

# The farm tractor

Activities and puzzles for 7 - 10 year olds





Welcome to the tractor puzzle book

The tractor is one of the most common sights on any farm today. However, for centuries, farmers worked the fields with horse or ox-drawn ploughs, hand-tools for planting and reaping. From dawn 'til dusk, the farmer and labourers would work the fields. About five hundred years ago, it would take almost two days to plough a hectare of land using oxen. It now takes a tractor less than half an hour to plough the same area.

The modern tractor was developed from steam-powered traction engines during the 1850s. With the introduction of petrol engines in the 1880s, it wasn't long before tractors appeared using the new petrol driven engines around 1889.

The basic design of the tractor hasn't altered much since the early 1900s. The two large rear wheels provide traction, or grip, while the two smaller wheels provide steering. Did you know that the first tractor tyres were made from steel! The pneumatic (air-filled) tyres didn't appear until the 1930s. At first, tractors were used simply for ploughing, harvesting or pulling trailers.

However, during the 1930s a system of linkages and hydraulic controls were developed that turned the tractor into a very versatile machine.

Tractors used on modern farms can have up to 10 computers on them, 48 different gears, CD players, air conditioning systems and have global positioning systems on them to help the farmer produce the best quality food for you to eat.

To learn more about these amazing vehicles, have a go at some of the activities and puzzles on the following pages.

Have fun!

Tractorman

# Spring

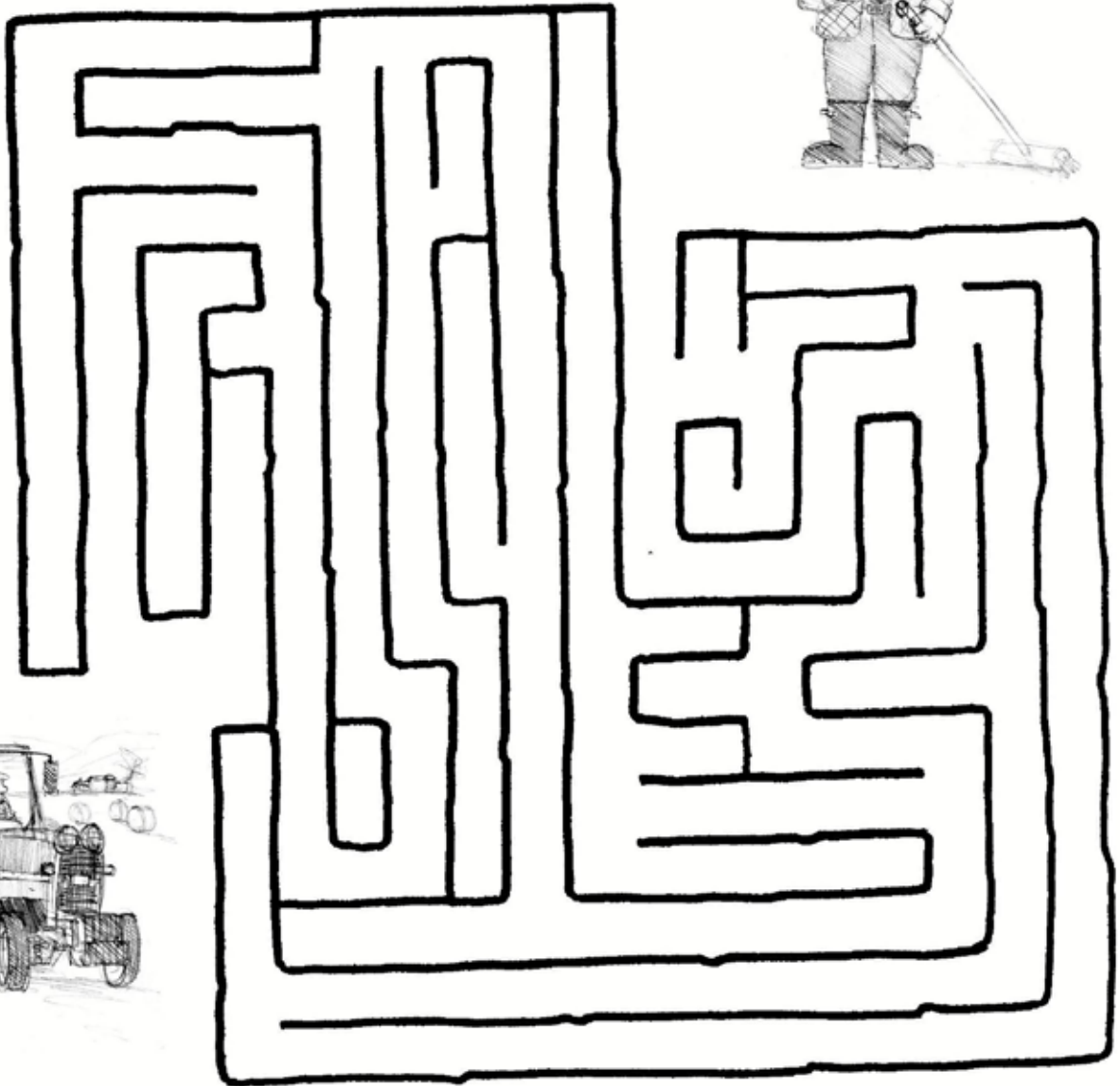


Spring is a season for ploughing, sowing seeds and spreading fertiliser on the soil. It's a very busy time for everyone involved in farming. The farmer uses the tractor to help prepare the soil, sow the seeds, fertilise, spray the crop to ensure they are healthy so they grow properly.

The farmer has to make sure all machinery is working properly before it goes to work.

# The maize trail

To start work the farmer has put the tractor in the barn to keep it dry over winter, but he can't remember which barn, can you help him find it?!



# The equipment scramble

The farmer has another problem. Someone has jumbled up his list of instructions. Can you unscramble the letters to find out what piece of equipment he needs to attach to the rear of the tractor? Just to help...only one of the jumbled words can be used behind a tractor!

1) BOASHADARD

2) PUTMOCER

3) RAILRET

4) NAGRI

5) SINDWEECRN

6) LOOTANC

What piece of equipment does the farmer need to attach to the rear of his tractor?

.....

# Searching for the words

Can you find the names of words associated with tractors hidden below? Some words are written forwards or backwards, up or down, or diagonally, but always in a straight line. If you are not sure what some of the words mean, try using a dictionary.

C R A N K S H A F T Y P  
O R B J E Q A T E I X K  
O Q E E U J R U N L W H  
L W D A T A R K I L R D  
A L D B I M O L G E H N  
N V L L M A W H N R Q I  
T V E I X G H R E X A A  
S R S L R B A E T Y S R  
F H E C C D B G Y S F G  
Q W I V A G N U K L J L  
B R D R O T C A R T V P

The missing words are:

auger	axle	coolant	crankshaft	diesel
engine	harrow	quad	radar	seed
tractor	trailer	tiller	grain	

# The Job list

Now that the farmer has sorted out the parts for his tractor he can tackle all the jobs on his list. There's just one little problem. . . he can't remember in which order the jobs have to be done. Can you help him? Rearrange the jobs below into the order that you think the farmer should do them.

## The jumbled list

1 Spread fertiliser

2 Put the tractor in the barn

3 Plant seeds

4 Plough the field

5 Have a cup of tea

6 Harrow the field (a harrow is a tool used to smooth soil over the seeds)

7 Switch the tractor engine on

## Your List

1

2

3

4

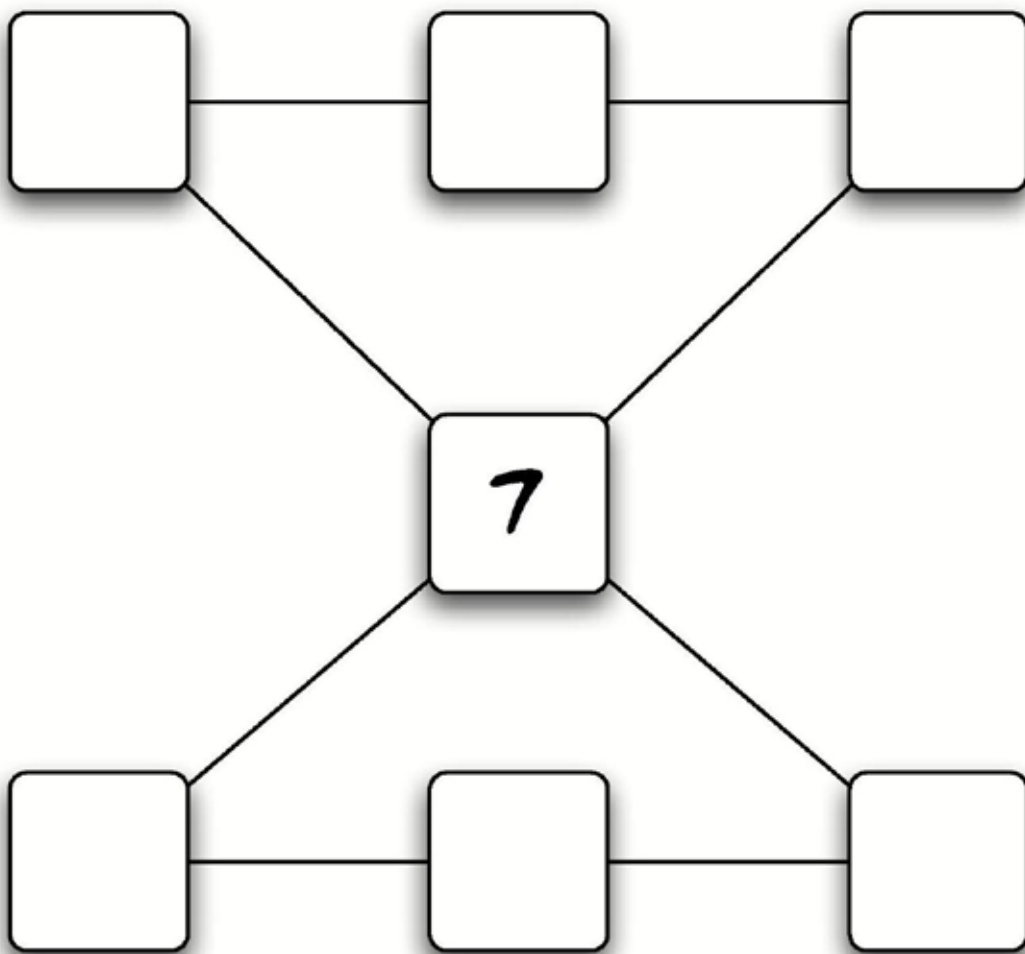
5

6

7

# The Ploughing puzzle

The farmer has a large field to plough. To make the job a bit easier, he wants to divide the field into seven rectangles so that whichever way he ploughs the total will always be the same. All you need to do is to fill in the blank rectangles using the numbers 1 - 3 - 5 - 9 - 11 - 13, so that all the rows (horizontally, vertically and diagonally) will add to 21. You can only use each number once!



# A problem with the weather

Just when the farmer thought everything was going so well . . . it has started to rain! Can you change the weather from 'WET to DRY in five stages, altering just one letter to form another word at each step?

**W E T**

— — —

— — —

— — —

— — —

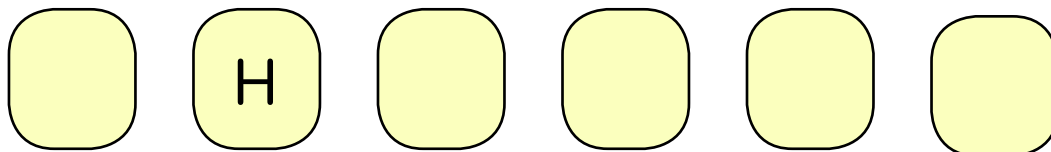
**D R Y**

**BRILLIANT. WELL DONE!**

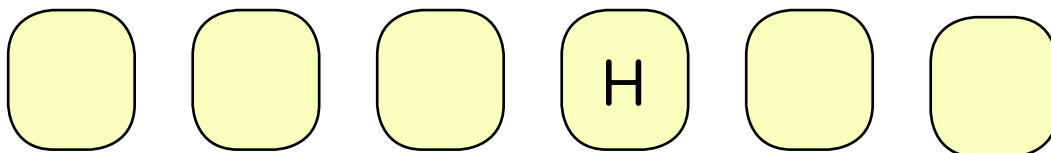
# Tractor parts

The farmer wants to check that everything on his tractor is working correctly. He has a list of parts to check but some of the letters are missing. Can you help him fill in the missing letters and complete his list?

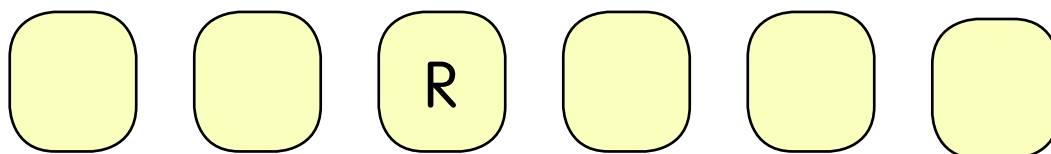
1) These help tractors get along



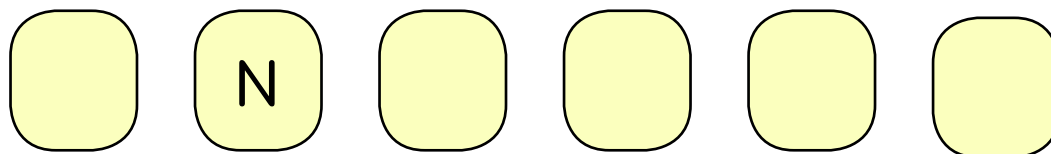
2) Something to help brighten the way



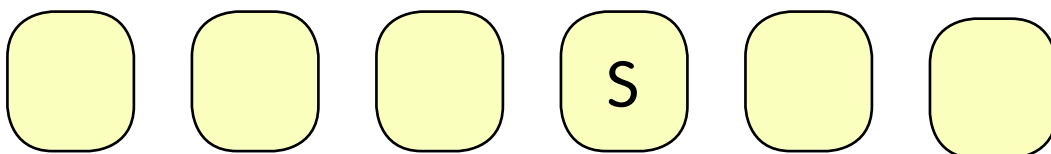
3) To see where you have been



4) Tractor Power



5) A sort of fuel



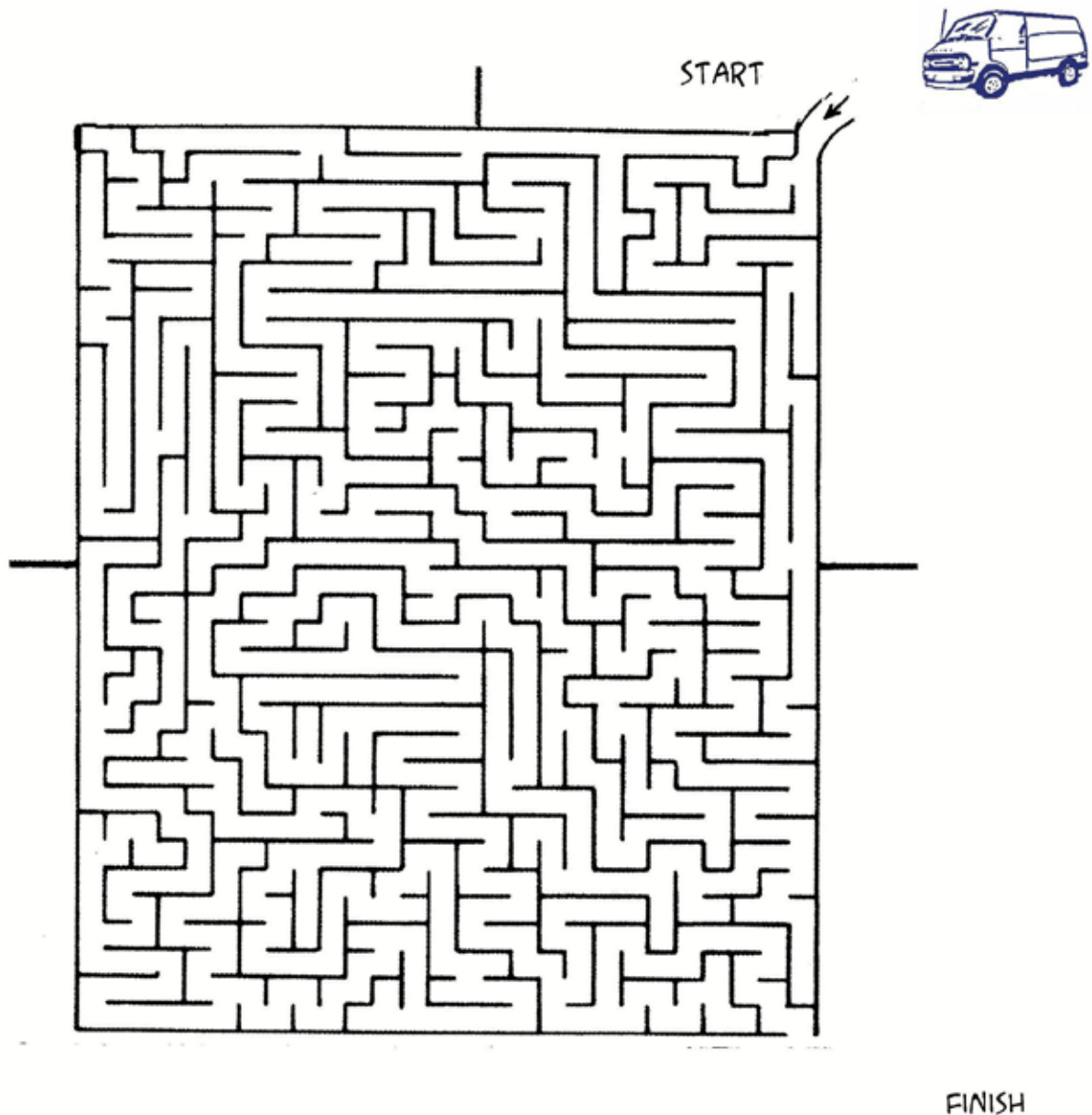
# Summer



The summer months are the busiest time of the year for the tractor. The tractor is involved in lots of important jobs such as cutting hay, helping the combine harvester to gather the corn, trimming hedges and verges, spreading manure and generally making itself a really useful machine!

# The mechanics maize

The farmer's tractor has broken down and he needs help. A quick telephone call to the local tractor dealership and a mechanic is on his way. The only problem is, the mechanic has lost his way. Can you help him through the maze to the farm?



# A mechanical problem?

Now that the mechanic has found his way through the maze to the farm, he needs to sort out what tools he needs to help him repair the tractor.

Unfortunately, the journey through the maze was a bit bumpy and the tools are all mixed up! Can you help the mechanic sort his tools out? You need to unscramble the letters in each balloon and write what they are on the line underneath.

NPARSNE

RE-  
MAMH

TU-  
POMREC

TAR-  
HECT  
NANSPE

LIO  
NAC

ILRLD

RES-  
LIP

LIFE

TO-  
SKEC TES

# Passing the time

While the farmer is waiting for his tractor to be serviced he wonders how many other words can be made out of the letters that make up 'tractor'? How many can you find? make a list below.

## Tractor

1

2

3

4

5

6

7

8

9

10

11

12

13

# Missing Vowles

Now that the tractor is ready, the farmer looks at his job list and is puzzled. Can you help him sort out his job list by putting the vowels and spaces in their correct places?

1 TR \_ M T H \_ H \_ D G \_ S

2 M \_ W T H \_ G R \_ S S

3 C \_ T T H \_ C \_ R N

4 S P R \_ Y T H \_ W \_ \_ \_ D S

5 S \_ R V \_ C \_ T H \_ T R \_ C T \_ R

6 H \_ V \_ \_ C \_ P \_ F T \_ \_

1

2

3

4

5

6



# Autumn



Although the combine harvester has been busy and the straw bales are safely stored away, there's still plenty of work for the tractor to do. It's time to sow rye and wheat, fertilise the fields and plough some fields before winter.

# Lost for words

The farmer's ready, the tractor's waiting.....what does the farmer do now? Can you try and spell a four word sentence starting from the letter "t" (left-hand corner) and moving along a line to the next letter in any direction? Use each letter once only.

S A U E F T A E H W  
P O R S T U X Y A B  
T T O E S W Z A C D  
A E B F A R M E R X  
U X W E O T X Y E B  
T O C T O B E R S E  
U N C L E L A U N T  
M A N U R E F E R B  
N A N A E E G O A T  
S E B E B A D W X R  
X E T G M L T O I A  
L M P S E V B R V C  
V X E I T G I R T T  
F O F L P R S A A O  
W O L W E A T H E R  
H E M O S T A V E B

Words:

autumn      rye      september      wheat      october      manure  
field      harrow      weather      barley      tractor      farmer

Can you find the missing animal in the grid? Answer: \_ \_ \_ \_

# A farming code

The farmer's wife has left him a message. Unfortunately the message is in code. Can you work out the message by finding the answers to the maths questions. When you have worked out the number, look on the grid to find out what number matches what letter, then place the letter in the brackets. Work out all the answers and you have cracked the code. Good luck!

## The first letter is done for you.

$10+3 = 13 \text{ (letter 'r')} \quad 18-6 = ( ) \quad 6 \times 3 = ( )$

$6+7 = ( ) \quad 3 \times 3 = ( ) \quad 6 \times 4 + 2 = ( ) \quad 1 + 10 \times 2 = ( ) \quad 3 \times 3 + 4 = ( ) \quad 1 + 1 + 3 = ( )$

$4 \times 2 + 1 = ( )$

$30 - 26 = ( ) \quad 3 \times 6 = ( ) \quad 5 \times 2 + 10 - 2 = ( ) \quad 10 - 5 + 5 \times 3 = ( ) \quad 9 + 2 = ( )$

$20 - 6 + 6 \times 2 = ( )$

$9 + 2 = ( ) \quad 12 + 12 - 6 = ( ) \quad 3 \times 4 - 3 = ( ) \quad 17 + 17 - 17 = ( ) \quad 12 - 2 = ( )$

$10 \times 2 + 2 + ( ) \quad 6 \times 3 + ( )$

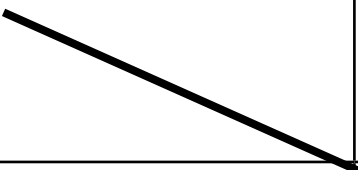
$a=26 \quad b=24 \quad c=22 \quad d=20 \quad e=18 \quad f=16 \quad g=14 \quad h=12 \quad i=10 \quad j=8 \quad k=1 \quad l=2 \quad m=3$

$n=4 \quad o=5 \quad p=6 \quad q=7 \quad r=9 \quad s=11 \quad t=13 \quad u=15 \quad v=17 \quad w=19 \quad x=21 \quad y=23 \quad z=25$

# Match and move

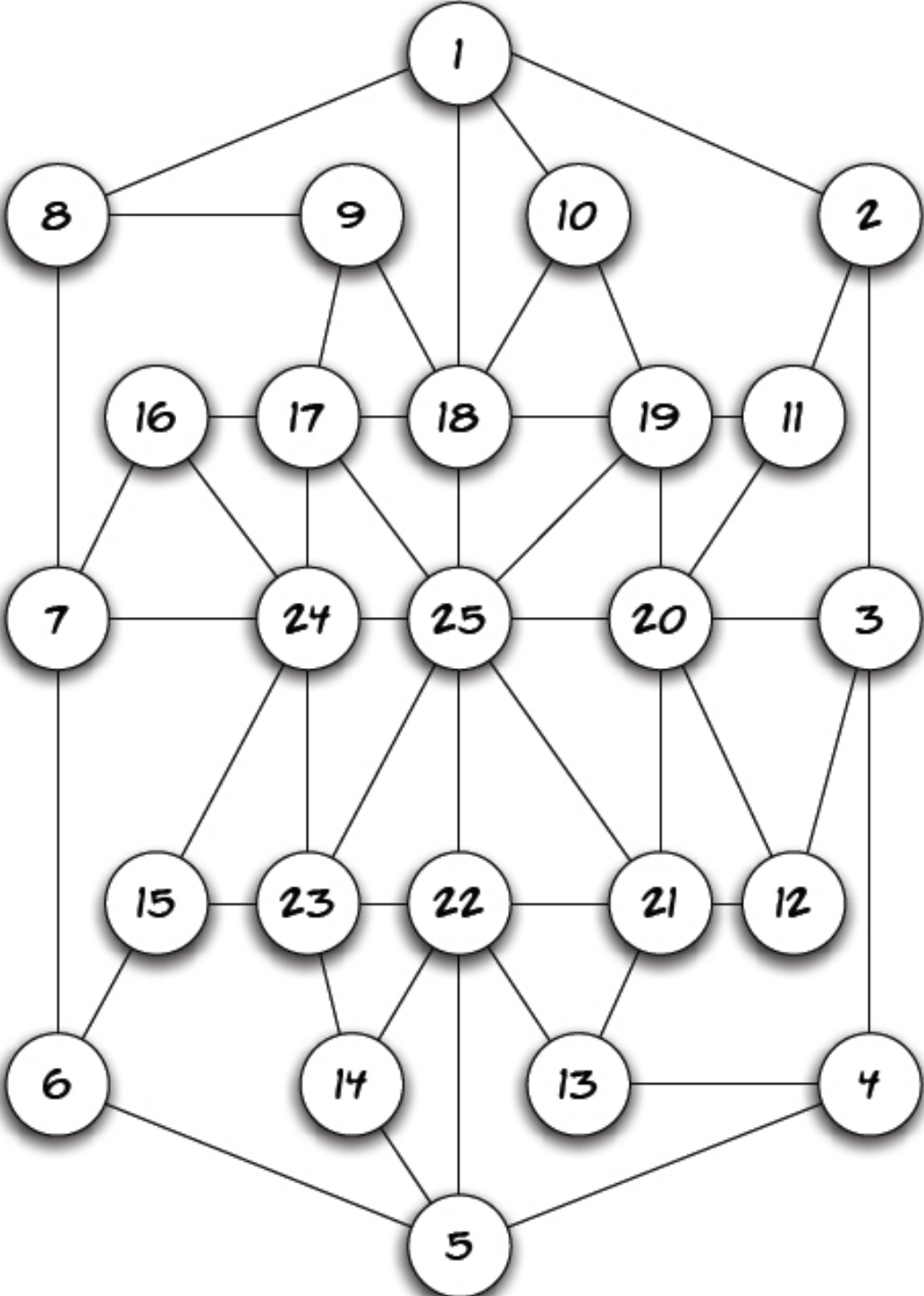
Can you match the words with their meaning? Draw a line from the word to the meaning which you think is correct. The first one is done for you.

1 harrow	<b>a:</b> a machine for cutting grass
2 baler	<b>b:</b> a machine for harvesting, threshing and cleaning grain plants
3 rotovator	<b>c:</b> a device that places a plastic cover around hay
4 Bale wrapper	<b>d:</b> a device to cover seeds after planting
5 mower	<b>e:</b> a machine for turning the soil
6 plough	<b>f:</b> a machine for making bales
7 Combine Harvester	<b>g:</b> a device for turning up the soil into ridges



# Move along there

Starting at the centre of the grid, 25, the farmer wants to move to number 1, in as few moves as necessary to give him a total of 100. Can you help him?



# Bird spotting

The farmer has planted new hedges and dug a new pond on his farm to look after all the birds and wildlife. He's spotted six new birds in the hedge and lake. Can you print three letters in the spaces in each column to form the names of the six birds reading downwards?

1	2	3	4	5	6
I	E	A	W	A	O
C	O	E	F	L	I

# Name the object

The farmer has just ordered a new piece of equipment to work with his tractor. Can you complete the words reading down, so that the centre row reading across spells the name of the object?

T	C	A	E	B	A
E	P	C	R	W	E

# Read the signs

With so much happening on the farm it's easy to forget how to keep safe and avoid accidents. Can you match the signs to their meanings by drawing a line between them?

	Wear a safety helmet
	Wear ear protectors
	Wear protective clothing
	Eye protection must be worn
	Wear gloves







# Winter



Even though it's cold and snow covers the ground, the tractor is still busy on the farm. There's so many things to do before Spring such as mending fences, clearing ditches, cutting dead branches from trees, planting new trees and general maintenance.

# The tool kit

The tractor mechanic has come along to fix a faulty mirror on the tractor. He has asked the farmer to help him so that they can get the job done quickly. Unfortunately, every time the mechanic asks for a special type of tool, the farmer gives him the wrong one! Can you help the farmer by placing the correct label to each tool?

	
1. _____	2. _____
	
3. _____	4. _____
	
5. _____	6. _____

Ring spanner

Pliers

Adjustable spanner

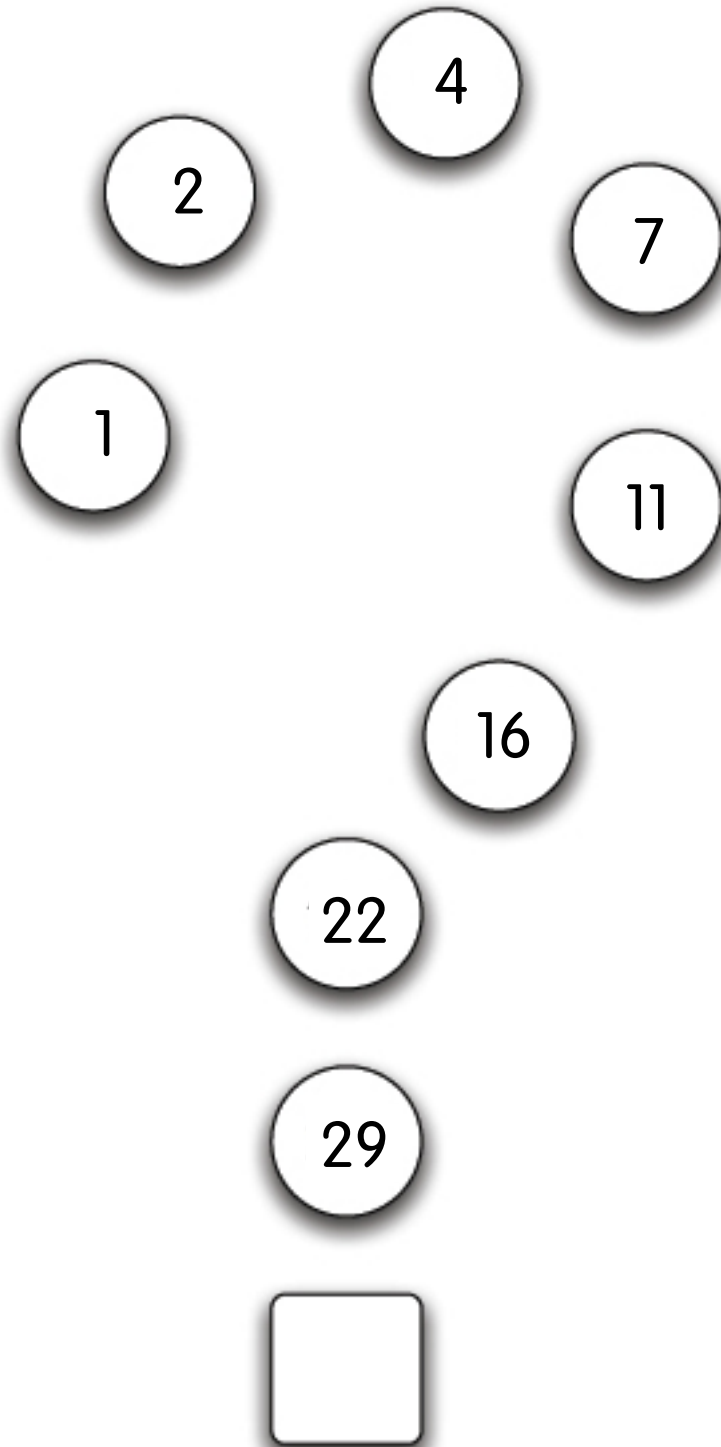
Combination spanner

Open ended spanner

Stubby ratchet

# How many

The farmer is trying to add up how many litres of diesel he needs to put into the tractor's fuel tank. Look at the sequence of numbers starting at '1' and finishing at '37'. What should the next number be in the sequence? !



# More trees

Can you help the farmer change 'leaf' to 'root' in six moves, altering one letter to form another word at each step?

LEAF

□ □ □ □

□ □ □ □

□ □ □ □

□ □ □ □

□ □ □ □

ROOT

# Adding up the bales

The farmer is adding up the number of bales of hay he has left in each barn to make sure he has enough to feed the animals over the winter. Unfortunately, as he has rushed around adding things up, he's forgotten to write in the plus, minus, division and multiplication signs in the correct places. Can you work out what signs should be placed between the numbers so that you arrive at the answers?

**Barn 'A' -    7    6    8    9    2 = 10**

**Barns 'B' -    8    5    3    2    3 = 44**

**Barn 'C' -    9    7    8    6    7 = 29**








**Barn 'D' -    4    4    4    4    4 = 4**

# Word jumble

Can you re-arrange these groups of words to make the names of six things associated with a tractor?

1. RARE SPY
2. OVER THE TOP AS RAT
3. VAT OR ROOT
4. DREARIEST PILFERERS
5. MERIT BRAVE CHOSEN
6. RAT LIER

See if you can spot some of the machines and equipment listed below. All you have to do is identify them correctly, write the date you saw them in the box and see who can 'collect' the most objects!

Object	Date	Date	Date	Date	Date	Date	Date	Date
 Baler								
 Plough								
 Service van								
 Potato harvester								
 Mower								
 Combine								
 Tractor								

# Answers

We hope you had loads of fun working out these puzzles. Just in case you got a bit stuck on a puzzle or want to check your answers, here's the solutions:

Page 5 Dashboard, computer, trailer, grain, windscreen, coolant.  
The 'trailer' is the object at the rear of the tractor.

Page 7 7, 1, 4, 3, 6, 2, 5

Page 8 Top row: 9, 11, 1 Bottom row: 13, 3, 5

Page 9 Wet-pet-pat-pay-day-dry

Page 11 Wheels, lights, mirror, engine, diesel

Page 13 Spanner, hammer, computer, drill, pliers, file, oil can,  
ratchet spanner, socket set

Page 15 Trim the hedges, mow the grass, cut the corn, spray the  
weeds, service the tractor, have a cup of tea

Page 16 Turn the engine on

Page 18 The missing animal is a 'goat'

Page 19 The tractor needs a service

Page 20 1d, 2f, 3e, 4c, 5a, 6g, 7b

Page 21  $25 + 24 + 16 + 17 + 9 + 8 + 1 = 100$

- Page 22 Finch, heron, raven, swift, eagle, robin
- Page 23 Harrow (the, cap, arc, err, bow, awe)
- Page 26
- 1 Open ended spanner
  - 2 Adjustable spanner
  - 3 Combination spanner
  - 4 stubby ratchet
  - 5 Pliers!
  - 6 Ring spanner
- Page 27 46: the difference between each number increases by one every time
- Page 28 Leaf - lead - bead - beat - boat - boot - root
- Page 29
- $$7+6+8-9-2=10$$
- $$8 \times 5 + 3 - 2 + 3 = 44$$
- $$9 - 7 \times 8 + 6 + 7 = 29$$
- $$4 \div 4 \times 4 - 4 + 4 = 4$$
- Page 30 Sprayer, Potato harvester, rotovator, fertiliser spreader, combine harvester, trailer

# Tractors in Schools



Hopefully you have had fun with this quiz book and have learnt a little about tractors. Getting to sit on a tractor is the next step. The Tractors in schools project may help with that. By contacting your local farm machinery dealer they may be able to bring a tractor out to your school or tell you where you can see one in real life - a local agricultural show for example.



More information can be found by visiting the website [www.tractorman.biz](http://www.tractorman.biz). Contact details are on the site

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The following people worked on this booklet hoping to keep you entertained and helping you understand a little more about tractors:

Text & Puzzles: Pete Townsend

Additional text & expert advice: Ian Beecher Jones

Further advice & guidance: Bill Graham & Janet Hickinbottom !(Farming & Countryside education)

