

MENDELIAN GENETICS (Notes for Flash slideshow)

The father of genetics is _____, an Austrian monk who experimented with _____
_____. He was one of the first geneticists to perform _____ and keep good
_____/_____ data. Mendel studied the garden pea plant which is a very _____ organism. He looked at
traits such as:

- _____ vs _____ seeds
- _____ vs _____ plants
- _____ vs _____ seeds

He did not know about _____, _____ or _____. Instead, he believed there were
“_____” that cause inheritance but didn't know what. But his experiments and eventual deductions solved
much of the puzzle of how _____ works.

One of his first experiments was to “_____” pure breeding _____ pea plants with pure breeding _____
(_____) pea plants. What would the offspring be? _____ in height was the expected result. All the
offspring were _____. This result was the same for hundreds of plants.

Then Mendel crossed pure breeding _____ seeded plants with pure breeding _____ seeded plants. Would
this result in an _____ seed shape/texture? All of the seeds were _____. There was no
_____. Mendel began to believe that some heritable traits were “_____” and some
were “_____”. With the help of a mathematician friend, Mendel came up with a way to represent the
inheritance of dominant and recessive traits.

CAPITAL LETTER = _____ (ie. T = _____)

SMALL LETTER = _____ (ie. t = _____)

Additional experiments led him to believe factors were inherited in _____, ie. _____ of each. (*we now know there
are homologous chromosomes and each carries an _____*).

HOMOZYGOUS = two of the _____ factor (ie. _____)

HETEROZYGOUS = two _____ factors (ie. _____)

(*note that Mendel called them factors, we now know them as _____/alleles*)

Pure breeding (_____) tall plant = _____

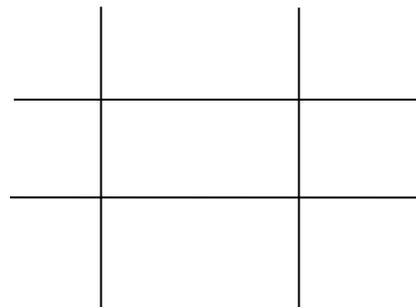
Pure breeding (_____) short plant = _____

The cross would be written as: _____ x _____ (*x means _____ with*)

Mendel's friend, Punnett, helped him come up with a mathematical way to represent the _____ and this came to
be known as a _____.

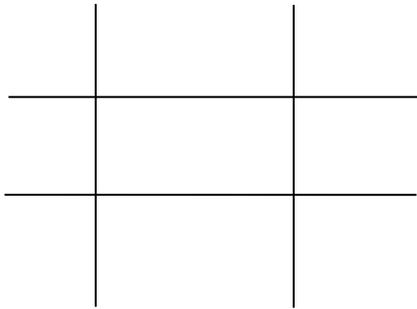
The cross and the square are written like this:

_____ x _____ (T = tall, t = short)



Since T is _____ (t is _____), the dominant T would _____ the recessive t. All the
offspring would show the dominant trait and be _____ (and _____).

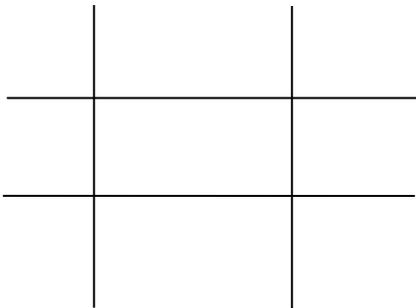
Cross a _____ seed with a _____ seed. The cross and the square are written like this:
 _____ x _____ (R = round, r = wrinkled)



Offspring are called the _____ generation (_____ generation) compared to the _____.

All the offspring would show the _____ trait and be _____ seeds (and _____).

Cross two F1 generation seeds to get the _____ generation offspring. The cross and square is written like this:
 _____ x _____ (R = round, r = wrinkled)

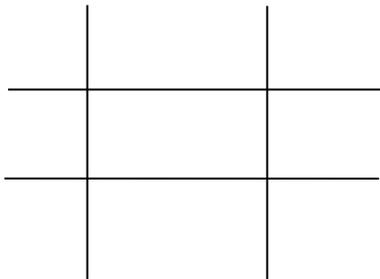


Offspring are called the F2 generation.

____/4 are round, ____/4 is wrinkled.

A ____:____ ratio. This was further proof to Mendel that one trait was dominant since it appeared more often.

Cross a _____ tall plant and a homozygous short plant. The cross and square is written like this:
 _____ x _____ (T = tall, t = short)



____/2 are tall, ____/2 are short.

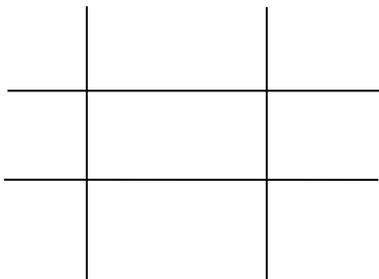
This is a ____:____ ratio.

Mendel performed all these experiments and documented everything before he finalized his theory which we call "_____"

PHENOTYPE = the outward _____ or _____ of a trait (ie. _____, _____).

GENOTYPE = the actual _____ (factors) causing the phenotype (ie. _____ or _____).

For example:



Phenotype ratio of offspring =

_____ tall : _____ short

Genotype ratio of offspring =

_____ : _____

(note: always reduce to lowest)

