



## HOW GROUNDHOG'S GARDEN GREW

by  
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Groundhog was hungry, and certainly it was easier to help himself to his neighbors' garden. Thanks to his friend Squirrel, he was able to learn to about the entire planting cycle for many plants. Once he grew his own garden, all his friends were happy.

Growing a garden takes time and patience. Fast plants eliminate some of the need for both these factors as these amazing plants go from seed to seed in 40 days. They were developed by Dr. Paul Williams at the University of Wisconsin in Madison. He was studying *Brassica rapa*, a species of the cabbage family, and he noticed that some plants grew faster than others. For 15 years, he planted seeds from the "faster" plants until he developed Wisconsin Fast Plants™. These special plants have flown in space in experiments to determine how well they would grow under the unique conditions on the Space Shuttle.

The seeds are planted in a quad, and, since fertilizer pellets are planted with the seeds, the plants are easy to maintain. Students monitor the growth by measuring a plant of their choice using a strip of centimeter cubes. Once flower buds appear and open, they require cross-pollination. In the wild, they are pollinated by the cabbage white butterfly. In the lab, they are pollinated by students "acting as bees". Students make a bee stick by gluing a dead bee on a toothpick, and then move the pollen from plant to plant. They do require continuous light.

After successful pollination, the flowers lose their petals and pods begin to appear. In 40 days the pods can be harvested. They can be broken open and the seeds can be counted. Students are amazed at the number of seeds that can be produced by a single seed. This is a great graphing activity. It can be adapted to any classroom using pea or bean pods found at local farm stands or in grocery stores.

**MATERIALS:** sugar snap peas or snow pea pods; paper towels

**ACTIVITY:** Students can work individually or in pairs. They should open their pod and count the number of peas in the pod. The data that is collected can be displayed in a graph using a pegboard and golf tees, if available, or using Post-it™ notes on a wall or blackboard.

**TEACHER NOTES:** The graph needs labeling. Students can label the X axis - the number of peas in a pod and the Y axis - the number of pods. From the graph the following data can be gathered: the mode, the median, the mean, and the range. My students love to use the golf tees as many of their parents (and some of them) play golf. This activity can be done with soybeans and edamame.

**SOURCE:** This activity was presented by Ralph Yulo at the NSTA Fall 2005 Convention in Hartford, CT.

**STANDARDS:**

**BSL:** 1..10, 2.1, 3.3, 5.1, 5.3, 5.4, 8.3, 9.1, 9.2, 9.4, 12.1, 12.2, 12.4, 12.7, 12.9, 12.12

**NCTM:** 1a, 1b, 1c, 2a, 2c, 4c, 4d, 4e, 5a, 6a, 6b, 11 a, 11 b, 11 c

**SCS:** A1, C1, C2, C3, F4, H1, H2, H5

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*Peas in a Pod*

A large grid for graphing data, consisting of 13 columns and 20 rows. The bottom row is labeled with numbers from 0 to 12. The grid is intended for recording the number of peas in each pod.

<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>