ENGLISH FOR TEACHING
MATHEMATICS AND SCIENCE (EteMS)

PHASE 1

MODULE 3
PRIMARY

ENGLISH LANGUAGE TEACHING CENTRE, MALAYSIA
BAHAGIAN PENDIDIKAN GURU
KEMENTERIAN PENDIDIKAN MALAYSIA

ENGLISH FOR THE TEACHING OF MATHEMATICS AND SCIENCE (EteMS)

AIM

The overall aim of EteMS is to enhance the English language skills of Mathematics and Science teachers to enable them to teach effectively using English as the medium of instruction.

Structure of the EteMS Programme

ETeMS invoves 240 hours of instruction delivered through face-to-face interaction and self-instructional packages. These will be supported by a 'buddy system' whereby the teachers can get further help from identified resource person in their locality.

The EteMS programme is conducted in 2 phases. Each phase comprised 90 hours of face-to-face interaction and 30 hours worth of self-instructional materials.

Phase 1 will be delivered through

- 5 modules spread over 5 weeks. Each module requires 2 days of face-to face interaction (60 hours)
- 5-day Module (30 hours)
- a self-instructional package (30 hours)

Module Content

Each two-day module consists of a series of sessions covering a total of 12 hours of interaction. The duration of each session is between 1 to 3 hours. The components for the various sessions are shown in the table below.

SESSION	COMPONENT
Text Lab	Interfacing with Text Word Explorer Connecting with Text Language in Action Springboard
Language Lab	Grammar Works Getting it Right Trying it Out
Stand and Deliver	
Back to the Future	

ENGLISH FOR TEACHING
MATHEMATICS AND SCIENCE (ETeMS)

PHASE 1

MODULE 3
PRIMARY

CONTENTS

TEXT LAB 1

INTERFACING WITH THE TEXT

You are going to read a text about 'Our World'. The text is taken from a British textbook for students who wish to improve their general ability in English – "First Certificate Pass key" by Nick Kenny.

Read the article and answer the questions that follow.

Are you safe to go out without a smog mask?

By Cathy Scott-Clark

Pollution at danger Levels, say experts

SMOG masks which filter toxic gases out of the air we breathe could soon be a common sight on city streets, air pollution experts say

Space-age masks are already a frequent accessory for cyclists. But, with toxic ozone levels now rising at an alarming rate, experts say pedestrians should be wearing them too.

The Clean Air Act of 1956 that followed the deaths of 4,000 people due to a London pea-soup smog has almost wiped out emissions of deadly sulphur dioxide.

But concern is mounting over invisible "ozone smog", a poisonous cocktail created when car fumes such as nitrogen dioxide and carbon monoxide are heated by sun-light.

Last week the British Lung Foundation (BLF) predicted that London could become as polluted as Los Angeles and Athens with-in 15 years.

Dr Malcolm Green, BLF chairman, said if the current pollution levels continued, all city dwellers, who were outside for 20 minutes or more, would have to wear masks. Traffic wardens, cyclists, messengers and transport police should be wearing them already, he warns, particularly those prone to chest infections, asthma or bronchitis.

"The reduction of air pollution must be our first priority, but this takes time. Masks are a sensible way of protecting the lungs."

A Metropolitan Police spokeswoman confirmed that smog masks for officers and traffic wardens in London are now being considered.

But Liz Marriot of the London Cycles Campaign say their use is limited.

"Unless a mask makes a perfect seal on your face, it doesn't work.

Where does that leave men with beards, people who wear glasses or someone with a big nose?.

Curbed

Friends of the Earth air pollution experts say wearing of masks is not a long-term solution.

"Nobody wants a world in which people have to wear masks in the street," say campaigner Fiona Weir.

"This is a new generation of pollution. Numbers of vehicles are constantly rising and ozone pollution is rising very, very rapidly- car usage has to be curbed."

Government success at ending the Fifties pea-soupers has led to complacency at the growing danger of toxic vehicle fumes which make up ozone, she claims.

FoE is concerned that toxic ozone levels in Britain now regularly exceed World Health Organisation safety guidelines.

CONNECTING WITH THE TEXT

TASK 1

Reading for Details

Read the article and underline the part where these questions are answered:

1 What do the masks do?
2 Who is already using them?
3 Who should be wearing them?
4 What does the BLF predict?
5 Who is thinking about using masks?
6 Who doesn't the mask work for?
7 Who thinks the mask is not the solution?
8 What other solution is proposed?

WORD EXPLORER

TASK 2 *Building vocabulary*

Read through the text and list all the words that have the same meaning as the expressions given in the table below: Complete the table below.

No		**Words equivalent in meaning from the text**
1	poisonous (line 1)	
2	frightening (line 7)	
3	a mixture (line 15)	
4	part of the body (organ) (line 19)	
5	likely to suffer from (line 30)	
6	most important thing (line 33)	
7	Something through which nothing can pass (line 40)	
8	reduced (line 53)	

CONNECTING WITH THE TEXT

TASK 3 *Making Inferences*

Refer to the text above and attempt the following exercise. For each of the following questions choose the best answer, **A, B, C** or **D.**

1 What does Dr Malcolm Green think?

A London has as much air pollution as Athens.
B Smog masks solve the problem of air pollution.
C People working outside should wear a mask in London.
D A mask is necessary after twenty minutes in London.

2 Why does Liz Marriot have doubts about the masks?

A They do not work so well for cyclists.
B The number of cars is always rising.
C The masks do not fit everyone perfectly.
D The masks do not work over a long time.

3 What do Friends of the Earth think?

A People cannot be forced to wear masks.
B World Health Organisation levels are too low.
C A new generation of cleaner vehicles is needed.
D People must use their cars less.

LANGUAGE IN ACTION

TASK 4 *Reported Speech – Changes in tense, pronoun and time*

You will often come across situations where you will need to relay information you have heard or received to others. This will involve transforming direct speech to indirect or reported speech. When you do this, you will need to make a number of changes in the language.

For example, in the reading text, Dr Malcolm Green said:

Direct Speech: *" The reduction of air pollution must be our first priority, but this takes time."*

The exact words of the speaker are referred to as the Direct Speech and we use quotation marks ('…' or "…")

In reported speech some words are changed and we do not use the quotation marks.

- **Using 'that' to join a reported speech clause to rest of sentence**

Example:

Reported Speech: Dr Malcolm said (**that**) the reduction of air pollution must be their priority, but that took time.

- **Change in tense**

Example:

Reported speech: Dr Malcolm said (**that**) the reduction of air pollution must be their priority, but that <u>took</u> time.

Note: If the reporting verb is changed to the past tense, then the tense in the reported speech normally change (taken ⟶ took)

Example:

Reported Speech: Dr Malcolm says (**that**) the reduction of air pollution must be their first priority, but this taken time."

Note: If the reporting verb remains in the present tense, then the tense in the reported speech does not change. (takes ⟶ takes)

- **Change in pronouns**

Example:

Direct Speech: Dr Malcolm Green said, *"The reduction of air pollution must be our first priority, but this takes time."*

Reported Speech: Dr Malcolm said (**that**) the reduction of air pollution must be their priority, but that took time."

Note: our ⟶ their

- Change in time and place time

People use words like **here, now, today** to talk about the place where they are speaking and the time they are speaking. If we report these words in a different place or at a different time, they often change.

Example:

Direct Speech: 'We were caught in a terrible storm yesterday,' said Karen.

Reported Speech: Karen said (**that**) they were caught in a terrible storm the previous day/the day before.

Note: yesterday ⟶ the previous day/the day before

Match the direct speech word or phrase on the left with its reported speech equivalent on the right.

1	yesterday	a	then
2	tomorrow night	b	three years previously
3	tonight	c	the previous day
4	here	d	that
5	now week	e	the following
6	this	f	the night before
7	next week	g	that night
8	these	h	there
9	last night	i	those
10	three years ago	j	the following night

TASK 5	

Change the following from direct speech to reported speech. The information is taken from the Reading Text.

1 Direct Speech: Air pollution experts say, “Smog masks which filter toxic gases out of the air we breathe could soon be a common sight on city streets.”

Reported Speech: _____

_____

2 Direct Speech: Experts say, “ Pedestrians should be wearing space-age masks as well.”

Reported Speech: _____

_____

3 Direct Speech: The British Lung Foundation predicts, ”London can become as polluted as Los Angeles and Athens within 15 years.”

Reported Speech: _____

_____

4 Direct Speech: Dr Malcolm Green warns, “Traffic wardens, cyclist, messengers and transport police should be wearing masks already.”

Reported Speech: _____

_____

5 Direct Speech: Liz Marriot says, ”Unless a mask makes a perfect seal on your face, it doesn’t works,”

Reported Speech: _____

_____

6 Direct Speech: Fiona Weir says, “This is a new generation of pollution.”

Reported Speech: _____

_____

SPRINGBOARD

TASK 6 *An appreciation of Our World*

Read the entitled 'The Web of Life' by Amit Jayaram
Write one of your own and present it.

Just yesterday, it seems
The fields were full of grain

Just yesterday, the water
Came from heaven
And the earth was not athirsty

But yesterday is five years
gone
and today is nought but
rubble
a wilderness of earth
baked brown by the relentless
Desert sun.

Source: *http://edugreen.teri.res.in/misc/poem/poem.htm*

LANGUAGE LAB 1

GRAMMAR WORKS

TASK 1

……higher than…../….. more expensive than…./…….is the highest/…….....the most expensive

Make as many sentences as possible by comparing the aspects given in the table below.

Example: Plant B is **taller than** Plant A but is **shorter than** Plant C.
Plant A is **the shortest** and Plant C is **the tallest.**

No.	Aspects of comparison	A	B	C
1	Height of plants	30 cm	33 cm	40 cm
2	Weight of hamsters	300 gm	235 gm	215 gm
3	Area of cardboards	140 sq cm	148 sq cm	144 sq cm
4	Air pressure in tyres	30 kpa	28 kpa	26 kpa
5	Length of worms	10 cm	9.3 cm	9 cm
6	Temperature of water in beakers	75 ^{0}C	100 ^{0}C	88.5 ^{0}C
7	Travelling speed of cars	103 kph	95 kph	125 kph
8	Cost of computers	RM 4500	RM 3999	RM 3888
9	Lifespan of animals	14 years old	10 years old	25 years old

Works in pairs and discuss your comparisons with your partner.

TASK 2	**…….. worse than ……../ ……. the worst** **……better than ……../ ……. The best**

Study the table below and take note of the comparative and superlative forms of the adjectives given. Notice how different they are from those you have used earlier.

Adjective	Comparative	Superlative
bad	worse	worst
good	better	best
far	farther/further	farthest/furthest
little	less	least

Answer the questions below by studying the information in the table given below. Use the comparative or superlative given in the brackets in your answer.

	A	B	C
Frog's jumping Distance	1 m	56 cm	78 cm
Bird's water Consumption	100 ml	91 ml	105 ml
Plant's growth in height in 1 month	1.5 m	90 cm	1 m

Example: What can you say about the performance of Frog A? (….best…..furthest)

Frog A is the best because it jumps the furthest.

1. What can you say about the performance of Frog C as compared to Frog B? (…..better ……because…….further)

_____

2. What about the performance of Frog B? (……..worst……..least….)

_____

3. What can you say about Bird C's water consumption? (……most……)

_____

4. What can you say about the water consumption of Bird A with Bird B? (……..more…….than……..)

_____

5. What can you say about Bird B's water consumption? (……least…….)

_____

6. What can you say about the growth rate in height of Plant A? (….. the best)

_____

7. What can you say about the growth rate in height of Plant C with Plant B? (……..better….than……)

_____

8. What can you say about the growth rate in height of Plant B? (…..the worst.)

_____

GETTING IT RIGHT

TASK 3 *Information-gap*

Works in pairs. Study the table given to you comparing three brands of pocket calculators. Ask your partner questions to complete the missing information in your table.

Example: Teacher A: How much does the Magnus cost?
Teacher B: It cost RM 88

When you have finished, compare your tables. Are they the same? Decide together a brand you would like to buy by comparing the various aspects of the calculators. In your discussion try to use as many of the comparative and superlative forms you have learnt earlier.

Example:
Teacher A: Among the three brands, Oxford is the **most expensive** brand.
Teacher B: True, but it is also the **lightest** in weight and has as many functions as Magnus.
Teacher A: In addition, Oxford has a **longer** guarantee period than Magnus.
Teacher B: But Florida's guarantee period is even **longer.**

Continue the discussion until a decision is reached as to which calculator you want to buy. Be prepared to justify your decision to the whole class.

TRYING IT OUT

TASK 4 *Make your own comparisons*

Work in a group of 4-6 members of similar specialization (Science or Maths). Identify several items/aspects from your discipline and compare their properties or characteristics. Use the comparative and superlative forms of adjectives or adverbs.

Example: Diamond and graphite (Chemistry)

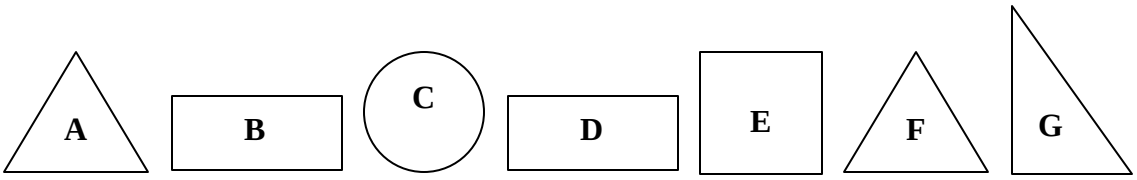
Diamond is the hardest form of carbon. It is many times harder than graphite. Etc……..

LANGUAGE LAB 2

GRAMMAR WORKS

TASK 1 *Using **the same (as), similar (to),** and **different***

Complete the sentences. Use **the same (as), similar (to), and different (from)** in your completions.



1. A _____ is the same as _____ F.
2. D and E _____ are similar OR: are different* _____.
3. C _____ D.
4. B _____ D.
5. B and D _____ .
6. C and D _____ .
7. A and F _____ .
8. F and G _____ .
9. F _____ G.
10. G _____ A and F, but _____ C.

* The answer depends on whether you comparing the number of sides, general shape or whether the sides are of equal length

TASK 2 *Compare and Contrast*

Comparing is examining two or more items to discover their similarities and differences. Contrasting concentrates on differences.

Read the following passage and find sentences that show comparison and contrast. Write the features of comparison and contrast in the table below.

The Wonder Metals

The study of metals began in the Middle Ages when alchemists searched for a technique to covert "base metals" like lead, to gold. They never succeeded in making gold but at least by experimenting with the metals (in contrast to the ancient Greeks, who only speculated about them) they made many discoveries.

All but 20 of the over 100 elements identified to date are metals but only 7 of these are common in the earth's crust. Iron, the most widely used metal, is rarely found in the free state (not combined with other metals) and must be extracted from naturally occurring compounds (ores) such as hematite, magnetite, and pyrite. The beautiful colours of rocks are due almost entirely to these iron compounds. In fact, iron pyrite is often called fool's gold because of the similarity of its colour to gold. Iron is very strongly magnetic, and the fact that the earth is a magnet itself tipped scientists off to the fact that iron is a major component of the earth's core, or center.

Pure iron is a relatively soft, silvery metal that is very active chemically (that is, it combines with oxygen to corrode or form rust). It is usually mixed with other elements or compounds to form alloys such as steel, stainless steel, or cast iron, which are more durable and rust resistant than pure iron.

Aluminum is the most abundant metal, but it was not used until a century ago because it is so active chemically and difficult to extract. Like iron it is soft, but in contrast to iron and steel, aluminum is very light and more resistant to corrosion, These qualities make it useful for airplanes, trains, automobiles, rockets, and house siding.

In the 1940s, magnesium emerged as an important metal. Although it is less abundant in the earth, more chemically active, and harder to extract than aluminum, it is present in sea water and that means there is almost endless supply of it.

In the space age, the extraordinary properties of titanium have made it the new wonder metal. Lighter and stronger than steel, it is more resistant to corrosion and able to withstand heat.

The remaining major metals are sodium, potassium, and calcium, all too active chemically (they react violently with water) for use in construction.

Source: *English for Science*, Fran Zimmerman, Prentice Hall Regents. 1989

Features	Comparing Similarities
colour	
softness	
	Comparing differences
use	
softness	
abundance	

TASK 3 *Using Like and As*

Comparisons frequently use the words *like* and as. Like is used before a noun or pronoun.
A herring is like a mackerel. It swims in large shoals.
But if the noun or pronoun is followed immediately by a verb, the word ***as*** is used.
A herring swims in large shoals as a mackerel does.
As is also used before and after an adjective.
Many birds are as good swimmers as ducks.
(Many birds and ducks are equally good swimmers.)
Penguins are not as graceful as birds on land.
(Penguins are less graceful than birds on land)

Fill in the blanks in each of the following sentences with
as or **like.**

1. Sodium, __like__ potassium, is an alkali mental.
2. The ancient greek scientists did not experiment _____ modern scientists do.
3. Modern computers are not _____ large _____ the first computers.
4. _____ Galileo before him, Newton studied motion.
5. Cobalt is a heavy mental _____ nickel.
6. Helium is almost _____ light _____ hydrogen.
7. Nickel does not rust _____ iron does

TASK 4 *Comparing members of a system: Selecting and organizing information.*

Read this passage and complete the table below.

PLANTS

All flowering plants are composed of four organs – roots, stems, leaves and flowers. The central part of the plant is the stem. The roots are attached to the bottom of the stem and usually grow underground. Some plants have one single root, others have many small roots. The leaves are connected to the sides of the stem. Some leaves are long and thin, others are fat and round. Some leaves are single, others are compound. The flower is attached to the top of the stem. Flowers contain the plant's reproductive organs. Most plants have the male and female organs in the same flower. Some plants have separate male and female flowers.

	DIFFERENCES	
ORGAN	SOME PLANTS	OTHER PLANTS
Roots	single root	
		fat, round
	simple	
	male and …. organs in the same……	

Source: Reading and Thinking, in English: Concepts in Use, OUP. 1980

TASK 5 *Comparing members of a system: completing a description*

Complete the description below using the information given in the table.

PART	DIFFERENCES		
	MOST INSECTS	SOME INSECTS	
Wings	2 pairs	none	
outer surface	thick	thin	
eye	compound	simple	
antennae	long	short	none

All _____ are composed of 3 parts – head, thorax and abdomen. Most insects have _____ of _____ attached to the thorax but some have no _____. _____have a thick outer surface, while others have a _____ outer surface. Most insects _____ eye but _____ simple eyes. _____have _____ antennae, some have _____and _____ _____have _____antennae.

Source: *Reading and Thinking, in English: Concepts in Use*, OUP. 1980

TASK 6	*Contrast: although, even though, though, in spite of, despite, while, whereas, however*

You will see examples compare/contrast structures below.

Refer to sentences structures practiced in tasks 1, 2 and 3.

Now re-write the sentences using the connectors introduced below.

1. We can use **although** and **even though** to introduce a contrast. After **although** and **even though** we use a clause, with a subject and a verb.

Although she doesn't enjoy her job, she works hard.
She passed the exam, **although** she hadn't studied for it.
Even though they were late, they didn't hurry.

2. We can use **in spite of** or **despite** to talk about contrast. After **in spite of/despite** we can use a noun, or an – **ing** form

In spite of the bad weather, we went for a walk.
Despite being late, they didn't hurry

3. We can introduce a contrast between two ideas using **while** and **whereas**.

He is quiet and shy, **while/whereas** his sister is lively and talkative.

4. We can also express a contrast by using the adverb **however** with two sentences.

She said she didn't want to change her job. **However,** she may change her mind.

Source: The Heinemann English Grammar: An Intermediate Reference and Practical Book, Beaumont, D. and Granger, C. Heinemann ELT.1992

TASK 7 Writing – Writing a description based on a table

Tables, charts and graphs are used to organize information to enable us to see comparisons easily. Write a paragraph describing the similarities and differences in the properties of the different materials given in the table.

Name	Relative Strength	Resistance to heat	Resistance to acid	Flexibility	Relative Cost
Nylon	high	good	very good	high	medium-high
Polystyrene	medium	good	excellent	low	medium
Melamine	high	excellent	poor	low	high
Polythene	low	poor	fair	high	low

Example: Nylon is as strong as melamine.
Nylon is different from polythene.
Although melamine has excellent resistance to heat, it has poor resistance to acid

TASK 8 *Writing*

Write a brief explanation of the difference between:

(a) a prism and a pyramid

(b) a cube and a square prism

TASK 9 *Writing*

Read the information on Mammals and Primates.
Write a description comparing and contrasting their characteristics. You may include your own information about other living things.

Mammals

In the animal kingdom, mammals are one of the smaller groups, yet we see many mammals around us. Some of the largest animals on Earth are mammals.

All mammals

- have backbones
- usually have hair or fur
- are warm-blooded
- have young which are fed milk form breasts or milk glands of the females

Marsupials

Most marsupials now only live in America and Australia. Female marsupials raise their young in a ouch which also contains the milk glands. The female adults suckle their young.

Here are some well-known marsupials

koala bear

bandicoot

kangaroo

Insect eaters

mole

shrew

hedgehog

bat

Primates

Most primates live in trees. They have well-developed fingers and toes.

humans

gorilla

ape

Carnivores

Carnivores are flesh-eating animals. Many have sharp canine teeth.

bear

tiger

lion

Monotremes

Monotremes are unusual mammals because they lay eggs but raise their young in a pouch and feed them milks.

echidna or spiny ant-eater

Australian duck-bill platypus

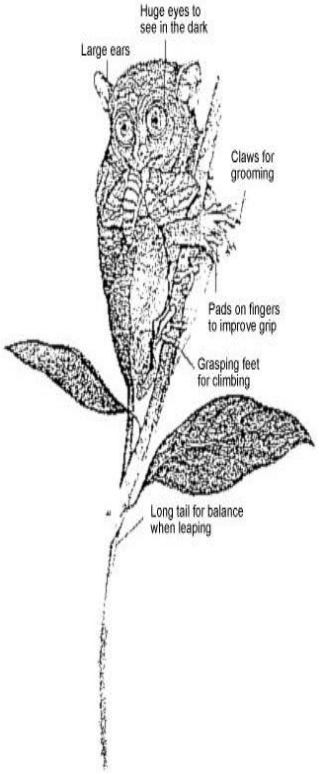
Source: Times Junior Science Encyclopedia, 1999, Federal Publications

PRIMATES

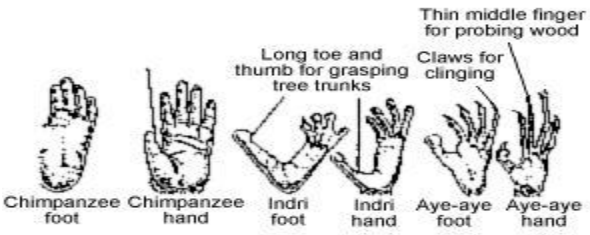
THE PRIMATE FAMILY IS of special interest to scientists because t includes humans. There are about 180 primate species, most of which live in forests in warm parts of the world. Primates are usually agile climbers, with long limbs and flexible fingers and toes. They also have wide, forward-facing eyes and larger brains than other mammals of the same size. Scientists divide the primates into two main groups- anthropoids, which include monkeys and apes, and prosimians, which include lemurs, lorises, and bushbabies. Prosimians tend to be smaller than anthropoids, and many are nocturnal.

Common chimpanzee
(*Pan trogladytes*)

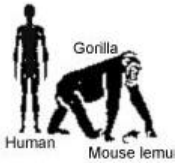
ANTHROPOIDS
Sometimes called the "advanced primates", this group includes apes, monkeys, marmosets and tamarins, as well as humans. Anthropoids are adaptable, intelligent animals that often live in social groups. Most are good climbers, but some live mainly on the ground. Chimpanzees are anthropoids, and are also our nearest relatives.



TARSIERS
Tarsiers live in forests on the island of Southeast Asia. They hunt at night, leaping thorough the trees and grabbing insect in their hands. As well as eating insects, some tarsiers also hunt lizards, birds, scorpions, and snakes. The prey is usually eaten head first. Tarsiers are unusual because they can turn their heads around to see backwards. There are three tarsier species. Some scientists classify them as anthropoids, but others place them in a group of their own.

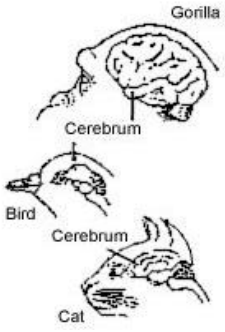


GETTING A GRIP
Compared to other mammals. Primates have very flexible fingers and hands. Their exact shape varies according to their way of life. A chimp have quite short fingers and toes, but it can press its thumb against its fingers to achieve a very precise grip. An indri's hands and feet are helped for gripping branches and tree trunks, while any aye-aye's unordinary hands have evolved to help it prise insects out of back.



LARGEST AND SMALLEST
Primates very enormously in size. The largest it the male gorilla (Gorilla gorilla), which can weight up to 175 kg (385 lb) in the wild and even more in captivity. The smallest is the western mouse lemur (Microcbus myoxinus) It measures about 19 cm (7.5 in) from its nose to the up of its tail, and weight about 35 g (1.2 oz). By comparison, an average European man wights about 70 kg (154 lb).

AMAZING BRAINS
Primates have much larger brains relative to their body size than most other animals. The "thinking" part of the brain – the cerebrum – is especially large and complex. Having a large brain makes primates fast learners, and allows them to communicate with each other in complex ways. A considerable part of a primate's brain deals with vision and with making precise movements with the hands and fingers.



Black lemur (lemur macaoo) feeding

FEEDING
Some primates live almost entirely on leaves, but most eat a wide variety of other foods. The black lemur, for example, feeds on leaves as a large part of its diet, but also eats eggs, small birds, and insects, as well as flowers and fruit. Monkeys are often untidy eaters. When they feed on fruit high up in the treetops, they usually drop half-eaten scraps onto the ground below, and this attracts other animals, such as deer and wild pigs.

Source: Nature Enclyclopedia, 1989, Dorling Kindersley

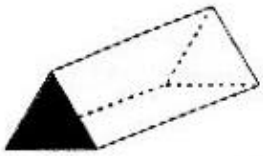
TASK 10 *Have Fun*

Solve the riddle.

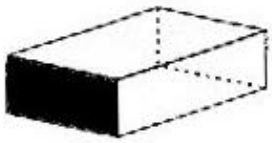
Riddle What did the witch eat for breakfast?

Match each of these solid shapes with its name.

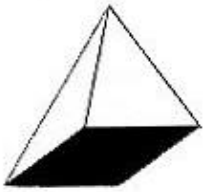
C



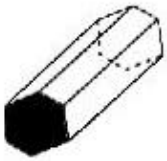
E



D

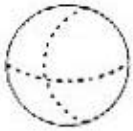


N



A

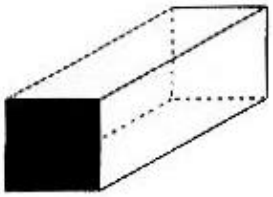
O



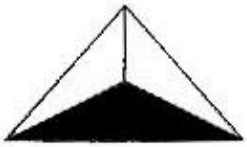
P

K

S



L



- ☐ Square prism
- ☐ Hexagonal prism
- ☐ Cube
- ☐ Cylinder
- ☐ Triangular prism
- ☐ Cube
- ☐ Triangular prism
- ☐ Cone
- ☐ Triangular pyramid
- ☐ Rectangular prism
- ☐ Cube
- ☐ Hexagonal prism
- ☐ Square pyramid
- ☐ Cylinder
- ☐ Sphere
- ☐ Cylinder

TEXT LAB 2

INTERFACING WITH THE TEXT

TASK 1	*Skimming and Scanning: Reading for Main Points*

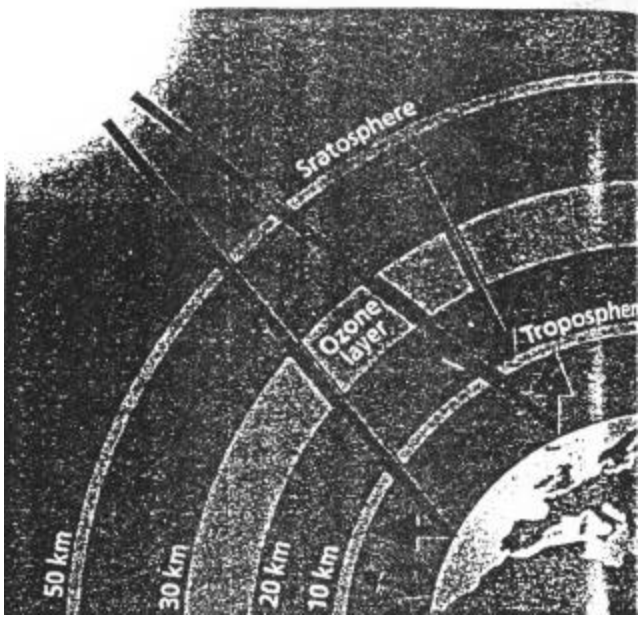
Read the article quickly to find the answers to these questions:

- What do these pairs of numbers in the text refer to?

1	80	
	1/2	
2	2090	
	30	
3	1988	
	24	
4	150	
	24	

- What have been the main causes of global warming

HOW THE GREENHOUSE EFFECT WORKS



The sun's shortwave radiation can penetrate even large amounts of CO_2 and CFC in the troposphere – the part of the atmosphere nearest the earth. These rays are reflected from the earth as longwave 'heat' radiation, much of which is trapped by the carbon dioxide and CFCs. So the climate gets warmer.

CLIMATE OF CHANGE

Of all these issues, many experts agree that the most pressing problem facing all of us, not just in Britain, is that of the gradual warming of the earth's atmosphere caused mainly by the build up of carbon dioxide and CFCs producing what has become known as he greenhouse effect. Informed opinion is that the atmosphere is getting warmer. In the past 80 years the average temperature has increased by half of one degree Celsius.

Hardly the making of a heatwave, but the consequences are likely to be significant. Weather experts maintain that the rate of increase in the warming process is accelerating. Some predict that by 2090, the temperature in southern Britain on a typical summer's day could be 26-30 ^{0} C. (In 1988 the highest temperature recorded was 24 ^{0} C). Good news, you may think, but there'd be a price to pay.

MELTING ICE CAPS

Even a small rise in temperature could, scientists say, have a dramatic effect on ice in the polar regions. Pieces would break off, float away and melt. Sea levels would rise and Britain's low-lying coastal regions would be flooded unless sea defences were built. But the effect of higher temperatures on other countries could be even more severe.

Hot countries which are already suffering from droughts could get even hotter and drier, and more arid.

CREATING A GLOBAL GREENHOUSE

What Man has done to produce this warmer climate is to burn fossil fuels (coal, gas and oil) cut down trees faster than they replaced, use aerosol spray and buy food packaged in rigid-foam containers.

He's also used refrigerators and freezers with CFC coolants. Burning fossil fuels uses oxygen and produces carbon dioxide. Trees that are growing use carbon dioxide and produce oxygen. So there could be a healthy balance.

But since the industrial revolution – about 150 years ago - that balance has been upset as more fossil fuels have been burned and forests cut down and burned at an unprecedented rate. Both processes produce carbon dioxide (CO_2). The result is that carbon dioxide in the atmosphere has increased by 24% over the past 150 years.

Some CO_2 is essential to life – to help plants grow and to retain some heat. But the very large amounts now present are, in part, responsible for trapping even more heat in the earth's atmosphere-the so-called 'greenhouse effect' (see illustration).

Other important 'greenhouse gases' are CFCs (chlorofluorocarbons), especially the types which have been used in aerosols, some food trays, domestic freezers and refrigerators, supermarket refrigeration systems and most air conditioning systems. Some CFCs are at least 10,000 times more powerful than carbon dioxide in trapping heat in the earth's atmosphere.

Source: First Certificate Pass Key, 'Nick Kenny, Heinemann, 1996

CONNECTING WITH TEXT

TASK 2 *Identifying Cause and Effect Patterns*

The following extract were taken from the reading text.

(i) *Look at the underlined words. Identify them either as cause or effect. What word(s) help you to arrive at this conclusion.*

1 The sun's shortwave radiation can penetrate even large amounts of CO2 and CFC in the troposphere – the part of the atmosphere nearest the earth. These rays are reflected from the earth as longwave 'heat' radiation, much of which is trapped by the carbon dioxide and CFCs. So the climate gets warmer.

Answer : cause/effect

Clues/Marker : _____

2 Of all these issues, many experts agree that the most pressing problem facing all of us, not just in Britain, is that of the gradual warming of the earth/s atmosphere caused mainly by the build up of carbon dioxide and CFCs.

Answer : cause/effect

Clues/Marker : _____

3 Even a small rise in temperature could, scientists say, have a dramatic effect on ice in the polar regions.

Answer : cause/effect

Clues/Marker : _____

4 What man has done to produce this warmer climate is to burn fossil fuels (coal, gas and oil), cut down trees faster than they are replaced, use aerosol sprays and buy food packaged in rigid-foam containers.

Answer : cause/effect

Clues/Marker : _____

5 Both processes produce carbon dioxide (C02)

Answer : cause/effect

Clues/Marker : _____

6 The result is that carbon dioxide in the atmosphere has increased by 24% over the past 150 years.

Answer : cause/effect

Clues/Marker : _____

7 But the very large amounts (CO2) now present are, in part, responsible for trapping even more heat in the earth's atmosphere – the so called 'greenhouse effect'.

Answer : cause/effect

Clues/Marker : _____

TASK 3 *Reading for Cause and Effect*

(i) Based on the Reading text, divide the following into

a **causes** of global warming

b **results** of global warming

c **solutions** to the problem of global warming

1 cutting down fewer trees
2 melting ice caps
3 using aerosols
4 droughts in hot countries
5 eating frozen and chilled food
6 rising temperatures
7 building sea defences
8 plating more trees
9 using alternative sources of energy
10 flooding in Britain

Write out the phrases in the space provided.

a **causes**	b **results**	c **solutions**

(ii) Now completed the explanation below. Use the information from the table above but try to use your own words.

1 Global warming is caused by

_____
_____
_____
_____

2 This has resulted in

_____
_____
_____
_____

3 Some solutions would be

_____
_____
_____
_____

WORD EXPLORER

TASK 4 *Understanding meaning*

Read the text carefully and match the underlined words from the text on the left with the meanings on the right.

Example:

Heatwave			long period of hot weather	
1	pressing	line 8	**a**	getting faster
2	build up	line 10	**b**	not really
3	hardly	line 15	**c**	covered with water
4	maintain	line 16	**d**	serious
5	accelerating	line 17	**e**	never been seen before
6	dramatic	line 23	**f**	absence of water
7	flooded	line 25	**g**	disturbed
8	drought	line 28	**h**	strongly believe
9	upset	line 39	**i**	important
10	unprecedented	line 42	**j**	increase

LANGUAGE IN ACTION

TASK 5 *Conditionals*

Look at these pairs of sentences about global warming. For each pair say what the difference is in meaning and in form.

1 a If the temperatures rise any more, the polar ice-caps will melt.

b If temperatures rose anymore, the polar icecaps would melt.

2 a If the ice caps melt, parts of Britain will be flooded.

b If the ice caps melted, parts of Britain would be flooded.

3 a If more trees are cut down, the level of carbon dioxide will rise.

b If more trees were cut down, the level of carbon dioxide would rise.

When do we use the first conditional and when do we use the second conditional?

TASK 6 *Grammar in Context*

Read the text below. Use information found in the text and make as many sentences as you can using the first and second conditional.

Example:

a. If rainforests are burned, millions of tones carbon dioxide will be released.

b. If rainforests were burned, millions of tones carbon dioxide would be released.

WHY WE MUST FIGHT THE DESTRUCTION

When rainforests are cleared and burned millions of tonnes of carbon dioxide are released into the atmosphere affecting climatic conditions and threatening us all with severe flooding, drought and crop failure.

The rainforests contain at least half of the Earth's species. At the current rate of devastation an estimated 50 species worldwide become extinct every day.

One in four purchases from your chemist is derived from the rainforests. Scientists are currently caught in a race against time to find rainforest treatments for cancer, AIDS and heart disease – before they are lost forever.

Tribal people in the rainforests have been shot, poisoned and infected with disease to which they have no resistance – to make room for logging, mining and dams.

If this destruction continues only nine of the 33 countries currently exporting rainforest timber will have any left by the end of the decade.

Almost everyone will have part of the rainforests in their home, as DIY stores still supply and the construction industry still uses tropical hardwoods for doors, window frames and even toilet seats.

WHAT FRIENDS of the EARTH has done

Friends of the Earth's Tropical Rainforest Campaign has been fighting to save the rainforests for ten years. In that time, we've achieved a great deal.

We've forced the British Government even timber trade organizations themselves – to acknowledge just how short-sighted the devastation is.

We have persuaded major international companies to stop industrial activities that harm the rainforests.

And by mobilizing consumer pressure, we have helped reduce imports of tropical timber into the UK by nearly a third.

Please help us save the tropical rainforests now, before it's too late. There's still a lot more to do. With your help, we can build on our success.

Source: *First Certificate Pass Key,* 'Nick Kenny, Heinemann.1996

STAND & DELIVER

REVIEW

Try to recall and list the language that you learnt in this module. Discuss with your partner how you could use this language for teaching mathematics / science.

SYLLABUS STUDY

Identify one syllabus item / curriculum specification that would require you to use these language forms when teaching in the classroom.

PLAN

Script the lesson phase as you would carry it out in the classroom. Include the actual language that you would use in the classroom in your lesson notes.

DELIVER

Teach the lesson phase that you have prepared.

CHECKLIST FOR PEER FEEDBACK

Language Focus of Module: Name of Teacher: Subject/topic: Class:

Use this scale: 1 strongly agree 2 agree
3 disagree 4 strongly disagree

Items				
1. The teacher's language is clear and easy to understand	1	2	3	4
2. The teacher links the different steps with appropriate language	1	2	3	4
3. Teacher ask questions to elicit students' understanding	1	2	3	4
4. The language used is accurate	1	2	3	4
5. Correct technical terms are used	1	2	3	4
6. The teacher is fluent	1	2	3	4
7. The teacher hardly uses Bahasa Melayu	1	2	3	4
8. Language used in the teaching aids is accurate	1	2	3	4
9. Teacher is able to use appropriate language to respond to students	1	2	3	4

Interesting expressions used: Alternative expressions that could have been used: General comments:

CHECKLIST FOR PEER FEEDBACK

Language Focus of Module:

Name of Teacher:

Subject/topic: Class:

Use this scale: 1 strongly agree 2 agree
3 disagree 4 strongly disagree

Items				
10. The teacher's language is clear and easy to understand	1	2	3	4
11. The teacher links the different steps with appropriate language	1	2	3	4
12. Teacher ask questions to elicit students' understanding	1	2	3	4
13. The language used is accurate	1	2	3	4
14. Correct technical terms are used	1	2	3	4
15. The teacher is fluent	1	2	3	4
16. The teacher hardly uses Bahasa Melayu	1	2	3	4
17. Language used in the teaching aids is accurate	1	2	3	4
18. Teacher is able to use appropriate language to respond to students	1	2	3	4

Interesting expressions used:

Alternative expressions that could have been used:

General comments:

CHECKLIST FOR PEER FEEDBACK

Language Focus of Module:

Name of Teacher:

Subject/topic: Class:

Use this scale: 1 strongly agree 2 agree
3 disagree 4 strongly disagree

Items				
19. The teacher's language is clear and easy to understand	1	2	3	4
20. The teacher links the different steps with appropriate language	1	2	3	4
21. Teacher ask questions to elicit students' understanding	1	2	3	4
22. The language used is accurate	1	2	3	4
23. Correct technical terms are used	1	2	3	4
24. The teacher is fluent	1	2	3	4
25. The teacher hardly uses Bahasa Melayu	1	2	3	4
26. Language used in the teaching aids is accurate	1	2	3	4
27. Teacher is able to use appropriate language to respond to students	1	2	3	4

Interesting expressions used:

Alternative expressions that could have been used:

General comments:

BACK TO THE FUTURE

LOOKING IN

Progress Check-Where Am I?

Based on the action plan you designed for yourself in the pervious module, record the progress you have made in the grid below.

Area identified for attention	Action planned	Action taken	Achievement

How do you feel?

Please mark the spot between the two faces below to represent how you feel about the training programme you are here for.

At the end of each day, mark the spot between the two faces that represents your feelings about the sessions. Consider the speed of the process, the enjoyment, satisfaction or other feelings you have with the programme.

Use different letter of the alphabets to indicate the spot for the different time as follows:

X for beginning of the module
Y at the end of day one
Z at the end of day two.

Adapted from: *Using Evaluation in Training and Development.* P 105. Leslie Rae. Kogan Page. 1999

STEPPING OUT

There are five language sessions in this module. Reflect on the tasks carried out **after each session**. How useful were they in preparing you to teach Mathematics and Science in English? Rate how useful the sessions have been on a scale between 1 and 5. If you do not find the task(s) useful please indicate the reasons in the comments column.

Scale: 1 not useful 2 partly useful 3 useful 4 very useful

Areas	**1**	**2**	**3**	**4**	**Comments**
TEXT LAB					
Word Explorer					
Task					
Task					
Connecting with text Task					
Task					
Task					
Language in Action Task					
Task					
Springboard					
LANGUAGE LAB 1					
Grammar Works Task					
Task					
Getting it right Task					
Task					
Trying it out Task					
Task					
Task					
LANGUAGE LAB 2					
Grammar Works					
Task					
Task					
Getting it right Task					
Task					
Trying it out Task					
Task					
STAND AND DELIVER					
Task					

HELPING MYSELF

Based on the module that you have just completed or your own language needs, identify an area that you feel requires attention to enable you to teach Mathematics and Science in English effectively.

Write out what you plan to do before the next session. You action plan should contain

- **Time frame** (duration of your plan)
- **Thing to work on** (your objectives)
- **Thing to do** (activities I proposed to carry out to achieve my objectives)
- **Thing I tried** (what I managed to do)

(√) Area/s that need attention	Action plan
Speaking ( ) Reading ( ) Vocabulary ( ) Grammar ( )	Time frame Thing to work on Thing to do Things I tried

SAMPLE 1

HELPING MYSELF

Based on the module that you have just completed or your own language needs, identify an area that you feel requires attention to enable you to teach Mathematics and Science in English effectively.

Write out what you plan to do before the next session. You action plan should contain

- **Time frame** (duration of your plan)
- **Thing to work on** (your objectives)
- **Thing to do** (activities I proposed to carry out to achieve my objectives)
- **Thing I tried** (what I managed to do)

(√) Area/s that need attention	Action plan
Speaking ( ) Reading ( ) Vocabulary ( ) Grammar (√)	**Time frame** 10 – 15 September 2002 (5 days) **Thing to work on** To be able to use the auxiliaries – **'is', 'are', 'was', 'were'** to construct 'Wh' questions accurately **Thing to do** 1. Refer to one Grammar Reference book 2. Read up on rules to construct 'Wh' questions. 3. Complete practice exercise(s) given in the book. **Things I tried** 1. Read Collins Cobuild Students Grammar. Haper Collins 1991. 2. Practised Exercise B, p 59: Score: 67/100

SAMPLE 2

HELPING MYSELF

Based on the module that you have just completed or your own language needs, identify an area that you feel requires attention to enable you to teach Mathematics and Science in English effectively.

Write out what you plan to do before the next session. You action plan should contain

- **Time frame** (duration of your plan)
- **Thing to work on** (your objectives)
- **Thing to do** (activities I proposed to carry out to achieve my objectives)
- **Thing I tried** (what I managed to do)

Area(s) that need Attention	Action plan
Speaking (√) Reading ( ) Vocabulary ( ) Grammar ( )	**Time frame** 10-15 September 2002 (5 days) **Thing to work on** To be able to talk in English for 10 minutes to the English teacher/ a friend at least 3 times. **Thing to do** 1. Identify someone who will collaborate with me. 2. Select a topic to talk about e.g. newspaper item 3. Identify and practice useful phrases to be used for conversation. 4. Ask for feedback on pronunciation. **Things I tried** Talked to the colleague 2 times. Learned to pronounce 5 new words. Learned 4 new useful phrases.