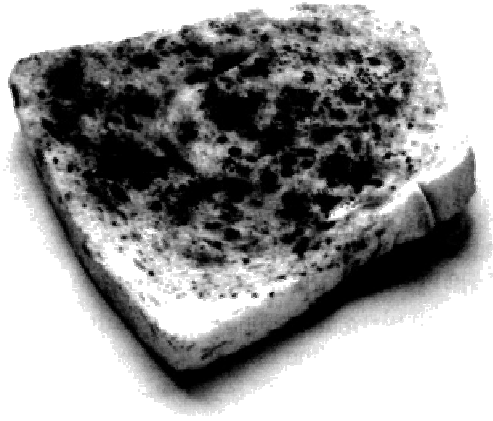


Date: _____

Activity 1: Scientific investigation of the growth of bread mould (part 1)

**Instructions:**

- (1) Each group will receive a small piece of bread in a sealed container.
- (2) Bring it home and put it in a place as indicated on a label which is affixed over the container.
- (3) The container should remain covered to allow bread mould to grow on the bread.
- (4) The container should be left in the specific place for the whole period except at times of observation.
- (5) Observe the growth of bread mould carefully. Write down your observation on the back of this worksheet every day.
- (6) Hand in the container with the mouldy bread and the record sheet to your teacher on the following date:

Class: _____ **Group no.:** _____ **Date:** _____

Group Members:

(1)_____ (2)_____ (3)_____ (4)_____

.....

Results:

LABORATORY ORDER FORM

To : Biology Lab
From : Mr. Simon Tso

Experiment / Activity

Moulding experiment (part 1)

Please prepare the following items:

On each student's bench (10 groups):

1. White trough 1 pc
2. A small piece of bread (≈ 7 cm diameter) in a sealed container [labelled with class & group number & treatment condition (*) on the outside of the bottom] 1 set

Notes:

<i>* Group no.</i>	<i>Label</i>	<i>Group no.</i>	<i>Label</i>
1	in a freezer	6	on the top of a refrigerator
2	near a window with sunlight	7	near the bath tub in a bathroom
3	in a drawer	8	in a closed shoe cabinet
4	under a bed	9	near a stove in the kitchen
5	in a refrigerator	10	under a lamp on your desk

Class	3C	3H	3J	3L	3Y
Date (Day)					
Periods					
Place	SR102				

LABORATORY ORDER FORM

To : Biology Lab
From : Mr. Simon Tso

Experiment / Activity

Moulding experiment (part 1), follow-up work by the laboratory

Please help capture the image of the mouldy bread from each group of students:

1. Capture the images using a digital camera *immediately after the collection of materials from the class*. The following image shows a good view of the capture:



2. Save the images as *individual files* in the Biology Resource Centre. [The standard format of the file names contains 4 letters/numbers; the first two indicate the class name (e.g. 3C) and the last two the group name (e.g. 01)]
3. The images should be made *available within two days* after collection of materials from students.

Class: _____ Group no.: _____ Date: _____

Group Members:

(1) _____ (2) _____

(3) _____ (4) _____

.....

Activity 2: Activity on observation skills**A. Estimating the length of an object**

Object	Estimated length	Actual length
Forceps (length)	mm	mm
Spotting tile (thickness)	mm	mm
Plastic beaker (high)	mm	mm

B. Estimating the capacity (volume) of a container

Container	Estimated capacity	Actual capacity
Test-tube	cm ³	cm ³
Boiling tube	cm ³	cm ³
Plastic vial	cm ³	cm ³

C. Estimating the weight of an object

Object	Estimated weight	Actual weight
Forceps	g	g
Spotting tile	g	g
Plastic beaker	g	g

LABORATORY ORDER FORM

To : Biology Lab
From : Mr. Simon Tso

Experiment / Activity

Training on Observation (Estimation)

Please prepare the following items:

A. On each student's bench (10 groups):

- 1. White trough 1 pc
- 2. A blunt forceps (#) 1 pc
- 3. A spotting tile (#) 1 pc
- 4. A plastic beaker (#) 1 pc
- 5. A test-tube (#) 1 pc
- 6. A boiling tube (#) 1 pc
- 7. A plastic vial (#) 1 pc

B. On teacher's bench:

- 8. Electronic balance 1 set
- 9. 10-ml measuring cylinder 1 pc
- 10. 100-ml measuring cylinder 1 pc
- 11. 30-cm rule 1 pc

Notes:

The objects must be identical in size, shape & weight (less than 5 % difference) among the groups

Class	3C	3H	3J	3L	3Y
Date (Day)					
Periods					
Place	SR102				

Class: _____ Group no.: _____ Date: _____

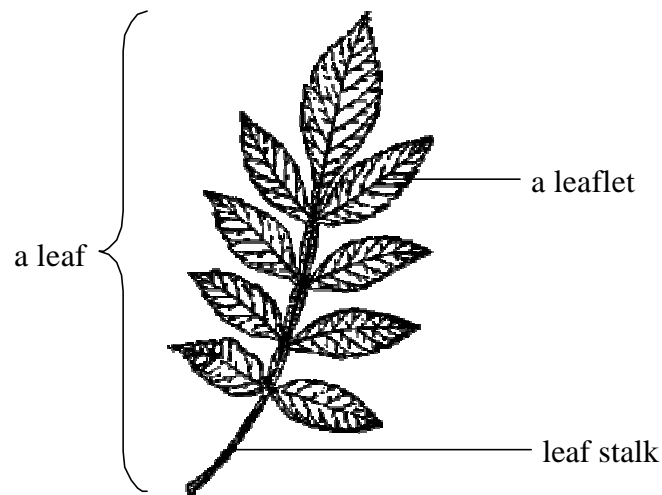
Group Members:

(1) _____ (2) _____

(3) _____ (4) _____

Activity 3: Observing a leaf

You are provided with a plant specimen (a compound leaf). The following diagram gives you some idea about the specimen:



Write down your observations on the *real specimen* as far as possible. Then, divide your observations into qualitative and quantitative ones and put them in the following table:

	Qualitative Observations	Quantitative Observations
1.		
2.		
3.		
4.		
5.		
6.		

LABORATORY ORDER FORM

To : Biology Lab
From : Mr. Simon Tso

Experiment / Activity

Observing a leaf

Please prepare the following items:

On each student's bench (10 groups):

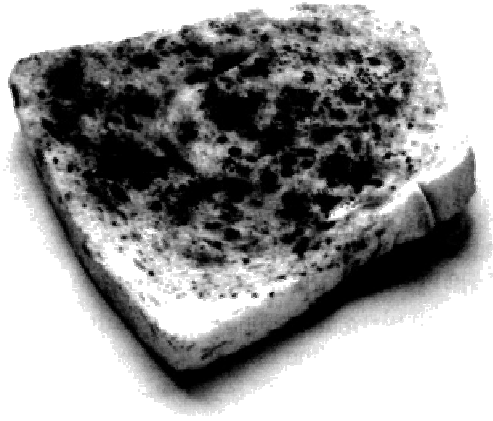
1. White trough 1 pc
2. A compound leaf from *Calliandra haemotocephala* (紅絨球) (#) 1 pc
3. A magnifying glass 1 pc

Notes:

- # The leaves must be intact and better to be freshly collected before each lesson. In order to keep the leaflets well displayed, the leaves may be kept in between sheets of newspaper and pressed with objects of appropriate weight.

Class	3C	3H	3J	3L	3Y
Date (Day)					
Periods					
Place	SR102				

Date: _____

Activity 4: Scientific investigation into the growth of bread mould (part 2)**Instructions:**

- (1) Each group will receive a small piece of bread in a sealed container.
- (2) Treat the bread/container in a way as agreed by the whole class. Bring the material home and follow the treatment for a period of exactly 7 days (day 0, day 1, day 2, day 3, day 4, day 5 & day 6).
- (3) The container should remain covered to allow bread mould to grow on the bread.
- (4) Estimate the degree of growth of bread mould on the bread and note down the results.
- (5) Report your result and hand in the container with the mouldy bread in the next lesson.
- (6) Construct a table to summarize the results of your group. Plot a graph to show the relationship between the degree of 'treatment' on bread and the degree of growth of bread mould. Submit this worksheet to your teacher on the following date:

Class: _____ **Group no.:** _____ **Date:** _____

Group Members:

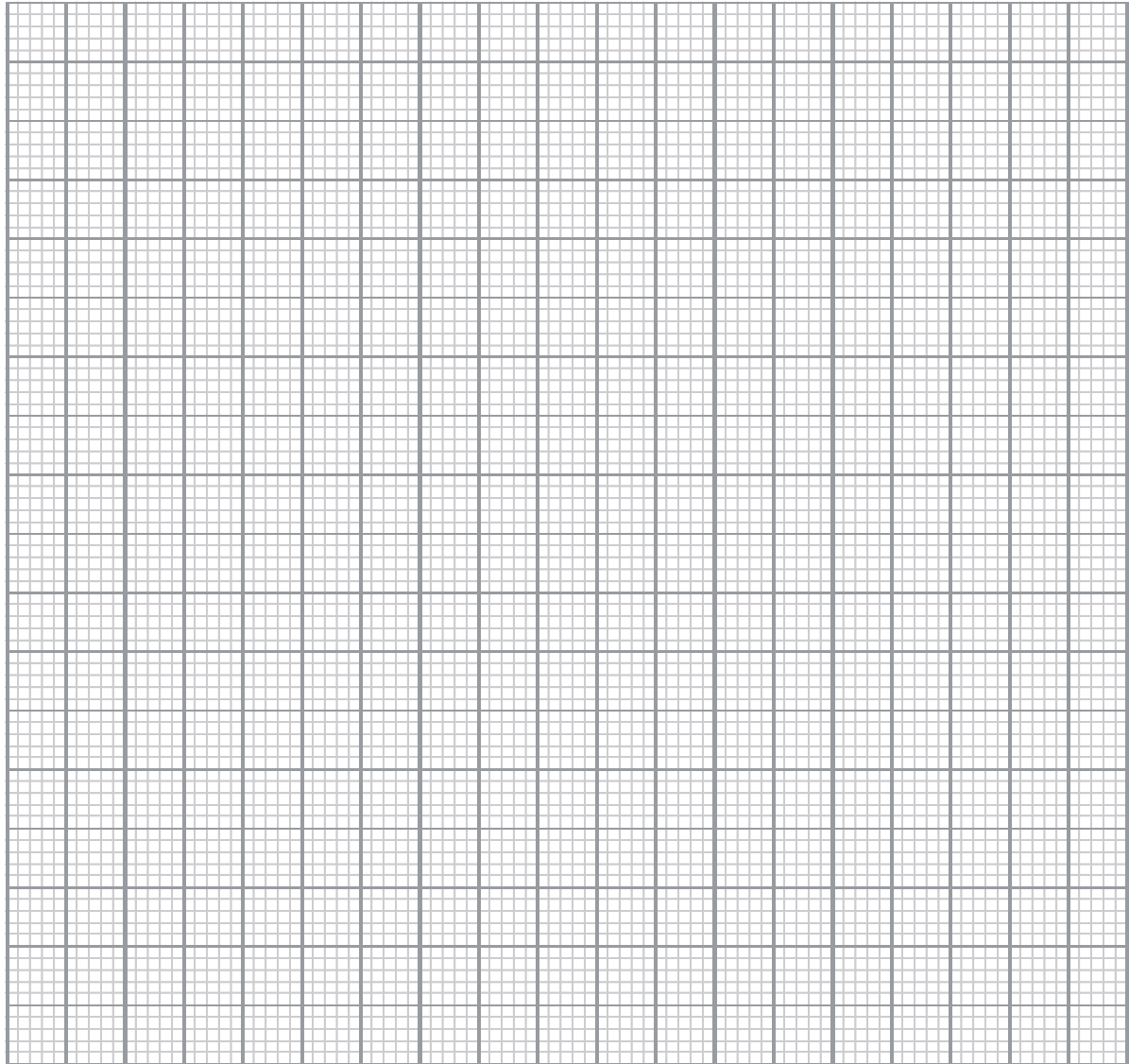
(1)_____ (2)_____ (3)_____ (4)_____

.....

Results:

(construct a table to summarize the results of *the size of the bread mould on your bread on the seven days* using the space below)

(plot a graph to show the growth of bread mould on your bread within the seven days of investigation using the following graph paper)



LABORATORY ORDER FORM

To : Biology Lab
From : Mr. Simon Tso

Experiment / Activity

Moulding experiment (part 2)

Please prepare the following items:

On each student's bench (10 groups):

1. White trough
1 pc
2. A small piece of bread (≈ 7 cm diameter) in a container [labelled with class & group number on the outside of the bottom]
1 set

Class	3C	3H	3J	3L	3Y
Date (Day)					
Periods					
Place	SR102				

LABORATORY ORDER FORM

To : Biology Lab
From : Mr. Simon Tso

Experiment / Activity

Moulding experiment (part 2), follow-up work by the laboratory

Please help capture the image of the mouldy bread from each group of students:

1. Capture the images using a digital camera *immediately after the collection of materials from the class*. The following image shows a good view of the capture:



2. Save the images as *individual files* in the Biology Resource Centre. [The standard format of the file names contains 4 letters/numbers; the first two indicate the class name (e.g. 3C) and the last two the group name (e.g. 01)]
3. The images should be made *available within two days* after collection of materials from students.

Class: _____ **Group no.:** _____ **Date:** _____

Group Members:

(1) _____ (2) _____

(3) _____ (4) _____

.....
Activity 5: Comparison between two grasshoppers

You are provided with two grasshoppers kept in a bag. Compare their external features and write down your observation on the table below:

A. Similarity:

1. Both of them have
2.
3.

B. Difference:

	Grasshopper X	Grasshopper Y
Qualitative features	1.	
	2.	
	3.	
Quantitative features	4.	
	5.	
	6.	

The vocabularies and diagrams on the next page give you some idea about the external structure of insects.

Useful vocabulary:

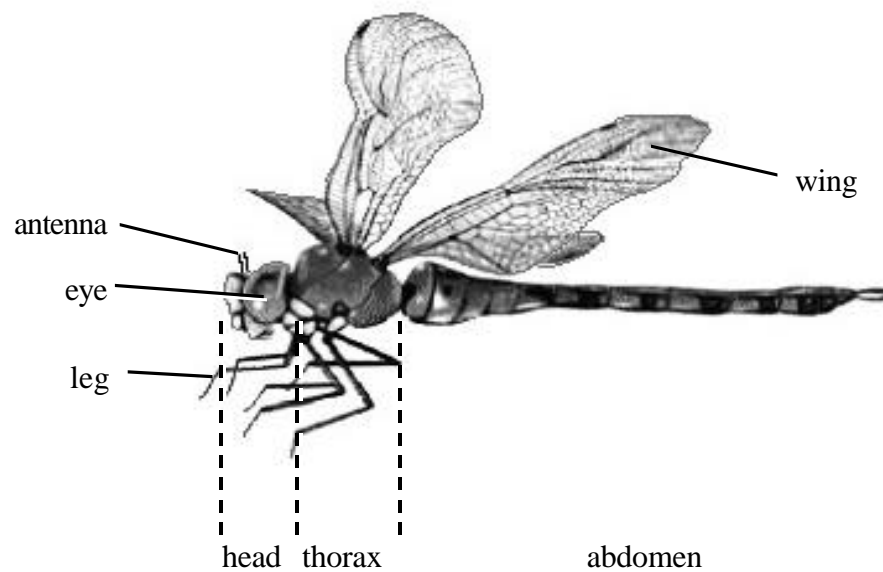
A. about the body structure:

Eye, antenna (pl. antennae), head, thorax, abdomen, segment, wing, leg, spine, hair

B. phrases to describe the body colour patterns

with patches of black colour, with stripes of yellow colour, with spots of red colour ...

Body structure of a typical insect:



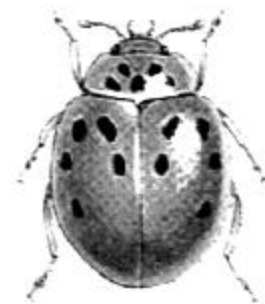
External features of an insect



Body with grey



Body with two black



Body with black spots

Different colour patterns on the body

LABORATORY ORDER FORM

To : Biology Lab
From : Mr. Simon Tso

Experiment / Activity

Comparison between two grasshoppers

Please prepare the following items:

On each student's bench (10 groups):

- 1. White trough 1 pc
- 2. Two grasshoppers of distinctly different size kept in the same transparent plastic bag. (#) 1 set
- 3. A magnifying glass 1 pc

Notes:

The grasshoppers must be living with complete body (with 6 legs, two antennae and complete wings).

Class	3C	3H	3J	3L	3Y
Date (Day)					
Periods					
Place	SR102				