



DARWIN
INSPIRED
LEARNING

Enquire
with Darwin

KS2

Module 1: Life Cycles

Overlapping life cycles

Cabbage (*Brassica oleracea*)

‘Most authors believe that all the races are descended from the wild cabbage found on the western shores of Europe’

Charles Darwin, *The variation of animals and plants under domestication*, 1868

Cabbage (*Brassica oleracea*)

‘Whatever part man values most, that part will be found to present the greatest amount of difference.’

Charles Darwin, *The variation of animals and plants under domestication*, 1868

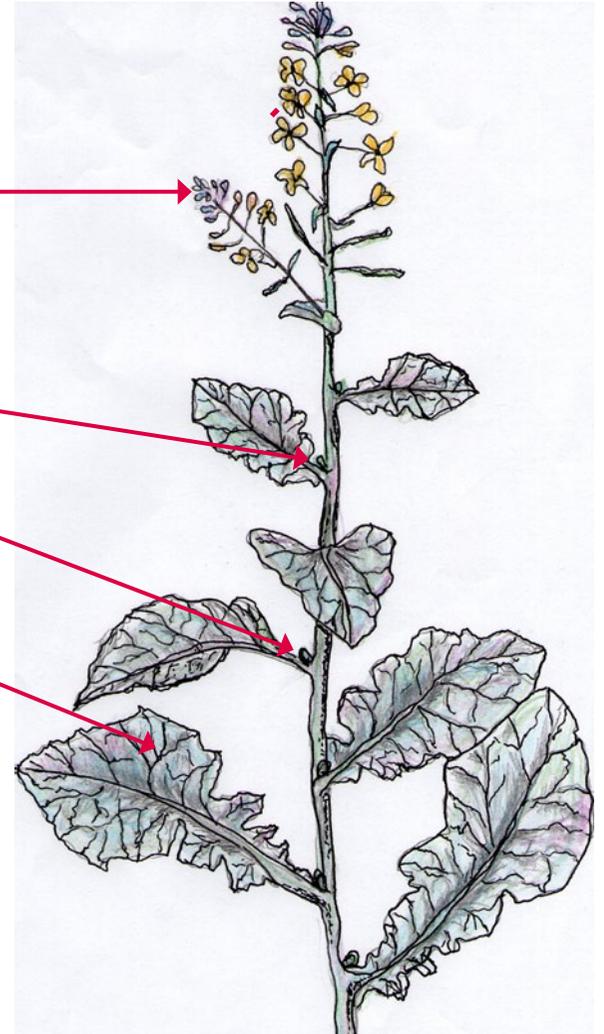
Cabbage (*Brassica oleracea*)

Wild cabbage

flower buds

leaf buds

smooth leaves



Cabbage (*Brassica oleracea*)

Flower buds have become
broccoli and cauliflower

flower buds



Cabbage (*Brassica oleracea*)

Leaf buds have become
Brussels-sprouts

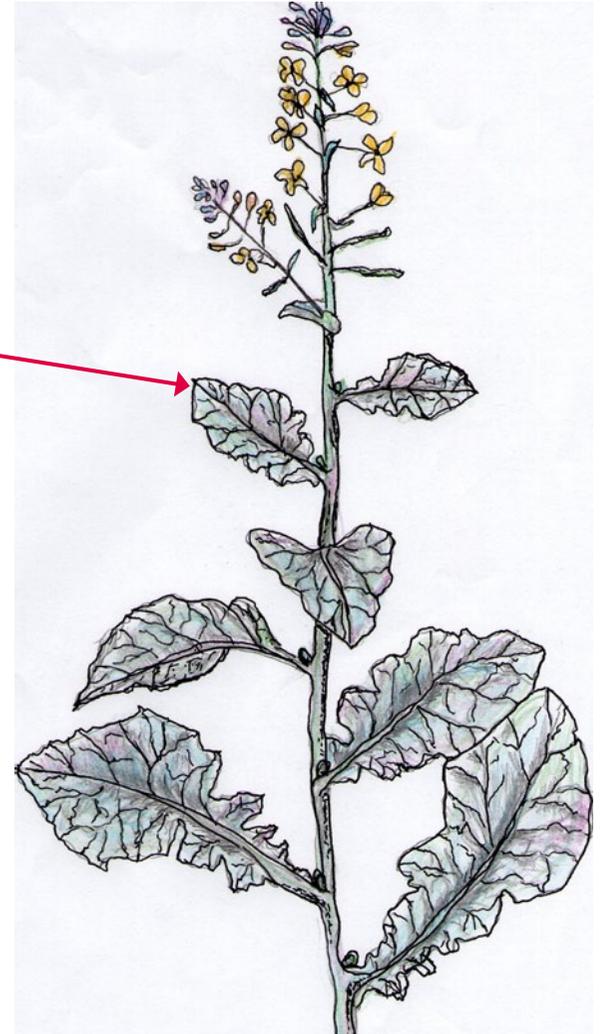
leaf buds



Cabbage (*Brassica oleracea*)

Leaves can now be smooth like spring cabbages, or wrinkled like this Savoy cabbage

Leaves



Interdependence of living organisms

Some insects depend on our cabbages for food and destroy our crop



Caterpillars of the large white butterfly



Aphids (whitefly or greenfly)

Life cycle of the large white butterfly

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www.youtube.com/watch?v=l2SApdV210k

Life cycle of the large white butterfly

Why does the large white butterfly choose to lay its eggs on cabbages?

*‘Where the food of the young depends on where the mother places her eggs, as in the case of the caterpillars of the **cabbage-butterfly**, we may suppose that the parent stock of the species deposited her eggs sometimes on one kind and sometimes on another plant (as some species now do), and if the **cabbage** suited the caterpillars better than any other plant, the caterpillars of those butterflies, which had chosen the cabbage, would be most plentifully reared, and would produce butterflies more apt to lay their eggs on the **cabbage** than on the other plants.’*

(written by Francis Darwin on his father’s preparation for writing *On the Origin of Species*.)

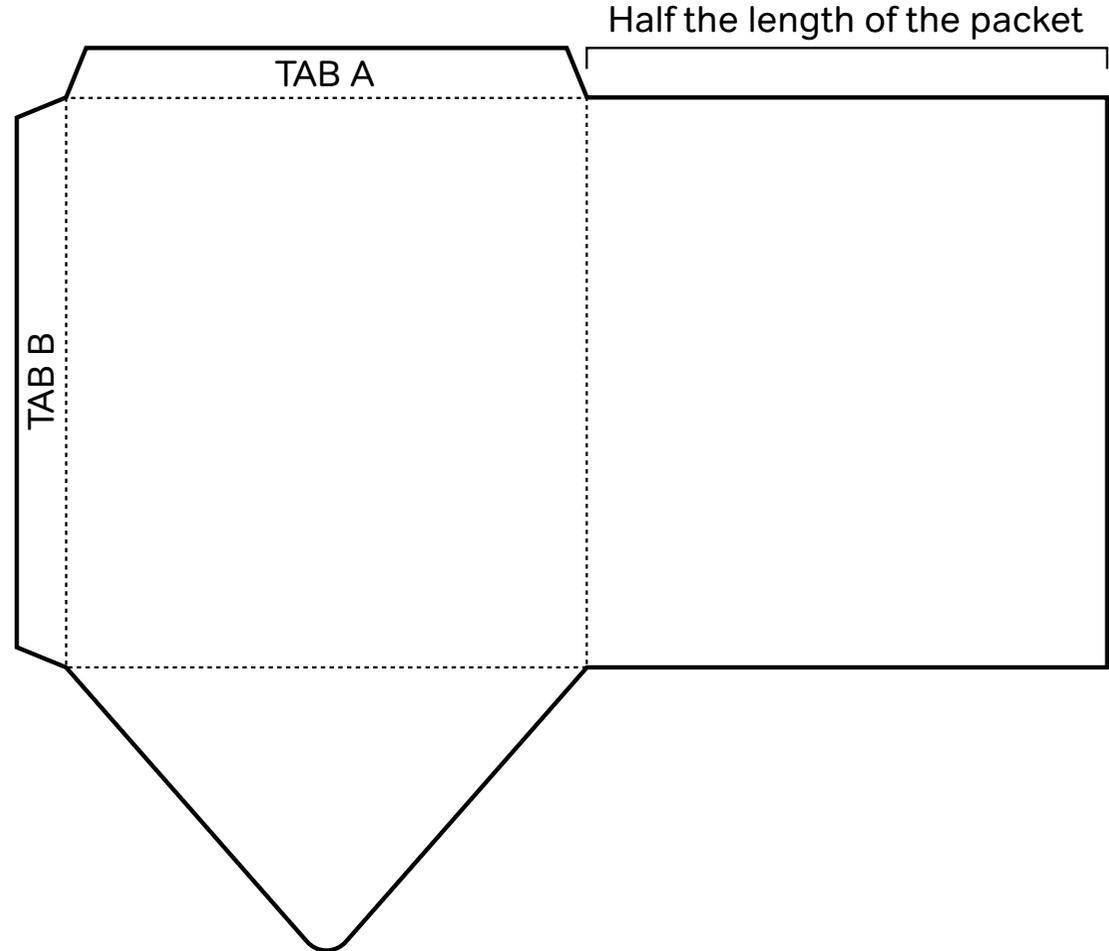


Darwin’s “cabbage butterfly” is the large white butterfly – here on a nectar-rich plant.

Resource materials

Seed packet

Fold over along the lines. Glue tabs A and B in place to make the envelope and leave the long triangle open. This can be folded into the envelope.



Resource materials

Question starters

What is

When will

Why do

How do

What if

Can it

How do

Where will

Resource materials

Sorting cards 1

Gardeners use these methods to limit damage to their cabbages by large white butterfly caterpillars.

Cover the cabbage plants with a small-mesh, butterfly-proof netting.

Soap and garlic water sprayed on cabbage leaves masks its smell and keeps the butterfly away so no eggs are laid.

Companion planting - rows of celeriac or French marigold planted between cabbage rows to mask their smell.

Squash caterpillar eggs on cabbage plants - they are on the underside of the leaf.

Spray plants with the chemical pyrethrum. It kills the caterpillar as it crawls over the sprayed leaves.

Take caterpillars off the leaves. Squash them because birds will not eat them (birds avoid yellow and black insects that taste nasty).

Resource materials

Sorting cards 2

Set out Sorting Cards 1, and put them in order with **most wildlife friendly** at one end and **least wildlife friendly** at the other.

most wildlife friendly

least wildlife friendly

The International Agency for Public Funding
Jacquetta House
Haymarket
London

Dear Young Scientist,

I am pleased to invite you to take a part in a new project. We are asking pupils to let us know if our agency should fund organic school gardens and local community land-share allotments.

Some people believe that gardening is pointless when it is so easy to buy food in supermarkets and we can get vegetables and fruit all year round in supermarkets. Others think that organic gardening in a community is helpful because it offers good quality, cheap food that is grown without using chemicals and encourages gardeners to take exercise. We need you to tell us whether we should give money to these kinds of projects.

Your job as a class is to give us your arguments for or against the funding for organic school gardens and community land-share allotments. There is no right or wrong answer for this project. It is important however, that you give us reasons and evidence to support the claims you make.

When you have finished this work successfully, you will receive a certificate and you will become an honorary member of the International Agency for Public Funding.

I hope that you will enjoy your task. I look forward to reading your reports.

Yours sincerely,

Dr Caitlin Jones
Director

Resource materials

Role play

Families living in flats with no garden

Families that believe organic food is better for them but can't afford it

Unemployed people who find fresh food too expensive

Families that want to have healthy exercise together

Families that want to grow more interesting vegetable than they can buy locally

People concerned about their carbon footprint

People concerned about wildlife and sustainability locally

Parents concerned about the nutritional value of food

People who want to learn a skill that might get them a job

People who want to learn how to prepare, store and preserve food they grow

Parents concerned about pesticides on food

People worried about where supermarkets get their food

Certificate



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