

Pollination by parcel

Grades 6 to 8, ages 11 to 14. One 50-minute session.

Milkweed does not shed pollen. It packs it into saddlebags that clip onto an insect leg. Students model the mechanism, then work out why fewer than one flower in fifty ever sets a pod.



R. A. Nonenmacher. CC BY-SA 4.0. Wikimedia Commons.

What students will be able to do

- Describe the pollinarium and how it is transferred.
- Explain why the mechanism is both precise and inefficient.
- Connect a structural feature to a measurable outcome.

Materials

- Fresh milkweed flowers if available, and a hand lens
- Pipe cleaners, small paper clips and card to model the mechanism
- The milkweed pollination guide

How it runs

1. Ask how pollen normally moves. Collect the usual answers: wind, bees carrying loose grains.
2. Show a milkweed flower. Point out that there is no loose pollen anywhere on it.
3. Explain the structure: two waxy sacs joined by arms to a clip, hidden in five vertical slots.
4. Model it. A paper clip on card with narrow slots, and a pipe cleaner as an insect leg. Students try to pick up and then deposit a clip, using only the leg.
5. Count the class success rate for transfer. It will be low, and that is the lesson.
6. Give them the real figure: 1 to 2 per cent of flowers set fruit. Ask whether their model matches.

Discussion questions

- Why would a plant evolve a mechanism this demanding rather than shedding loose pollen?
- Small insects sometimes die trapped in the slots. Is that a design flaw, or is it acceptable to the plant?

- A milkweed patch spreading by root is often one plant, and it cannot pollinate itself. What does that mean for a garden?

Taking it further

Only orchids do anything similar. Compare an orchid flower and ask what the two families have in common.

Safety

Milkweed sap. Gloves, and nothing near eyes.

NGSS alignment

Code	Performance expectation
MS-LS1-4	Use argument based on empirical evidence to support an explanation for how specialized plant structures affect the probability of successful reproduction.
MS-LS1-5	Construct an explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

<https://milkweedusa.com/learn/pollination-by-parcel/>