

# Some Other Lessons

All teachers, for various reasons, must sometimes find themselves in a classroom situation for which they have no prepared lesson or occupation. Most teachers have a small 'emergency kit' for dealing with this, either carried in their heads or held in a special folder. This work will have been garnered over the years from many sources (reading, chatting, workshops) and usually, for obvious reasons, it will have a bias towards that teacher's own subject.

The collection of lessons offered here is, broadly speaking, outside of any specific subjects and so, they are less likely to clash with anything else while offering the attraction of something a little different.

Print them out, put them in a ring-binder (*masters needed for photo-copying would benefit from being in a plastic page holder*), add in your own material, have a good read whilst making some notes, and then you will have a very good emergency resource.

The collection is divided into two parts. The first consists of those lessons which require no material to be prepared beforehand, whilst those in the second part do.

# Some Other Lessons

# Part 1

The lessons suggested in this part are those requiring no previous preparation in the way of printed sets of sheets, ohp transparencies or special apparatus. In fact they could almost be delivered “off the page” though that is not a recommended approach. At the very least there should be a preliminary read-through. Better still, some work should be done to get a feel for the problems and perhaps make some notes about possible difficulties, solutions and variations.

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A very old idea this, but one which still provides a reason for working with words.

All that needs to be done is to provide a “base-word”. Pupils then try to make as many other words as possible using only the letters taken from that base-word. A letter may not be used twice, unless it occurs twice in the base-word. It is better if it can be ruled that words must consist of at least 4 letters, but this may not be desirable in some cases. Similarly, proper names and abbreviations should be excluded if possible. Some would disallow plurals as well.

For example, given the base-word MACHINERY some words that could be made are

acre	crime	machine	near
archer	each	mane	niche
army	earn	marcher	rain
carmine	hairy	marine	reach
chain	harm	miner	remain
chimney	hymn	mince	rhyme
creamy	inch	name	yearn

To make checking easier later it is helpful if words are grouped by the number of letters they contain. This is easy to manage if columns are ruled off and headed 4, 5, 6, 7 etc.

A halt is called when they have all had ‘sufficient’ time and seem to have found as many words as they can or, of course, a specific time could be given, which helps to suggest a more competitive atmosphere. A little time could be given to make sure the lists are readable. Lists could be swapped for marking purposes.

### Marking and Scoring

Going around the classroom, pupils, in turns, call out a word from the list in front of them. If any other pupil (or pupils) has that word then EVERYONE who has it on their list CROSSES IT OFF. When the entire process is finished, every pupil should have a list of words which no one else has. (The list may be blank!) Only those words remaining are scored. Scoring may be as simple as 1 point per word, or based on a scale which rewards according to the length of the word.

Some care is needed in the choice of the base-word. 9-letter words are about the right length. Those with repeated letters are best avoided since they often give trouble in the marking. Nor should it contain many ‘hard’ letters, unless there is good reason to do so. Some suitable base-words are

ALONGSIDE	DRINKABLE	HORSEBACK	SCREAMING
BEHAVIOUR	DUPLICATE	LONGITUDE	SOMETHING
BINOCULAR	EDUCATION	NIGHTMARE	THINKABLE
CERTAINLY	FALTERING	PARCHMENT	VOLUNTARY
CONSTABLE	FRACTIONS	PORCELAIN	WONDERFUL

A variation is to write a 9-letter word in a grid like that shown on the right. Words now have to be made by starting in any cell and moving from one cell to another one next to it, in any direction (including diagonally), spelling the word as you go. No cell can be used twice. So, in the example given, it would be possible to spell CHARM but not MINE. An additional question would be to determine what the base-word is. In that case, make sure there is one, and that is written in according to the rules. Also of course, compose it out of sight!

C	A	Y
H	R	M
I	N	E

Simply start with one letter (which can really only be A E I or O) and then, by adding only one new letter at a time, see how many words can be made. Once a letter has been put in it cannot be removed and, the letters cannot be re-arranged in their order. An example of this is

A  
AT  
ATE  
LATE  
ELATE  
RELATE  
RELATES  
PRELATES

That was how the original puzzle (in the 1800's) was presented. It is a little limited and quite demanding on the solver's vocabulary. For classroom use, a change is desirable. Re-arrangement of the letters is allowed at any time, and each word formed is counted. Thus this is 9 words long, and certainly not finished.

A  
AT  
EAT  
MEAT  
TAME  
TEAM  
MATES  
STEAM  
TEAMS

Another change that might help to open things up a bit (though in reality it is very little) is to allow the start to be made with any letter. Much better for those who are in difficulties is to start with 3 letters.

This is an exercise in the use of visual imagery and does require a high degree of concentration. It provides an opportunity for pupils to follow simple instructions and manipulate some data *in their minds*. It can be difficult for many but, with perseverance and practice, it possible for nearly everyone to improve their skill considerably.

First a practice, or demonstration:

Everyone has a pencil and paper, on which they can write down whatever they like, to help them keep track of what is happening. Write up the word **RUN** and then give the following instructions, one at a time with a pause between each. (The entry in brackets is not read out, it is only there to show the answer at each stage.) It will need emphasizing that each instruction applies to the arrangement that is current at the time, and **NOT** the original arrangement.

Change over the 1st and 2nd letters	(= NUR)
Change over the 2nd and 3rd letters	(= NRU)
Change over the 1st and last letters	(= URN)
Change over the 2nd and 3rd letters	(= UNR)
Change over the 1st and 2nd letters	(= NUR)
Write down your final arrangement	(= <b>NUR</b> )

Check that everyone has handled that correctly and sort out any misunderstandings. Then move on to the real activity. Instruct pupils to put pencils down and that they are not to write anything at all until they are told to do so. That they are to carry out the instructions in their minds, and only to write down the final arrangement at the end. The starting arrangement **IS** written up for all to see. Some to try:

**ABC**

Change over the 1st and 2nd letters  
 Change over the 2nd and 3rd letters  
 Change over the 1st and 3rd letters  
 Change over the 1st and 2nd letters  
 Change over the 2nd and 3rd letters  
 Write down your final arrangement

**CBA****XYZ**

Change over the 2nd and 3rd letters  
 Change over the 1st and 3rd letters  
 Change over the 2nd and 1st letters  
 Change over the 2nd and last letters  
 Change over the 1st and middle letters  
 Write down your final arrangement

**XZY****PLUG**

Change over the 1st and last letters  
 Change over the 2nd and 3rd letters  
 Change over the 3rd and 4th letters  
 Change over the 1st and 3rd letters  
 Change over the 1st and 2nd letters  
 Write down your final arrangement

**UPGL****MOLE**

Change over the 1st and 3rd letters  
 Change over the 3rd and 4th letters  
 Change over the 2nd and 3rd letters  
 Change over the 1st and 2nd letters  
 Change over the middle 2 letters  
 Write down your final arrangement

**EOLM****TRIP**

Change over the 2 end letters  
 Change over the middle 2 letters  
 Change over the last 2 letters  
 Change over the first 2 letters  
 Change over the 2nd and 3rd letters  
 Write down your final arrangement

**IRTP****SOUP**

Change over the 1st and last letters  
 Change over the last 2 letters  
 Change over the middle 2 letters  
 Change over the first 2 letters  
 Change over the 1st and last letters  
 Write down the 1st two letters

**UP**

The simplest possible check is to walk around the classroom (after each one is completed) and see what is written on each pupil's paper.

This is another old idea which provides a framework for working with words. It certainly needs a considerable amount of thought if reasonable scores are to be achieved.

First of all choose two words of the same length. The words do not have to be related or connected to each other in any way. For example, we could have

FATHER                  PLAYED

Write them in 4 vertical columns like this

F	P	P	F
A	L	L	A
T	A	A	T
H	Y	Y	H
E	E	E	E
R	D	D	R

The object now is to try and put letters in between each pair of letters so that a word is made.

One possible answer in this case would be

F	li	P	P	roo	F
A	l	L	L	lam	A
T	e	A	A	r	T
H	eav	Y	Y	out	H
E	v	E	E	eri	E
R	ai	D	D	oo	R
	11			15	

The numbers at the bottom show how many letters have been put in. Then the total score for the above solution could be taken as  $11 + 15 = 26$

Of course, it depends on the circumstances as to whether the competitive element that scoring implies is appropriate or not. It may be better that scoring is not mentioned and it is sufficient only to get a set of words that fit.

As in most word-games, a decision has to be made as to whether proper names and/or abbreviations are allowed or not.

Clearly some words are better (or worse!) as starters than others. For instance, there is a shortage of words in the English language, to be found which end in: *i, j, q, u, v, z*.

Pupils could suggest the starting pairs. Otherwise these pairs are 'good' starters.

MARKET	+	DEMAND
RHYTHM	+	TWENTY
ALWAYS	+	PARENT
LENGTH	+	WARMLY

It may need to be pointed out that a word cannot always be fitted in, so much depends upon the vocabulary or resources available.

## MAKE-A-CHAIN

This is based on an old Victorian party game. Here it is meant for individuals to work at and score (if appropriate) according to how long a chain they make. This activity is often done better if pupils work in pairs.

The first thing to do is to decide upon a theme, such as Animals, Countries, Characters in books, Music, Pop-singers, Groups, Art, Plants, Mythology, Names, Fishes, Birds etc.. It should be one about which those taking part could be expected to have some knowledge. The object then is to make a 'chain' of words from that theme in such a way that the LAST letter of one word is the same the FIRST letter of the next.

For example, using the theme 'Animals' the chain could start:

Elephant \_ Tiger \_ Rat \_ Toad \_ Dog \_ \_ \_ \_

No word may be used twice, or else endless repetition becomes possible. The game is, to see who can make the LONGEST chain.

A few variations are possible if it is desired to make it a little harder.

### Variation 1

The last word must be capable of joining back on to the first, so that the 'chain' becomes a 'necklace'. In the example above, this would mean that the chain must have 'E' as its last letter - to join on to Elephant. Giraffe would do in this case, but it would be a rather small necklace.

### Variation 2

No joining letter may be used twice.

For instance, Elephant \_ Tiger \_ Rat would NOT be allowed as 'T' has already been used.

The longest possible chain here is 26 of course, but can it be done? This variation (if set as a homework or a challenge) is just about guaranteed to involve the whole family!

And what about making it a necklace?

**mnemonic** (pronounced nim-mon-ick) A mnemonic is a device or trick intended to aid the memory. *The use of mnemonics has been practised since the days of Ancient Greece, books have been written on the subject, and over the ages whole systems have been devised around them. In some cases the mnemonics have been harder to remember than the items they were supposed to help with!*

One of the more well-known mnemonics is that for remembering the colours of the rainbow or spectrum, and the order in which they occur. We say

**Richard Of York Gained Battles In Vain**

where the **initial letters** of each word are intended to remind us of

**Red Orange Yellow Green Blue Indigo Violet**

Another type works like this. We say

**For a help I count mnemonics to settle order for maths**

and the **number of letters** in each word are counted to produce the sequence

**3 1 4 1 5 9 2 6 5 3 5**

which, with a decimal point after the 3, gives the value of pi to 10 decimal places. The value of pi has produced more mnemonics than any other set of facts.

While many hundreds of mnemonics exist for remembering all sorts of facts, most individuals know only the few which help them with what they need to know in their life and work. And while it is often convenient to use an existing (often traditional) mnemonic, it is good to be able to make up your own, especially nowadays when Personal Identification Numbers (PIN's) and Passwords are a part of daily life for many.

Here are some facts which could have (*and have had*) mnemonics created for them.

The 4 principal points of the compass in clockwise order:

*North East South West*

The colours of the 5 Olympic circles from left to right:

*blue yellow black green red*

The Great Lakes of North America in their size order, biggest first:

*Superior Michigan Huron Erie Ontario*

The order of the planets as given by their distance from the sun, nearest first:

*Mercury Venus Earth Mars Jupiter Saturn Uranus Neptune Pluto*

The colour coding system used for electrical resistors, smallest to largest:

*black brown red orange yellow green blue violet grey white*

In musical scales, the order of the sharps: *F C G D A E B*

For a guitar, the order of the strings: *E A D G B E*

Roman numerals in order, smallest first: *I V X L C D M*

Square root of 2: *1.4142136 . . .*

As a variation on this, a Password or PIN could be put up and a mnemonic requested for it.

Remember that a PIN usually consists of 4 numerical digits What about a zero?

A password usually consists of at least 8 characters meaning numbers as well as upper and lower case letters, but it is best to start with something simpler and work up to that.

It is worth pointing out that, as PIN's and Passwords can be changed, it is possible to invent the mnemonic first, which is much easier way of doing it. Design a few 'snappy' ones. Like

*My beautiful cash number* (for 2946) or *Give me the money* (for 4235)



Write up (or prepare an ohp transparency) the 26 letters of the alphabet and, underneath each letter, write the number corresponding to its ordered position. That number represents the value of that letter. Thus

A	B	C	D	E	F	G	H	I	J	K	L	M
1	2	3	4	5	6	7	8	9	10	11	12	13
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
14	15	16	17	18	19	20	21	22	23	24	25	26

Now think of a word, say 'school', give each letter its value from the above table and add them together to get the value of that word. In this case,

$$\text{school} \rightarrow 19 + 3 + 8 + 15 + 15 + 12 \rightarrow 72$$

Simple enough idea.

Now to work. Find a word that has a value of 6. Too easy? Then what about 17 or 29 or 100, or any other number you care to think of?

In fact you could make a list of all the numbers from 1 to 100 and find words to fit every one (well not perhaps every one!). Good exercise this because it is encouragingly easy in the beginning, just a matter of writing down any word, finding its value and placing it on the list, and the task gets harder as the gaps have to be filled in. Such a list could be compiled as a group effort (working in small groups) or by the whole class.\*\*

This difficulty of this task can be increased by requiring that the shortest possible word is used to match each number. Then the efforts of several groups can be compared (or combined) on a single master list. (*Save it for your collection*)

As an aside. This is a very good simple example of what is known in mathematics as a 'one-way function'. That is, it is very easy to solve in one direction, finding the value of a given word; but much harder to solve (though not impossible) in the other direction, finding a word from the value. Worse still here, several solutions are possible in the second case.

In particular, this is known as the 'knapsack problem'. Think of packing a knapsack with lots of differently-sized objects available to put in it. If the knapsack is already full we can determine its size by simply unpacking it and adding up the sizes of all the objects it contained. However, if the knapsack is empty and it is our task to fill it up then we must indulge in a lot of trial and adjustment to achieve that.

One-way functions are the basis of much modern cryptography.

### A variation.

The full value of the word is found by adding up the individual letter values as before, but that total is then multiplied by the number of letters in the word to get the full value of the word.

$$\text{Thus 'bank' has a full value of } (2 + 1 + 14 + 11) \times 4 = 112$$

The reverse process of finding a word to match a number is now much more difficult.

For example find some words that have a full value of 100.

A little thought will make it apparent that only 4- or 5-letter words will fit.

Some possibilities are

area, bard, bend, cabs, cape, drab, fame, gale, hake, jack, pace  
caged, caged, faded

It is also obvious that some numbers can never be matched by using full values. Or is it obvious? Perhaps that is a discovery that needs to be made.

\*\*To help in making a 'tidy' approach to this task there are some suitable sheets available. They are to be found from the **trol** index page, listed under Basic Sheets as Answer Grids.

# Some Other Lessons

## Part 2

The lessons suggested in this part DO require some preparatory work. First, the supporting notes should be read to gain a clear idea of what is involved. Second, some of the exercises should be attempted in order to assess their degree of difficulty and suitability for a particular group, and any necessary notes made. Third, the right amount of copies (plus spares) need to be made, and there might also be a need to make an ohp transparency.

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Try reading this

Of al th strnge thngs tht Alice saw in hr jrny ths ws th one tht sh  
alwys rembd most clrly. Yrs aftwrds sh cld brng th whol scen  
bck agin, as if it hd ben ony ystday. \*\*

Most people read it and make complete sense of the whole thing. This is in spite of the fact that exactly one quarter of the letters that should be there are missing. It is an illustration of the redundancy of written language. From this it is an obvious question to ask if all those apparently superfluous letters do anything useful? There are several answers to that, but one practical use which is experienced almost daily by many people is in being able to make sense of something when there are misprints present (as in newspapers), spelling errors (in pupils' work), or illegible handwriting (almost anywhere). In spite of the doubtful letters, the extra ones allow sense to be made of the whole thing. The same is also true of messages which are sent over a bad line, or a long distance. There can often be some corruption in the message but, provided that there is not too much and it is spread evenly throughout, then it is usually possible for the exact sense to be read. Nowadays there is text messaging - no inbuilt redundancy there!

All of this is not just of passing interest, it is an important area of study for those involved in communication. For reasons of economy they wish to make messages as short as possible, yet they also wish to make sure it is readable even with some errors.

From the passage at the beginning of this section it would seem that we might be able to get away with dropping 25% of the letters (that is 1 in every 4). However we must notice that the letters were dropped in a way which seemed to leave the maximum information for the reader. If we merely drop every 4th letter we get this -

Of al th strnge hins tht Alce sw in hr jurny, ths wa the ne tat se  
alays emeberd mot clarl. Yeas aferwrds he culd rin the hol sce  
bak agin a if i had een nly estrda. \*\*

Whilst that is not completely unreadable it does require a little more work and becomes something more in the nature of a puzzle rather than a means of communication. The sheet headed **Missing Fourths** is based on this idea. If the second half of the sheet seems to be much harder than the first, remember that it is every 4th letter that is missing. With a little counting it is no harder at all.

It is possible to go even further and drop every 3rd letter and still be able to re-construct the original, though more work is necessary and this is done in **Missing Thirds**.

Another form of abbreviation that used to be common at one time, especially with letter-writers of earlier times, was the habit of dropping vowels where possible - especially in standard phrases. This sort of thing is found - "I shd be oblgd". Of course it had to be done selectively. It would be no good writing 'bnd' and leaving the reader to work out from the context whether it was meant to be - band, bend, bind, bond, bound or boned! If all the vowels are dropped it is usually possible to reconstruct the message, but a lot of work is often needed. On average the vowels make up 38% of our written language, so over one-third of the message is missing!

This is the basis of the exercises in **Missing Vowels**. The first half of the sheet is not too bad as the spaces are shown, and only a,e,i,o,u have to be tried in those spaces. However, the second half of the sheet is now much harder because no extra help can be gleaned by knowing exactly where the letters are missing from. The most helpful starting points are those words where only one letter remains. There is not a lot of choice in those cases. (This is a good homework for getting the whole family involved!) It is possible that some alternative messages could be found in this last section

One practical point. If you do not wish to have the exercise sheets written on, suggest that the message (with blanks) is copied out first before being worked on. This is useful in the second half of each sheet where the blanks could then be inserted.

\*\*The above two 'messages' are also given in a large text format so that an ohp transparency could be made for the purpose of an introduction.

Of al th strnge thngs tht Alice saw in hr jrny ths ws th one tht sh always rembd most clrly. Yrs aftwrds sh cld brng th whol scen bck agin, as if it hd ben ony ystday.

Of al th strnge hins tht Alce sw in hr jurny, ths wa the ne tat se alays emeberd mot clarl. Yeas aferwrds he culd rin the hol scee bak agin a if i had een nly estrda.

## Missing Fourths

In each of these messages every 4th letter has been replaced by \_ to show that a letter is missing. Can you work out what each of these messages should be ?

For example

Hon\_sty \_ays \_ut i\_ doe\_ not \_ay e\_oug\_ to s\_it s\_me p\_opl\_  
should be

Honesty pays but it does not pay enough to suit some people

1. Har\_ wor\_ may \_ot k\_ll b\_t it \_rig\_ten\_ som\_ peo\_le
2. A sm\_le i\_ a wr\_nkl\_ tha\_ sho\_ld n\_t be \_emo\_ed
3. A se\_ret \_s ei\_her n\_t wrth \_eep\_ng o\_ too \_ood \_o ke\_p
4. If i\_nor\_nce \_s bl\_ss w\_y ar\_ the\_e no\_ mor\_ hap\_y pe\_ple
5. Lea\_n to \_ay k\_nd t\_ing\_ no\_o\_e ev\_r re\_ent\_ the\_
6. No t\_o pe\_ple \_re a\_ike \_nd b\_th \_f the\_ are \_lad \_f it
7. The \_nly \_ome\_hin\_ you \_et f\_r no\_hin\_ is f\_ilu\_e
8. The \_ost \_ffi\_e is \_ gre\_t st\_mpi\_g gr\_und
9. A fr\_end \_s a p\_rso\_ who \_as t\_e sa\_e en\_mie\_ as y\_u
10. Mak\_ hay \_hil\_ the \_un\_s ine\_ and \_ou\_w ll\_g\_t su\_str\_ke

The next set is similar, every 4th letter has been removed but this time no gap has been left, except for that between the words. For example

An oion day eep eveyon awa

should be

An onion a day keeps everyone away

11. It i goo for hilren o hae pes unil te pes hae chldrn
12. Wha you o no kno canot hrt yu bu it cn mae yo loo stuid
13. Whe you top edalin you biccle ou fill of
14. If yu wat to ela you ave o wok at t
15. By te tie yo are ift you ill ave pen sixteen ear in bd
16. Chidre are gret cofor in od ag and elp ou rach t soner
17. Mony dos no brig hapinss bt it ake you misry cmfotabe
18. Wha is wrth he toube of oin is wrth he toube of oin wel
19. Evey da in eery ay i is esy t see ow te wold gts btte
20. Terier are orn ith our ime as mch sn in hem s orinay dos

## Missing Thirds

In each of these messages every 3rd letter has been replaced by \_ to show that a letter is missing. Can you work out what each of these messages should be ?

For example

Ma\_e h\_y w\_il\_ th\_ su\_ sh\_ne\_  
should be

Make hay while the sun shines

1. A b\_rd \_n t\_e h\_nd \_s w\_rt\_ tw\_ in \_he \_us\_
2. He \_ha\_ go\_s b\_re\_oo\_ mu\_t n\_t p\_an\_ th\_rn\_
3. Th\_ wo\_ld \_s a \_ta\_e a\_d e\_er\_o\_e pl\_ys \_ pa\_t
4. It \_s h\_rd \_o t\_ac\_ an \_ld \_og \_ew \_ri\_ks
5. If \_ou \_ea\_h y\_ur\_el\_ yo\_ ha\_e a \_oo\_ fo\_ a m\_st\_r
6. So\_e p\_om\_se\_ ar\_ li\_e a \_ie \_ru\_t m\_de \_o b\_ br\_ke\_
7. An \_ld \_at \_ap\_ up \_s m\_ch \_il\_ as \_ yo\_ng \_it\_en
8. No\_hi\_g i\_ ev\_r s\_ ba\_ th\_t i\_ mi\_ht \_ot \_e w\_rs\_
9. He \_ha\_ ta\_es \_on\_y m\_st \_ew\_re \_f b\_in\_ st\_ng
10. Ne\_er \_ut \_ff \_nt\_l t\_mo\_ro\_ th\_t w\_ic\_ yo\_ ca\_ do \_od\_y

The next set is similar. Every 3rd letter has been removed but this time no gap has been left, except for that between the words.

For example

It nl taes a smll ea to in a bg sip  
should be

It only takes a small leak to sink a big ship

11. Whn te ct lavs te hus it s kow to he oue
12. Thre re on so ea as hoe tat il no her
13. Th tie nve gos ot s fa bu it lwys ams i agin
14. It s sid ha thre s n smke itou at eat sme ir
15. Yo cano ru fat o fa enug to et wa frm yur eas
16. Frens ae tos wh hae mny higs n cmmn icldig eemes
17. Thre s nthng erai in hi lie ecet fr dat an taes
18. Whn yu cn tea on in dasis a one srig hs cme
19. On thng t a im doe vry el  
Is uc th bet wy a may cn tll
20. Soe aimls re anerus he thy ae atake thy dfed temeles

## Missing Vowels

In each of these messages every vowel has been replaced by \_ to show that a vowel is missing. Can you work out what each of these messages should be ?

For example

Br\_ng h\_lp \_t \_nc\_ \_s \_ \_m b\_ng \_tt\_ck\_d  
should be

Bring help at once as I am being attacked

1. J\_n m\_ t\_n\_gh\_t \_t \_r h\_s\_ f\_r \_ b\_rthd\_y p\_rty
2. \_t \_s v\_ry n\_c\_ss\_ry t\_ h\_v\_ \_r \_nd w\_t\_r s\_ \_s t\_ l\_v\_
3. Pl\_s\_ m\_t th\_ \_v\_n\_ng tr\_n \_ w\_ll \_rr\_v\_ th\_n
4. S\_nd\_ys s\_m t\_ b\_ \_ p\_p\_l\_r d\_y f\_r w\_sh\_ng c\_rs
5. \_ w\_ld l\_k\_ y\_ t\_ s\_nd th\_ m\_n\_y \_s s\_n \_s p\_ss\_bl\_
6. Y\_ sh\_ld n\_v\_r g\_ t\_ b\_d w\_th \_ cr\_c\_d\_l\_
7. Y\_ m\_st st\_rt \_t th\_ b\_tt\_m wh\_n cl\_mb\_ng l\_dd\_rs
8. \_h d\_n't th\_ d\_ys s\_m d\_nk \_nd l\_ng  
Wh\_n \_ll g\_s r\_gh\_t \_nd n\_th\_ng wr\_ng  
\_nd \_sn't y\_r l\_f\_ \_xtr\_m\_ly fl\_t  
W\_th n\_th\_ng wh\_t\_v\_r t\_ gr\_mbl\_ \_t

The next set is similar. The vowels have been removed but this time no gap has been left, except for that between the words.

For example

Dst s nly md wth th wtr sqzd t  
should be  
Dust is only mud with the water squeezed out

12. Whn strkng ct y mst lwys mv frm hd t tl
13. lctlrcty cn b vry dngrs f y r crlss
14. D nt frgt tht y mst kp brthng f y wnt t lv
15. Plnty f wlknng s vry nc wy f tkng xrns
16. Y mst nt g nr lns whist thy r fdng
17. n ht dys t s vry plsnt t hv cl drnks
18. Thr tms sx dd nntn mks thrtv svn
19. Ppls wll ftn mt ppl wh lk n ppl
20. T g t f th rm y nd t pn th dr

There are occasions in most people's lives when they need to be able to spell out a word while using the telephone. Maybe the line is not very clear, or it is important that one particular word in a message (usually a name) is sent absolutely correctly. Whatever the reason, you can soon find the dialogue going like this

"Did you say dee?"

"No, tee"

"Sorry, was that bee?"

"NO! tee. Tee for - - - - - tee for - - - - - tee for TOMAHAWK!"

"Ohhh - tee, as in teddy-bear?"

"Yes"

Notice the pauses as the sender searched for a 'suitable' word and, even then, did not get it right.

This problem has been around for some time, ever since it became possible for voice communication to take place over a distance, whether by telephone or radio. The solution was to draw up a set of words which would be known to everyone who needed to use them, and among which there would be no confusion of one for another. This was known as a phonetic alphabet \*\*.

There were different versions of these alphabets around for a while but inevitably they moved towards a standardised one, especially as the need for something that would be understood without any ambiguity internationally. The international phonetic alphabet now in use is

<b>A</b> Alpha	<b>H</b> Hotel	<b>O</b> Oscar	<b>U</b> Uniform
<b>B</b> Bravo	<b>I</b> India	<b>P</b> Papa	<b>V</b> Victor
<b>C</b> Charlie	<b>J</b> Juliet	<b>Q</b> Quebec	<b>W</b> Whisky
<b>D</b> Delta	<b>K</b> Kilo ( <i>key-loh</i> )	<b>R</b> Romeo	<b>X</b> X-ray
<b>E</b> Echo	<b>L</b> Lima ( <i>lee-mah</i> )	<b>S</b> Sierra	<b>Y</b> Yankee
<b>F</b> Foxtrot	<b>M</b> Mike	<b>T</b> Tango	<b>Z</b> Zulu
<b>G</b> Golf	<b>N</b> November		

(There is a large copy of this included, suitable for making an ohp transparency.)

When spelling out a word, letters are not used at all, only the complete word for that letter is said. For example, to spell out "pear" you would not say "P for Papa, E for Echo, A for Alpha, R for Romeo" but merely "Papa, Echo, Alpha, Romeo". Many find this a little confusing on hearing it for the first time, but soon become used to it. Several will be familiar with the general idea through TV, in dramas or documentaries. Numbers are said as numbers (0 = zero)

Learning and using this alphabet in the classroom is not only a useful activity, it can also provide some fun. First of all everyone needs to be familiar with the alphabet-words. A start is best made by writing the list down, so that everyone has their own copy for reference. Before doing that, find out how many of the words are already known. This list should be read and said several times over. It is not too difficult to memorize because the first letter of the word is always known, and it is more a matter of matching by association rather than memorizing a purely random list of words.

Practice can be done by pupils working in pairs, perhaps merely reciting the word-list to each other in the first instance. Then each pair can be given a list of messages (or make up their own) and one can spell out the message while the other writes it down. A selection of messages is given on another sheet. In use the sheet should be cut in half and distributed, so that each one of the pair cannot know what the other's messages are. One very worthwhile aim in this work would be that everyone should be able to spell his or her name phonetically without hesitation.

\*\* Note that there is another kind phonetic alphabet. It is the one used by dictionary-makers (and others) to indicate how a word is pronounced. It usually follows right after the headword that is to be explained, and looks like a rather strange spelling of the word with some hieroglyphics mixed in. An explanation of these is generally found in the front of the dictionary.



## **A Class Activity**

Messages can be “transmitted” from the front of the classroom (by pupil or teacher) while the whole class writes them down. This can be more fun if some instructions are given, which have to be carried out on completion. Rules for this are quite simple. Everyone must write the message down. No one may leave their seat or make any move until “END” is called.

Examples of some messages are given here. The message itself is given in capital letters so that its content can be easily seen. What is actually to be read out is given below the message to avoid the ‘sender’ having to think about that aspect. The speed at which the words are read out is clearly very important, but this can only be determined by the ‘sender’ observing the audience. A small, but distinct, pause should be made between each word.

### **RAISE BOTH HANDS**

Romeo Alpha India Sierra Echo  
 Bravo Oscar Tango Hotel  
 Hotel Alpha November Delta Sierra      **END**

### **SIT ON THE FLOOR**

Sierra India Tango  
 Oscar November  
 Tango Hotel Echo  
 Foxtrot Lima Oscar Oscar Romeo      **END**

### **RAISE LEFT (RIGHT) HAND**

Romeo Alpha India Sierra Echo  
 Lima Echo Foxtrot Tango (Romeo India Golf Hotel Tango)  
 Hotel Alpha November Delta              **END**

### **GIVE ME A SHOE**

Golf India Victor Echo  
 Mike Echo  
 Alpha  
 Sierra Hotel Oscar Echo                  **END**

### **BRING ME A PENCIL**

Bravo Romeo India November Golf  
 Mike Echo  
 Alpha  
 Papa Echo November Charlie India Lima              **END**

### **PUT LEFT (RIGHT) [ONE] HAND ON YOUR HEAD**

Papa Uniform Tango  
 Lima Echo Foxtrot Tango (Romeo India Golf Hotel Tango) [Oscar November Echo]  
 Hotel Alpha November Delta  
 Oscar November  
 Yankee Oscar Uniform Romeo  
 Hotel Echo Alpha Delta                      **END**

This activity is popular and can become a little hectic. A form of cheating can appear. It is possible to actually write down nothing but, by observation, see what has to be done and merely follow. There seem to be two main reasons behind this. Some find it difficult but do not want to be left out, while others cannot be bothered and will always look for shortcuts. Walking around while reading out the messages is an obvious way of looking for this. Another way is to devise discriminatory messages like “ALL SURNAMEN H TO N SIT ON FLOOR” with the initial letters carefully chosen.

The messages that can be made up depend only upon the environment, ability, ingenuity and enthusiasm of all concerned. One piece of advice - it is best to think about and prepare such messages in advance, unless you are extremely adept at both improvisation and the use of the phonetic alphabet.

*(echo november juliet oscar yankee!)*

## Spell-A-Grams

Spell out each of the following messages using the Phonetic Alphabet. Get someone else to Write down the message as you spell it out and then see if they received it correctly.

1. SEND MONEY TODAY
2. COME HOME TUESDAY
3. TRAIN ARRIVES SUNDAY
4. GET WELL SOON
5. WRITE ME A LETTER
6. BUY SOME ELEPHANTS
7. JOIN UP WITH THE GANG
8. MEET MY PLANE TOMORROW
9. FLY TO BERLIN WEDNESDAY
10. HELP HAS BEEN DELAYED
11. GIVE PLANS TO HENRY
12. RUN WAY AND HIDE
13. LET ME HAVE NAMES
14. AXUUD MQFTB RVHZI
15. Z4B7M RG60T TKOFA
  
16. YOU MUST ESCAPE
17. ATTACK WITHOUT DELAY
18. RESCUE ATTEMPT SOON
19. ENEMY ARE ON ALERT
20. CHILDREN ARE SAFE AND WELL
21. TREASURE HAS BEEN FOUND
22. SHIP ARRIVES LONDON TUESDAY
23. MOVE QUICKLY TO SAFETY
24. SHIFT GOLD TO ZANZIBAR
25. ALL OXEN MUST BE SOLD
26. JUMP ON BANDWAGON NOW
27. MUST HAVE MORE TIME
28. SEVERE STORM IS COMING
29. WMPBR YYCNZ FHUJD
30. XV50D LU3G2 ROSMB

## International Phonetic Alphabet

<b>A</b>	Alpha	<b>N</b>	November
<b>B</b>	Bravo	<b>O</b>	Oscar
<b>C</b>	Charlie	<b>P</b>	Papa
<b>D</b>	Delta	<b>Q</b>	Quebec
<b>E</b>	Echo	<b>R</b>	Romeo
<b>F</b>	Foxtrot	<b>S</b>	Sierra
<b>G</b>	Golf	<b>T</b>	Tango
<b>H</b>	Hotel	<b>U</b>	Uniform
<b>I</b>	India	<b>V</b>	Victor
<b>J</b>	Juliet	<b>W</b>	Whisky
<b>K</b>	Kilo	<b>X</b>	X-ray
<b>L</b>	Lima	<b>Y</b>	Yankee
<b>M</b>	Mike	<b>Z</b>	Zulu

## International Phonetic Alphabet ~ Historical Note

This letter was published in The Times of 23rd April 2002

Most countries developed phonetic spelling systems in the 1880's as early telephones had poor sound quality. These were often based on well-known first names such as Mary, Bertie, Victor.

The same problem arose with early radio. The British Army before the First World War identified seven letters that gave common reception problems (a, b, m, s, t, v) and replaced them with Ack, Beer, Emma, eSses, Toc, Vic. The "Ack-Emma" system was expanded in the the First War and by 1917 the British naval phonetic procedure had become:

"Apples, Butter, Charlie, Duff, Edward, Freddy, George, Harry, Ink, Johnnie, King, London, Monkey, Nuts, Orange, Pudding, Queenie, Robert, Sugar, Tommy, Uncle, Vinegar Willie, Xerxes, Yellow, Zebra.

The Australian and British military usages were standardised in the Second World War but were complicated by the entry of the US into the war with their system beginning "Able, Baker, Charlie, Dog, etc." At the same time, the British telephone service (GPO) was using two systems, one based on common names "Alfred, Benjamin" and the other on place names "Amsterdam, Baltimore".

A standardised worldwide system "Alpha, Bravo" was pioneered by the International Civil Aviation Organisation in the 1950's and their "expert" committee came up with a version that was based on English but supposedly pronounceable by other language speakers. A version of this was adoped by NATO in 1952 (though the Danish Army had to add "Aegir, Oedis and Aase" to cope with their extra letters), and by the International Telegraphic Union in 1956. Though the English sound is the same, the spelling varies with other languages, e.g. "Alfa, Juliette, Viktor".

*Russell Vallance*

*Royal Artillery Museum, Woolwich, London SE 18*

Most people would claim that they are able to count and would demonstrate their ability by saying “One, two, three, four - - - - “ and so on, for as long as you were prepared to listen. This might be described as ‘counting in the air’ or ‘saying numbers in order’. Counting should involve objects, and a real test of the ability to count should involve objects which are mixed up in some way, so that they have to be identified as they are counted. This is much more difficult. It is related to a real-life activity such as sorting and stock-taking. It would also be a training-test for would-be proof-readers.

On each of the 4 following pages there is a table of randomly arranged characters.

Random Letters 1 contains	A D E H I N O R S T
Random Letters 2	B C F J L P U X Y Z
Random Letters 3	b c d e h l n o p q
Random Numbers	1 2 3 4 5 6 7 8 9 0

These sheets can be used as the basis of different counting exercises. The list is arranged in order of difficulty, easiest at the top. Having selected which sheet is to be used, each pupil is given his or her own copy. Pupils are then told, individually, which character on that sheet they are to count. Since there is a choice of 10 on each sheet, characters can assigned in such a way that no two pupils near each other need to be counting the same character. The need to count silently will soon become apparent!

They may count various things about their own particular character.

- How often it appears on the sheet.
- How often it appears by itself (that is the characters on either side of it are different)
- How often it appears in pairs

For the two latter purposes, the list of characters must be considered to form one continuous line starting at the top left-hand corner and finishing at the the bottom right, with no spaces.

It is suggested that ‘answers’ are collected in written form, rather than verbally, to counteract ‘undue influence’ on the results. Make sure that at least 3 pupils (better 4 or 5) have dealt with the same character so that comparisons can be made. The answers given below (to the first two types of count) are believed to be accurate but are not guaranteed!

Many other types of count can be devised, dependent only upon the ingenuity of the organiser, and the tolerance of the audience.

### Summary of Characters on **Random Letters 1** (1400 in total)

Character	<b>A</b>	<b>D</b>	<b>E</b>	<b>H</b>	<b>I</b>	<b>N</b>	<b>O</b>	<b>R</b>	<b>S</b>	<b>T</b>
Total of each	154	140	125	131	120	132	151	138	181	128
Singles	123	110	103	101	101	105	118	115	144	95

### Summary of Characters on **Random Letters 2** (1400 in total)

Character	<b>B</b>	<b>C</b>	<b>F</b>	<b>J</b>	<b>L</b>	<b>P</b>	<b>U</b>	<b>X</b>	<b>Y</b>	<b>Z</b>
Total of each	142	130	147	137	144	154	109	161	144	132
Singles	114	112	122	114	111	132	87	130	122	109

### Summary of Characters on **Random Letters 3** (1400 in total)

Character	<b>b</b>	<b>c</b>	<b>d</b>	<b>e</b>	<b>h</b>	<b>l</b>	<b>n</b>	<b>o</b>	<b>p</b>	<b>q</b>
Total of each	155	137	141	146	117	157	133	141	145	128
Singles	120	106	107	107	97	115	108	119	119	111

### Summary of Characters on **Random Numbers** (1750 in total)

Character	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>0</b>
Total of each	169	162	196	175	172	181	181	178	177	159
Singles	132	123	157	144	137	146	134	144	142	142

## Random Letters ~ 1

DONEO	OSARD	IHIAR	IORAT	OHASH	SOHAT	ATSDH	TNARD
OSDOA	RROIE	OTDNA	THEHO	RSSRS	INRNS	READS	STESD
HOODD	HDRIO	TDNTA	AEOOR	ODHOH	HEAOH	RTONO	NHRSO
HHSHI	SSAOD	DHADN	RTSRO	ITOTN	IHREI	ORRES	AOOHH
HHNTS	IIETN	EADED	OEADA	SITHI	SETTD	SIHHI	DORII
TNIAH	TARHI	SIINA	STOOH	AIHRA	NHRIS	AADIN	OTSHH
REEAI	SSOOE	OOEIS	TERRA	IESAI	TODAR	ITAOS	RERDS
STSOS	RSRTT	OEASN	DERSI	TTASD	OIDER	AASAI	TOAHR
EASHD	OONDT	SROTN	SHDRR	DDDIA	IOTTI	ROASN	ADDII
OESOR	SHHAE	THSSO	DEDAR	HSOHI	RNSAA	SAREO	TTTSO
DSNNA	AIEDH	TDIAE	ENNDA	SSNHD	OESSO	ARTDN	RANAI
OTSOA	SDNND	NSTTH	EHNOE	EDHOS	DAAHE	DSOIO	NTNII
SREED	STEAH	NISDO	SEHEI	STIDR	EOTNN	AARTD	OIENO
NTAOO	ORHIR	EHSDR	SHNSA	IHNRR	DEESR	ASEOD	RTEER
AAHTT	THNAT	NAESH	HENHT	ERSTD	RSOSA	RETSE	ARINO
RSAID	TASOH	DDAON	THHDE	IAARI	ASONT	ERNHE	SEISE
OOETE	AEDIO	DOSDE	TTDSO	EAORT	OAION	IEORS	OAHSS
AIAOI	EEDII	IOANS	AROHR	ITORD	SNTSH	DHSOO	DARAT
HNTOR	SADRS	NAASH	NSTSI	OHNNT	AONSS	EASRR	IHHAI
NNHAT	AIRHA	OSOAN	STOAS	AENHT	TSADI	TSSNA	OTHDO
RANTD	ISNRN	HSANE	DOOTH	RESAT	NENIH	AROHH	RENNN
HTIHD	NSSSES	ODRNI	HEIAR	RNAHT	ANNTN	DOESN	EDHND
DSSTR	SASOS	HONAA	EERNO	NDESI	OSIOR	ADODS	TRIEN
INNNR	DSION	RRANT	OIASH	AAHNT	NROEE	RTNTI	DTSSN
IRSEH	NEHSH	SDSTH	HIDHE	STTTO	ARDSR	ASHNS	RHISA
NDRDN	SEERS	EODHD	HORRR	ORADI	NSOAN	HIASE	SNEAT
TISAR	ONRHD	OOOIT	TODND	IIHEO	NENRO	SRHNN	ERTAO
RDISA	DEIHA	TDIST	HTENT	EOSAR	IOTIR	DDSDS	DDEOS
ERSTN	DEAAE	HODHH	SDTSI	ROISR	SISAH	DATHN	ASIRE
SODRA	TANSE	SSNOD	IESAH	AREOA	AHDRN	NDRHN	HNRTH
NIAER	NREOO	HASED	DDSSA	OOORS	ENRTD	OTRRH	DIDIR
OADOS	SSNTA	EARHT	NOSHH	DTDAE	IASSH	HIITT	REANN
NADEE	SHDHR	NDDSD	OEDSN	ETIDH	ORRST	NROIA	RIADS
INRNH	NHSIR	OHEDT	SIEOI	OHEAS	DDSRO	RISHI	ITDDE
IDNON	AAEAS	TTNTD	ESTDD	RTDDT	THEIE	STRNA	RHIDA

## Random Letters ~ 2

PZZZC	LXLIFY	CYUFY	PJPYF	XUYFZ	XFJZP	JZUXB	LXPUZ
UYBBC	JBPLY	XCYP	UPLJX	XCPFY	XXPCL	JPCYF	XPJBX
FJJPZ	CYCUZ	FYYCJ	CYPXL	YFCXL	FBJBJ	JZCJF	LJLYX
YZYZP	YBFFX	ZCLPL	JUBYU	PZXPL	ZJBFY	PXYFP	PJPFU
UXBLJ	PXLBL	PCLXL	FZZXZ	XPZZU	FPYPB	BCYLU	CPXJF
XUPLP	FFPUY	ZYCXC	YJCBX	CBPLU	YFCUL	JXCBX	JCUCZ
UULPF	XZBFB	LUUCU	XJBYX	PFBXZ	YZXBB	YPJPB	UZFBF
PLBXJ	LYBXL	YFPBC	UFUYX	FLBJY	CJCJP	UFUPJ	UPYUB
CXLXU	XJFXX	CPLXC	XZFPF	CYZCY	CYJLF	YFLPU	YJUCC
CCJBF	LLFYY	ZUFUF	FLLCX	LLLXL	BZYBP	JPCXJ	LLFJU
FUXCX	CFPFZ	CUZYC	BXFJF	YUCJF	BZXJP	CZJZP	XPPLB
LUXFZ	ZFZJF	JUBBC	PZXLZ	XXFJB	XXJYX	YXBLU	FUCPY
JULBX	XYFJJ	BUZYL	BZFFB	FLXYL	XXZCZ	CFFPY	LZPPY
LCUXX	FLPCB	BBCUP	XCZFL	PFLZZ	LYJJZ	PPZXP	CZFLB
BBLZZ	FJZYY	LUPJX	FBXBZ	JFULL	UULXF	FXPJU	CYCFX
UUFBX	CYXPC	PXJCY	XPFZC	YLLFB	UPLUX	UPYXF	ZPPYZ
CZJXY	XXPBJ	ZLZJC	PYPLL	FFPLF	CBYZX	LUBLY	YBFUY
YJXPC	YJZJC	ZYLFP	JLBXY	BUBZP	ZCCXB	XJXZY	PYCJP
YYCBF	PBUZJ	XYJZL	PCUXU	XLBXC	CYLLP	PPZBX	PBYCX
JULBZ	JBCZP	FFFYY	PUXBJ	BYZPL	XBUJP	YBZXJ	ZUFJF
BBLUF	ZYLZC	BBUUU	BCFZF	ULZLF	BJFBP	CJZUX	LPBCU
YPXJF	UYPBX	JXUBY	PYFBZ	YPJFB	FLCLC	LUCYJ	JPBXF
LPZCU	ZJYZX	CXXFY	BXBZJ	JZYFB	YXXXF	CBZFF	ZZXCF
XBCLX	CPJXP	FZUCU	CUXXP	BUJFX	YXCFJ	PZUUX	FXBYB
JBYLF	FYPLX	FCBUB	JPXCY	JJXZU	YLFJB	FZCXB	XZZLB
XFLXP	XYCFP	PXYPJ	BBJUL	ZJLZL	YBCPL	LXXJL	LYYLY
YJZLX	BPLPL	CCUXB	BFUUU	ZYPBB	XYCZX	ZLCJJ	ZJCFX
PJZCC	LLBZP	JYUUP	LFCLY	PUFYL	LBJBX	JLPBY	PLBCP
PJYPU	XPYLP	JBLPL	XXJLP	XJBXY	FPBZZ	JBYBC	BFXUB
BCPUY	CBJFJ	FLJYL	BZCYP	CYJYY	XBFFL	ZYLYJ	PLXXP
LZFZU	UXFCU	ZFYYP	ZUBBP	FYJBJ	YBJUZ	CZLUL	YJXUJ
BYXYJ	CYZJJ	CZZPX	PJYLJ	JJFXU	FLPPB	PJXPJ	FXFPF
PBJZJ	UZFBJ	FCYZB	LLCBZ	BPLLB	CLLFZ	XJLLB	CPLUC
FPFCC	ZPLFP	ZJULP	LZLXJ	JXYZF	PZLCB	PXPFB	JYJFZ
FZFCC	BPZJZ	ZLYBX	UCCYC	JYFPY	PYYCF	XFBCF	YFFYP

## Random Letters ~ 3

olnen	hpclc	nqbhp	nopee	ennpn	eqbec	ldloe	dpddl
hclhd	hlqol	eepnq	nbpeh	hdnqh	qelqd	beeqp	chncq
nldnc	cphed	qbcln	llppn	bhhnd	hdlhd	dcpbc	odoqe
eccdd	eocqn	lqece	pllle	qebbh	lnbdl	ebbhh	qpopq
onnll	qnelb	plelc	qpned	opdpn	qpchp	beoel	eddoq
ledcc	oeb1b	obqlh	hlned	obqbd	bb1pd	lobbb	eloqe
nlqoe	qlpoo	cpcob	olqqh	ddndq	qnqqe	nbebl	ecobq
pqecb	ocqep	epddo	qbepe	dcd1b	lchbp	pqoqc	nbecd
odqpq	ncnqq	nbnpc	nldoh	oebcb	hqlhq	odqbe	ehobh
bopnb	pcnoh	ll1nc	deohl	lpchc	cdolc	dlqnn	nqnon
cbhq1	nlppd	lqhcd	ol111	qlhpd	echho	cepbe	phccb
becep	ccdpc	nodpp	nnchc	hclhl	qbhbe	lqdql	lqpdc
dqnpd	oqooq	lnhln	bldod	cqqeo	qcdcb	epepd	nebbo
ndboc	l11dl	bheqo	dboqp	nebnq	peplp	cenhq	dplhe
dell1	oneop	nnhpn	eehnb	ppelq	bon1b	cqcqo	opqbn
1blch	hbbod	edccb	ldbbe	blnbl	dqobl	nelnb	bheeh
cepeo	eqplp	nep11	lhqcn	pedql	phpln	pclno	eccdh
boneo	bqdbp	cbbdn	cpn1b	pddnq	lhleq	beeee	11hnq
ndpoq	ncbdc	oqelb	oblcn	bccon	qhdon	oelbe	enhoo
bedbd	nqeho	dhbbd	dbpdp	dnlob	bqbc1b	cpocb	hclpc
bpclh	bpeeb	qlhel	qplpp	bodnn	oqecc	eeddh	oeqpd
endec	pnpqp	ql1en	qqdeo	bocdh	lqodl	benbb	onnhh
pdqpq	boboe	dchbo	plccl	hhhpn	nocbo	clbpq	bepcd
hnc1n	pnnqe	cnlol	hndl1	eopoc	oeepb	plood	hbpdd
oello	dppl1	nbcnl	ooole	noled	qcpql	ddbhp	cdhol
dc1oc	oohdd	lpeqh	nedcn	npl1h	opnhb	qbpod	onhq1
onnbo	1cp1h	odebl	ccb1q	hq1qo	dnleo	p1hpb	1conp
ndod1	blbdp	oqlnp	cpb1q	debl1	heboo	heebp	pnlqo
dcqdn	qqqpb	hobcl	qcpln	dpcdq	nqdbl	qeobl	beh1h
pddee	oooql	cpedd	chlpl	pdonb	hocqo	endph	bcohe
epclp	cqeon	penbd	nlobn	hdpph	bbcpl	bcqel	1bcch
cqdbb	obehb	pbecn	ephdh	bcobb	ddoqb	pdbde	cohlh
eeppc	chelp	nbhdh	qohoc	1npcc	cedoc	plchc	dbhqd
qdboc	ehcep	n1dq1	qbdoc	olcen	dbheo	onhbn	pohnh
lppop	hqpl1	1hhod	qpoph	pobb1	bqeeh	qqcep	cbc11



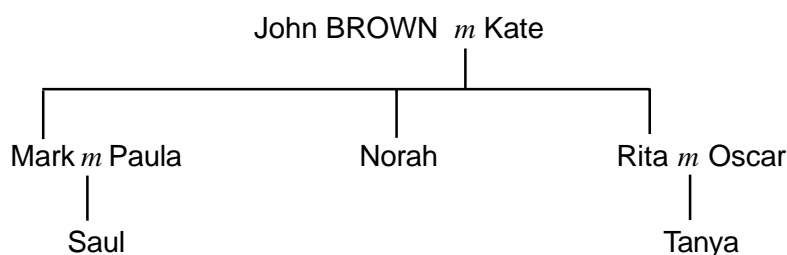
## Random Numbers

49030	48332	42153	70214	62429	73668	32726	47930	82430	73824
42077	16109	36018	14450	74147	38946	67849	08055	86812	78239
99386	06328	48476	17881	38251	26565	56734	45346	56629	52079
82650	42352	22043	04888	04115	93611	06205	52477	81115	14904
33612	52246	21190	36865	10371	43340	00377	77794	27761	59755
35373	63764	50450	25189	06560	37808	97226	18349	31102	48488
94881	54755	00726	30981	71261	47717	73509	62973	35550	96234
50559	77980	65999	75095	74348	09224	72673	91349	57999	21081
40014	94671	46750	77941	48250	26461	73731	47864	01225	60727
44747	59379	86263	29851	99077	40323	18601	66119	75212	54510
78628	53742	74117	06565	89487	42623	94084	57704	27510	32199
79717	21275	78398	87374	22811	42093	65054	26965	16768	49449
98643	96995	05019	67253	13948	31487	82381	19478	96667	71821
63594	97798	72227	68738	09719	53158	12389	02095	41589	31691
82031	41374	45870	57312	30621	27993	96819	69341	54835	72270
67742	10357	78669	21021	88825	98398	62515	64910	67169	43998
53588	35793	84710	33739	73631	20565	57159	40257	10904	60684
89099	88244	55768	66407	97591	13396	99042	44821	80175	89631
83468	16834	62748	46723	12443	13967	14606	11228	82285	65592
63907	43520	57681	16991	85147	36187	15744	95564	93031	83171
07602	93889	90535	41355	62924	21917	94598	90473	49106	33846
62130	19163	60638	30565	06321	12685	38270	37768	01160	72406
33544	57666	49574	67893	98974	52516	33005	00986	33387	16263
60939	33887	32906	95359	43459	56182	18054	34737	06049	85623
48222	52521	03945	31011	96887	65864	55718	52953	87739	33884
75683	90594	13936	93573	41856	59675	80790	40357	30958	86154
84060	06815	73673	13027	02381	10580	83911	08182	22314	63277
31503	85289	46985	44244	39481	65336	53505	28201	42666	48219
45187	55155	24108	23434	36108	00637	33879	26032	39509	01317
45704	35370	89887	27922	63877	47740	08479	63815	96444	64153
19339	29140	59867	80901	70305	46498	57063	68389	78968	91813
74028	82474	85502	26666	66261	48055	15233	97227	83535	14049
60799	82332	23131	22764	78110	85443	92080	69435	66237	83354
56853	69601	98408	40896	19908	60232	77162	96653	62825	91629
23660	35307	75089	96804	72919	04337	35377	41482	79578	29602

Many people are interested in knowing something of their ancestry. This has been shown in recent years by the considerable growth in the number of people making enquiries at records offices about Births, Deaths and Marriages. Some people have made quite a hobby out of tracing their forebears.

Fundamental to this is the drawing of a family tree. It is also a good example of how a comparatively complex situation can be presented in a simplified read-at-a-glance way, without losing any of the essential information. If anyone doubts this, try putting a reasonable-sized tree into a words-only format, and then asking someone to provide information from it.

The exercises provided on the next sheet are based on the SMITH's family tree. No special knowledge of relationships is called for - there are no "second cousins once removed", though there is one "second cousin". However, some prior discussion is helpful about how these work and what they show. This one for the BROWN's can be written up and then talked through via some questions.



How many generations are being shown? (3)

Name all John Brown's children (Mark, Norah, Rita)

How many Mr & Mrs Browns are certainly there? (2. Rita does not have to be a Brown after marriage though of course she could be.)

What relation is

Rita to Mark? (Sister)

Saul to Rita? (Nephew)

Paul to Tanya? (Aunt)

Kate to Saul? (Grandmother)

Saul to John? (Grandson)

Mark to Oscar? (Brother-in-law)

Rita to Paula (Sister-in-law)

Oscar to Paula? (None)

Who is Norah's niece? (Tanya)

What is the relationship between Saul and Tanya? (Cousins or, more precisely, first cousins)

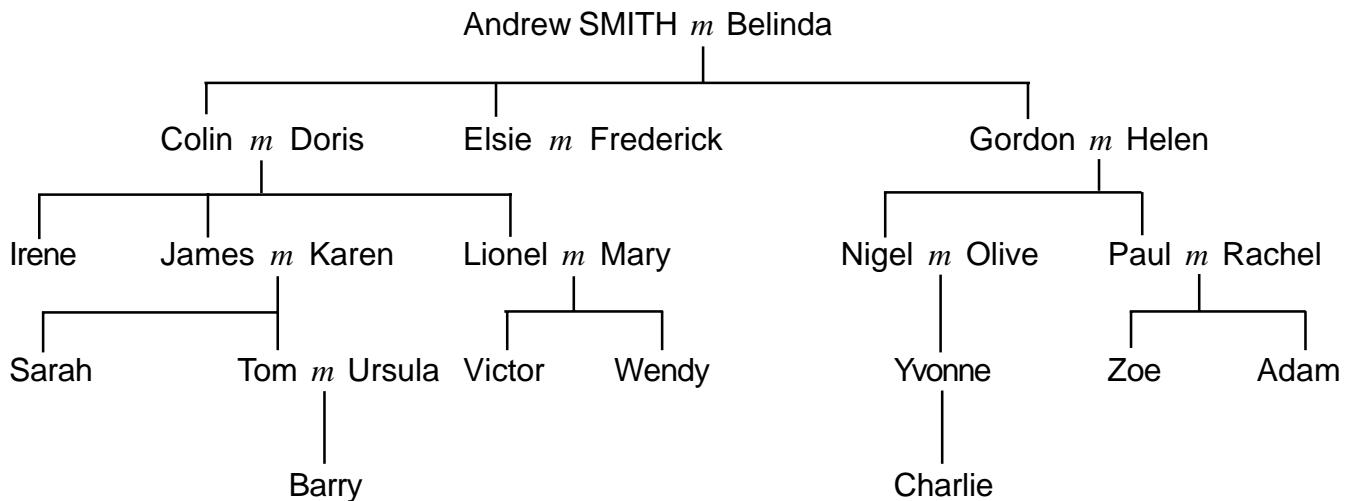
The word 'cousin' has a variety of meanings. It is generally thought of as being applied to two persons whose respective parents are related as brother or sister. But it is often used to refer to almost any relationship which goes outside of the immediate family, and even beyond that if some sort of affinity is being implied as in "our American cousins". Clearly, in the work being done here the more precisely defined relationship is to be used, and is exemplified in the above diagram by Saul and Tanya. Further than that, it is best if the more precise term 'first cousins' is used.

The children of first cousins are second cousins to each other. Thus, in the above tree, Saul and Tanya are first cousins. If they each have children called say, Gail and Henry respectively, then Gail and Henry would be second cousins to each other. The relationship of Gail to Tanya (and also Saul to Henry) is that of 'first cousins once removed'. The parents are first cousins, and we want the relationship of one of them to a child of the other. The 'once removed' or even possibly 'twice removed' bit is the number of generations being counted away from the relationship stated.

The drawing of one's own family tree is a very good exercise for pupils. One cautionary note - it has been known for parents to object, and even some pupils have resented it, mainly on the grounds that it was a form of prying. Apart from that it may be a sensitive issue anyway with some, as the idea of what constitutes a family changes. Teachers need to be on their guard here and - if in doubt, don't!

Since gender plays an important part in the tracing of a family tree an effort has been made to make the names as unambiguous as possible, but there could still be room for arguments and misunderstandings, especially for those of different backgrounds.

## The SMITH Family Tree



1. How many sons did Andrew and Belinda have?
2. What was the relationship of Nigel to Paul?
3. Who was Lionel's father?
4. Name Victor's grandmother.
5. If Andrew was first generation, what generation does Barry belong to?
6. Name Irene's nieces.
7. Name all the children of Colin and Doris
8. How many married couples are shown on the chart?
9. Of all the people shown, which were certainly named SMITH at birth?
10. Which SMITHs were not married when the chart was drawn?
11. Which of the married couples were certainly called Mr & Mrs SMITH?
12. Which of the married SMITHs had no children?
13. Which SMITHs had only sons?
14. Name all Nigel's aunts.
15. How many grandchildren did Colin have?

What was the relationship of

16. Belinda to Lionel?
17. Colin to Tom?
18. Zoe to Gordon?
19. Doris to Barry?
20. Andrew to Barry?
21. Colin to Yvonne?
22. James to Paul?
23. Zoe to Sarah?
24. Sarah to Nigel?
25. Olive to Mary?

When searching lists it is easier if they are arranged in some order. If the list is made up of words or names then the obvious basis for the arranged order is alphabetical. Can anyone imagine a dictionary or telephone directory that was not arranged in alphabetical order? One variation is to group in some obvious way first (like themes) and then the lists within those groups are arranged alphabetically. A good example is the “Yellow Pages”. Other arrangement for dictionaries can also be found, especially in those written for crossword puzzlers, and in rhyming dictionaries.

If the list is of numbers then the obvious ordering to use is that of size. Examples of that are to be found in mathematical tables and dictionaries of numbers. What about telephone directories which are made up of names and numbers? Well, the ordinary user would certainly not want it arranged in numerical order! But there is a need for a numerically-ordered telephone directory of course, so that those who need to can track down the owner of any number.

Several unordered lists are on the next sheet.

To illustrate how time-consuming it can be to work with unordered lists, look at List 1 and find how many words there are starting with ‘the’. Or, on List 2 (or any of the others) find which are the first and last words, alphabetically speaking. And remember those are very small lists. Think how much quicker it would have been on an ordered list. And, moreover, on an ordered list the search time is almost independent of the size of the list.

The using of an alphabetically ordered list does require some familiarity with the order of the alphabet and some work on the Lists 1 to 7 is intended to help in gaining some experience of that. Quite simply, re-write the lists in alphabetical order. Lists 1 and 2 are small enough to be used as a preliminary check-up, with the real work being done on Lists 3 and 4. How much is to be done will depend . . . as always.

Lists 5 and 6 are parallel and could be used for adjacent workers, one each. Perhaps it could be seen as a test?

List 7 seems to be an echo of List 4. It is almost, but there are differences. What are they? This is relatively easy if List 4 has already been alphabetised, some systematic checking and ticking-off will do the trick. The differences will stand revealed. That is another useful skill.

It should be noted that there are a few rules about indexing and the making of lists which the professional compiler needs to know, but they are hardly relevant here. Just stick to the most basic idea of comparing entries from left to right, and deciding order on that.

## Order! Order!

### List 1

the  
and  
that  
with  
this  
have  
which  
were  
there  
more  
said  
about  
other  
some  
could  
first  
then  
years  
before  
must

### List 2

where	make
your	very
way	still
down	both
should	life
because	under
long	three
each	never
just	know
state	same
people	another
those	while
how	might
little	great
world	since

### List 3

<i>against</i>	<i>does</i>
<i>right</i>	<i>united</i>
<i>came</i>	<i>hand</i>
<i>take</i>	<i>water</i>
<i>used</i>	<i>until</i>
<i>himself</i>	<i>public</i>
<i>few</i>	<i>fact</i>
<i>house</i>	<i>put</i>
<i>use</i>	<i>head</i>
<i>place</i>	<i>think</i>
<i>during</i>	<i>called</i>
<i>high</i>	<i>set</i>
<i>without</i>	<i>enough</i>
<i>again</i>	<i>night</i>
<i>home</i>	<i>yet</i>
<i>around</i>	<i>better</i>
<i>small</i>	<i>four</i>
<i>found</i>	<i>nothing</i>
<i>part</i>	<i>told</i>
<i>thought</i>	<i>city</i>
<i>went</i>	<i>why</i>
<i>once</i>	<i>days</i>
<i>every</i>	<i>point</i>
<i>left</i>	<i>look</i>
<i>war</i>	<i>find</i>

### List 4

ASKED	LATER
GROUP	KNEW
NEXT	GIVE
KNEE	SIDE
FIVE	FORM
RATHER	LARGE
EVER	BECOME
WITHIN	ALONE
SAW	POWER
BIG	AMONG
EARLY	NEED
ALONG	BEST
LIGHT	OTHERS
OPEN	THING
WANT	AREA
HELP	TURNED
WHOLE	SENSE
CERTAIN	KIND
KING	BEGIN
PERHAPS	NAME
TIME	ABOVE
FREE	EXAMPLE
WEEK	FORT
LOCAL	EITHER
TODAY	QUITE

### List 5

Elliot F.	Rogers S.
Taylor N.	Sutton M.
Clark P.	Bennett G.
Smith J.	Allan R.
Payne M.	Nicholls J.
Ward C.	Kelly M.
Barratt J.	Giles A.
Saunders T.	Heard P.
Thompson G.	Green M.
Nicholson G.	Piper B.
Heath A.	Harris L.
Brown A.	Parker F.
McDonald C.	Barrett A.
James L.	Thomson R.
Harrison N.	Smith E.
Pike F.	Lang N.
White M.	Clarke R.
Rose W.	Paine L.
Gill R.	Gregory P.
Allen K.	Macdonald F.
Heal N.	Wood H.
Lock D.	Price H.
Hill B.	Head C.
Martin L.	Isaac S.
Pain R.	Sanders J.

### List 6

Davey H.	Brook A.
Pearce E.	Johns G.
Cross H.	Gray F.
Hooper C.	Edwards B.
Miller J.	Reed J.
Andrews B.	Thorn N.
Turner F.	Collins P.
Johnson H.	Peirce Y.
Brooke A.	Down B.
Evans L.	Hopkins K.
Read B.	Macleod R.
Davis E.	Stephenson N.
Gardner M.	Baker P.
Lewis R.	Marsh D.
Mason W.	Davies C.
Brooks A.	Tucker S.
McLeod H.	Lucas M.
Thorne K.	Gardiner G.
Stevenson D.	Hall M.
Ball T.	Pearse E.
Williams N.	Rowe T.
Reid L.	Jones R.
Hall F.	Davison C.
lake D.	Mills G.
Grey S.	Brookes W.

### List 7

<i>help</i>	<i>power</i>
<i>knee</i>	<i>either</i>
<i>area</i>	<i>within</i>
<i>time</i>	<i>light</i>
<i>need</i>	<i>five</i>
<i>later</i>	<i>certain</i>
<i>above</i>	<i>quite</i>
<i>group</i>	<i>early</i>
<i>floor</i>	<i>local</i>
<i>sense</i>	<i>ever</i>
<i>free</i>	<i>side</i>
<i>best</i>	<i>name</i>
<i>today</i>	<i>saw</i>
<i>become</i>	<i>rather</i>
<i>example</i>	<i>aloud</i>
<i>along</i>	<i>perhaps</i>
<i>fort</i>	<i>asked</i>
<i>give</i>	<i>thing</i>
<i>others</i>	<i>next</i>
<i>knew</i>	<i>want</i>
<i>begin</i>	<i>kind</i>
<i>large</i>	<i>open</i>
<i>whole</i>	<i>among</i>
<i>turned</i>	<i>weak</i>
<i>form</i>	<i>alone</i>

An important skill is to be able to give directions, as well as having the ability to follow them of course. The work suggested here is intended to help in developing those skills.

The following two sheets, Directions~1 and Directions~2, are needed as ohp transparencies. Each is the basis of a separate set of exercises and they are independent of each other.

### Directions ~ 1

This represents the plan view of a town and its streets. Only two directions are required, 'left' and 'right', otherwise the movement is assumed to be forward, in the direction the traveller is moving. Of course, the 'left' and 'right' are always given relative to that forward movement and that leads to those well-known situations where people have to turn maps around to match their direction. When using a map projected onto a screen that is not an option!

The letters given around the edge of the map are starting/finishing points and the initial direction of travel is always away from the letter into the town. A good starter, after some introductory explanation would be on the lines of

"I start at A. Going along that road I take the first turning to the left. Then, going along I take the second turning to the right. At the end of that road I turn left and, after going round the corner, take the first left, round another corner and take the first right. Where am I?" (F)

Depending on the variety of responses to that it may be necessary to go through it again, analysing and explaining each separate instruction.

A whole series of routes like that could be given (having prepared them in advance) and pupils required to write down the finishing points of each.

The next stage is to require pupils to give the route for a specified journey. This could be done by having them write down their solutions for reading-out and discussion later, or by conducting the whole thing orally. In the latter case, it is best if there is a pause after each task is set, to make sure everyone has at least done some thinking about it (make notes?) before an individual is called to give their solution.

The task can be stepped up a level with the introduction of a few variations. Like

"Can you direct me from F to L avoiding Central Square?"

Marking a cross to show roadworks which render a road unusable.

Putting in arrows to indicate a one-street.

### Directions ~ 2

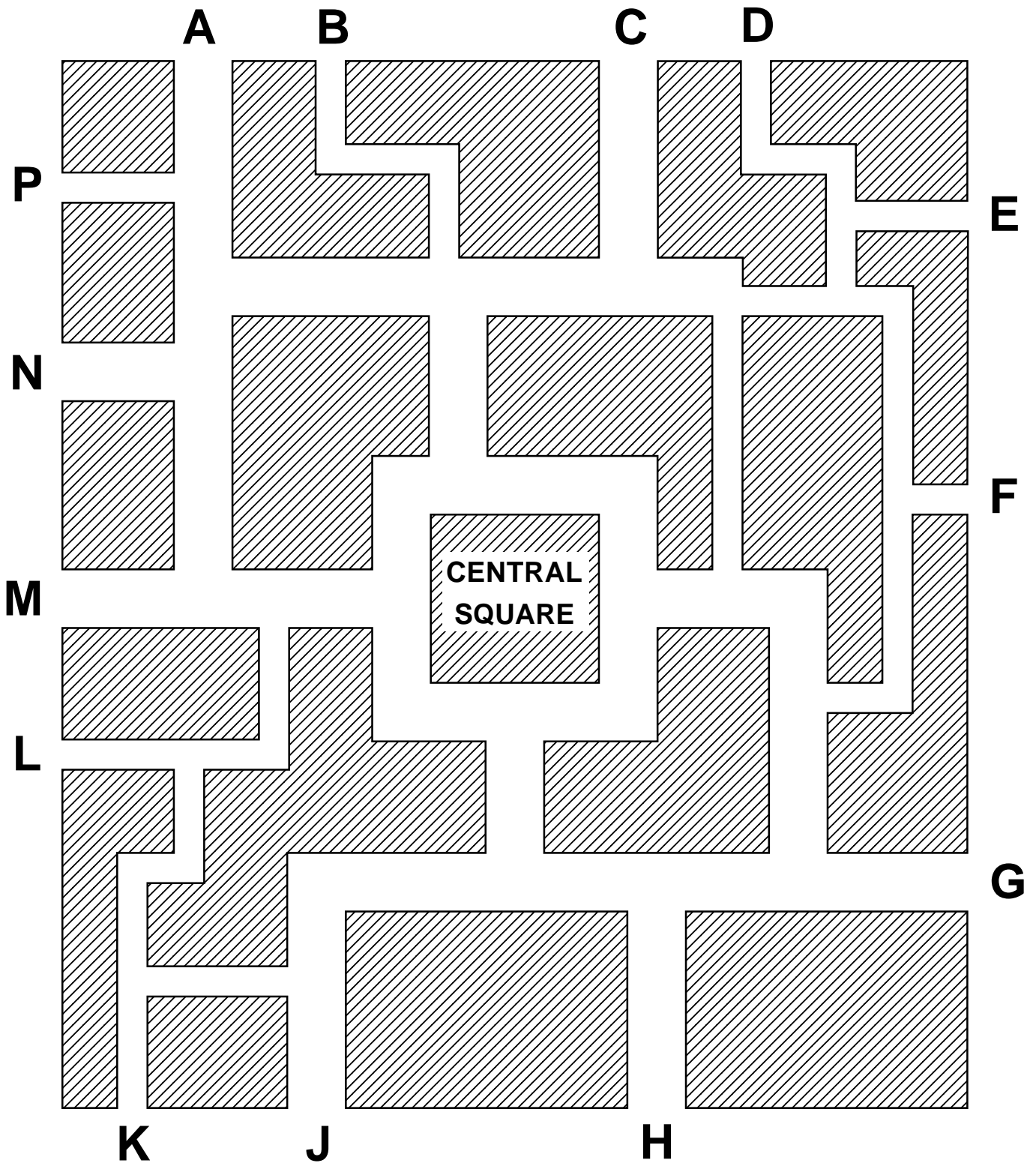
In the previous exercises the directions 'left' and 'right' were always **relative** to the direction of travel. Now we turn to another set of directions, using the 8 principal points of the compass. These are **absolute** directions, independent of the direction of travel and never change. This makes it very easy to use in a paper exercise such as we are doing (provided you can remember the directions of East and West), but not so convenient in a built environment where 'lefts' and 'rights' require no background knowledge such as where North is. Of course, in actual use for map-reading one needs more than the 8 principal points used here, but if those can be established it serves as a very good starting-point.

The 'map' is merely a network, of roads or paths, in which all the lines run (conveniently!) in one of the the 8 principal directions. The direction indicator at the bottom is only for introductory purposes, it is not intended to be on show when the work is in progress. In fact it will probably be out of view anyway once the full map is on display.

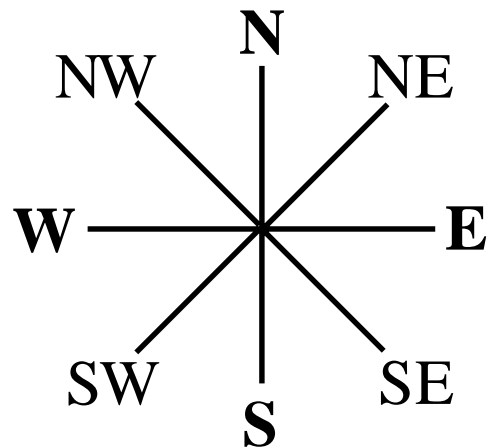
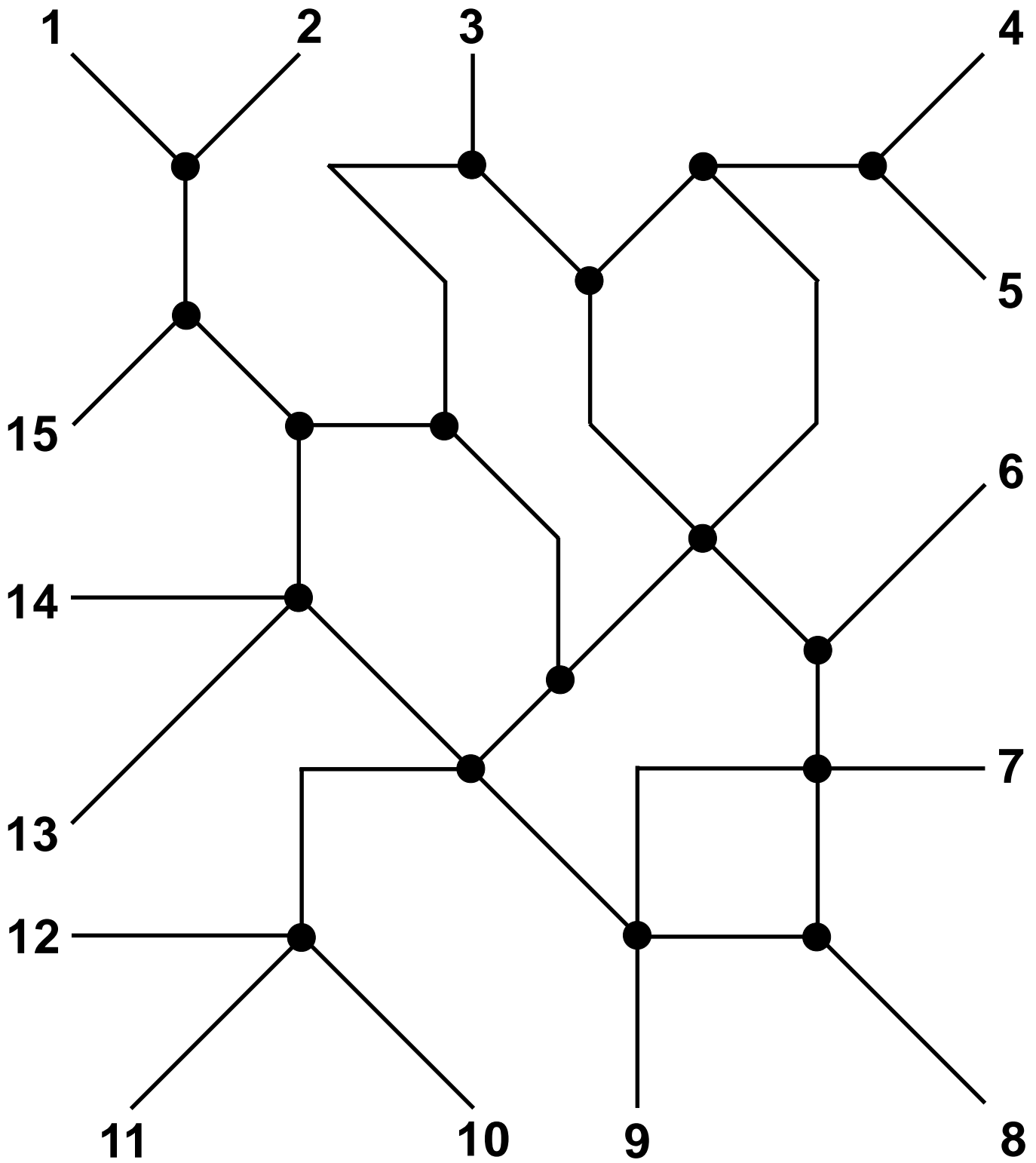
The running of the exercises can be conducted in a similar manner to that for the previous sheet. It might help to pronounce the rule that a direction is specified at EVERY junction, but not at corners where there is no choice. Example

"10 N NE NE SE S E Where am I?" (7)

Directions ~ 1



Directions ~ 2





The notes given here are to help with the sheets which follow.  
All of which, it is assumed, would be available at the rate of one per pupil.

**How Far Can YOU Climb?** All is explained on the sheet. If it is desired to offer evidence of a slightly longer route try 1, 6, 12, 16, 17, 19, 20, 21, 28, 29, 34, 35, 36, 39, 41, 50, 58, 65, 119, 120, 126, 128, 154, 155, 158 for a score of 25.

A route from 1 to 300, scoring 70, is possible.

**Hidden Animals** These are not easy for many. Help can be given by supplying a list of all the animals that are to be found, though not in any particular order except perhaps alphabetical. Or perhaps the first 6 or 10 animals to encourage. As always it depends . . .

Answers are: 1:camel, 2:goat, 3:cow, 4:hare, 5:seal, 6:pony, 7:ape, 8:otter, 9:bear, 10:rabbit, 11:cat, 12:gerbil, 13:badger, 14:fox, 15:bison, 16:stoat, 17:beaver, 18:dingo, 19:panda, 20:panther, 21:rat, 22:horse, 23:pig, 24:tiger, 25:lion, 26:dog, 27:deer, 28:llama, 29:gorilla, 30:elephant. Others may be found.

The exercise could be reversed by requiring sentences to be constructed which 'hide' other animals, such as: mouse, ferret, mink, zebra, leveret, sheep, kitten, mare, bat, doe, ewe, stag, gnu, kid, ram, calf, boar, sloth, beagle, weasel

**Countries and Capitals** Very obvious what is required here, but it can be handled in different ways. It could be regarded as just a test of general knowledge, possibly started off in the classroom and left to finish off as a homework or at some other time. Or it could be used as a 'finding out' exercise which implies having sources of information ready to hand (and in sufficient quantities) and could be handy in the library or in a situation where the Web can be accessed by all. Other information could be asked for, such as population, area (population density?), ruler, national flag, currency, language. How are the answers to be recorded? If it is just the Countries and Capitals then lines could be drawn on the sheet showing the appropriate connections.

**Anagrams** A well-known example of puzzles based on words. Plenty of them here. Notice the three columns cover the 4-, 5- and 6-letter variety respectively, which does represent the order of difficulty. Match them up to the users as far as possible. No one but an enthusiast should be doing the lot. Share them out, say and odds and evens, or bunches of ten, but no two adjacent workers need to be working on the same ones. Note that, strictly speaking, these are NOT anagrams since both arrangements should spell a proper word, which they rarely do here.

As an extra, pupils could use their own name (or be given one of some famous person) to make something of. Like 'George Bush' becomes 'He bugs Gore' or be really clever with 'A decimal point' changes to "I'm a dot in place"

**Anagramic Tensesecs** A follow-on, or alternative, to the previous one, making it a little more interesting by requiring the words which make up a whole sentence to be found. Most of the sentences are proverbs and so, anyone having a knowledge of those would be able to do some intelligent guessing. However, they are not all proverbs and there are few interesting variations in the second part of the sheet.

## How Far Can YOU Climb?

Starting at 1, moving from square to square and only one square at a time, sideways or up and down, but NOT diagonally, and only moving to a HIGHER number each time, with NO square being used twice, how far can you get?

Your score is the number of squares actually used, counting the first and the last.

For instance, 1, 6, 9, 19, 35, 155, 158 gets a score of 7.

But, 1, 6, 9, 19, 27, 29, 35, 128, 154, 155, 158 gets a score of 11.

What can YOU score?

67	64	62	60	53	48	46	49	28	21	20	24	25
68	65	76	61	62	7	39	34	29	9	19	17	31
72	85	74	69	71	2	38	35	36	28	26	16	11
83	82	75	76	78	81	40	41	39	12	20	12	18
89	84	85	107	105	102	110	50	58	30	<b>1</b>	6	20
91	86	83	109	99	101	109	6	65	59	114	9	26
99	89	90	93	96	125	111	117	119	120	126	19	27
102	92	94	96	97	123	126	120	132	137	128	35	29
105	120	85	97	83	131	128	126	130	136	154	155	158
135	129	292	254	258	219	154	129	128	139	141	146	150
146	283	282	283	250	218	212	216	184	146	143	154	153
174	162	300	252	261	213	211	208	213	215	150	159	158
287	271	275	276	280	218	219	205	218	165	168	165	160
261	270	284	282	285	225	232	200	226	169	162	154	161
259	256	253	250	293	231	235	194	193	216	174	168	163
271	262	256	244	240	232	246	195	187	180	178	179	167

## Hidden Animals

In each of these sentences an animal is 'hidden'. The name of the animal is spelt with all of its letters in their proper order and with no other letters in between though there might be spaces and punctuation.

Example

The couple ran away and had a very pleasant elopement.

In this the hidden animal is *antelope* which is found in 'pleasant elopement'.

How many hidden animals can you find?

1. He came late to the meeting.
2. Have a go at the coconut-shy.
3. Eric owes me a pound.
4. My teeth are more sensitive than yours.
5. Did you lose all your money?
6. I left the book upon your desk.
7. Would you like to have a pear?
8. They found they had got termites in the woodwork.
9. He is to be architect of the proposed building.
10. The Arab bit his lip in anger.
11. Erica told her sister to hurry up.
12. Gannets have longer bills than gulls.
13. I hope you didn't pick up any bad germs while on holiday.
14. The diver took a canister of oxygen from the store.
15. Lamb is on special offer this week.
16. "This is the best oat crop for miles", said the farmer.
17. Surely you cannot be averse to taking tea?
18. They watched the plane landing on the runway.
19. Give me a map and a compass and I will find my way.
20. They built a bridge to span the river.
21. We always have dinner at one o'clock.
22. I abhor seeing animals ill-treated.
23. I said to Pip, "Ignore him!"
24. In peat I germinate seeds in trays.
25. He lost the portfolio near the office.
26. Please do go to visit Granny tomorrow.
27. I think you have made errors in this work.
28. All amateurs are eligible to run.
29. He was either truanting, or ill, at the end of term
30. Opera House warns its clientele: "Phantom at large"

## Countries and Capitals

Match the names of the countries listed in the left-hand column with the names of their capital cities given in the right-hand column.

AUSTRALIA	Amsterdam
AUSTRIA	Athens
BELGIUM	Beijing
BRAZIL	Berlin
BULGARIA	Bern
CANADA	Brasilia
CHILE	Brussels
CHINA	Budapest
CZECH REPUBLIC	Cairo
DENMARK	Canberra
EGYPT	Copenhagen
ENGLAND	Dublin
FINLAND	Helsinki
FRANCE	Lisbon
GERMANY	London
GREECE	Madrid
HUNGARY	Mexico City
ICELAND	Moscow
INDIA	New Delhi
IRELAND, REPUBLIC of	Oslo
ITALY	Ottawa
JAPAN	Paris
MEXICO	Prague
NETHERLANDS	Pretoria
NEW ZEALAND	Reykjavik
NORWAY	Rome
POLAND	Santiago
PORTUGAL	Sofia
RUSSIAN FEDERATION	Stockholm
SOUTH AFRICA	Tokyo
SPAIN	Vienna
SWEDEN	Warsaw
SWITZERLAND	Wellington
U. S. A.	Washington

## Anagrams

Each of the groups of letters given below can be re-arranged to make an ordinary English word.

For example 'prod' would make 'drop'

How many can you make sense of?

Where it appears that a word already exists, another word is to be found.

- |          |           |            |
|----------|-----------|------------|
| 1. rome  | 31. tearf | 61. untied |
| 2. kiel  | 32. reeth | 62. oldoke |
| 3. raye  | 33. niaga | 63. doripe |
| 4. ceaf  | 34. intop | 64. turren |
| 5. runt  | 35. gearl | 65. perrot |
| 6. tear  | 36. weloh | 66. devers |
| 7. dear  | 37. sloce | 67. cahger |
| 8. tops  | 38. aluve | 68. lifled |
| 9. sire  | 39. rateh | 69. pluspy |
| 10. dais | 40. ratts | 70. holdus |
| 11. rove | 41. darey | 71. meecob |
| 12. chum | 42. viges | 72. sareon |
| 13. sued | 43. heert | 73. centre |
| 14. sayd | 44. renev | 74. trakem |
| 15. ruse | 45. trapy | 75. mermus |
| 16. vole | 46. paces | 76. inwood |
| 17. bucl | 47. alirt | 77. lepope |
| 18. rams | 48. doria | 78. nacton |
| 19. lore | 49. chear | 79. gronts |
| 20. wond | 50. pakes | 80. inteer |
| 21. sekd | 51. leona | 81. daarbo |
| 22. gulp | 52. sneur | 82. killey |
| 23. nixm | 53. nodig | 83. fenedd |
| 24. lilp | 54. adext | 84. recalp |
| 25. rats | 55. slebs | 85. barreb |
| 26. mrit | 56. hotpo | 86. preemt |
| 27. flow | 57. shore | 87. geyhit |
| 28. gear | 58. dichl | 88. cotres |
| 29. libo | 59. poson | 89. fofece |
| 30. shaw | 60. veilr | 90. shoree |

## Anagramic Tennesecs

In these sentences each of the separate words has been anagrammed. Can you work out what the correct sentence should be ?

For example

trebet teal nath veern  
should be

Better late than never.

1. teterb eb ruse hant rysor
2. newh lal kapes on eon stilnes
3. ti kates lla tross ot emak a drolw
4. cabseen skeam het reath wrog dronfe
5. eh ttah soeg feartobo smut ton ltpan hortsn
6. a ribd ni het danh si trowh wot ni eht shub
7. eh atth grinbs dogo sewn snokkc rahd
8. yevoneer stum tea a cpek fo trid reefob heyte ide
9. sneev dna heigt od ton akem exetins
10. evern sett het phted fo trawe thiw thob teef
11. salyaw breemmer oyu rae quiune.  
tusj kile yerneove lees!
12. drilchne rea otn phyap twih ghoinnt ot ringeo  
dan hastt thaw tresnap reew traceed rof
13. sheret na rat ni winknog hewn  
reven ryt ot segus  
stoat linut ti mossek nad neth  
wnetty doncess sles

In this section, the words have not only been anagrammed, but are also mixed up in their order.

For example

slomed gods tibe kargbin changes to seldom dogs bite barking  
which can be re-arranged to make

Barking dogs seldom bite.

14. trieh si eth neryovee shavitee doal skinth now
15. tebs eht phics sakem steewf het dowwrooker
16. britso wond, eocm slenus pu stum sego ti thaw
17. tide dan tae rymer uyo rowmorto krind eb fro
18. styneho lopeep otn meos yaps, gunhoe fro utb
19. oto yamn olisp rewsob het slicck
20. eth tub litub ruamates teh canitit fresopsnailso kar
21. how esmoc twias, greenyvith kapgrin mih kitcest ot  
alpseliency
22. shote lewl dreane rof a ster treaf won barouls