

TOPIC 6

**INTEGRATING ICT INTO THE
CURRICULUM**

Learning Outcomes

- By the end of the topics, you should be able to:

- In the 21st century, many pre-schools are equipped with computers in their classrooms and interactive whiteboards
- Children start learning basic usage of ICT such as learning to control a mouse, operate music, videos and use simple programmable toys, art software and word processing.

Technology in the Science Classroom

- ICT applications in science supports teachers by keeping students engaged, by drawing their individual scientific information and experiences.

Important aspects when educators use technology in class for science.

Some applications allow children to gather data automatically and instantly display the results

- Children can access instant information and the computer creates a graph from the data provided
- The teacher can then discuss the results gained from the graph patterns and come up with a conclusion with the children.

Children collect data by observing and unfolding objects, animals and plants in their science research.

- They divide their information into groups and classify differences and similarities.
- Dividing objects is a vital experience for young children and they can use simple computer programs to group images of objects by dragging it around the screen using a mouse

The aim of the program as an ICT Integration in science teaching involves:

- To make science lessons more interesting.
- To make science lessons more student-centered.
- To help teachers to organize their teaching
- To introduce the simple and essential experiments using low cost materials.
- To provide the multimedia solution about the experiments which are difficult to perform in class rooms.

- The Intel Play QXA Computer Microscope is an application used for early years science and used by all schools in England.
- Teachers play a big role to encourage and guide children to use such tools.

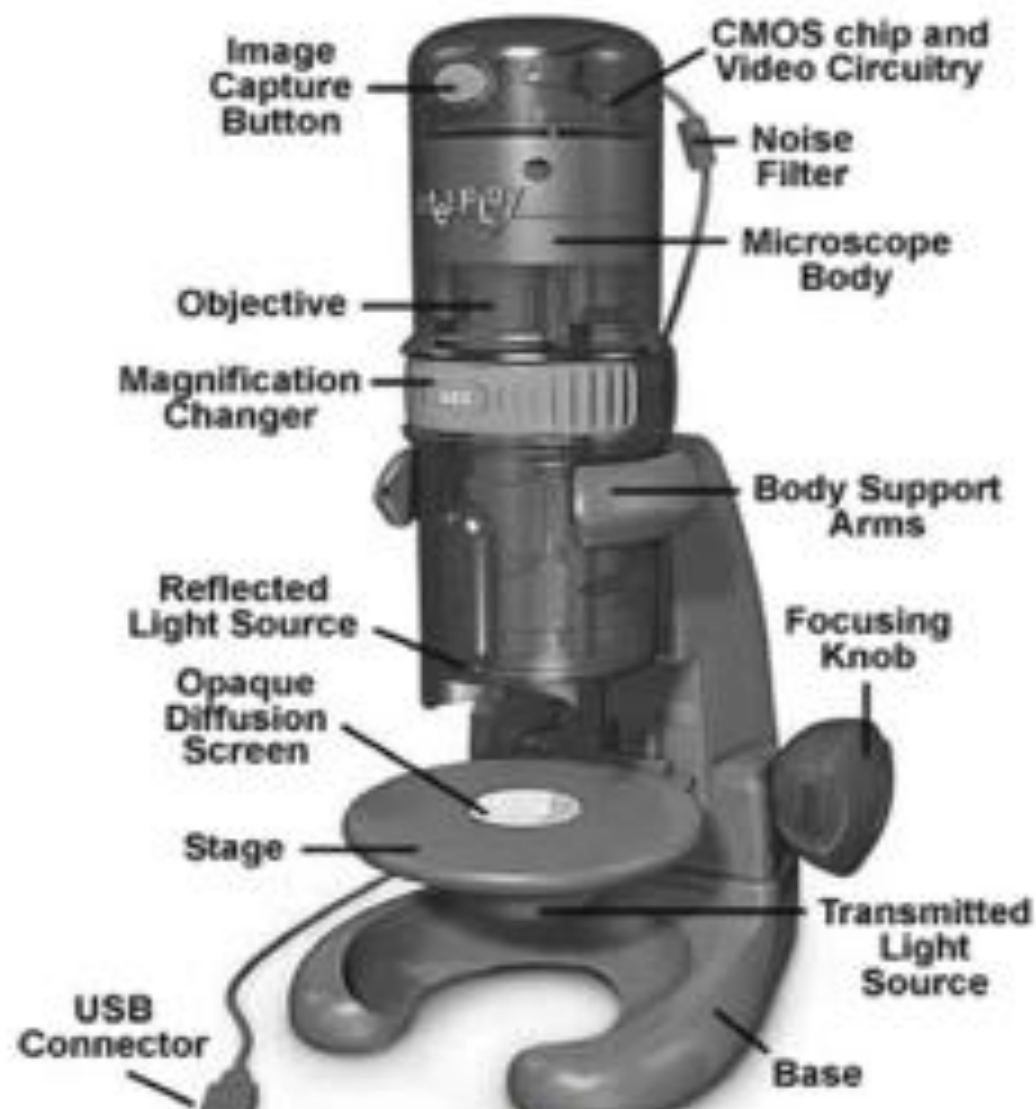


Figure 9.3: The Intel Play QX3 Computer Microscope: Electronic video toy is positioned to capture a generous share of the market in science education using optics, digital imaging, and the latest computer technology
Source: <http://micro.magnet.fsu.edu>

Benefit of Intel Play QXA Computer Microscope :

- Children were excited and driven by what they could see;
- They got the opportunity to see things via the microscope that could not be seen with the naked eye;
- Children share their opinions and ideas by showing the outlook on screen or smart board;
- develops positive learning experience and boost their interest in science;
- Children learn to work independently.

Technology in the Mathematics Classroom

Examples of ICT tools used in Mathematics

1. Using ICT applications to role-play encourage mathematical thinking.
 - Example: a grocery store uses counting, adding and subtracting.
 - By displaying ICT tools such as cash machines, calculators and computers that are used in real life helps create excitement in children and at the same time they learn the real world applications.

2. Using programmable toys inspires children to think in a purposeful way, encourage problem solving skills, counting, spatial relations and planning.
 - A floor robot, like PIXIE can inspire children in counting, estimating, predicting and ordering in an exciting way.

3. View the Swallow Systems website at www.swallow.co.uk for mathematical games and concepts by using PIXIE.
- PIXIE is designed for children from five to eight but many are in use in nursery schools

- Digital cameras is an exciting tool for activities and games to support mathematical growth.
- Teachers using digital cameras can get students out of the classroom and into their environment to capture real-world examples of mathematical concepts.
 - example, photographs of children themselves can make up number lines, or children take pictures of various shapes around the school (teaching shapes to children such as the notice board is rectangular).

- Computer software and websites are available online to support mathematical learning and teaching in a motivating way.
 - example of mathematical games that can be used to teach math available online for free
 - Teachers can also print out worksheets that have been designed for them.

Early Literacy and ICT

- Now days children reading books from Smart Boards, LCD screens and paper books.
- In addition, teachers are using multimedia presentations and videos to increase their spoken and written text.
- ICT could enhance young children reading and writing, particularly, when the technology used includes a speech feedback facility such as a “talking word processor”

Talking books

Advantages :

- helps to expand children word reading in context of the story and out of context too.
- It also develops children interpretation of the stories and provides the meaning of the stories.
- Inspire collaborative reading
- Encourages independent reading by providing sounds of unfamiliar words.

Living books

- Examples of living books:
 - Just Grandma and Me
 - The Tortoise and the Hare ;
 - Arthur's Birthday ;
 - Green Eggs and Ham.
 - Sheila Rae the Brave



- The readers of Living Books move from one page to another in a linear way just like a paper text.
- Children can also click on “hotspots” to activate actions inside each screen.

Benefit of Living Books

- contain animations, a variety of sounds, music and openings for interaction.
- provides features such as when a child clicks on the words, he can hear it read aloud.
- provides good models of English with good contextualized visual and audio support.

Sites that can help literacy for children

- CBeebies Story Circle
 - has a range of stories on screen, including some written in languages other than English, but there is no sound you have to read the stories yourself!
- The Tweenies Sing-a-song
 - has an alphabetical find-a-song facility .
 - Nursery rhymes and songs are good for supporting early reading.

- Children's Storybooks Online/ Rosetta Project/ International Children's Digital Books
 - Some of these texts are scanned versions of out of print children's books, and are occasionally very interesting for adults.
- Fox in Sox
 - provides an anarchic approach to rhyming words, and a range of activities which include making your own electronic story.

VISUAL LITERACY AND PAINTING WITH TECHNOLOGY

MoMA Art Lab

- It uses simple shapes and techniques where children can explore color, balance and shape whilst creating a work of art.
- The designs can be difficult or easy.
- Children can explore the processes of creating abstract modern art, and they can save their final creations to print and display.
- It encourages group collaboration. Children can create a surprise drawing together

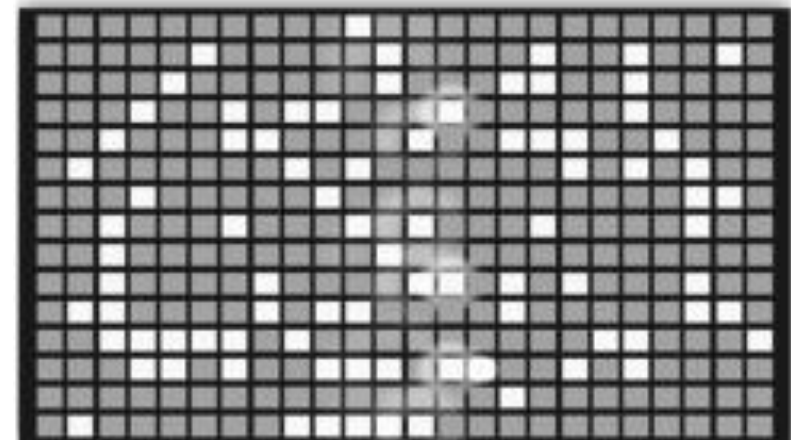
- The Art Lab tools allow the user to create creations that mimic techniques used by the Great Artists and introduce young children to amazing paintings

ICT AND THE LEARNING OF MUSIC

“The experience of music including movement and language can enhance aesthetic development.”

Musical Squares

- It makes it easy for children to create music.
- Music can be created with the touch of a finger.
- All we need to do is tap on the squares and make music.



Benefits Of Musical Square

- Hours of fun for all ages;
- Takes less than 30 seconds to learn how to use;
- Makes use of incredible grand piano sounds;
- Uses the pentatonic neutral scale for pure, clean sounding music!

