

Kwara State
Educational Resource Centre

HOW TO MAKE AND USE A WORD MACHINE

A Guide for Teachers and for Teacher Training



Introduction

This Guidance Booklet will show you how to make and use a Word Machine for three and four-letter words.¹ A comprehensive list of **more than 500 words**, all of which can be made with the Word Machine, can be found at the end of these instructions.



For some three-letter words, pictures can also be used with the Word Machine. (These pictures are provided in the templates that will be introduced later.)

The Word Machine should be used to support early literacy work. It will help to build word recognition skills. The Word Machine is also good for phonics work (learning and practising the sounds of letters).

The first part of this booklet explains the different ways in which the Word Machine can be used. This will help you to become familiar with the Word Machine and how it works.

The second part of the booklet provides information about how the Word Machine can be constructed.

Part Three provides photocopy masters of templates for letters and pictures.

Part Four contains the reference word list.

¹ This "Word Machine" was the product of research and development undertaken by staff of the Kwara State Education Resource Centre, working with an international consultant, Dr David Smawfield, during April 2008.

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PART 1: Using the Word Machine

This part of the Booklet describes the different ways in which the Word Machine can be used.

Method 1: Three-letter Words with Pictures

Educationally, matching words to pictures is the simplest way in which the Word Machine can be used. With early learners, this should be the method with which to start.

The Word Machine can be set up with three or four columns. (When it is not needed, the fourth column, which is hinged, folds away). To make three-letter words with pictures, all four columns are used. The photo on the right shows an example of how the Word Maker is set up, when it is wished to make three-letter words with pictures.



In the Word List at the back of this booklet, you will find thirty-five words that are in bold and coloured blue. These are all words for which pictures are provided in the templates.

A good participative activity with children is to set up the words and then let children take turns to match the five pictures to the five words and insert them in the Word Machine themselves or with the teacher's help.

Method 2: Three-letter Words (No Pictures)

When it is wished to make three-letter words without pictures, the fourth column is folded out of the way - so that only three columns are visible, as shown in the photo on the right.



The Word Machine can then be filled with five

different three-letter words for word recognition practice and to develop phonics skills.

The word list at the back of this booklet contains a total of 210 three-letter words that can be made and practised in this way.

With all of the methods described in the booklet, if practicable, it can reinforce learning if the learners are given the opportunity to manipulate the letters themselves: i.e. the learners themselves build up the words by placing the letters into the Word Machine, with teacher supervision and support.

Method 3: Three-letter words with a sliding first letter

The Word Machine comes complete with a sliding mechanism that can be attached over either the left-hand or right-hand column of the Word Machine, when it is required.

In the photo on the right, the sliding mechanism is attached on top of the left-hand column.

This method is good, as part of phonetics work, for reinforcing starting sounds.

For the example shown in the photograph on the right, the letter "B" was chosen as the sliding first letter. All of the five words start with the "B" sound.



Method 4: Three-letter words with a sliding last letter

This method is used to practise and reinforce the sounds of word endings. The Word Machine is set up with the sliding mechanism attached over the third column, as shown in the photograph on the right. This time, therefore, it is that last letter of the word that slides. All of the words chosen for this example end in the letter "T".



Method 5: Four-letter words; second letter a vowel.

To apply this method, all four columns of the Word Machine are used. With the folding column on the right, the vowels column is the second column from the left.

The word list at the back of this booklet provides examples of 150 four-letter words that can be made, when the second letter is a vowel. You should also be able to think of some additional four-letter words; with different word endings. The list provided is not a complete list of all four-letter words that can be formed.



Using the Word Machine in this way is very good for practising word endings with a sound made when two letters combine, such as: words ending in "ld", "ll", "nd", "nt", "rd", "rt", "sh", "ss", "st" and "th".

Method 6: Four-letter words; third letter a vowel.

To set up the Word Machine for this method it is necessary to do something very important! You have to turn the Word Machine upside down! The hinged column will now be on the left. The vowels column will now be the third column. Of course, the letters in the machine will now be upside down, but these can easily be turned up the correct way. Setting up the Word Machine like this (and as shown in the photograph on the right) means that four-letter words, where the third letter is a vowel, can now be learned and practised.



The word list at the back of this booklet provides examples of 50 four-letter words that can be made, when the third letter is a vowel. You should also be able to think of some additional four-letter words. The list provided is not a complete list of all four-letter words that can be formed in this way.

Method 7: Including Nonsense Words

Method 7 can be used as an extension activity with Methods 2 to 6 as previously described. The same Word Machine set-ups are used, but nonsense words are introduced into the word lists.

It can help reading skills, (and be good fun!) to introduce occasional nonsense words for children to try to spot. Can you find the nonsense word in the photo shown on the right, for example?

In addition, note how the sliding mechanism can also be used at the beginning and end of four-letter words, as shown in the photo.



Only introduce nonsense words after children have started to become skilled in attacking and recognising real words.

***Please note:** when making four-letter words, you will have more choice if you print two sets of the alphabet, so that individual letters can be repeated.*

PART 2: Constructing the Word Machine

What is most important to grasp from the instructions presented here and the methods of using the Word Machine as described in Part 1 of this booklet, is how the Word Machine works.



Its basic features are as follows:

- Three fixed columns, and one hinged column.
- The word machine needs to be capable of being turned upside down: so that the hinged column can be on either the left or the right, and the vowels column can either be the second or third column.
- The letters and pictures themselves must all be detachable and be capable of being rotated.
- The vowels column (Column 2) is slightly raised from the baseboard so that letters can easily be slid in and out, without disturbing letters in Columns 1 and 3. (How this is done, will be explained in the instructions below).
- The Word Machine also has a detachable sliding mechanism, which can be attached to Columns One, Three, and Four when required.

The detailed design described here should be seen as an EXAMPLE of how the Word Machine can be constructed. Other ways and other materials can be used (depending on affordability and availability of materials), provided the basic features are retained.

For instance, in the example shown here, the letters and pictures have been made out of paper. The paper has then been laminated for durability. A computer has also been used to create the templates. If no computer is available, letters and pictures can still be drawn by hand. If no laminator is available, the letters and pictures could be painted on thin plywood, hardboard or card.

The size of the letter and picture cards was chosen to be small enough to be economical on materials, but large enough to be seen from the back of the class in a classroom situation. Six letter or picture tiles were made to just fit on one size of A4 paper, as can be seen in the templates that follow - allowing for little wastage. Each paper tile is thus exactly 9cm square. However, after the tiles have been laminated and a 5mm lamination border is allowed for, each whole tile becomes 10cm square. The grooves on the baseboard need to take 10cm tiles therefore.

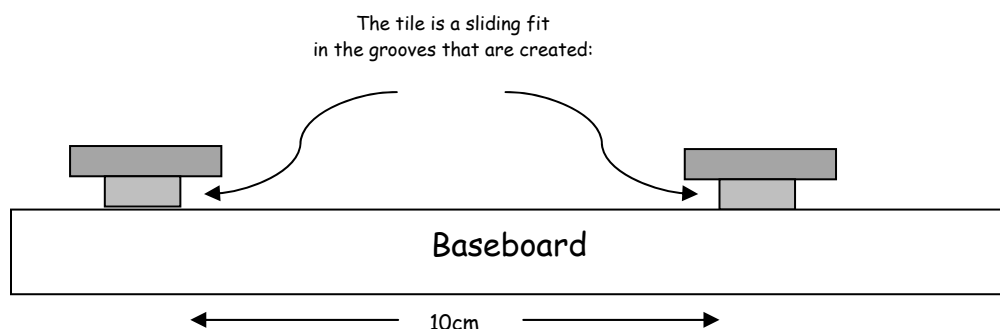
A suggested size for the base board (Columns 1 -3) is 62cm X 30cm, as shown in Figure 1. One-centimetre thick ply, or thereabouts, is a good thickness for the baseboard.

The hinged Column 4 should be made from the same material (i.e. 1cm thick ply). This should be 10cm wide by 62cm long. Column 4 should be attached to the main baseboard with hinges on the back, as shown in the photo on the right.



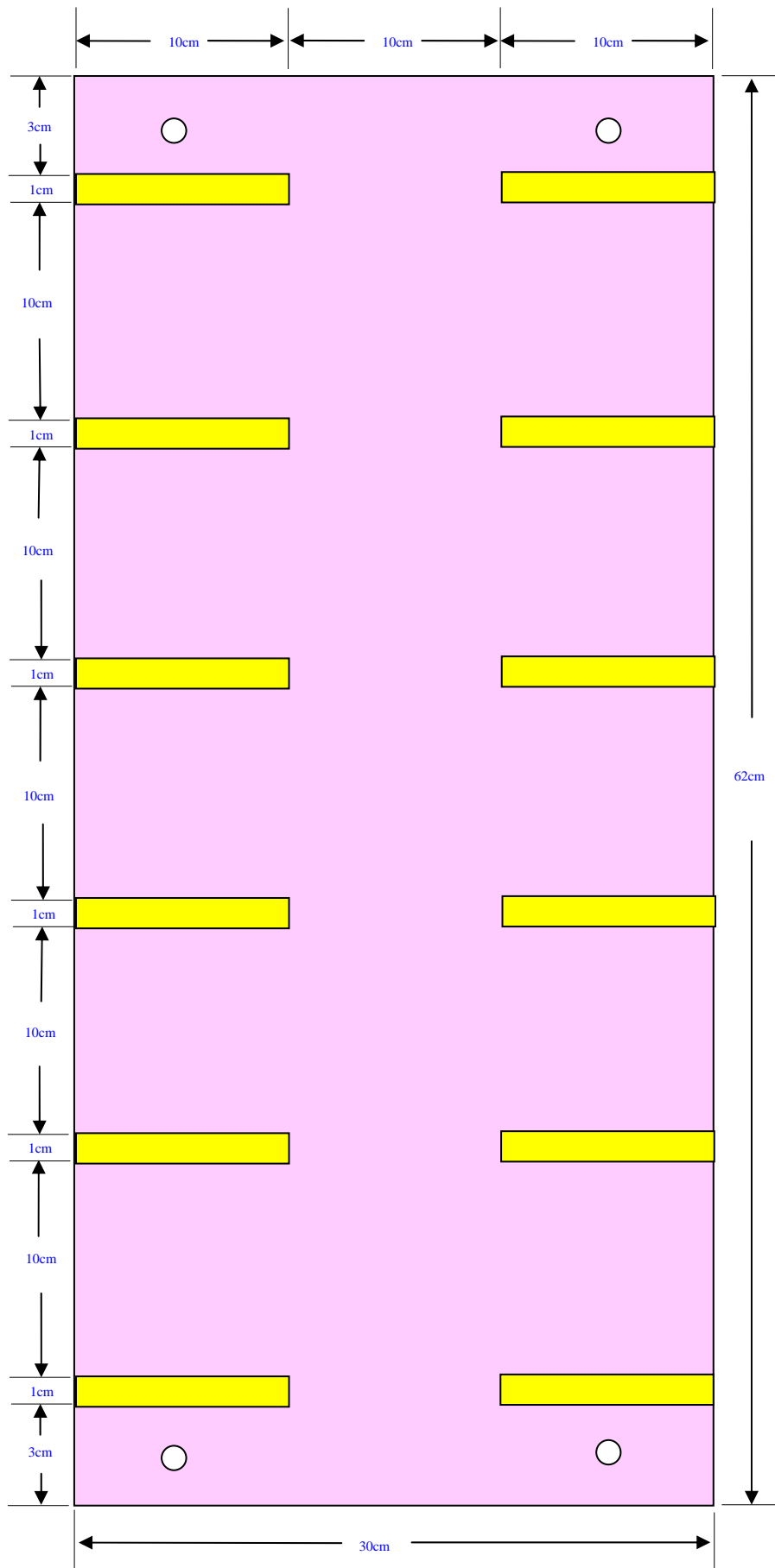
It is suggested that 4mm thick plywood should be used for all other wooden parts.

The top and bottom of each groove, that secures the letter and picture tiles, is made up of two pieces of 4mm thick ply: one piece 1cm X 10 cm; the other piece 2cm X 10cm. The 2cm strip is placed on the 1cm strip, as shown in the following section view:



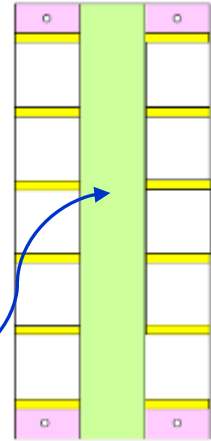
The strips can be nailed/glued/screwed onto the baseboard.

Figure 1: Measurements for Baseboard



The next step is to fix a central panel over Column 2, using 4mm thick plywood. The size of the panel should be 62cm X 10cm. The purpose of the panel is to raise the tiles slightly in the central column so that they can be inserted and removed without disturbing the tiles in Columns 1 and 2.

The extra panel fixed to the central column, using 4mm plywood, to slightly raise the central tiles



The photograph on the right shows this extra panel clearly. After the panel has been fixed over Column 2, the remaining retaining grooves for the tiles are added, with the same spacing used for Columns 1 and 2.

The retaining grooves for the tiles are then fixed onto the central panel, and to hinged Column 4, applying the same spacing used previously.

Note how Column 2 (the "vowels column") is now slightly raised to facilitate tile insertion and removal, without disturbing tiles in the other columns.



A final task is to make the removable sliding mechanism, which can be mounted over Columns 1, 3 or 4, as and when desired.

The base of the sliding mechanism is made from 4mm ply that is 62cm long and 10cm wide. The holder for the sliding letter is made from 4mm ply that is 12 cm long and 10cm wide. Tile retaining grooves need to be fixed to the sliding letter holder in the same manner as previously, and as shown in the four photos on the next page.

To temporarily attach the sliding mechanism to the baseboard, when needed, a choice of two methods is suggested. One way is to secure with two wing nuts (one at the top, and one at the bottom) that can easily be tightened and loosened by hand. This is the purpose of the holes shown in Figure 1.

A second method, and this is the one that can be seen in the photographs on the next page, is to fix two sets of rails on the back of the mechanism, so that these

can slide into the grooves on the baseboard. Extreme care needs to be taken in measurement, to obtain a good sliding fit.

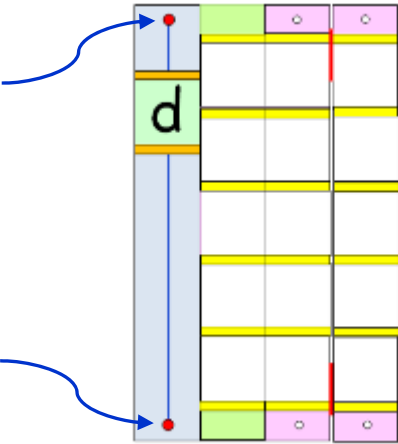
The sliding effect of the tile holder is achieved by using string or elastic, and metal "eyes" for the string to be threaded through, as can be seen in the photos below.

Construction of the Sliding Mechanism:



If bolts with wing nuts are used to attach and remove the sliding mechanism, the elastic can be knotted round the two bolts.

Note the additional holes at the tops and bottoms of Columns 3 and 4, for when it is wished to attach the sliding mechanism over these columns using wing nuts and bolts.



As previously explained, letter and picture tiles can be made from a range of materials such as hardboard, plywood or thick card - depending on availability and affordability of materials and equipment.

In the Word Machine illustrated in this Instruction booklet tiles were made out of paper, which was then laminated. The photo on the right shows 6 tiles that were cut from the templates provided in Part 3 of this booklet.



The 6 tiles shown were then placed in a laminating pouch and passed through a laminating machine. If using this method, when placing the tiles in the laminating pouch, leave a margin of at least 1 centimetre between and around the 6 tiles.

The margins can clearly be seen in the photo on the right.



After the sheet has been laminated, tiles are cut out individually, with a 5mm plastic margin all around them. **For safety reasons, round off the corners of the tiles.** (Square corners can be very sharp and dangerous). The final dimension of each tile should thus be 10cm square. When checking the final fit of the tiles on the baseboard, it may be necessary to shave an odd millimetre off the top and bottom edges to achieve a good fit.

The photo on the right shows the tiles with their 5mm laminated borders, with rounded corners for safety.



PART THREE: Letter and Picture Templates

a

b

c

d

e

f

g

h

i

j

k

l

m

n

o

p

q

r

s

t

u

v

w

x

y

z

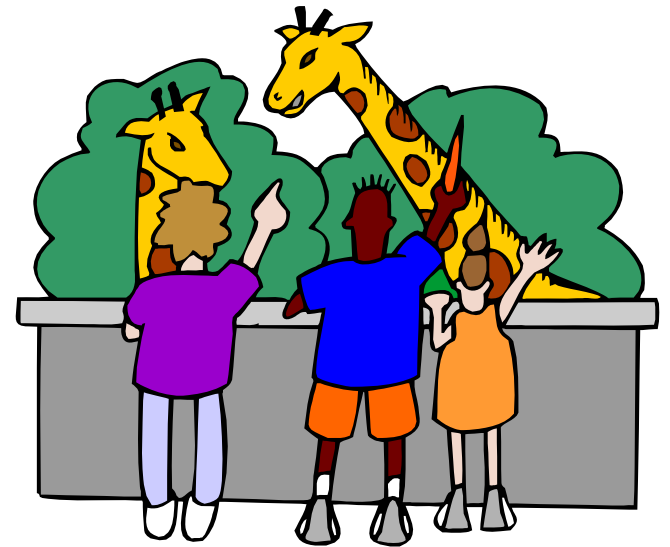
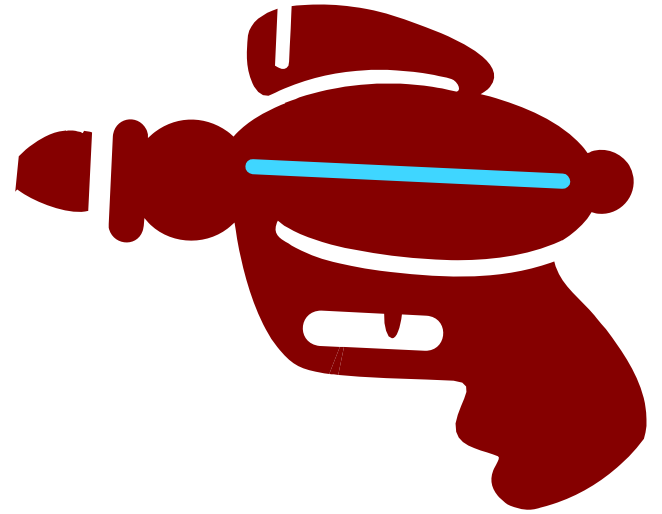
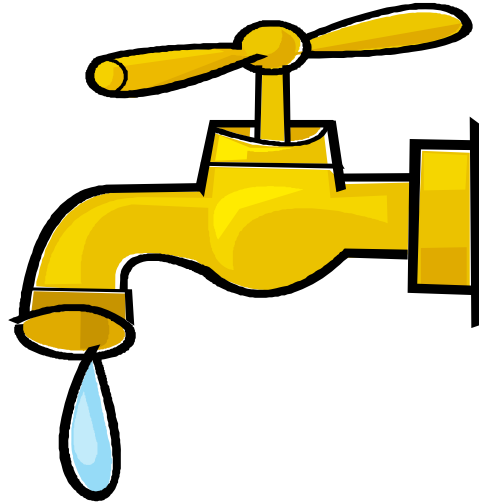
a

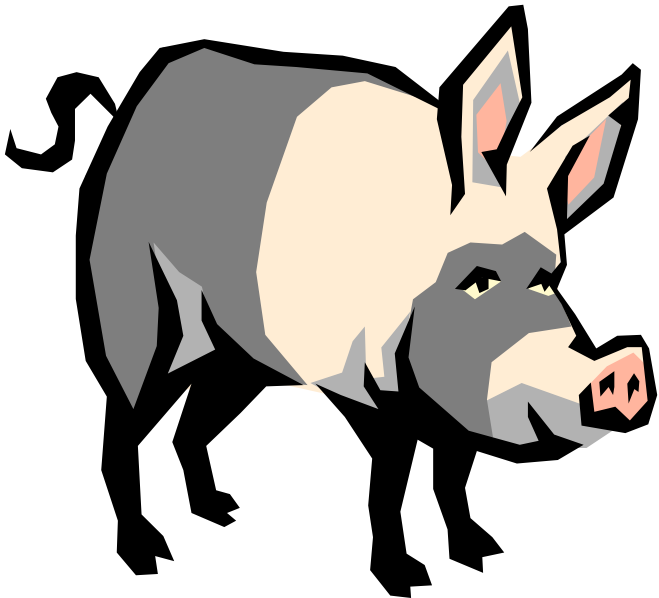
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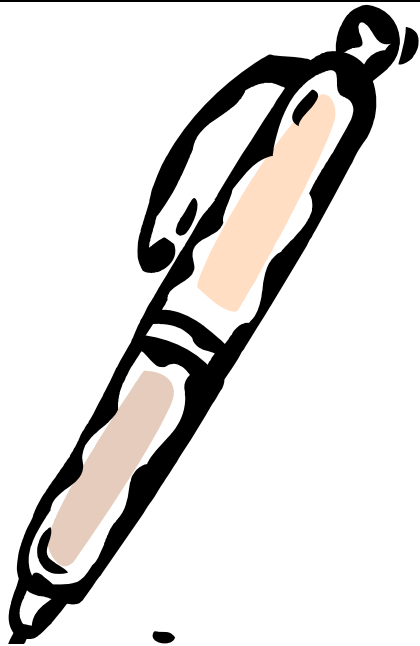
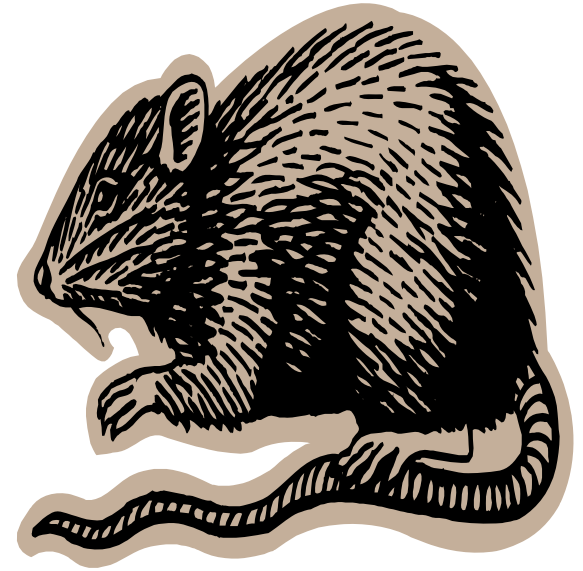
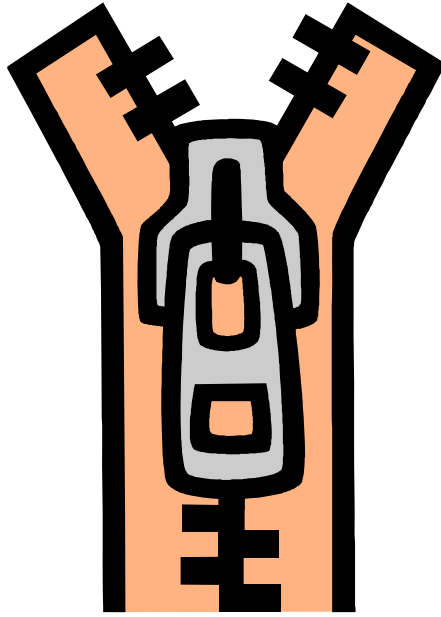
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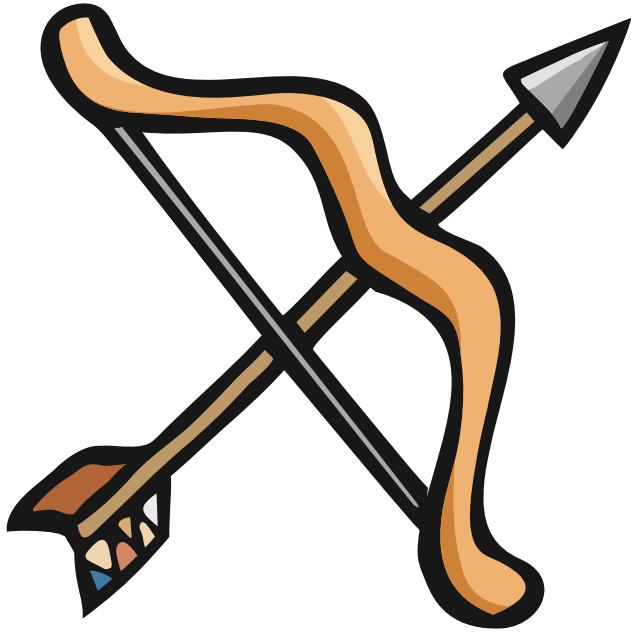
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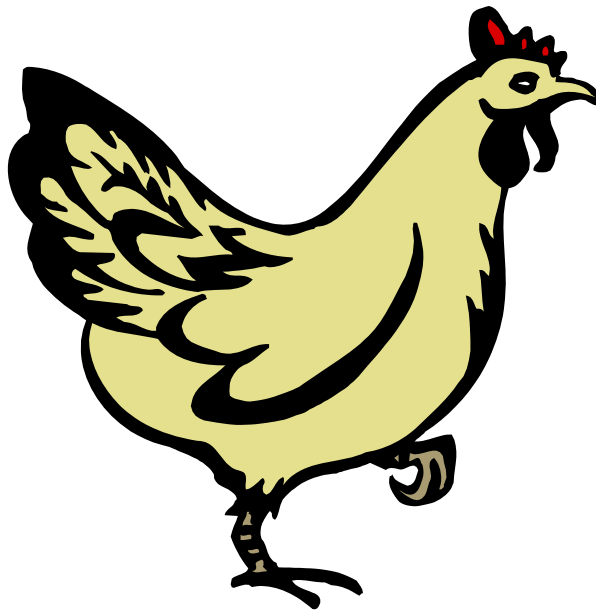
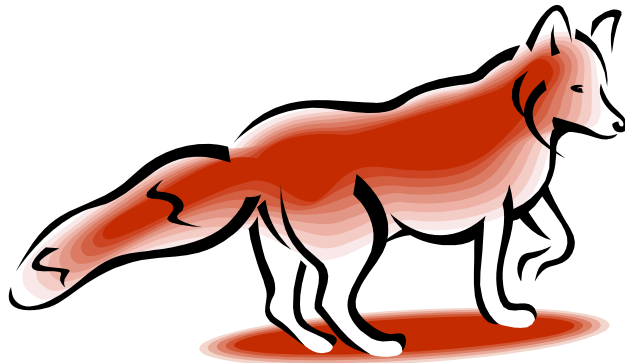
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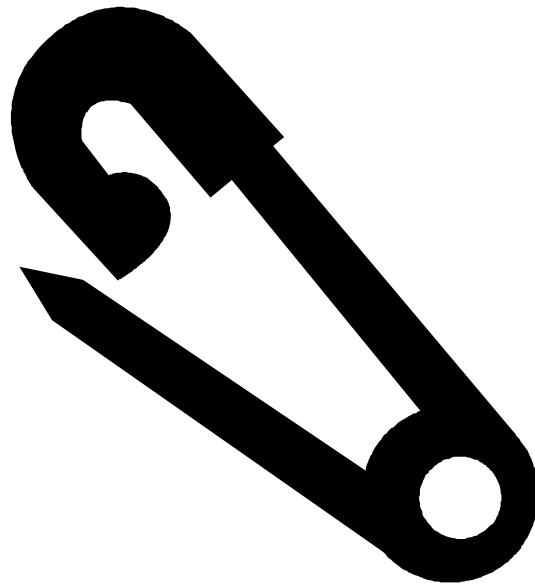
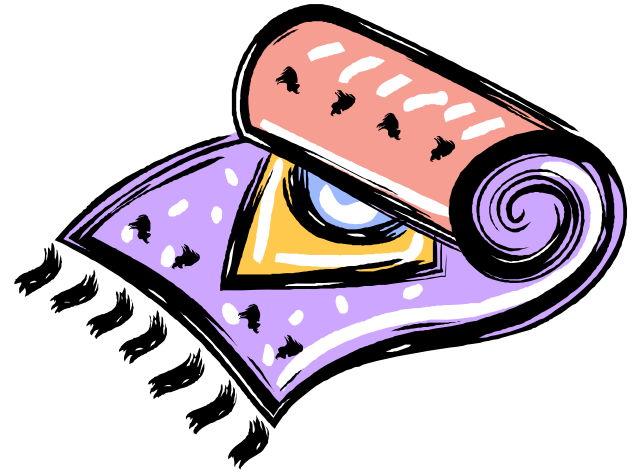
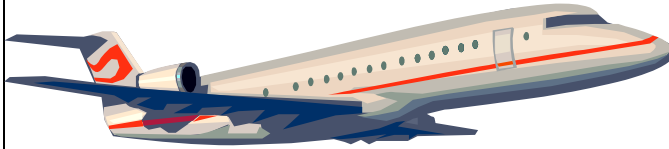












PART FOUR: Word List

Please note: Pictures are provided in the templates for the 35 Words in **bold**.

Ideally, if affordable, two complete alphabet sets should be made. It will then be possible to make far more words, using repeat letters.

A Comprehensive List of Common Three-Letter Words, with a Central Vowel
(Suitable for Early Literacy Activities: phonetics and word recognition)

A	E	I	O	U
-	-	aid aim air	-	-
bad bag ban bar bat bay	bee beg bet	bib bid big bin bit	bog bow box boy	bud bug bun bus but buy
cab can cap car cat	-	-	cog cot cow	cub cup cut
dab dad dam day	den dew	did dig dim din dip	dog dot	dug duo
ear eat	eel	-	-	-
fan far fat	few	fig fin fir fit fix	fog fox	fun fur

A	E	I	O	U
gas	gem get	-	god got	gum gun gut guy
had ham has hat hay	hem hen her	hid him hip his hit	hot how	hub hue hug hut
-	-	-	-	-
jab jam jar	jet	jib jig	jog jot joy	-
-	keg key	kid kin kit	-	-
lab lad lap law lay	led leg let	lid lip lit	lob log lot	lug
mad man map mat	men met	mix	mob moo mow	mud mug mum
nag nap nay	net new	nib nil nip	nod not now	nun nut
oaf oak oar oat	-	oil	-	our out

A	E	I	O	U
pad pal pan pat paw pay	pea peg pen pet	pig pin pip pit	pod pot	put
q-	q-	q-	q-	q-
rag ram ran rat raw ray	red	rib rig rim rip	rob rod row	rub rug run
sad sag sap say	sea see set sew sex	sip sir sit six	sob son sow	sum sun sup
tan tap tax	tea ten	tie tin tip	toe ton too top tow toy	tub tug
u-	u-	u-	u-	u-
van	vet	-	vow	-
wad wag war was wax way	web	wig win wit	won	-

A	E	I	O	U
x-	x-	x-	x-	x-
yam	yes yet yew	-	you	-
-	-	zip	zoo	-

EXAMPLES OF COMMON FOUR LETTER WORDS: THIRD LETTER A VOWEL

<p><i>Emphasising the "br" sound:</i></p> <p>brag bran bray brew brim brow brut</p>	<p><i>Emphasising the "ch" sound:</i></p> <p>chap char chat chew chin chip chop</p>	<p><i>the "sh" sound:</i></p> <p>shed shin ship show shut</p>
<p><i>Emphasising the "gr" sound:</i></p> <p>grab grew grey grid grim grin grip grit grow grub</p>	<p><i>Emphasising the "dr" sound:</i></p> <p>drab drag draw drew drip drop drug drum</p>	<p><i>Emphasising the "fl" sound:</i></p> <p>flag flan flap flat flaw flea fled flew flit flog flop flow flux</p>

EXAMPLES OF COMMON FOUR LETTER WORDS: SECOND LETTER A VOWEL

<i>Words ending in "ld"</i>	<i>Words ending in "ll"</i>	<i>Words ending in "nd"</i>
bald	ball	band
held	call	land
weld	fall	wand
mild	hall	bend
wild	mall	lend
bold	tall	mend
cold	wall	bind
fold	bell	find
hold	cell	hind
sold	fell	kind
told	hell	mind
	sell	wind
	tell	bond
	well	fond
	bill	pond
	fill	fund
	hill	
	kill	
	mill	
	pill	
	will	
	doll	
	roll	
	toll	
	bull	
	dull	
	full	
	gull	
	hull	
	lull	
	pull	

<p><i>Words ending in "nt"</i></p> <p>pant rant want bent cent dent lent rent sent tent vent went hint lint mint pint tint font hunt</p>	<p><i>Words ending in "rd"</i></p> <p>card hard lard ward yard herd bird cord ford lord word curd</p>	<p><i>Words ending in "rt"</i></p> <p>cart dart part tart wart sort hurt</p>
<p><i>Words ending in "sh"</i></p> <p>cash lash mash sash wash mesh dish fish wish posh gush hush lush push rush</p>	<p><i>Words ending in "ss"</i></p> <p>lass mass pass less mess hiss kiss miss boss loss moss toss fuss</p>	<p><i>Words ending in "st"</i></p> <p>cast fast last mast past best nest pest test vest west zest fist list mist cost host most</p>

		dust must
<i>Words ending in "th"</i> bath math path with both moth		

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