An effective approach to the use of computer software in pedagogy – A practical example

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I think the main concept teachers will have to come to terms with concerning the use of computer software in the Primary School is that it should not be considered as a reading book which has to be covered in a sequential way, from cover to cover.

> ❝The teacher must be selective, sometimes to the point of covering just one particular *level* of activity❞

Primary school teachers who are now well acquainted with the use of computer software in the classroom already know that not everything included in a software package is necessarily relevant to the narrow range of curriculum targets addressed to the age group they teach. The teacher must therefore be selective, sometimes to the point of covering just one particular *level* of activity. Whether the children may then be let free to pursue further levels will depend on the main objectives of the lesson.

Below is just one example of the way a particular activity may be fully integrated into the curriculum. As an example, we will take a look at a Year 2 software, Brøderbund's *James Discovers Math*. We will take *Measurement* as the topic of our activity. We will consider the stages required to build a session around the activity. We will also see how the teacher can go beyond the software itself by extending the activity through the use of other software available, namely *Kid Pix Studio* and *Print Shop Ensemble III*.

Preliminary Considerations

Integration of software into the Curriculum content. Let us not leave software activities at the periphery, simply as fillers between one lesson and another. Depending on the needs of the situation, one may decide to make a particular software activity the central focus of a series of sessions. In other circumstances, one may require it to be complementary to other activities covering a particular topic.

Right of access by *all* pupils is paramount. Whatever one does, one must always make sure that *all* children will have their time working on the activity. This will definitely demand proper planning beforehand. A computer activity should *never* be available only to the handful of children who are quicker in finishing other work and are always the ones to monopolise the equipment.

The method of implementation of a software activity must therefore take into consideration three factors:

● The *sequence* within the teaching unit - if the teaching of the concept of measurement may require more than one just one session, I must determine beforehand at which point, in which session, will I introduce the activity;

● The *timing* within the session - should the activity be used as an introduction, as the central part of the lesson, or just as a follow-up?

*The on-screen activity created with **Kid Pix Studio***

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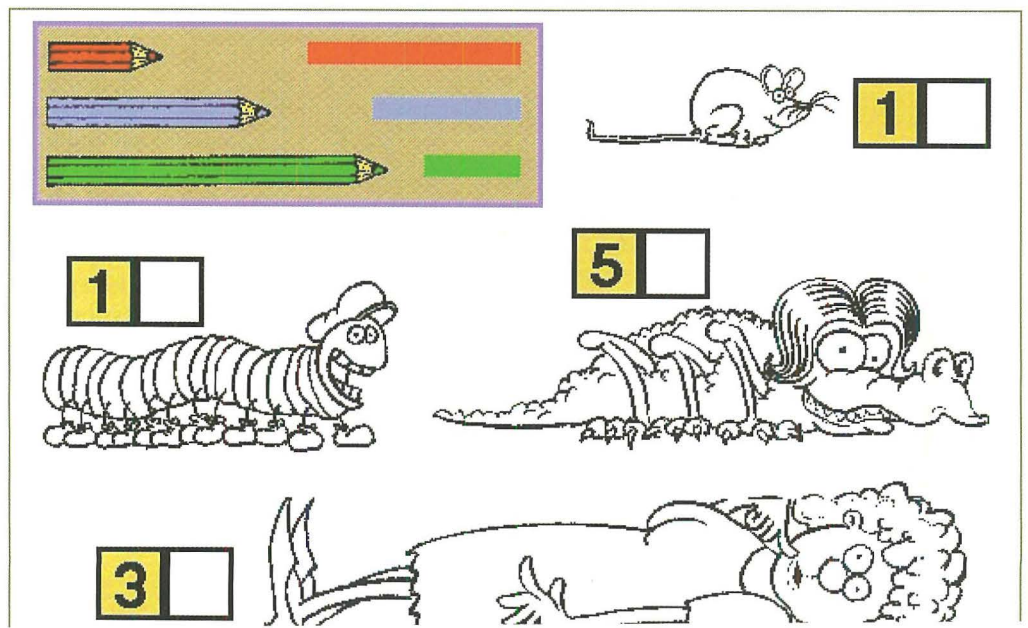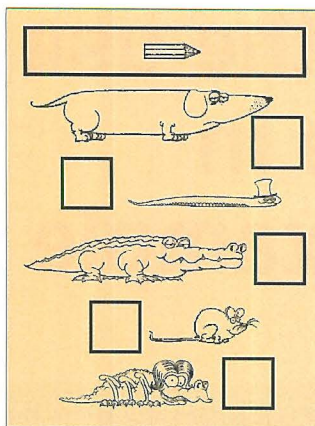
The Handout created with Print Shop Ensemble III

● The *audience* - how will the pupils be organised to work on the activity? There are four options: either as a whole class (gathered around the large monitor), or on the consoles in groups, pairs or individually.

The Syllabus and other references

According to the 1990 Primary School Syllabus for Year 2 (Mathematics section, page 4), points to consider when teaching Measurement and Length at this stage include:

● Helping children to understand what we do when we measure;

● Do not start with a standard measure;

● *Language used: long, longer, longest, short, shorter, shortest, as long as, as short as...*

We will therefore here emphasise the concept of measurement as a comparison of lengths, and we will introduce the tools for this comparison. A perfect candidate for the job is the activity *James' Pencil Box* included in the software. Using pencils of different lengths, the user is required to measure a variety of characters (Fig. 1).

This software package happens to be quite rich in documentation. The activity is well covered in the user's Guide (page 23), the Parents' Guide (page 9) and the Teacher's Guide (page 18). It always pays to refer to these before actually starting your own planning.

Our objectives should therefore include the skill of estimation and the concept of using units for measurement (*not* standard measurements such as millimetres or centimetres at this stage). The teacher may also opt to include *teamwork* as an objective.

Teaching aids

The software package will be just one of a number of resources we will be needing. When making the use of computer software during a session, always keep in mind the fact that more often than not, a number of children will be away from the computers. You should therefore always cater for alternative activities for those pupils who are waiting their turn at the consoles.

For this reason, we may need other objects for use as measuring units (paper clips, straws, crayons of various lengths) and various objects to be measured (books, desktop surfaces).

Complementary activities may also include handouts and on-screen activities on the computer. In this case, *Print Shop* and *Kid Pix* will come in handy.

Method of implementation

As an introduction, *James' Pencil Box* is run on the teacher's Notebook computer for a whole-class demonstration.

The teacher should pick one or two characters and measure them with different pencil lengths. Some children may be asked to repeat the activity in front of their peers to reinforce the procedure. Do not uncover all the possibilities and hidden options of the activity at this point. Leave most of the characters to be discovered by the children themselves later on.

For the follow-up activities the class will then be organised in groups: pairs for the computer activities and the measuring of real-life objects, and groups of four or five for the working of the handout.

The activities

Measuring objects - Pairs are instructed to decide upon a single measurement unit (say, a paper clip) and measure a number of objects. One child may measure while another notes down the measurements for a while, and then swap the roles.

The handout - This is created with *Print Shop Ensemble III*, and makes use of the same graphics appearing in *James' Pencil Box* (for tips of how to capture graphics from a program and then use them for your own activities, refer to the Box-out *Capturing Graphics*). The groups are to have one sheet per member. They must estimate the lengths of the creatures according to the pencil length (Fig. 2) and discuss the estimation before writing down the lengths in the boxes provided. They can proceed in colouring the creatures.

The computer activities - Apart from *James' Pencil Box*, an additional activity can be created with *Kid Pix Studio* (Fig. 3), again by using the same graphics used in *James*. Other graphics using the built-in functions of *KPS* itself can be used anyway. Here, in a more challenging way, the children are to fill in the blank boxes with the colour beside the pencil according to the measurement given. Again, there's also the additional option of colouring in the characters by using the Fill Tool. This activity may be run on two computers while *James' Pencil Box* is run on the other two. Alternatively, it may be run during a different session altogether.

The activities described here are just an illustration of the way software can be fully integrated into the curriculum. Much more can be built around them, depending on the age group, ability and curriculum content covered. Definitely, preparation is the key to success in this case.

Capturing Graphics

Sometimes you may wish to use a graphic included in a particular software for your own teaching aids, such as handouts or charts. Graphics can be 'captured', edited in a graphics utility and then inserted in programs such as *Kid Pix* or *Print Shop*. All the tools you need for this are already on your Notebook computer. This is how to go about it:

1. Run the required software. When the screen you want captured is displayed, press the Print Screen (Prt Sc) key on your keyboard (usually found among the top right group of keys).

2. Exit the program, and run *MS Paint* (START> PROGRAMS>ACCESSORIES).

3. In *MS Paint*, from the menu bar, select Edit>Paste. The captured screen will appear.

4. To save the screen as is, simply select File>Save As.

5. If you wish to save only a part of the screen, use the rectangle selection tool (top second row of the tool bar) to select a smaller area, and select Edit>Copy To. This will give you the facility to save the selected part as a .bmp file.

6. You can then load this into *Kid Pix* or *Print Shop*.

7. While in *Paint*, you can edit the graphic, change or remove colours, and so on. A more powerful graphics program than *Paint* would of course give you more features for editing the graphic.