

News from the school garden , 23rd of May 2005!

Dear pupils,

This is the first newsletter regarding our planting project, there will be many more in the next few months. I am very pleased with the project, and thanks to the help of one enthusiastic parent (Kirk Moverly, a big “thank you” to him!!!), our allotment was cleared out and prepared for this year’s season in time. The first planting day went very well and it was good fun. We were extremely lucky with the weather, when the last class left the allotment, it started to rain, first slowly, and then heavily, and it never stopped during three days afterwards. This meant I didn’t have to water the plants...

It has been a rather cold spring and there was little to see on our allotment so-far. But it is finally getting warmer and everything is growing, particularly the weeds, but also our crops, so let me give you an update on the progress.

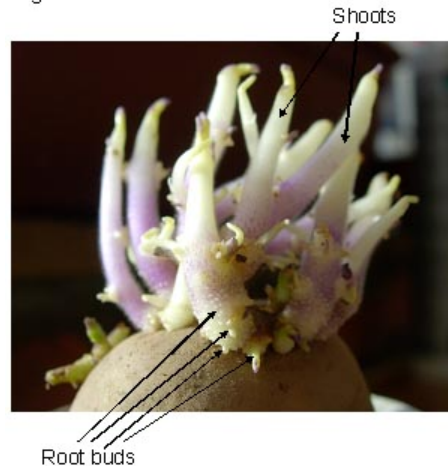
1) Potato science project: “prolonging the season”

When we met the first time, I told you about a little side-project that I intended to try. Scientists love these little side projects because they are usually curiosity-driven and break up the routine of day-to-day research. One of the pupils correctly suggested that it helps to repeat the experiments many times to randomise a range of parameters that are difficult to control (local soil structure, size of planted potatoes, nutrients). Indeed, in my own laboratory we have to repeat experiments many times, and it can get a little boring on some occasions. To get meaningful



Figure 2

Figure 1



results that stand up to peer-review, these repetitions are necessary, but to break up the routine, we often do these side experiments, to try out something new. They are often the beginning of a new project, which then involves lots of repetitions again.

So what did I try out? I placed one of the potatoes from our science project in a drawer to keep it dark and warm (see figure 1). Two weeks after planting the potatoes on the field, I took it out and saw many more shoots that were longer (approximately 3 cm long, that is a bit more than an inch). At the bottom of the shoots the stem thickened a bit and contained many root buds that were just waiting to grow out. I simply took all the shoots off and planted them individually in pots so that the top of the shoot was still visible. Just two weeks after staying in my

greenhouse, the plants grew into nice little plants (figure 2). I then planted those plants on to the allotment, we can see how they will do in comparison with the other potato plants. I was quite pleased with this, because this could be done on the window sill and in principle you could do this in February or March. Above all, these plants came from just one potato, so you can make many plants from one potato. You can try this yourself, I still have some potatoes with shoots, just send me an e-mail (j.denecke@leeds.ac.uk) and I'll let you have some.

When I had to repair the tunnel on the 1st of May, I saw that the plants had already emerged whilst on the field next to it nothing was visible yet. On the 10th of May the plants were already so big that they touched the plastic, it was time to remove the tunnel. I made photos that day (figure 3) so that you can see the difference. The potatoes on the unsheltered rows had also started to emerge, but they were tiny by comparison. However, they are catching up fast now, and there is already much less of a difference. When you visit the allotment this week, you can have a look at the entire allotment and of course your two potato plots. Here are a few tasks that you could complete as part of the project.

- 1) Try to find a way to quantify the differences you observe this week that allow you to plot a graph. Important is that the method has to be non-destructive, we still need those plants to grow undisturbed for another 6 weeks.
- 2) Try to think of a way to analyse the differences between the two growing methods quantitatively, when you harvest the potatoes, what could you measure and how would you do it? There are numerous ways to make observations, try to find as many as possible and explain why each of them should be done.
- 3) Finally, we discussed last time how difficult it is to do this experiment well, to keep all factors constant and to avoid systematic errors. One systematic error is the fact that the tunnel won't let water through. What could you do to compensate for this? This is a tricky question and you may discuss this in class. Another suggestion was to repeat the experiment. Imagine you had a lot of land and you had time enough to repeat the experiment, how would you do it? Draw a planting scheme that would suit the purpose.
- 4) Finally, think of what you could plant on the plot after harvesting the potatoes. Which plants would do well if planted in July? Can you think of another science project for next year?



2) The strawberry field

Strawberries like sunny weather but still need water. Normally, strawberry plants are planted out in July to gather strength for the next season, and you harvest the fruit the next year. We did it differently this year, and therefore our plants didn't have deep roots.

We were lucky that the spring was cold and wet, so the plants survived well. Some have a few strawberries already, and we will have to cover them up unless we want the black birds to eat them all.

I have some 20 strawberry plants in large pots which are making runners. I encouraged the formation of runners by pinching off the flowers. One task for you would be to take care of them now and to watch the runners. When they are big enough and produce potentially new plants, you can guide them into new pots and thus propagate them. This can be best done in school, so that you can watch them every day and act if necessary. For this you need just a few pots and some soil, which I will make available.

We could also learn from the potato science project and cover one row of strawberry plants with a tunnel. The strawberries will ripen quicker, and the tunnel will also protect them from blackbirds. Finally, we will need to harvest them. They might be ready too early for the summer fair, but we will keep the plants for next year on the same spot. To do this, we need to keep them free of weeds. When we visit the allotment this week, I want all of you to take out the weeds in between our strawberry plants, whenever you find one. But you have to be gentle to avoid damaging the crop plants.

Something to think about:

- 1) If you would not remove the weeds, how do you think the plot would look in just one year's time? The answer is displayed on the allotment itself, go and have a look and tell me what you have concluded.
- 2) Can you think of anything we could plant on a free slot on the allotment to grow over the summer? Do you have any suggestions for next years growing project? I have included a photo of the planted area so far (figure 4). Try to draw up a plan of the allotment and design your personal ideal allotment plant with your favourite plants on it.



3) Potato Main crop

This variety of potato is meant to grow during the entire summer. Unlike early potatoes, they wait for warmer weather before they come out, but then they catch up quickly, become very big and grow for much longer. Your plants have already started to grow and are catching up fast with the others. They are still smaller but I have a feeling they might overtake the early variety from the science project. We need to carefully pile up soil around the growing plants to maximise the potato yield. I will show you how to do that and if you all help, it won't take much time. You can watch how years 5&6 harvest their crops in July, and then you'll have to do the same in September when school starts again.

4) Sweetcorn and black beans

It is time to plant the sweetcorn and black bean plants for years R and 1, now that all risk for late frosts have gone past. Last week there was one morning when it was extremely cold (3 degrees Celsius, almost freezing), but I think this will have been the last frost for this year.

As promised, I have prepared sufficient plants in my own greenhouse (figure 5). However, I would be interested in knowing how you have managed with your own plants. Did they germinate well? Which ones came out first? Did you count the numbers of shots every day and did you keep a record? Did anybody make any photos, and above all, are they still alive?

You can compare them with my own plants that grew first in the greenhouse with plenty of light and were planted into bigger pots when they had established themselves and were finally hardened off outside for a week. Do you spot any differences? We can talk about this when we will meet the next time and I have some suggestions about how we can improve things for the next year.



New projects:

1) I would like to start a composting project. This is the time where gardens produce lots of organic waste, which could be composted on our allotment. Parents are encouraged to drop garden waste onto the front of the allotment. This area is currently overgrown by weeds, but it can be used for composting.

2) Some children have spoken to me regarding the possibility of having their own mini plot. There is indeed unused space which could be used. Pupils interested in having their own plot must speak to Mrs. Salih first, and also need support from their parents to help supervising their activities. It is also quite hard work to clear out the weeds first, perhaps a bit too difficult for the children. If this is very popular with the children, I can divide the free space into 10 mini-plots and they can be distributed on a “first comes, first served” principle.

I look forward to seeing everybody again soon.

Cheers,

Jurgen