Level 4 Geography - Using the Laptop as an Integral Part of Learning

PEEL in Practice: 1300 ideas for quality teaching
Sue Odgers, Korowa Anglican Girls’ School

Introduction

I do not adhere to the idea that the laptop is a tool which in itself promotes higher order or creative thinking. Since the introduction of laptops into Year 7, I have used the laptops in my Year 7 Science and Geography classes extensively as a means of presenting work. There has been a choice in the programs used, but the learning strategies have been determined by the activities themselves rather than how the laptop was used. Having become accustomed to the programs and the new skills required to manage this technology in the classroom, I am now interested in developing ideas which will use the computer to enhance or at least incorporate PEEL ideas. The following article describes one attempt which I found to be successful in my Geography class, but I think it may be useful in other areas, and I will be using it in another context in Science later in the year.

The context

The Year 7s had been on a field trip to Sherbrooke Forest and Jells Park. As part of their studies of these two vegetation types, they undertook an investigation of the litter saprophytes. Litter was brought back to the lab and the fungi isolated from both locations. Nutrient cycling, decomposition and saprophytes (in particular, fungi) were all new areas of knowledge. There were significant differences in the numbers and types of fungi found in the litter of the two locations.

The tasks

Students were asked to generate questions that they thought they needed to answer in order to make sense of what they were doing. They did this in groups of 3 and were then asked to select what they thought was their most important question.

A list of these top priority questions was written on the board and copied into the document the girls were using for their field trip report. The questions were:

- What do saprophytes do in the environment?
- How does the litter decompose?
- How does the litter help the forest?
- What are the things which make the litter decompose?
- What does humus have to do with litter?
- What are the differences between epiphytes and saprophytes?
- Why are their different saprophytes in Jells Park and Sherbrooke Forest?
- List and explain the differences in the litter and saprophytes in Jells Park and Sherbrooke Forest.
Each group was then given the task of finding the answer to their question. This required two library lessons. Information was recorded in their field trip file.

One group with a more straightforward question finished before the others. They were given the task of asking the other groups how they were going to present the information. One group required a diagram and another a table.

The groups were then required to put the questions in the order they thought made the most sense. This was made easy by the laptop functions. Groups were combined and a consensus had to be reached. By continuing to combine the groups, the class had finally reached a consensus decision as to the order of the questions. Groups by no means had the same order and quite often vigorously defended their sequence.

The group who had thought about the way in which the information was presented was responsible for the idea beyond the layout, using the diagram in the centre of the page, the table underneath, and the text boxes surrounding the diagram.

Using the question order agreed upon, the students created their initial diagram. At this stage of Year 7, some students are familiar with the draw functions of MSWord, but others are still becoming familiar with them. I still at times underestimate the time needed to complete such tasks. The information for the diagram was provided by the group responsible for these questions.

Students presented their information to the class orally which did not take long. The class was expected to listen first and then construct a text box containing the significant points. The text box could be moved to the most appropriate point with respect to the diagram. They could question the group of presenters as they worked.

<table>
<thead>
<tr>
<th>Litter in the Forest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PLANTS</strong></td>
</tr>
<tr>
<td><strong>ANIMALS</strong></td>
</tr>
<tr>
<td>Litter on Earth</td>
</tr>
<tr>
<td>Surface</td>
</tr>
<tr>
<td>Humus</td>
</tr>
<tr>
<td>Fungi</td>
</tr>
<tr>
<td>Earthworms</td>
</tr>
</tbody>
</table>

**Conditions**

<table>
<thead>
<tr>
<th>Depth of Litter</th>
<th>Sherbrooke Forest</th>
<th>Jells Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>10mm</td>
<td>10mm</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td>Dark brown</td>
<td>brownish-orange</td>
</tr>
<tr>
<td>Temperature</td>
<td>litter-9/air 10°</td>
<td>litter-15/air 14°</td>
</tr>
<tr>
<td>pH</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Moisture Level</td>
<td>fairly wet</td>
<td>medium</td>
</tr>
<tr>
<td>Light Level</td>
<td>227 lux</td>
<td>1748 lux</td>
</tr>
</tbody>
</table>

**What is the difference between Saprophytes and Epiphytes?**
A saprophyte is a living thing that is living on litter and humus (decaying, dead stuff). It was there to get its nutrients. An Epiphyte is something that grows on another plant, but not for its nutrients, only for its support.

**What do Saprophytes do in the Environment?**
If there was no saprophyte, the world would be full of rubbish. The saprophytes decompose the fallen leaves and dead things that have fallen to the ground.

**What is there different about Jells Park and Sherbrooke forest?**
In Sherbrooke Forest it is more wetter, so there is more bacteria because bacteria loves to breed in wet places. The saprophytes are fighting the bacteria. There is much more bacteria in Sherbrooke forest than in Jells Park because bacteria love to breed in the wet. The saprophytes are different at Jells Park and Sherbrooke forest because there is bacteria in the saprophytes in Sherbrooke. Also Jells Park is dry and Sherbrooke is very wet.

**Why were there so few animals in the forest helping the decomposition?**
There were lots of insects helping the forest decomposition, but they insects were too small to see. They are about travelling. We would have needed a microscope to be able to see them.

**What are the things that make litter decompose?**
The 3 things that make litter decompose are fungi, soil animals and bacteria.

**Why does litter decompose?**
Litter decomposes by the animals eating the fallen leaves & plants, by fungi, bacteria. Enzymes help by breaking the cells down and their droppings give the soil nutrients. Bacteria and fungi breaks down the soil even more. This turns into humus.

**Does litter help the forest?**
The litter helps the forest by giving the forest plants nutrients. When the litter decomposes, it forms in humus and gives out nutrients. The bigger the trees grow the more nutrients read.

**What does humus have to do with litter?**
Humus is the litter that has decomposed. The soil animals help the decomposition.

**How does litter decompose?**
Litter decomposes by the animals eating the fallen leaves & plants, by fungi, bacteria. Enzymes help by breaking the cells down and their droppings give the soil nutrients. Bacteria and fungi breaks down the soil even more. This turns into humus.

**Does litter help the forest?**
The litter helps the forest by giving the forest plants nutrients. When the litter decomposes, it forms in humus and gives out nutrients. The bigger the trees grow the more nutrients read.
Only new points were to be included in each box as the space was limited.

Arrows were used to link the information to the diagram. As you can see from the example, this was not always successfully done.

**Evaluation**

I feel that this is the first time I have managed to used the laptop as a tool to promote the type of learning that I encourage. The students found it very challenging both with respect to the technology and the analysis and synthesis of the knowledge and concepts. It took six lessons to complete so it is time consuming. As with all activities in junior levels, it is important not to rush the students and to allow them to complete the task.