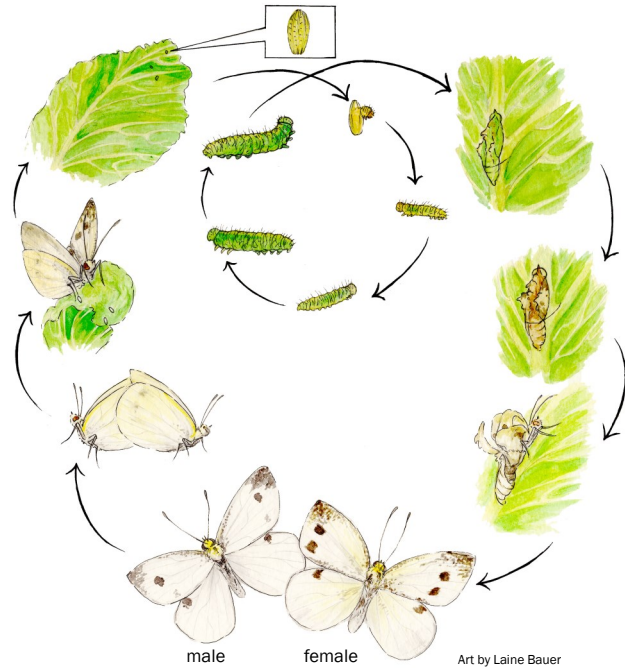


LIFE CYCLE



The female butterfly (adult form) lays her eggs individually (i.e. not in a cluster) on the leaves of the plants, preferentially in open sunny areas. The eggs then hatch into caterpillars (larval form), which feed on the foliage in order to gain nutrients and energy to grow. These caterpillars will only develop completely in warmer temperatures, usually in the range of 15 -30 °C (about 60-85 °F). Once the caterpillars have grown sufficiently, they will begin to pupate, forming a chrysalis, where they will remain until they are fully developed adults. Once fully developed, the adults will emerge from the chrysalis. Adult butterflies with proper nutrition, can potentially live for up to 3 weeks!

Because of their abundance in the U.S., their easy handling, and obtainable food source, cabbage whites are the perfect species to use for a project about the insect life cycle. In this brochure, we have outlined the easy steps you can take at home or in your classroom to rear these animals and watch their progression through life. Use this as a guide to help you rear your own cabbage white butterflies!

More information:

<https://www.pierisproject.org>

<https://butterfly.ucdavis.edu/butterfly/pieris/rapae>



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LEARNING THE INSECT LIFE CYCLE:

CABBAGE WHITE BUTTERFLIES



Photo courtesy of Kathy Keatley Garvey

A GUIDE TO HELP YOU REAR YOUR OWN CABBAGE WHITE BUTTERFLIES!

A LOW COST, LIFE CYCLE ACTIVITY

RAISING THE CABBAGE WHITE BUTTERFLY

CATERPILLAR MATERIALS

- Small plastic aquarium cage /mesh folding cage
- Organic cabbage plant (no pesticides)
- Heat source (sunny window or incandescent light bulb)
- Small paintbrush

COLLECTING EGGS

Where to I find eggs? If you already have access to a garden with cabbage or broccoli plants growing, check the undersides of the leaves for small pointed yellow eggs.

If you don't, then buy a starter cabbage plant or grow a plant from seed, and put it outside during the warm months. Very likely in a few days time there will be eggs laid on it.

Alternative: Catch a female(s) butterfly with a net and put her in a cage. Females have two spots on their upper wings, whereas males have only one. Wash and dry a large cabbage leaf and place it over a cup. Secure the leaf around the rim of the cup with a rubber band. The female(s) will then lay eggs on this leaf.

EGGS

Once you see eggs have been laid, bring the plant inside for better observation or carefully remove the leaf with the attached eggs and put it in a second plastic cage with new leaves.



Photo courtesy of Kathy Keatley Garvey

ADULT BUTTERFLIES

Once you have adults you can do several things depending on your time frame and lesson plan. 1) Some people will prefer to release the adults. Others will not because they are invasive. 2) You may opt to keep them inside and assuming you have a male and female you can try to get them to lay eggs on fresh cabbage leaves to get another generation. 3) A third option is to put the adults in a jar in the freezer for a week. This is a common technique for killing an insect prior to adding it to a collection. For information on how to prepare an insect for a collection visit <https://bohart.ucdavis.edu/how-collect-insects>

CATERPILLAR CARE

- Once the caterpillars start to hatch and feed, transfer them onto a new cabbage leaf about every 2 days. The best way to move them is to use a small craft paint brush (size 4), either picking them up on the brush or gently sweeping them to the new leaf.
- Look carefully since the small, green caterpillars are easily overlooked when they are very small.
- Keep their cage well ventilated, so mold doesn't grow.
- Eventually the fully mature caterpillars will crawl up the sides of the cage to form a chrysalis. This pupal stage will last for about a week and then the adult butterflies will emerge inside the cage!
- Insect life cycles can be sped up with warmer temperatures or slowed down with cooler temperature

Place the butterflies you reared or caught into one of the plastic cages with the nectar solution or sugar-water or honey-water, the prepared cabbage leaf and a heat source (e.g. sunlight, window or incandescent bulb).

A BRIEF HISTORY

Cabbage white butterflies (*Pieris rapae*) are native to Europe but are found all over North America and other continents. They are agricultural pests of plants in the mustard family (*Brassica spp.*) including cabbages, mustard, turnips and broccoli. The front wings of male cabbage whites have one black spot and are white at the base; the front wings of the females have two spots and are greyish at the base. The natural enemies of cabbage whites are parasitoid wasps and social wasps, both of which use the caterpillar to feed their young. **Cabbage white butterfly adults are abundant starting in the spring through the early fall.** They lay eggs throughout the warmer months of the year.