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.
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.

Contents
Make Words 3
Word Building 4
Imagine That! 5
Acrostics 6
Make-A-Chain 7
Mnemonics 8
Valued Words 9
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!
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 (= NUR)

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

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

**CBA**

**ABC**
- 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

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

**EOLM**

**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

**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

**UPGL**

**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

**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

**IRTP**

**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

<table>
<thead>
<tr>
<th>F</th>
<th>P</th>
<th>P</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>L</td>
<td>L</td>
<td>A</td>
</tr>
<tr>
<td>T</td>
<td>A</td>
<td>A</td>
<td>T</td>
</tr>
<tr>
<td>H</td>
<td>Y</td>
<td>Y</td>
<td>H</td>
</tr>
<tr>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>R</td>
<td>D</td>
<td>D</td>
<td>R</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>F</th>
<th>li</th>
<th>P</th>
<th>P</th>
<th>roo</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>l</td>
<td>L</td>
<td>L</td>
<td>lam</td>
<td>A</td>
</tr>
<tr>
<td>T</td>
<td>e</td>
<td>A</td>
<td>A</td>
<td>r</td>
<td>T</td>
</tr>
<tr>
<td>H</td>
<td>eav</td>
<td>Y</td>
<td>Y</td>
<td>out</td>
<td>H</td>
</tr>
<tr>
<td>E</td>
<td>v</td>
<td>E</td>
<td>E</td>
<td>eri</td>
<td>E</td>
</tr>
<tr>
<td>R</td>
<td>ai</td>
<td>D</td>
<td>D</td>
<td>oo</td>
<td>R</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>MARKET</th>
<th>+</th>
<th>DEMAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHYTHM</td>
<td>+</td>
<td>TWENTY</td>
</tr>
<tr>
<td>ALWAYS</td>
<td>+</td>
<td>PARENT</td>
</tr>
<tr>
<td>LENGTH</td>
<td>+</td>
<td>WARMLY</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
</tbody>
</table>

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 is multiplied by the number of letters in the word to get the full value of the word.

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

cadge, 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.**
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.
Try reading this

Of al th strnge thngs tht Alice saw in hr jrn yths 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 I 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 th hol scee
bck 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 that 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 jrnry ths ws th one tht sh alwys rembd mostclrly. 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 sceee 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 w_rth _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_pe
5. Lea_n to _ay k nd t_ing_ no o_e ev_r re_ent_ the_
6. No t_o pe_pe_le _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_in_e_ 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 fl 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_1 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 tl
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

Bring help at once as I am being attacked

1. J__n m_ t_nght _t __r h__s_ f_r _ b_rthd_y p_rty
2. _t _s v_ry n_c_s_s_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_y_s s_m m_ b_ _ p_p_l_r d_y f_r w_sh_ng c_rs
5. _ w_l_d l_k_ y__ t_ s_nd th_ m_n_y _ s _ n_ s p_s_s_b_l_
6. Y__ sh_l_d n_v_r g_ _ b_d w_th _ cr_c_d_l_
7. Y__ m_st st_r_t _ t th_ b_tt_m wh_n cl_mb_ng l_dd_r
8. _h d_n’t th_ d_y_s s_m d_nk _nd l-ng

Wh_n _ll g__s r_ght _nd n_th_ng wr_ng

_n_d _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

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 brrthng f y wnt t lv
15. Plnty f wlkng s vry nc wy f tkng xrcs
16. Y mst nt g nr lns whist thy r fdng
17. n ht dys t s vry plnts t hv cl drnks
18. Thr tms sx dd nntn mks thrtv svn
19. Ppl wll ftm 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

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

(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 SURNAME 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.

(please stay on your chairs)
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
<table>
<thead>
<tr>
<th>Letter</th>
<th>Phonetic</th>
<th>Letter</th>
<th>Phonetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Alpha</td>
<td>N</td>
<td>November</td>
</tr>
<tr>
<td>B</td>
<td>Bravo</td>
<td>O</td>
<td>Oscar</td>
</tr>
<tr>
<td>C</td>
<td>Charlie</td>
<td>P</td>
<td>Papa</td>
</tr>
<tr>
<td>D</td>
<td>Delta</td>
<td>Q</td>
<td>Quebec</td>
</tr>
<tr>
<td>E</td>
<td>Echo</td>
<td>R</td>
<td>Romeo</td>
</tr>
<tr>
<td>F</td>
<td>Foxtrot</td>
<td>S</td>
<td>Sierra</td>
</tr>
<tr>
<td>G</td>
<td>Golf</td>
<td>T</td>
<td>Tango</td>
</tr>
<tr>
<td>H</td>
<td>Hotel</td>
<td>U</td>
<td>Uniform</td>
</tr>
<tr>
<td>I</td>
<td>India</td>
<td>V</td>
<td>Victor</td>
</tr>
<tr>
<td>J</td>
<td>Juliet</td>
<td>W</td>
<td>Whisky</td>
</tr>
<tr>
<td>K</td>
<td>Kilo</td>
<td>X</td>
<td>X-ray</td>
</tr>
<tr>
<td>L</td>
<td>Lima</td>
<td>Y</td>
<td>Yankee</td>
</tr>
<tr>
<td>M</td>
<td>Mike</td>
<td>Z</td>
<td>Zulu</td>
</tr>
</tbody>
</table>
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:


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 adopted 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.

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

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)

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

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

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

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

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

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

<table>
<thead>
<tr>
<th>Character</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total of each</td>
<td>169</td>
<td>162</td>
<td>196</td>
<td>175</td>
<td>172</td>
<td>181</td>
<td>181</td>
<td>178</td>
<td>177</td>
<td>159</td>
</tr>
<tr>
<td>Singles</td>
<td>132</td>
<td>123</td>
<td>157</td>
<td>144</td>
<td>137</td>
<td>146</td>
<td>134</td>
<td>144</td>
<td>142</td>
<td>142</td>
</tr>
<tr>
<td>DONEO</td>
<td>OSARD</td>
<td>IHIAR</td>
<td>IORAT</td>
<td>OHASH</td>
<td>SOHAT</td>
<td>ATSDH</td>
<td>TNARD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSDOA</td>
<td>RROIE</td>
<td>OTDNA</td>
<td>THEHO</td>
<td>RSSRS</td>
<td>INRNS</td>
<td>READS</td>
<td>STESD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOODD</td>
<td>HDRIO</td>
<td>TDNTA</td>
<td>AEOOR</td>
<td>ODHOH</td>
<td>HEAOH</td>
<td>RTONO</td>
<td>NHRSO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HHSHI</td>
<td>SSAOD</td>
<td>DHADN</td>
<td>RTSRO</td>
<td>ITOTN</td>
<td>IHREI</td>
<td>ORRES</td>
<td>AOOHH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HHNTS</td>
<td>IIETN</td>
<td>EAEAD</td>
<td>OEDAE</td>
<td>SITHI</td>
<td>SETTD</td>
<td>SIIHI</td>
<td>DORII</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TNIAH</td>
<td>TARHI</td>
<td>SIINA</td>
<td>STOOH</td>
<td>AIHRA</td>
<td>NHRIS</td>
<td>AADIN</td>
<td>OTSHH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REEAI</td>
<td>SSOOE</td>
<td>OOEIS</td>
<td>TERRA</td>
<td>IESAI</td>
<td>TODAR</td>
<td>TTAOS</td>
<td>RERDS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STSOS</td>
<td>RSRRT</td>
<td>OEOAS</td>
<td>DERSI</td>
<td>TTASD</td>
<td>OIDER</td>
<td>AASAI</td>
<td>TOAHR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EASHD</td>
<td>OOND</td>
<td>SROTN</td>
<td>SHDDR</td>
<td>DDDIA</td>
<td>IOTTI</td>
<td>ROASN</td>
<td>ADDII</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OESOR</td>
<td>SHHAE</td>
<td>THSSO</td>
<td>DEDAR</td>
<td>HSOHI</td>
<td>RNSAA</td>
<td>SAREO</td>
<td>TTTSO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSNNA</td>
<td>AIEDH</td>
<td>Tavia</td>
<td>ENNDA</td>
<td>SSNHD</td>
<td>OESSO</td>
<td>ARTDN</td>
<td>RANAI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTSOA</td>
<td>SDNND</td>
<td>NSTTH</td>
<td>EHNOE</td>
<td>EDHOS</td>
<td>DAAHE</td>
<td>DSOIO</td>
<td>NTTII</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SREED</td>
<td>STEAH</td>
<td>NISDO</td>
<td>SEHEI</td>
<td>STIDR</td>
<td>EOTNN</td>
<td>AARTD</td>
<td>OIENO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTAOO</td>
<td>ORHIR</td>
<td>EHSDD</td>
<td>SHNSA</td>
<td>IHNRR</td>
<td>DEEER</td>
<td>ASEOD</td>
<td>RTERE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAHTT</td>
<td>THNAT</td>
<td>NAESH</td>
<td>HENHT</td>
<td>ERSTD</td>
<td>RSOSA</td>
<td>RETSE</td>
<td>ARINO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSAID</td>
<td>TASOH</td>
<td>DDAON</td>
<td>THHDE</td>
<td>IAARI</td>
<td>ASONT</td>
<td>ERNHE</td>
<td>SEISE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OOETE</td>
<td>AEDIO</td>
<td>DOSDE</td>
<td>TTDSD</td>
<td>EAORT</td>
<td>OAION</td>
<td>IEORS</td>
<td>OAES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIAOI</td>
<td>EEDII</td>
<td>IOANS</td>
<td>AROHR</td>
<td>ITORD</td>
<td>SNTSH</td>
<td>DSOOO</td>
<td>DARAT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HNTOR</td>
<td>SADRS</td>
<td>NAASH</td>
<td>NSTSI</td>
<td>OHNNT</td>
<td>AONSS</td>
<td>EASRR</td>
<td>IHHAI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NNHAT</td>
<td>AIRHA</td>
<td>OSOAN</td>
<td>STOAS</td>
<td>AENHT</td>
<td>TSADI</td>
<td>TSSNA</td>
<td>OTHDO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RANTT</td>
<td>ISNRN</td>
<td>HSANE</td>
<td>DOOTH</td>
<td>RESAT</td>
<td>NENIH</td>
<td>AROOH</td>
<td>RENN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HTIHD</td>
<td>NSSES</td>
<td>ODRNI</td>
<td>HEIAR</td>
<td>RNAHT</td>
<td>ANNTN</td>
<td>DOESN</td>
<td>EDHND</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSSTT</td>
<td>SASOS</td>
<td>HONAA</td>
<td>EERNO</td>
<td>MDES</td>
<td>OSIOR</td>
<td>ADODS</td>
<td>TRIEN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INNNR</td>
<td>DSION</td>
<td>RRANT</td>
<td>OIAOH</td>
<td>AHHNT</td>
<td>NROEE</td>
<td>RTNTI</td>
<td>DTSSN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRSEH</td>
<td>NEHSH</td>
<td>SDSTH</td>
<td>HIDHE</td>
<td>STTTO</td>
<td>ARDSR</td>
<td>ASHNS</td>
<td>RHISA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDRDN</td>
<td>SEERS</td>
<td>EODHD</td>
<td>HURRR</td>
<td>ORADI</td>
<td>NSOAN</td>
<td>HIASE</td>
<td>SNEAT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TISAR</td>
<td>ONRHD</td>
<td>OOCIT</td>
<td>TODND</td>
<td>IIHEO</td>
<td>NENRO</td>
<td>SRHNH</td>
<td>ERTOO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RDISA</td>
<td>DEIHA</td>
<td>TDISS</td>
<td>HTENT</td>
<td>EOSAR</td>
<td>IOTIR</td>
<td>DDDS</td>
<td>DDEOS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERSTN</td>
<td>DEAAE</td>
<td>HODHH</td>
<td>SDTSI</td>
<td>ROISR</td>
<td>SISAH</td>
<td>DATHN</td>
<td>ASIRE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SODRA</td>
<td>TANSE</td>
<td>SSONN</td>
<td>IESAE</td>
<td>AEOA</td>
<td>AHDRN</td>
<td>NDRHN</td>
<td>HNRTH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIAER</td>
<td>NREOO</td>
<td>HASEE</td>
<td>DDSSA</td>
<td>OORRE</td>
<td>ENRTD</td>
<td>OTRRH</td>
<td>DIDIR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OADOS</td>
<td>SSNTA</td>
<td>EAHRT</td>
<td>NOSHH</td>
<td>RTDDE</td>
<td>IAASH</td>
<td>HIITT</td>
<td>REANN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NADEE</td>
<td>SDHHR</td>
<td>NDDSD</td>
<td>OEDSN</td>
<td>ETIDH</td>
<td>ORRST</td>
<td>NROIA</td>
<td>RIADS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INRNH</td>
<td>NHSHR</td>
<td>OHEDT</td>
<td>SIEIO</td>
<td>OHEAS</td>
<td>DDSRO</td>
<td>RISHI</td>
<td>ITDEE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDNON</td>
<td>AAEAS</td>
<td>TTNTD</td>
<td>ESTDD</td>
<td>RTDDT</td>
<td>THEIE</td>
<td>STRNA</td>
<td>RHIDA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Random Letters ~ 2

PZZZC  LXLFY  CYUFY  PJPYF  XUYFZ  XFJZP  JZUXB  LXPZU
UYBBC  JBPILY  XCYLP  UPLJX  XCPFY  XXPCL  JPCYF  XPJBX
FJJPZ  CYCUZ  FYYCJ  CYPXL  YFCXL  FBJBJ  JZCJF  LJJLYX
YZYPZ  YBFXX  ZCLPL  JUBYU  PZXLPL  ZBJFY  PXYPF  PJPFU
UXBLJ  PXLBL  PCLXL  FZZXZ  XPZZU  FPYPB  BCYLU  CPXJF
XUPLP  FFPUY  ZYCXC  YJCBX  CBPLU  YFCUL  JXCBX  JCUCZ
UULPF  XZBFB  LUUCU  XJBYX  PFBXZ  YZZBB  YPJBP  UZFBF
PLXJ  LYBLX  YFPBC  UFUXY  PLBJY  CJCJP  UPUPJ  UPYUB
CXLXU  XJFXX  CPLX  XZFPF  CYZCY  CYJLF  YFLPU  YJUCZ
CCJBF  LLFY  ZUFUF  FLLLX  LLLXL  BZBYP  JPCXJ  LLFJU
FUXC  CPFZ  CUYC  BXFFJ  YUCJF  BZXJP  CZJZP  XPPLB
LUFXZ  ZFZJF  JUBBC  PZXL  XFXJB  XXJYX  YXBLU  FUCPY
JULBX  XJFJ  BUZYL  BZFB  FXLYL  XZCZ  CFFPY  LZPPY
LCUXX  FPBC  BBCU  XZFP  FLLZ  LYYJZ  PPZXP  CZFLB
BBLZZ  FJZYY  LUPJX  FBXZ  JFULL  UULXF  FUPJU  CYCFX
UUFBX  CYXPC  PXJCY  XPFZC  YLLFB  UPLUX  UPYXF  ZPPYZ
CZJXY  XXPBJ  ZLZJC  PYPLL  FFPLF  CBXZ  LUBL  YBFUZ
YJXPC  YJZJC  ZYLFP  JLBXY  BUZBP  ZXXC  XJXZ  PUYCP
YYCBF  PBUZJ  XJZL  PCUX  XBLX  CYYLP  PPZBX  PBYCX
JULBZ  JBCZP  FFFY  PUXBJ  BZPL  XBJP  YBZJ  ZUFJJ
BBLUF  ZYLZ  BBUU  BCZF  ULLZ  BJFBP  CJZUX  LPBCU
YPXJF  UYPBX  JUXBY  PYFBZ  YPJBF  FLCLC  JUCYJ  JPBFX
LPZCU  ZJYXZ  CXXFY  BXBZ  JZYP  XXXF  CBZF  ZXXCF
XBCFLX  CPJXP  FZUCU  CUX  BUFX  YXCF  PZUUX  PXBYB
JBYLF  FYPLX  FCB  JPCX  JZUX  YLFBJ  FZCX  ZXXLB
XFLXP  XYCF  PXYPJ  BBJUL  ZJLZ  YBCP  LXXJ  LYLYX
YJZLX  BPLPL  CUX  BFUU  ZYPBB  XYCZ  ZLCLJ  ZJCFX
PJZCC  LLBZP  JYUUP  LFCLY  PUFB  LBX  JLPBY  PLBCP
PJYPY  XYPIL  JBLPL  XJLJ  XBJX  FPBB  JBYJC  BFXUB
BCPYY  CBFL  FLJYL  BCYP  CYJY  XBFIL  ZYXJ  PLXFP
LZFUZ  UXFCU  ZFYYP  ZUBBP  FYBJ  YBJUS  CXLUL  YJUXJ
BYXYJ  CYZJJ  CZZZ  PJYJL  JFJXU  FLPBB  PJXPD  FXPFP
PBIZJ  UZFBJ  FCPZB  LCLB  BPLBB  CFFZ  JZLLB  CPLUC
FPFCC  ZPLFP  ZJULP  LZXJ  JXZJ  PZLCB  PXFPB  JYJFZ
ZFCC  BPZJZ  ZLYX  UCCYC  JYFPY  PYYCF  XFBF  YFFYP
<table>
<thead>
<tr>
<th>Random Letters ~ 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>olnen hpclc nqbgp nopee ennpn egbec ldloe dpddll</td>
</tr>
<tr>
<td>hclld hlgol eepng nbpeh hdnqh qelqd beeep chncq</td>
</tr>
<tr>
<td>nldnc cphed qbcnl qllpp bnhndo hdlhd dcpbc odoqe</td>
</tr>
<tr>
<td>eccdd eocqn lqece pllle qebbd lnbdl ebbhh qpopq</td>
</tr>
<tr>
<td>onnll qnelb plelc qpmec opdpn qcpchp beooel eddoq</td>
</tr>
<tr>
<td>ledcc oebll oqblh hlned qbqbd bblpd lobbb eloqe</td>
</tr>
<tr>
<td>nlqoe qlpoo cpcob olqgh dndqg qnnqg nbebl ecobq</td>
</tr>
<tr>
<td>pqecb ogcep epdoo qbepe dcdlb 1chbp pqocq nbecd</td>
</tr>
<tr>
<td>odqppn cnngq nbnpc nldoh oebcb hqlhq odqhe eobh</td>
</tr>
<tr>
<td>bopnb pcnoh lllnc deohl lpchc cdolc dlqnn nqnon</td>
</tr>
<tr>
<td>cbhqn nlppd lqhdq ollll qlhpd echho cebp bhcbb</td>
</tr>
<tr>
<td>beceo ecqpl nepll lhqcn pedql phpln pclno eccdh</td>
</tr>
<tr>
<td>boneo bqdbr cbbrn cpmnb pddnd l1hleq beeeel lhhng</td>
</tr>
<tr>
<td>ndpoq ncbdc oqelb oblcn bcccn qhdon oelbe enhoo</td>
</tr>
<tr>
<td>bedbd ngceh dbhbd dbpdp dnlod bqbcen cpcen hclpc</td>
</tr>
<tr>
<td>bpcbh bpeeb qhlhe qplpp bodnn oqecn eeddh oepqg</td>
</tr>
<tr>
<td>endec pnnpp qlleen qqdeo bocdh lqodl benbb onhnh</td>
</tr>
<tr>
<td>pdpqqn boboe dchbo plcll hhppn nocbo clbpq bepcd</td>
</tr>
<tr>
<td>hncln pppneg cnlol hndlq eopoc oepb plold hbpdd</td>
</tr>
<tr>
<td>oello dpppl nbcln oooel noled qcpqg dbhp cdhol</td>
</tr>
<tr>
<td>dcboc oohdd lpegh nedcn nplllh opnhb qbpod onhhq</td>
</tr>
<tr>
<td>onnbo lcpph oedel ccbdq hqngq dnleo pphpb lconp</td>
</tr>
<tr>
<td>ndodl bllbd oqlnp cpbqg debld heboo heebp pnnqo</td>
</tr>
<tr>
<td>dcqdn qqpbb hobcl qcpnl dpdqg nqgbl qeobm behhh</td>
</tr>
<tr>
<td>pddee ooqpl cpedd chllp dplno bocqg endph bcole</td>
</tr>
<tr>
<td>epclp cqeom penbd nlobn hdppl bbbpl bceql lbcch</td>
</tr>
<tr>
<td>cqdbb obehb pbecn ephdh bcoob ddpqg pdbde cohlh</td>
</tr>
<tr>
<td>eeppc celp nbhdh qohoc lnpcc cedoc plchc dbhqd</td>
</tr>
<tr>
<td>qdboc eheep ndddq qbdnc olcen dbheo onhhb pohnh</td>
</tr>
<tr>
<td>lppop hqplo lhhod qopoh pobbd bqeeh qqcep cbcnl</td>
</tr>
</tbody>
</table>
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 90484 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 09864 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

© Frank Tapson 2004 [r2oQD.25]
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.

John BROWN m Kate

Mark m Paula
  Saul

Norah

Rita m Oscar
  Tanya

---

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 exampled 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.
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 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
against right came take used himself few house use place during high without again home around small found part thought went once every left war

does united hand water until public fact put head think called set enough night yet better four nothing told city why days point look find

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

List 6

List 7
help power knee either area within time light need five later certain above quite group early floor local sense ever free side best name today saw become rather example aloud along perhaps fort asked give thing others next knew want begin kind large open whole among turned weak form alone

© Frank Tapson 2004 [trolQD:29]
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 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.

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
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 . . .


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 Tennesecs** 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?

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

© Frank Tapson 2004 [trolQD:34]
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 ‘pleas ant 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.

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


31. tearf   32. reeth   33. niaga   34. intop   35. gearl   36. weloh   37. sloce   38. aluve   39. rateh   40. rats

41. darey   42. viges   43. heert   44. renev   45. trapy   46. paces   47. alirt   48. doria   49. chear   50. pakes

51. leona   52. sneur   53. nodig   54. adext   55. slebs   56. hotpo   57. shore   58. dichl   59. poson   60. veirl

61. untied   62. oldoke   63. doripe   64. turren   65. perrot   66. devers   67. cahger   68. lifled   69. pluspy   70. holdus

71. meecob   72. sareon   73. centre   74. trakem   75. mermus   76. inwood   77. lepope   78. nacton   79. gronts   80. inteer

81. daarbo   82. killey   83. fenedd   84. recalp   85. barreb   86. preemt   87. geyhit   88. cotres   89. fofece   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 hortsnn
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 heyt 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
    wnetyt doncess sles

In this section, the words have not only been annagrammed, 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 dowrooker
16. britso wond, eocm slenus pu stum sego ti thaw
17. tide dan tae rymer uyo rowmerto 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 trefa won barouls