

SEX-LINKED INHERITANCE

- This is a form of inheritance where the gene/allele for the characteristic being studied is on the _____ chromosome.
- Diseases such as **colour-blindness** and **haemophilia** are inherited this way, and are more common in _____ than females.

HAEMOPHILIA

- **Alleles, Genotypes and Phenotypes for Haemophilia (Blood-Clotting Inability)**

X_H – allele for normal blood clotting

X_h – allele for haemophilia

X_HX_H – genotype of normal female

X_hX_h – genotype of haemophiliac female

X_HX_h – genotype of carrier female (with normal blood-clotting ability, but who can pass the _____ gene to her children)

X_HY – genotype of normal male

X_hY – genotype of haemophiliac male

- **Example 1 – Haemophilia**

A man with normal blood-clotting ability (X_HY) marries a woman who is a haemophiliac (X_hX_h). The possible phenotypes of their children are ...

	X_H	Y
X_h	X_HX_h	X_hY
X_h	X_HX_h	X_hY

Possible genotypes = 1 X_HX_h : 1 X_hY

Possible phenotypes

= 1 _____ female : 1 _____ male

- **Example 2 – Haemophilia**

A normal woman (X_HX_H) marries a haemophiliac man (X_hY). The possible genotypes and phenotypes of the children are...

	X_H	X_H
X_h	X_HX_h	X_HX_h
Y	X_HY	X_HY

Possible genotypes = 1 X_HX_h : 1 X_HY

Possible phenotypes

= 1 _____ female : 1 _____ male

RED-GREEN COLOUR BLINDNESS

- **Alleles, Genotypes and Phenotypes for Colour-blindness**

X_c - allele for normal colour vision

X_c - allele for colour-blindness

$X_c X_c$ - genotype of normal female

$X_c X_c$ - genotype of colourblind female

$X_c X_c$ - genotype of carrier female (with normal colour vision, but who can pass the defective gene to her children)

$X_c Y$ - genotype of normal male

$X_c Y$ - genotype of colourblind male

- **Example 3 – Colour Blindness**

A male with normal vision ($X_c Y$) and a colourblind female ($X_c X_c$) have children. The possible genotypes and phenotypes of the children are ...

	X_c	Y
X_c	$X_c X_c$	$X_c Y$
X_c	$X_c X_c$	$X_c Y$

Possible genotypes = _____

Possible phenotypes
= _____

- **Example 4 – Colour Blindness**

A carrier female ($X_c X_c$) marries a normal-visioned male ($X_c Y$). The possible genotypes and phenotypes of the children are...

	X_c	X_c
X_c	$X_c X_c$	$X_c X_c$
Y	$X_c Y$	$X_c Y$

Possible genotypes
= _____

Possible phenotypes
= _____