L.O. 3.3.2 (k) Investigate the complexity associated with the genetic inheritance of traits by hybridising two varieties to determine the rate of transfer of the required trait (e.g. petal colour) to the next progeny

Link alert - strand 1 & cross cutting themese - breeding & genetics

Investigate: Observe, study or make detailed and systematic examination, in order to establish facts and reach new conclusions

What plants could you hybridise in your local area?

Video 1

Video 3

Identify Key terms & Definitions

Plant breeders follow complex schemes that involve cross-pollinating two plants that have been involved in breeding for several generations. This results in offspring that have been enhanced for better seedling survival, larger, stronger plants, or higher yields. This is known as "hybrid vigour."

Watch video 4 here and video 1 and explain how to hybridise plants (Cross Pollination)

Observe, study, make a detailed and systematic examination

Link alert - LO 3.1(b) - principles of genetic improvement & selection

Answer each of the following:

Hypothesis

Prediction

Link alert - LO 3.3(a) - compare with grass growth cycle

Watch **video 1** and describe the growth cycle of the *brassica rapa* plant.

Germination

Growth & Development

Flowering & Reproduction

Seed Development

Video 2

If the lifecycle of the *brassica rapa* plant is 40 days, based on the growth cycle in video 1 and on your genetic crosses, how long would it take for the green stem to appear after the initial parent cross?

What new conclusion did you reach from this investigation?

Detailed and systematic examination - establish facts & reach conclusion

After watching video 2 & 3 show by means of a genetic cross how the traits for the purple and green stems are passed on if two homozygous parents are crossed.

Purple stem is dominant (PP) and green stem is recessive (pp)

If the F1 generations were cross pollinated, show by means of a genetic cross the results of hybrid varieties