

Teacher Training for Content and Language Integrated Learning in the UK, 2005

The LAC (Language Across the Curriculum) course has been running at NILE for a number of years now. I've been involved in its delivery in tandem with colleague John Clegg since 2002.

The course description can be found at the NILE website (www.nile-elt.com):

http://www.nile-elt.com/download/teaching/Language_Across_Curriculum.pdf

Each year the course is put together based on a needs analysis done with the participant teachers. John and I offer a shopping list of subjects we feel work well and based on dialogue with colleagues, we try to make the course fit their specific needs.

Our list includes among others:

- Integrating content and language – what is CLIL?
- Investigating CLIL contexts around the world
- Curriculum demands of CLIL
- Identifying the core language of a subject
- The language of thinking
- CLIL task design
- Providing language support
- Teaching vocabulary in CLIL
- Developing listening in CLIL
- Working with texts and words
- Teaching subject-specific writing
- Speaking and CLIL
- Professional development for the CLIL teacher
- Drama and music
- Classroom language
- Error correction
- Peer observation – watching teachers teach CLIL
- CLIL lesson planning
- Assessment in CLIL
- ICT
- Project work
- Classroom presentations
- Learning strategies
- School policy, administration and management in CLIL
- Networks and resources

Where possible we also offer subject-specific language development for course participants though this can be difficult with a large group of teachers from diverse backgrounds.

In addition, a central part of the courses we run is the preparation of a series of tasks based on the content of the course which colleagues then present to the group at the end of the course.

CLIL Science

What follows is a series of examples from Science of the kinds of activities and materials colleagues consider and prepare during the ten day course at NILE.

- We investigate language activities for developing the specific language of subjects such as '20 questions'.

20 Questions - You have 20 guesses to find out which word I'm thinking of. If you say 'is it the pancreas?' and you are wrong, you lose the rest of your go and the turn moves to the other team. So, be careful!!!



Which cell, tissue or organ am I thinking of?	
Answers	
Yes,	it is it has it does
No,	it isn't it hasn't it doesn't
I don't know I'm not sure	
Questions	
Is it a	cell, tissue, organ
Structure/appearance	
Is it Does it look	round, flat, long, thin, fat built like (bricks in a house) squashed tightly packed
Does it look like a	sausage, UFO, spider 's web, bean
Does it have	a flattish centre, a surrounded by a thick rim, a nucleus, a cell wall, a bioconcave shape, a tail so that it can swim
Does it contain	a red pigment
Location	
Does it come from	a plant, an animal
Is it located/situated/found	in, on, under, around... all over (the body) visible
Function	
Does it have the job of	carrying messages around the body delivering oxygen around the body
Is it's function to Does it	fertilise an ovum
Is it used for	reproduction
Does it carry out the role of	
Guess!	
Is it a/an Is it called a/an	blood cell lung epithelial tissue

- Participants look at techniques for developing vocabulary, such as word guessing games following a 'taboo' model:

Word guessing games

the heart	skin	blood	the cell membrane	wet mount
vacuole	a slide	cytoplasm	nucleus	jelly-like
colourless	a tissue	a cell	specimen	a drop
to focus	the lense	the cell wall	a coverslip	to dissect
filter paper	staining agent	to contrast	iodine	spores
bread mold	to magnify	chloroplast	protoplasm	cellulose

Print off one sheet, chop up the words onto individual pieces of paper and place them in an envelop.

Show the students the sheet on a projector

Split the class into two teams and tell them that they will have one minute each to guess which words you are explaining from the sheet

Pick a word from the envelop and explain, one point for each correct guess

Then move to team two

Repeat as necessary

- Colleagues consider preparation and use of substitution tables to support sentence creation in specific subject areas:

Substitution table for making sentences about 'functions'

The (x)	is the part/organ/section which are the parts which	(present tense) does/do (x)	
	is where	a/the task (x)	is carried out (passive voice)
	is used for has the job/role of carries out the function of	x (-ing form)	
	has a	x (-ing form)	role/job/function
	is	the (function noun) (eg. the pump)	
Its job The x's job	is	to do (x) (infinitive verb, eg to pump)	
It	does	the (x) (noun phrase -ing form, eg pumping)	

- Colleagues prepare frames to support writing and speaking for learners in their subjects

Make a presentation on a specific cell type
Talk about:
Cell name
My cell is a ...
Cell description/structure
The ... cell looks ...
Cell location in an organism
It is situated in ...
Cell function
The role of the ... cell is to ...
Why you chose this cell
I found this cell interesting because ...

- Participants are offered techniques for encouraging speaking in their subject classroom with activities such as ‘question loops’:

Q	What is the first stage of growth of a seed called?	A	So that animals will eat the seeds and help to disperse them in their droppings
Q	Where are your ribs?	A	Germination
Q	What do the ribs do?	A	In your chest
Q	Why must bones be strong?	A	They protect the heart and lungs
Q	How does a snail protect its body?	A	They have to support the body and protect organs from damage
Q	What makes the human body move?	A	It is inside a hard, protective shell
Q	What do muscles pull on?	A	Muscles
Q	What is your skull?	A	They pull on our bones
Q	Is your backbone one long bone?	A	It is a collection of bones that protect your brain
Q	What do we use to make pictures of bones in our bodies?	A	No, it is lots of smaller ones, linked together
Q	What is an organism?	A	X-rays
Q	What is a habitat?	A	Any living thing
Q	What is a predator?	A	The type of place where an organism lives
Q	What are prey?	A	An animal that eats other animals
Q	What do all food chains begin with?	A	Animals that get eaten by other living creatures
Q	Where is your heart?	A	A plant
Q	What does your heart do?	A	Behind your ribs
Q	What happens to your body when you run?	A	It pumps blood round your body
Q	What tubes carry blood away from the heart?	A	You breathe more quickly and your heart beats faster
Q	Why do strawberries have fleshy fruit?	A	Arteries

... and then they make their own...

The coarse focus knob	is what the plant cell wall is made up of
The fine focus knob	focuses the the low and medium objective lenses roughly
The arm	fine tunes the focus to give a clearer image
The base	is used to carry the microscope
The eyepiece	supports the microscope

- Colleagues create information gap speaking activities based on the materials in their textbooks...

Paired speaking

(develops listening, speaking, question formulation, reading and writing)

Put students in pairs, give them a table each and tell them to talk to each other to fill in the missing information

Student A

Organ	Function
Heart	pumps blood around the body
Liver	cleans the blood
-----	take the liquid waste (urine) out of the blood
-----	finishes digesting our food
Brain	controls the whole body
Lungs	-----
Stomach	-----
Large instestine	carries our solid waste out and puts water back into the blood
Bladder	-----

Student B

Organ	Function
Heart	-----
-----	cleans the blood
Kidneys	take the liquid waste (urine) out of the blood
Small intestine	finishes digesting our food
-----	controls the whole body
Lungs	are used for breathing
Stomach	starts to digest our food
Large instestine	-----
-----	stores urine

Students may need some help in formulating the right questions

B - What does the heart do?

A - It pumps blood around the body

B - Which organ cleans the blood?

A - The liver

A - Which organs take the liquid waste (urine) out of the blood

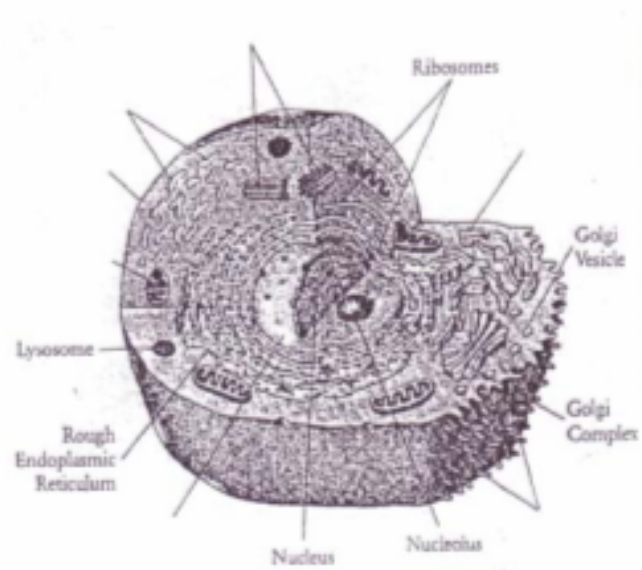
B - The Kidneys

Etc...

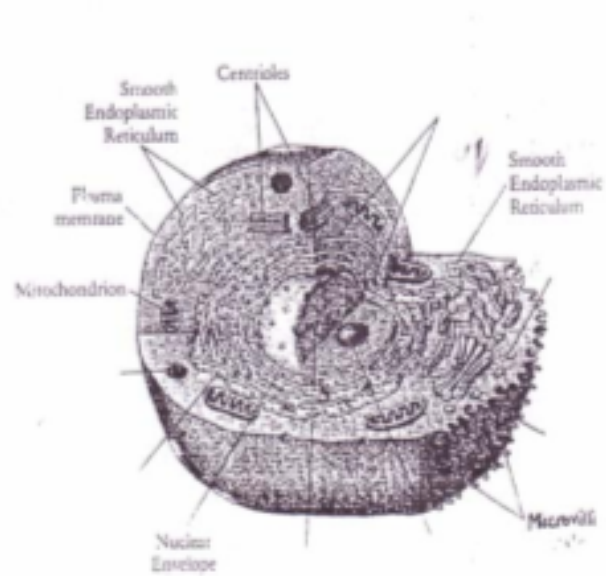
Or, similarly with illustrations:

Cell structure - information gap speaking

Student A has the following visual of an animal cell



Student B has the following visual with different information missing



We ask colleagues to investigate the 'texts' in their subject (spoken, written, diagrammatical or other) and identify the underlying structure...

The Structure of Simple Cells

Today, scientists using powerful microscopes are able to observe what makes up cells. They have discovered that every cell is a self-contained unit and that all cells are made up of a substance called *protoplasm*. **Protoplasm** is the basic living material. It is always made up of carbon (C), oxygen (O₂), hydrogen (H), nitrogen (N) and very often sulphur (S) and phosphorus (P). Protoplasm is usually colourless and contains a large amount of water. It feels and looks like jelly. Only living things can make new protoplasm or repair damaged protoplasm.

Cells are made up of two kinds of protoplasm: the **nucleus** and the **cytoplasm**. They are separated from their environment by an outer **cell membrane**, which restricts the passage of materials in and out of the cell.

Most of the cells that make up a plant or an animal body are very small - between 10-30 micrometers in diameter. This is because materials entering and leaving the cell have to move through the surface, and the more active a cell is, the more rapidly these materials must pass through. That is why cells which are active metabolically are likely to be small. In general, cells tend to be spherical in shape but they can also take other shapes because of the pressure of neighbouring cells.

The nucleus is found in the centre of the cell. It is thick and has a round shape. The nucleus has two main functions: 1) it carries the hereditary information for the cell; 2) it controls most of the activities

... so that they can then use this structure to create tasks for their learners

- Colleagues prepare language support sheets to accompany speaking and writing tasks... with sentence models ...

Objective: to identify, locate and describe the functions of a range of plant and human organs

○ Identifying/naming

This is a/the ...

That is a ...

That's the ...

This is called a/the ...

It comes from a ...

It's from a ...

The ... structure is called the ...

The ... are called ...

At the top of the ... there is a (adjective) part called the ...

Together, the ... and the ... are called the ...

○ Describing appearance/structure

It looks like ...

It's got/hasn't got ...

It has/doesn't have ...

All ... have ..., a ..., and ...

The ... are the often highly (adjective) parts which ... (function verb).

They are (adjective) and are attached to the ...

The ... are arranged in a ring around the centre of the
 They consist of a ... with a ... shape at the end.
 ... and is shaped rather like a
 ... and is divided into two parts.
 The top of the ... is called the
 The ... is attached to the bottom of the ... by a
 A long tube grows out of the ..., this is the

o Describing location

It is found in the ... of the ...
 The ... are found at the base of the
 They are (adjective) and are attached to the
 The ... are arranged in a ring around the centre of the
 The ... is found in the centre of the,
 The ... is attached to the bottom of the ... by a
 They are inside the

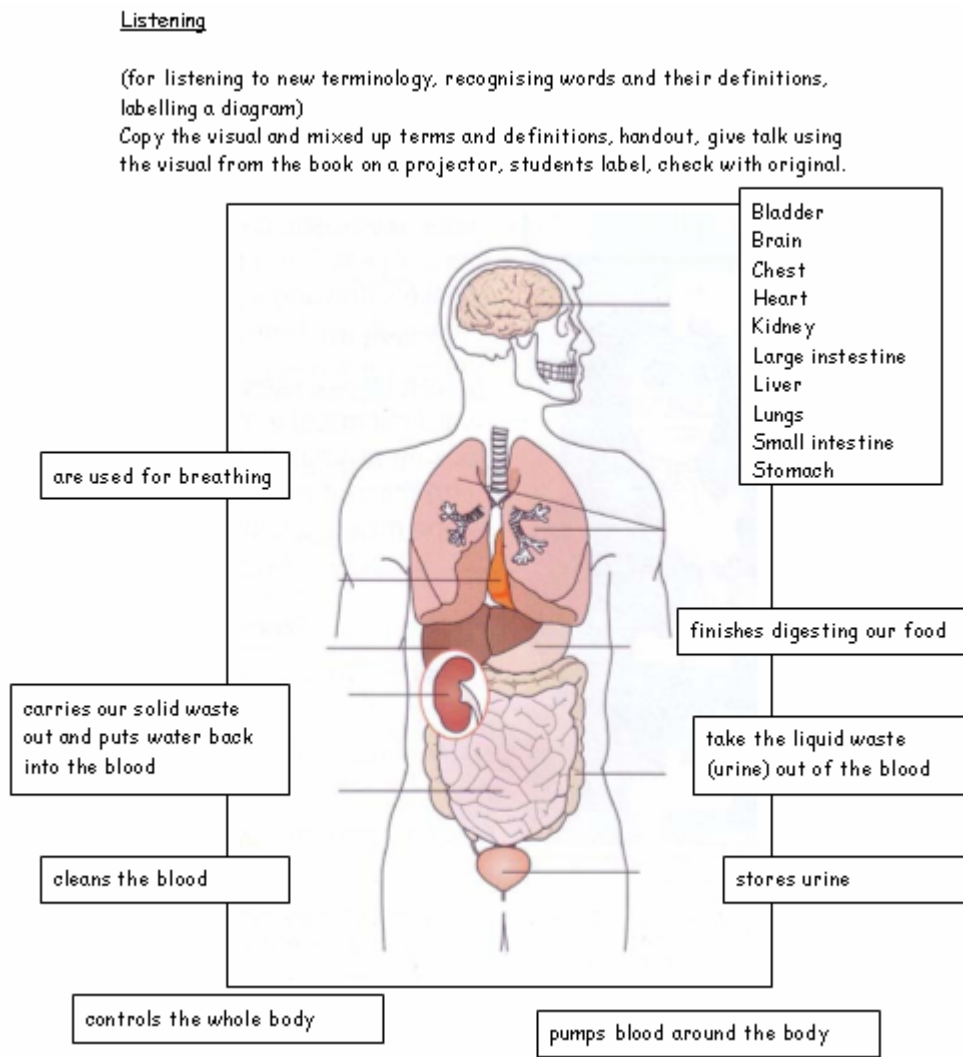
o Describing function

The ... is the part which ...
 The ... is where ... is carried out
 The ... is used for ...-ing
 The ... has the role of ...-ing
 The carries out the function of ...-ing
 The ... has a ...-ing role
 The ... is a ...
 The ...'s job is to ...
 It does ... the ...-ing

... or with verb sheets ...

Verb phrases	Adverbial phrases	
Structure: ... are made up of... ... organized in... ... is a self-contained unit ... contains... ... feels/looks like... ... are separated from... by... ... are small... ... tend to be... ... can take other shapes... ... it includes... ... have... ... is a part that contains... ... consist of... ... are joined together... (to...) Types: ...there arehave various shapes... ...are divided into... ...are arranged in... ...resembles...	Location: ... is found in... ...surrounded by... ... form... ...form one or several... ...includes... ...is located under/around... ...is most abundant under... ...is common in... ...is found mainly in... ...along ... runs... Function: ...have parts which... ...builds up... ...lines... ...exhibitsrelease... ...connects... ...has the function of... ...provides... ...builds up... ...amidst...	...often... ...very often... ...usually... ...likely to be... ...just...

Participants look at 'semi-scripts' (Geddes, 1978) for creating listening activities to focus learners during teacher monologues on new topics.



Practical activities

We try within the limits of the ten-day course to give participants the opportunity to carry out practical activities and then present the results of their work to their peers in the group in the same way that we ask children to do in their classrooms. The difference here is that the teachers have to make predictions about the language demands of the practical work and presentations so as to be able to support their learners in their classroom work.

Designing and launching rockets

One such activity is designing, launching and observing rockets, where participants are given language support sheets, and a frame to structure their observation, and subsequent presentation where they suggest modifications for their rockets.

The Rocket Factory is one kit you can use for this activity and can be purchased for Middlesex University Teaching Resources (www.mutr.ac.uk).

Rocket Factory

1. THE ROCKET FACTORY

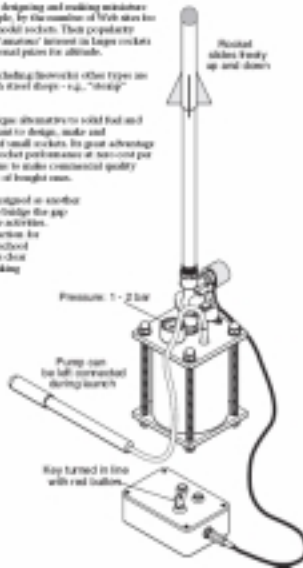
There is world-wide interest in designing and making miniature rockets as evidenced, for example, by the creation of Web sites for the brand leader in solid fuel model rockets. Their popularity coincides with a resurgence of "amateur" interest in large rockets with potential to win international prizes for altitude.

As well as solid fuel rockets (including how-to kits) other types are now widely available from high street shops - e.g. "blowing" rockets, water rockets etc.

The Rocket Factory offers a unique alternative to solid fuel and other systems for those who want to design, make and investigate the characteristics of small rockets. Its great advantage is that it offers near solid fuel rocket performance at low cost per launch - and provides the means to make commercial quality rockets at a fraction of the cost of bought ones.

The Rocket Factory has been designed as another stage of engineering research to bridge the gap between construction and leisure activities. It is already often a major attraction for other schools clubs and special school fundraising events, and has been promoted for designing and making in design and technology.

The system must only be used under direct adult supervision but has several built-in safety mechanisms including automatic stoppage, and key operated "blowing" switch. The Rocket Factory can be purchased as a complete package or as component parts.



colleagues work in groups and consider the best construction for their rocket, and at the same time agree on a design...

... will the rocket fly longer with a long body? Does it need a number of wings, and how many tail fins should you put on the rocket?

ROCKET FACTORY

4A. MAKING A ROLL-TUBE ROCKET

Many small rockets are made from paper rolled tightly into a tube. For its weight, paper has high tensile strength (strength in tension) and resists bursting apart. Also, when made into a tube, it becomes stiff. A paper rocket can be rolled from a single A4 sheet of 80g/100g paper (the "weight" used for photocopying). It is formed by rolling over a mandrel - a tube with the same diameter as the Rocket Factory launch tube. The outer edge of the paper is sealed with "pH Stick", "Charging Glue" or similar so that the tube holds together when rolled.



12/05/2004 16:48:44
Keith P Kelly

It's a good idea to leave the plastic tube inside your rocket while you are sticking it together, and while you are fixing the nose cone in place.

12/05/2004 16:47:02
Keith P Kelly

Make sure you bear in mind the friction that will occur if your rocket body is too tight, or too loose, and also if your nose cone is not fixed in place properly it is likely to simply be blown off

12/05/2004 16:56:17
Keith P Kelly

What about length? Will your rocket fly better with a long body or a short one?

Compressed air gun to assist if paper does not roll



... the construction ...



... the launching ...



... the presentations ...



... the prizes ...

The practical work is exactly that, but in seriousness it contextualises the use of language to such an extent that learners frequently forget that they are learning language because they are so involved in the ‘activity’.

A key to the language development is the ‘language support’ sheets and ‘observation frames’ to help learners prepare a structured presentation and then to support the delivery of the presentation.

Learners make good use of such frames and phrases even during the presentation itself.

How good is your rocket?										
	1	2	3	4	5	6	7	8	9	10
Rocket body										
Nose cone										
Rocket length										
Design										
Fins										
Wings										
Flight										

Making comments on the rockets

The rocket body was (too) tight/loose/just right
not tight enough/loose enough

The nose cone wasn't stuck on properly
The nose cone blew off/came off
The nose cone was ok

The rockets with a shorter/longer body flew/seemed to fly further

The best design was ...

Larger/smaller fins helped direction/stability...

Larger/smaller wings helped direction/stability...

This represents a core element of the LAC course. We try to develop participant awareness of what key ‘frames’ and ‘phrases’ there are in their own subject areas. Teachers go on to identify these frames and phrases and prepare them as tasks to present to the group.

This is just a glimpse of what goes on during the LAC course at NILE. If you'd like to know more please contact the NILE office through their website, or me directly at keithkelly@factworld.org.

Yours,
Keith
Norwich 09/08/05

