

Reading Selection

Fast Plants for Fast Times

The Wisconsin Fast Plant™ is the plant you will be using for your experiments in this unit. It took Dr. Paul Williams, who is a professor and researcher at the University of Wisconsin, about 15 years to develop it. Fifteen years may seem like a very long time to spend breeding a plant, but think of all that he accomplished. Through selective breeding, Dr. Williams was able to speed up the plant's life cycle, making it 10 times faster than that of its ancestors. Today, this small, yellow-flowered plant whizzes through its entire life cycle, from seed to seed, in just six weeks.

Dr. Williams had an interesting reason for wanting to develop a fast plant. He is a plant pathologist, and his job is to study plant diseases and to find out if some plants inherit the ability to fight off diseases. In order to speed up his work, he needed a fast-growing plant to use in his studies.

Dr. Williams started with a world collection of more than 2,000 *Brassica* seeds and planted them in his laboratory using planting, lighting, and watering equipment almost exactly like what you will use. He observed that out of the 2,000, only a few plants flowered much sooner than others. He took advantage of these exceptional plants by cross-breeding them. These few would be the parents of his next generation of plants. Dr. Williams wondered what kind of offspring these faster flowering parents would produce. Would the offspring inherit the ability to flower earlier than the average *Brassica* plant?

Yes! In fact, a few of the new plants even flowered a little faster than the parent plants. These slightly faster offspring were then cross-pollinated, becoming the parents of the next generation.

Dr. Williams continued to use this method of selective breeding for years. He grew populations of 288 or more plants in each generation. He cross-bred the earliest flowering plants of this

population and used their seeds to grow the next generation. In each new generation, he found that about 10 percent of the plants flowered slightly earlier than their parent generation had.

The selective breeding project was a grand success. The result is what is now known as Wisconsin Fast Plants™. Besides developing a six-week growth cycle, Dr. Williams was able to breed in other desirable qualities that make the plant a nearly ideal laboratory tool. Some outstanding traits of these plants are:

- They produce lots of pollen and eggs, resulting in many fertile seeds.
- Their seeds do not need a dormancy (or rest) period, so they can be replanted immediately.
- The plants are small and compact.
- They thrive in a crowd.
- They grow well under constant light.

Wisconsin Fast Plants™ have become important laboratory research tools all over the world. Soon they will be part of National Aeronautics and Space Administration's space biology program. But most exciting of all, these special plants are becoming part of school science programs across the country, from the elementary to the university level.

How to Plant Wisconsin Fast Plants™ Seeds: Instructions and Checklist

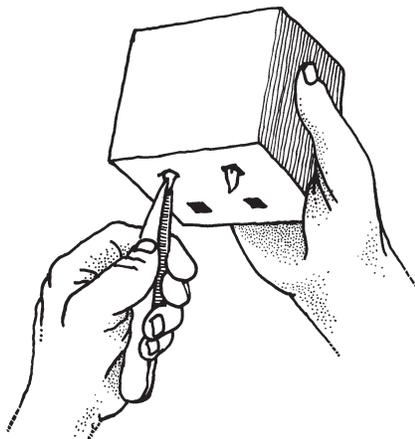
Activity Sheet 2

Name: _____

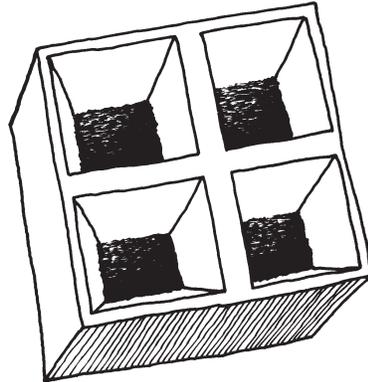
Date: _____

Wisconsin Fast Plants™ are special in many ways. You must follow special directions when planting the seeds. It is very important to follow the directions carefully. Do one step at a time. Check off each step when you finish it.

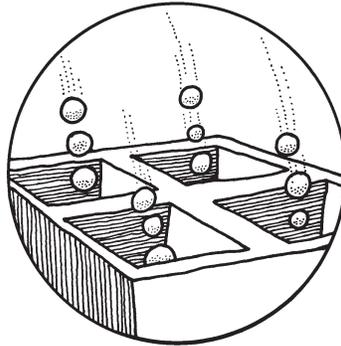
1. Pick up all of your **supplies** from the distribution station. Be sure you have these items before you begin planting:
- _____ 1 planter quad
 - _____ 1 spoon
 - _____ 1 cup of potting mix
 - _____ 4 wicks
 - _____ 12 fertilizer pellets
 - _____ 8 Wisconsin Fast Plants™ seeds
 - _____ 1 toothpick
 - _____ 1 planter label
 - _____ 1 pair of forceps
 - _____ 1 paper towel
2. Place one **wick** in each section of the planter quad. Use your forceps to pull the wick through the hole until the tip sticks out about 1 centimeter.



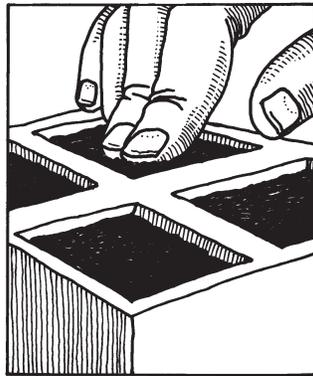
- ❑ 3. Fill each section of the planter quad halfway with **potting mix**.



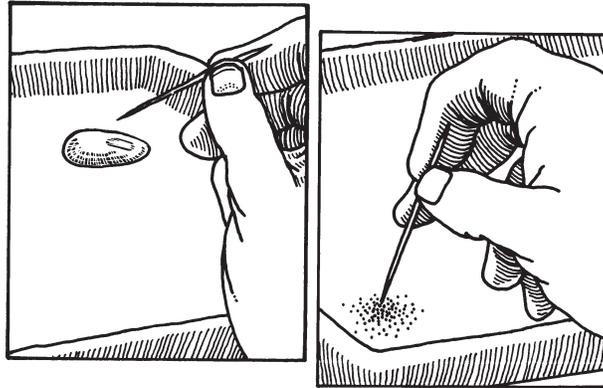
- ❑ 4. Add **three fertilizer pellets** to each section. Look closely. The fertilizer pellets are much larger than the seeds.



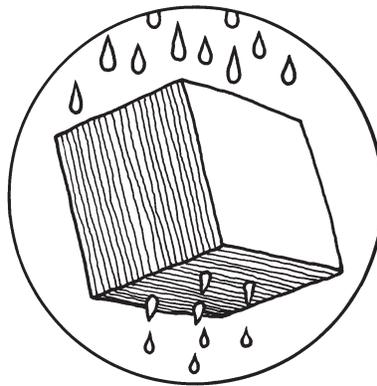
- ❑ 5. Fill each section of the quad to the top with **potting mix**. Press it down a little with your fingers.



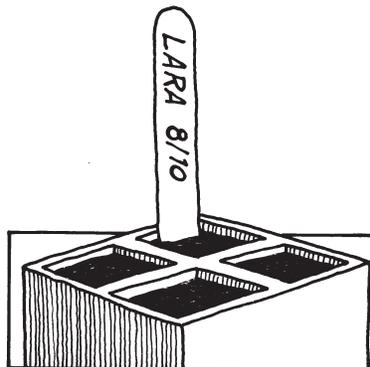
- 6. Put a drop of water on your tray and dip your toothpick in it. Use the wet toothpick to pick up one **seed**. Place the seed just below the potting mix and cover it. Plant a second seed in this section in the same way. Repeat until there are two seeds in each section of the planter.



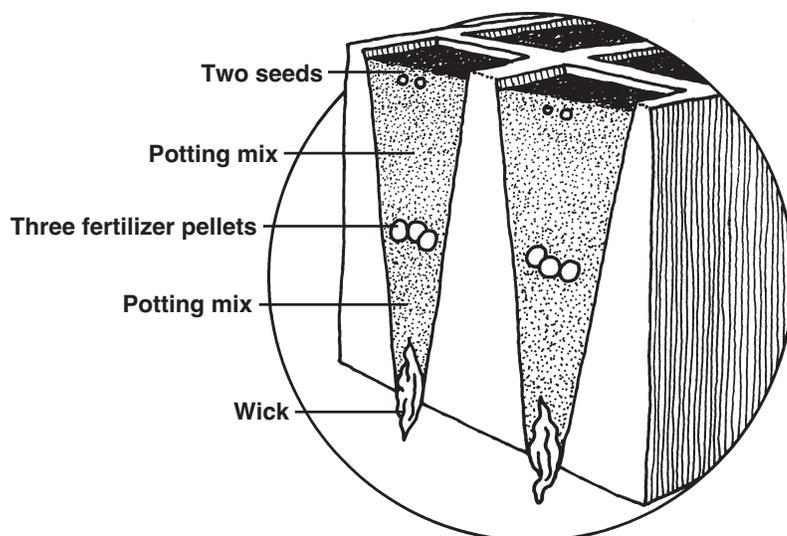
- 7. **Water** very gently, a drop or two at a time, until water drips from the bottom of each wick.



- 8. Write your name and today's date on the planter **label** and place it in the planter.



9. Place your quad under the light bank with the label facing out. Double-check to see that your planter is completely on the **water mat** and that the quad is about 2 to 3 inches from the lightbulbs. If you could see inside of each planter this is what it would look like.



10. Return all leftover **supplies** to the distribution station.
11. **Clean up your work space.**