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opening extract from

101 Things You Need to Know (and some you don't)

written by

Richard Horne and Tracey Turner

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Introduction

Ever wondered where things you take for granted in your daily life actually come from? Or pondered how things in nature ended up the way they are – why isn't the sea purple and taste sweet rather than salty? The world is full of weird and fascinating things, far too many to learn about them all, but this is a great place to start, and a fun way to make sure you don't end up Old and Boring.

Master

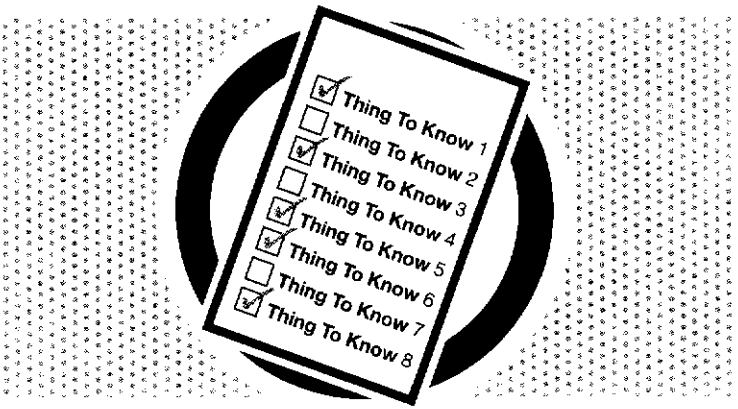
Why do stars twinkle? How would you survive an avalanche? Can you sneeze with your eyes open? What's the scariest thing in the world? The answers lie inside, so sharpen your curiosity, and prepare to be amazed ...

Complete

Keep track of what you have mastered by filling in the easy-to-follow forms.

Bask in the Glory

When you have finished, you will be wise and knowledgeable, and the envy of all your less interesting friends.



How to Use This Book

The idea is simple. Master the **101 Things You Need To Know**, tick the boxes, fill in the forms and stick in the coloured stars as you go.

About the Forms

- Be honest with the information you enter in the forms.
- There may be a few tricky questions on some of the forms. Don't worry if you get stuck – you'll find the answers at the back of the book.
- You may find some of the forms too small for all the information you'd like to enter. To solve this problem you can copy the extra pages at the back of the book or visit the website for extra or duplicate pages at **www.101thingstodo.co.uk**.

Your **Things To Know**

If there are **Things You Need To Know** which aren't mentioned in the book, add your top ten **Things To Know** on the pages provided at the back.

Helpful Tips

The tips on the opposite page offer some guidelines to completing the **Things To Know**.

Tips

- ☑ Master as many **Things To Know** as possible before it's too late and you become Old and Boring.
- ☑ Always carry this book with you (you may Need To Know something at an unexpected moment).
- ☑ As you learn more amazing **Things To Know**, be aware that friends may envy how interesting and knowledgeable you've become.
- ☑ You don't have to go it alone. Many of the **Things To Know** will be more fun if you master them with the help of your friends (and stop them being envious too).
- ☑ Push yourself. This book is crammed with fascinating **Things To Know**, but there's always more to discover.
- ☑ Think outside the box. If you find some **Things To Know** really interest you, don't stop here – do your own research and find out even more.
- ☑ Above all, have fun. The **Things To Know** are something to enhance your daily life and make the world more interesting.

Some Things You Will Need

Here is a list of some of the items you will need to complete the **101 Things You Need To Know**. You don't need to have them all before you start, but it's advisable to at least have a pen, a pair of scissors, glue, a camera, access to a computer and some money. You can get hold of the other items as you continue through the list, but the willingness to learn, a sense of adventure, spontaneity, a mischievous spirit, a sense of humour, a good imagination and optimism are all down to you.

- ☐ A secret hiding place for this book!
- ☐ A brain like a sponge
- ☐ A good imagination
- ☐ Neat handwriting
- ☐ A pen
- ☐ Paper
- ☐ Glue
- ☐ A camera
- ☐ A computer
- ☐ A photocopier
- ☐ A pair of scissors
- ☐ Skills to trade
- ☐ A little help from your parents
- ☐ A little help from your friends
- ☐ A willing assistant
- ☐ The Sun
- ☐ The Moon
- ☐ The stars
- ☐ A rainbow
- ☐ A waterfall
- ☐ A mountain
- ☐ An earthquake
- ☐ Thunder and lightning
- ☐ Various cloudy days
- ☐ A hot country
- ☐ A cold country
- ☐ Various nocturnal creatures
- ☐ Various camouflaged creatures
- ☐ A pet
- ☐ Salt
- ☐ Water
- ☐ Two grains of sand
- ☐ A lot of sand
- ☐ A spade
- ☐ A pirate outfit
- ☐ A newspaper
- ☐ A magnifying glass
- ☐ Fireworks
- ☐ A balloon
- ☐ A wool jumper
- ☐ Snow
- ☐ A stopwatch
- ☐ A haunted house
- ☐ A fast pair of legs
- ☐ A bike
- ☐ A skateboard
- ☐ A golf ball
- ☐ A ping pong ball
- ☐ A football
- ☐ Various fish
- ☐ A strong stomach
- ☐ A grain of rice
- ☐ Two peas
- ☐ Two grapes
- ☐ Three cream crackers
- ☐ Chocolate
- ☐ Lashings of honey
- ☐ Dog poo
- ☐ Basic cooking skills
- ☐ A calendar
- ☐ A set of scales
- ☐ A sixth sense
- ☐ A feather
- ☐ A stone
- ☐ A jumbo jet
- ☐ A sense of humour

Important Information

WARNING:

WHEN EMBARKING ON THE 101 THINGS YOU NEED TO KNOW AND SOME YOU DON'T PLEASE PROCEED WITH CARE.

FOR SOME OF THE THINGS TO KNOW YOU WILL NEED THE SUPERVISION OF AN ADULT. IF IN DOUBT, CONSULT AN ADULT ANYWAY.

THE AUTHORS AND PUBLISHER ACCEPT NO RESPONSIBILITY FOR ANY ACCIDENTS THAT OCCUR AS A RESULT OF USING THIS BOOK.

101 Things You Need To Know and Some You Don't!

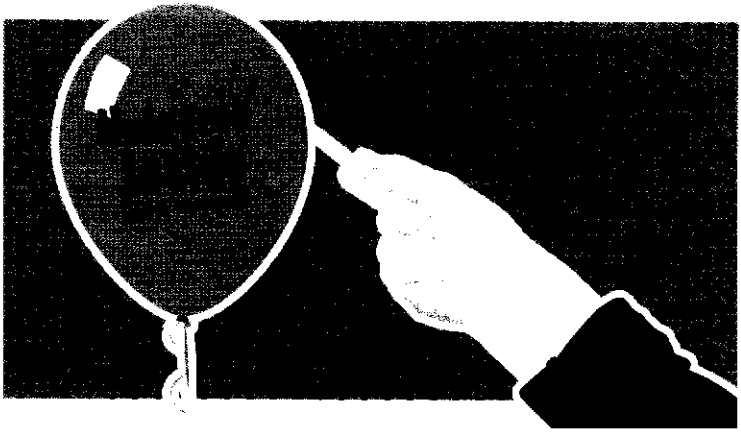
The List

1. ☐ What Was the Biggest Bang Ever?
2. ☐ What Is DNA (and Are We All That Different from Chimps)?
3. ☐ Why Don't Fish Drown?
4. ☐ What Were the Seven Wonders of the World?
5. ☐ Why Is Our Blood Red?
6. ☐ What Is the Oldest Living Thing in the World?
7. ☐ What Is the Difference between a Fruit and a Vegetable?
8. ☐ Is Time Travel Possible?
9. ☐ Who Would Win the Animal Olympic 100 Metres Race?
10. ☐ How Do You Do an Ollie on a Skateboard?
11. ☐ Who Were the First Chocoholics?
12. ☐ How Big Is the Universe?
13. ☐ Did Cannibals Really Exist?
14. ☐ Will Your Stomach Explode If You Eat Too Much?
15. ☐ When Was It Possible to Walk from London to New York?
16. ☐ How Do Mountains Grow?
17. ☐ Is Your Teacher an Alien?
18. ☐ What Are the Biggest and Smallest Animals in the World?
19. ☐ How Much Does the Earth Weigh?
20. ☐ Which Way Is North?
21. ☐ What Is the Solar System (and Could It Fit in Your Garden)?
22. ☐ Why Don't We Fall Off the Earth?
23. ☐ How Does a Snake Swallow Things Bigger Than Its Own Head?
24. ☐ When Did Money Start Making the World Go Round?
25. ☐ If Light Is Invisible, How Can We See?
26. ☐ How Do You Avoid Being Struck by Lightning?
27. ☐ What Is the Most Deadly Martial Art?
28. ☐ When Should You Use the Heimlich Manoeuvre?
29. ☐ How Long Is a Light Year?
30. ☐ What Is at the Bottom of the Sea?
31. ☐ Can a Cockroach Really Live for a Week without Its Head?
32. ☐ What Is an Ice Age (and When Are We Due Another One)?
33. ☐ How Do You Survive Falling Over a Waterfall?
34. ☐ What Is the World's Favourite Pet?
35. ☐ Why Is the Sky Blue?
36. ☐ How Many Stars Are There in the Milky Way?
37. ☐ Can You Sneeze with Your Eyes Open?
38. ☐ Why Is the Sea Salty?
39. ☐ What Is the Worst Smell Ever?
40. ☐ How Did the Ancient Egyptians Make the Pyramids?
41. ☐ What Is the World's Most Dangerous Shark?
42. ☐ How Big Is an Atom?
43. ☐ How Do Clouds Stay Up?
44. ☐ What Happens in the Bermuda Triangle?
45. ☐ Why Do Some Animals Shed Their Skin?
46. ☐ Who Built Stonehenge, How and Why?
47. ☐ Who Is the Richest Person in the World?
48. ☐ What Makes Farts So Smelly?
49. ☐ Does One Dog Year Equal Seven Human Years?
50. ☐ Where on Earth Is the Coldest Place?
51. ☐ How Do You Survive on a Desert Island?

101 Things You Need To Know and Some You Don't!

The List

52. ☐ Could a Rock Destroy Our Planet?
53. ☐ Where Does the Sun Go at Night?
54. ☐ Are Bats Really Blind?
55. ☐ What Wiped Out Nearly Half the Population of Europe?
56. ☐ What Is the Scariest Thing in the World?
57. ☐ How Do Oysters Make Pearls?
58. ☐ What Is the Quietest Sound We Can Hear?
59. ☐ How Do Planes Get into the Air – and Stay There?
60. ☐ Why Does the Moon Change Shape?
61. ☐ Were All Romans from Rome?
62. ☐ How Do You Survive an Earthquake?
63. ☐ How Many People Are Flying through the Air at Any One Time?
64. ☐ Do Animals Cry?
65. ☐ Why Do We Get Hiccups?
66. ☐ Why Do Stars Twinkle?
67. ☐ Do Storms Have Eyes?
68. ☐ Who Invented Paper?
69. ☐ How Can I Win Millions?
70. ☐ What Is Spontaneous Human Combustion?
71. ☐ Are You Only Ever a Few Metres from a Rat in a Big City?
72. ☐ Who Was the Most Bloodthirsty Pirate Ever?
73. ☐ Pus – What Is It Good For?
74. ☐ How Dangerous Is Quicksand?
75. ☐ How Can Birds Stand on Electric Wires and Not Be Toasted?
76. ☐ How Do You Survive an Avalanche?
77. ☐ Why Do People Kiss (and Animals Don't)?
78. ☐ Who Invented the Internet?
79. ☐ How Does a Firework Work?
80. ☐ Where Can You Find Red Giants and White Dwarves?
81. ☐ Why Do Camels Get the Hump?
82. ☐ Why Are There 60 Seconds in a Minute?
83. ☐ Where Is the Night Sky Multicoloured?
84. ☐ What Is the Sixth Sense?
85. ☐ Why Do We Dream?
86. ☐ How Does a Chameleon Change Its Colour?
87. ☐ Who Was the Cleverest Person Ever?
88. ☐ Who Invented the Wheel?
89. ☐ How Do You Do a Wheelie on a Bike?
90. ☐ What Is the World's Most Poisonous Creature?
91. ☐ How Do Bees Make Honey?
92. ☐ When Was Writing Invented?
93. ☐ Did People Make Everything from Stone in the Stone Age?
94. ☐ What Makes Things Glow in the Dark?
95. ☐ Are Cats and Dogs Colour-Blind (and How Do We Know)?
96. ☐ Where Are the Most Haunted Houses in the World?
97. ☐ What Is the World's Most Deadly Disease?
98. ☐ Nails – What Are They Good For?
99. ☐ Who Was the Greatest Conqueror of All Time?
100. ☐ When Was the First Leap Year and Why Do We Need Them?
101. ☐ What Would Happen to You in a Black Hole?



What Was the Biggest Bang Ever?

The Big Bang Theory is one way of explaining how the universe began. Other theories have been put forward, but none so popular. Most scientists accept it as the most probable theory, even though it's been pretty impossible to prove

Ka-Boom ...

A priest called George Lemaitre first came up with the Big Bang Theory in 1927. He proposed that the universe began when a single atom exploded. Later experiments suggest that his theory was correct. According to the standard Big Bang Theory ...

- First, about 13.7 billion years ago, there was a 'singularity'. A singularity isn't properly understood, but it's an area where matter is squashed by the pressure of gravity into an infinitely small point of infinite density (singularities lie at the centre of black holes). No one knows where the singularity came from in the first place, of course.
- Then, the singularity began to expand. This is the 'Big Bang' – except scientists say that it's wrong to think of it as an explosion (so it's really not a very good title). The singularity went from being absolutely tiny and incredibly hot, to very large indeed (i.e. the size of the universe) and the sort of temperature it is today.
- Experiments support the Big Bang Theory: Edwin Hubble discovered that galaxies seem to be moving away from us at speeds that are in proportion to how far away they are – suggesting that everything started out from the same point and is now expanding outwards.

Big Balloon Theory? Scientists argue that it's more accurate to think of the Big Bang as a Big Expansion – instead of an explosion, think of an infinitely small balloon being blown up until it's the size of the universe.

What Was the Biggest
Bang Ever? Form

Did you have discovered the Thing To Know
Pick your Achieved Star [illegible] and fill in the form



THE COSMIC CALENDAR

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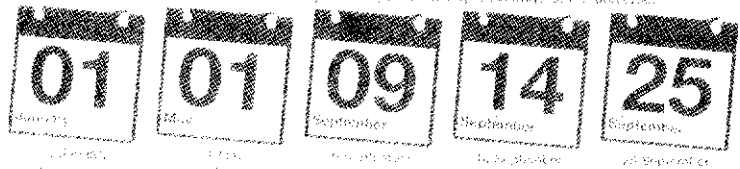





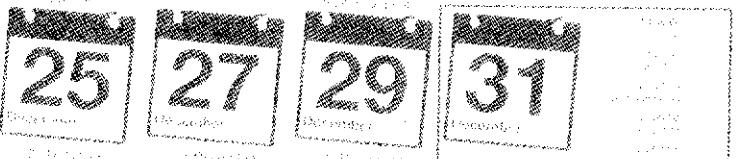

[illegible]

Things To Know?

[illegible] Was Big Bang Ever? What Is the Solar System and Could [illegible] Be in Your Lifetime? Why Would Humans [illegible]



What Is DNA (and Are We All That Different from Chimps)?

The initials DNA save us from having to say 'deoxyribonucleic acid' – which is the chemical that controls all life on Earth. DNA contains the instructions for making every living thing. It's like a teeny weeny computer programme.

Designer Genes

Your DNA is found inside each cell in your body, and it's unique to you (unless you have an identical twin). Inside cells, DNA forms chromosomes. Living things have different numbers of chromosomes: humans have 46, in 23 pairs. You get half of each of your chromosome pairs from your mother and the other half from your father. These 23 pairs are called your 'genome' and contain about 35,000 genes. A gene is part of a DNA molecule and makes one of the many proteins you need to live. Your genes make proteins by putting together amino acids, and there are only four of them: adenine, guanine, cytosine and thymine. Just one amino acid in the wrong place could mean a serious disease.

You're probably feeling pretty pleased with yourself, since you're such a unique and complex creature. But it might surprise you to know that we're not all that different from other animals: scientists used DNA from the blood of a male chimp called Clint, and discovered that at least 96% of the genetic makeup of humans and chimps (our closest living relatives) is the same. So why don't we live in the trees and grunt a lot? Well, among the 3 billion DNA molecules in each genome, scientists also found 40 million differences.

Are you a monkey or a mouse? There are *ten times* fewer genetic differences between humans and chimps than there are between mice and rats! Having said that, human and mice DNA is about 60% similar. Now, time for some cheese ...