**Hydroponic Farm Challenge**

**Seventh Graders Design Soilless Setups**

Hydroponics investigations allowed my students to gain a concrete understanding of the basic needs of plants," says seventh grade teacher Melanie Boulet from New Orleans, LA. After reading and discussing a textbook article on hydroponic farming, Melanie challenged small groups of students to set up classroom hydroponic farms. Each group listed plant needs, then decided what materials they could use to meet those needs. Armed with aluminum pie pans, cotton balls, marbles, test tubes, tape, bean seeds, carrot tops, and more, student groups had two days to create soilless setups.

Based on information from resource books and local nursery contacts, each student group also created a "secret soup" fertilizer mix they hoped would send their plants skyward. The whole class designed data sheets and were allowed five to ten minutes twice a week to care for the farms and collect data. Data sheets included one column for problems that arose and one for steps taken to redress them. "Students learned a lot from creating their own designs," reports Melanie. "Some had to devise ways to prop up their waterborne plants, and came to appreciate the support role typically played by soil. They also welcomed the independence I gave them and the knowledge that they were forging new ground, since none of us had done this type of technological problem solving before." In the future, Melanie says, she'd like to have the students visit a commercial hydroponic greenhouse operation, but only after they'd had the opportunity to mess around with their own ideas and designs.