles only show their effect if the individual has two copies of the allele, ✓ e.g. dwarf height / yellow seedpod / wrinkled seed ✓ (4)

2.3 Based on empirical observable data, ✓ i.e. seed colour. ✓

Used thousands of plants / repeated his experiments / completed over many years

✓ making his data reliable / making sample number larger. ✓

Got consistent results ✓ making his conclusion valid. ✓

Objective ✓ as results were based on empirical data. ✓

His results could be verified ✓ if other scientists repeated his experiments. ✓

Systematic ✓ as followed an organised plan in collection and analysis of data. ✓

Started with pure breeding parents ✓ easy to determine dominance. ✓

Precise ✓ as was using exact numbers. ✓

Accept other reasonable suggestions.

3 Reasons ✓✓✓ each explained ✓✓✓ (6)

Lesson 2

Question 3 [22]

31.1.

Key - B-brown
b-blue

P₁ Phenotype: homozygous brown eyed × homozygous blue-eyed

P₁ Genotype BB × bb

gametes B b

	b	b
B	Bb	Bb
B	Bb	Bb

F₁ Genotypes : 100% Bb

F₁ Phenotypes : 100% heterozygous Brown-eyed.

3.1.2.

Key B - Brown
b - blue

P₁ Phenotype heterozygous brown-eyed x
homozygous blue-eyed

P₁ Genotype Bb^① x bb^② ✓

gametes B b^② b b

①

	b	b
B	Bb	Bb
b	bb	bb

ratio 1 : 1

P₁ genotype : 50% Bb
50% bb ✓

P₁ phenotype : 50% heterozygous brown
50% homozygous blue ✓

31.3

Key - B - brown
b - blue

P₁ Phenotype homozygous brown eyed x heterozygous brown eyed

P₁ Genotype BB x Bb ✓

gametes B B B b

	B	b
B	BB	Bb
B	Bb	Bb

F₁ Genotype = 50% BB, 50% Bb ✓

F₁ Phenotype = 50% homozygous Brown ✓
50% heterozygous brown ✓
100% Brown (All are brown)

MEMO

Life Science 12

Week 4

3.2

Key ✓ normal (W)
✓ vestigial (w)

P₁ Phenotype heterozygous fly x homozygous normal fly

P₁ Genotype Ww x WW

gametes W w W

	W	W
W	WW	WW
w	Ww	Ww

① Try not use "W & w"
They look too much alike.

F₁ Genotype = 50% WW ✓
50% Ww

F₁ Phenotype = 50% homozygous normal ✓
50% heterozygous normal ✓
∴ 100% normal winged ✓

[Total: 43 Marks]