



Brassica Butterfly

Care Instructions

Brassica Butterflies (*Pieris rapae*) are more commonly known as Cabbage White Butterflies. While their larvae have a reputation worldwide as consumers of brassica crops (such as cabbage, broccoli, and canola), the dainty, cream-colored butterflies are important pollinators of many plants.

All biological organisms require care and attention. Brassica Butterflies are easy to rear, with minimal care. These *Care Instructions* are designed to help you successfully rear an entire life cycle of Brassica Butterflies, with or without Wisconsin Fast Plants™. Variations in temperature, humidity, or photoperiod may affect the length of the life cycle. At the end of the life cycle, the eggs can be used to rear more generations of Brassica Butterflies. For ideas about how to use Brassica Butterflies or Wisconsin Fast Plants™ in the classroom refer to www.fastplants.org.

Brassica Butterfly Boxes can be ordered through Carolina Biological Supply Company. Call 1-800-334-5551, or construct your own with household materials and hardware store supplies. See www.fastplants.org for details.

Time needed for entire life cycle: 40-50 days

All times listed are approximate, depending on environmental conditions. It is recommended that you order eggs on a Friday so you can begin the activity on a Wednesday (Day 0). A Butterfly Order Card is included with kits.

5 DAYS BEFORE STARTING: ORDER EGGS



Call 1-800-334-5551 with your CBSC Butterfly Order Card number to order the eggs. The eggs will arrive in about 5 days. It is recommended that you call on a Friday.

CONSTRUCT THE BUTTERFLY BOX

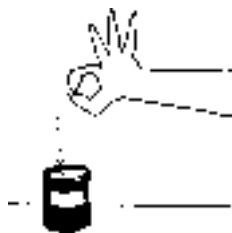
If you ordered a Butterfly Box from CBSC, assemble it according to the instructions. You can also construct your own Butterfly Box by following the instructions at www.fastplants.org



**KEEP THE LIGHT
ON 24 HOURS
A DAY!
OPTIMAL
TEMPERATURE:
68–75 °F
(20–24 °C)**



PLANT SEEDS OF THE BRASSICA PLANT MIX AND ASSEMBLE THE GROWING SYSTEMS



Plant 8-10 seeds of the **Brassica Plant Mix** per pot according to the Wisconsin Fast Plants™ *Growing Instructions*, but **do not thin them** at day 4.



Place each pot into an assembled growing system. (See *Wisconsin Fast Plant™ Growing Instructions*.)



Place the growing system into the Butterfly Box, so that the top of the pots is 10 cm below the light. (Use a box or books to boost them up.)

DAY 0: EGGS ARRIVE



On the same day that the eggs arrive at your classroom, carefully cut the egg strip apart. Distribute the egg strips evenly among the student groups. Students can observe the eggs at this time.



Place each strip, egg side down, on a pot of the 5-day-old Brassica Plant Mix seedlings. (The larvae will migrate to the other three pots of plants in each reservoir.)

DAYS 2-9



Eggs hatch within 48 to 72 hours. The larvae grow and molt over the next 3-18 days and can be observed with care.

DAY 9: MORE FOOD FOR LARVAE!

When the leaves of the Brassica Plant Mix have been eaten away, purchase two stalks of broccoli at a local grocery store, and cut off the head. Wash the remaining stalk and cut it into 2-inch-long pieces (one per group). (Other brassicas, such as cabbage or brussels sprouts, can substitute for broccoli.)

BUILD A BROCCOLI BARN



Cut a piece of paper towel and place it in the bottom of one of the large containers. Place one piece of broccoli in each container on top of the paper towel. Poke 3-4 pinholes in the lid. This is a Broccoli Barn.

TRANSFER LARVAE TO A BROCCOLI BARN



Gently move the larvae to the broccoli stalks, using fingers. Cover with the lid.

CLEAN-UP COUNTS!

Unclean plant growing systems can harbor **plant pathogens** and **nutrient-sucking algae** that can slow plant growth. Be sure to clean all growing system materials thoroughly before using again.

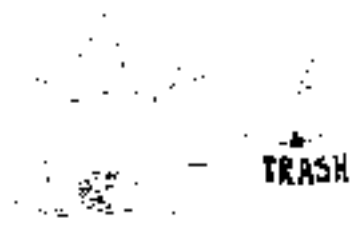
Dirty Broccoli Barns can serve as breeding grounds for **smelly molds**, and for **viral and bacterial diseases** that can wipe out an entire butterfly population. For more information on disease control see back page.

CLEANING PLANT GROWING SYSTEMS



Dispose of the Brassica Plant Mix and soil. Soak the reservoirs, pots, watermats, and wicks for 10 minutes in a bleach solution made up of 95% water and 5% bleach. Scrub, rinse well, and let air dry.

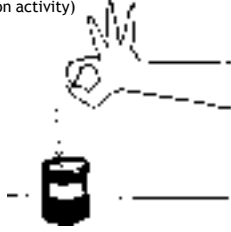
CLEANING FRASS FROM BRASSICA BARNS



Replace the paper towel every 2-3 days to keep the container free of excrement (frass), mold, and disease. Replace the broccoli after a few days if it begins to rot or if the larvae need more food.

DAY 12: PLANT SEEDS OF WISCONSIN FAST PLANTS™

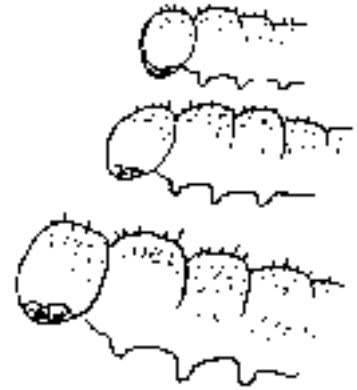
(Optional- depending on activity)



If you are doing an investigation that requires Wisconsin Fast Plants™, assemble the growing systems and plant seeds according to the *Wisconsin Fast Plants™ Growing Instructions*. Continue to keep the light on 24 hours a day until day 19.

DAYS 12-19

Larvae will continue to eat, grow, and molt. Be sure they have adequate food until they pupate and form chrysalises.



DAYS 19-22: MOVE CHRYSALISES

3-5 days after the chrysalises have formed, gently remove them from their attachment sites in the Broccoli Barn. Place each chrysalis on a piece of double-stick tape that is stuck to a piece of paper. Hang the paper inside the Butterfly Box on the side wall.



REDUCE LIGHT



Reduce the light to 18 hours a day with a timer.

ATTACH SCREEN



Attach the screen to the front of the Butterfly Box, following the assembly instructions.

DAY 26 UNTIL DEATH: ADULT BUTTERFLY FOOD

When the butterflies emerge from their chrysalises, they will begin to search for food.

If you planted Wisconsin Fast Plants™ at day 12, the plants should bloom at approximately the same time that the butterflies emerge. Brassica Butterflies will forage on the nectar in the flowers. If you did not plant Wisconsin Fast Plants™ (or you would like to supplement the butterflies' food), make Butterfly "Nectar" feeders immediately after the butterflies emerge.

BUTTERFLY NECTAR RECIPE



In the bottom of a Butterfly Nectar Feeder, place:

- 1 TSP SUGAR
- 2-3 DROPS HONEY
- 1-2 DROPS YELLOW FOOD COLORING

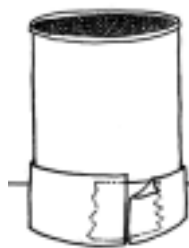
Add warm water and shake well.

Saturate two wicks (10 cm long x 1 cm wide) in the "nectar." Insert the wicks into the hole in the lid. Place the lid on top of the feeder with the wicks protruding about 3 cm.

Clean the feeders and replenish the "nectar" every 3 days until the butterflies die.



CONTINUING THE LIFE CYCLE: MAKING EGG COLLECTORS



Cut a strip of wax paper long enough to wrap around a film can, and about 2-3 cm wide. Tape it to the outside of the film can, at the edge of the base. Make sure all the tape is under the wax paper. Turn the film can over.



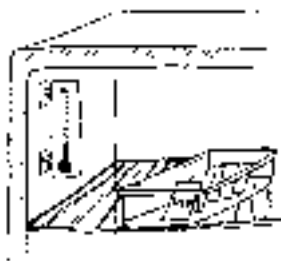
Cut a circle of washed cabbage leaf and glue it to the bottom of a film can. Place the egg collectors in the Butterfly Box. Plant more Brassica Plant Mix seeds. When butterflies land on the leaf, they will lay eggs on the wax paper.



When 20-30 eggs have been deposited on the egg collectors, cut off the wax paper and place it on some young brassica plants, and repeat the life cycle.

ENDING THE LIFE CYCLE

TERMINATE THE BUTTERFLIES



Although Brassica Butterflies are found in all regions of the country, it is not recommended that you release them. When you wish to discontinue the life cycle, place the eggs, larvae, and/or butterflies in a freezer overnight.

CLEAN UP



Soak the reservoirs, pots, watermats, and wicks for 10 minutes in a bleach solution made up of 95% water and 5% bleach. Scrub, rinse well, and let air dry.

Disease Control

Occasionally (at a rate of less than 5%) you may detect evidence of a bacterial or viral infection in a larva or chrysalis. The larvae or chrysalis may look a little soft and then turn brown and "oozy". If you suspect that a larva or chrysalis has become infected, remove it immediately from the Brassica Barn or Butterfly Box and dispose of it before it infects the other larvae or chrysalises. Wash your hands thoroughly. Clean the Brassica Barn or Butterfly Box with a 5% bleach solution, replace the paper towel, and add a new piece of broccoli. Wash your hands again.

For more tips, investigation/activity ideas, or full-color photographs, go to www.fastplants.org



To order Wisconsin Fast Plants™ materials and seeds:
Carolina Biological Supply Company, 2700 York Road, Burlington, NC 27215 1-800-334-5551 Ordering
info: www.carolina.com/fastplants Activity ideas: www.fastplants.org

Wisconsin Fast Plants™ Seed Stocks Available: Standard • Purple Stem, Hairy • Non-Purple Stem, Hairless
Non-Purple Stem, Yellow-Green Leaf • Yellow-Green Leaf • Petite • Rosette-Dwarf • Tall Plant • Variegated • F₁ and F₂ Genetic Stocks