Table of Contents

Lesson plans based on using Cyber K'nex Ultra® Manufactured by K'nex Indutries® and available from Haines Education.

NAME

Foreword

Imagine, if you will, going to class knowing that you are going to construct cyber robots. You are going to create working models with interchangeable personalities, you can program your own robot to act as you like... imagine the challenge... imagine the excitement... the high degree of motivation...

For today's students this is a reality.

Imagine as a teacher how engaged your students will be using hands on tasks that spark imagination and creativity while you move through the curriculum, covering designated focus areas and satisfying learning outcomes.

All of this is a reality. This teacher resource book has been written specifically to cover some parts of each of the three strands in the Technology Key Learning Area for the middle years of schooling: Information, Materials and Systems. It deliberately moves away from traditional 'chalk and talk' and teacher demonstration to a student-focused learning approach. It has been written to grasp the attention of the students while maximising learning potential.

There are lesson outcomes, skills and lesson procedures. All lessons include student worksheets or task cards and assessment ideas. All you require are students willing to enter the cyber age within the classroom and wanting to take on the challenges presented to them to develop and foster creativity and the freedom to explore.

The lessons are quite detailed and will require more than one session to complete. Some may require work to be planned and prepared at home. These decisions are best made by you. Some of the lessons have a range of worksheets and evaluation records. Again, you should select the most appropriate for your students and for your evaluation purposes.

Have high expectations of your students. Expect them to learn, expect them to be creative, and expect them to produce their best. Have them reaching for the stars and beyond, and together enter the realm of cyber technology.

Sandra Bishop
Dip. T., B.Ed, Grad. Dip. Ed. Admin., M.Ed.

Cybots

SKILLS/OUTCOMES

- Develop preferred solutions to information problems experienced by various audiences, using a range of information technology skills, processes and equipment.
- Identify some factors that assist in determining the suitability of data sources and presentation styles, and the efficiency of functions and techniques.
- Independently use a range of skills, processes and functions to efficiently process different data types and produce accurate and suitable information that meets the needs of an audience.
- Suggest relevant techniques for minimising the time taken to process data and to improve the suitability of the finished information products.
- Independently apply a range of processing and editing skills and functions to produce an information product that contains minimal topographical, formatting and readability errors for a specific audience.
- Identify the differing characteristics of the types of materials within a particular category of materials.
- Analyse products with reference to specified criteria and explain the effectiveness of the products.

MATERIALS REQUIRED

K'nex construction kits

PROCEDURE

- Hand the students the K'nex materials without any instructions or building designs. Give them a session where they are free to explore the materials and 'play'.
- Focus their attention toward:
  - The particular design features of the various parts
  - The size of the parts
  - The methods of joining that they discover
  - The rigidity/flexibility of the parts
  - The shapes, colours etc.
- Ask the students to explore the materials before them and to record their findings on a spreadsheet. Their spreadsheet should include the following:
  - A variety of fonts
  - A variety of colours
  - At least four columns
  - The use of drawings etc.

You might like to give them some suitable headings or let them come up with their own. An example of suitable headings may be:

Pictorial Representation	Physical Description e.g. long tubular lengths	Variable Size	Descriptive Properties e.g. flexible, rigid
	circular blue and yellow washer	yes	rigid

This has been included as a blank template for students to fill in as they go, before formalising their findings on a spreadsheet.

As a class, share the students' findings and their representations using a spreadsheet. Ask them to explain such things as the headings they chose, fonts chosen, colours etc. Did their spreadsheet convey the intended information to the desired audience? Discuss.

EXTENSION: Look in detail at the following components:

- Cyber processor
- Cyber motor
- Cyber port
- Battery pack
- LED lights

Research how these components work, the inputs required to make them function, the outputs, transfer, transformation of energy etc.

EXPLORATION TASK

Explore the materials you have in front of you.

Build with them exploring their properties.

Design a spreadsheet that conveys to others what you discovered about the materials.

Your spreadsheet must include:

A heading

A variety of fonts

A variety of font sizes

A variety of coloured cells/fonts

and must:

Have at least four columns

Demonstrate the use of the drawing tool bar

NAME

USE THIS TO MAKE NOTES ON AS YOU GO

Pictorial Representation	Physical Description	Variable Sizes	Descriptive Properties	

