## Investigating patterns of inheritance

### Investigate the result of crossing two plants heterozygous for pigment.

Your group has been provided with ~ 20 barley seeds that are heterozygous for pigment. You will be responsible for collecting the results for these seeds. Your results will be combined with the results from all groups in the class to produce a larger sample size.

* The genetic barley demonstrates dominant/recessive inheritance where green pigment G is dominant over yellow pigment g. Green, and yellow (or white) phenotypes can be observed.

**Prediction:**

What genotype and phenotype ratios would you expect to observe when you cross two plants heterozygous for pigment?

*Use your knowledge of single gene inheritance to answer the following questions. Your answers to these questions will assist you to make your prediction.*

1. What colour would you expect leaves containing chlorophyll to be?

1. What colour would you expect leaved that don’t contain chlorophyll to be?

1. If the parent plants are heterozygous for pigment, and green pigment is dominant, what colour would you expect them to be?

1. If you crossed two barley plants heterozygous for pigment, what genotype and phenotype ratios would expect to observe in the resulting seedlings? Show how you would work this out. (green pigment G and yellow pigment g)
2. Predict how many of 20 seeds heterozygous for pigment you would expect to have green pigment and how many you would expect to have no green pigment?

**Results:**

*Record the results below* for each of the 20 seeds heterozygous for pigment you germinated*. You will need to decide on the most suitable way to record your results. You will need to record both your group’s results and the class results.*

**Analysing the results:**

**Group results**

1. How did your group’s results compare with your prediction?
2. Suggest reasons for any inconsistencies in your results.

**Class results**

1. How did the class results compare with your prediction?
2. Suggest reasons for any inconsistencies in the results.
3. What affect did increasing the sample size have on the reliability of the results? Why?