Thank you for selecting the DR KAWASHIMA’S BRAIN TRAINING™: HOW OLD IS YOUR BRAIN? Game Card for the Nintendo DS™ systems.

IMPORTANT: Please carefully read the important health and safety information included in this booklet before using your Nintendo DS system, Game Card, Game Pak or accessory. Please read this Instruction Booklet thoroughly to ensure maximum enjoyment of your new game. Important warranty and hotline information can be found in the separate Age Rating, Software Warranty and Contact Information Leaflet. Always save these documents for future reference.

This Game Card will work only with Nintendo DS systems.

IMPORTANT: The use of an unlawful device with your Nintendo DS system may render this game unplayable.

This product employs the Decuma Handwriting Recognition Engine from Zi Corporation. Decuma is a trademark of Zi Corporation.

**Foreword by Dr Kawashima**

Once maturity is reached, certain functions of the brain may begin to slow down with age. This is no different from the reduction in stamina and physical strength that accompanies increasing age under a regular lifestyle. However, exercising every day can help prevent such physical decline.

Recently I have come to realise that the same is true of the human brain. Getting into the habit of training your brain every day can help to keep it fit. Have you started to find yourself becoming more forgetful, or that you just can’t seem to find the right words to get your point across? Training the brain can help boost your memory. For younger participants, training can help consolidate creativity and memory, and may hopefully help develop a resistance against decline in later life.

Dr Kawashima

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In this Instruction Booklet, the Nintendo DS Display Screen is framed in red and the Touch Screen is framed in blue.
An area called the "prefrontal cortex" functions as the command centre of the brain. The prefrontal cortex determines how the knowledge stored in your brain is used in any given situation; in other words, "real intelligence", e.g. the good functional use of the stored knowledge and the appropriate handling of a situation, depends on how well you are able to make use of the prefrontal cortex effectively to employ stored information and manage it successfully.

**Effective Use of the Prefrontal Cortex**

Brain Training Based Upon the Latest Medical Science

My latest research has revealed that reading aloud and doing arithmetic can be effective methods of training the brain. The images below are representations of blood flow within the brain as measured by functional magnetic resonance imaging (fMRI). The red and yellow areas show the parts of the brain that are engaged in activity, with yellow indicating more activity than red.

**Diagram Notes**

The left and right sides of the human brain are divided into four areas: the frontal lobe, parietal lobe, occipital lobe, and temporal lobe. The "prefrontal cortex" that comprises most of the frontal lobe is unique to humans. It is the source of creativity, memory, communication, and self-control, giving it the well-deserved name of "brain within the brain".

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**When thinking**

The left side of the brain is working slightly, but the right side of the brain is totally inactive.

**When trying to solve difficult mathematics**

Even though this requires a lot of effort, the brain does not show very much activity.

© 2006 Ryuta Kawashima
When solving simple mathematics quickly

When trying to solve simple problems quickly, many areas in both the left and right sides of the brain are showing significant activity.

When reading aloud

The faster the material is read, the more activity can be seen.

As you can see, solving quickly simple mathematic problems and reading appear to be highly effective ways of training the brain.

Based on these results, I performed a memory test using subjects ranging from elementary school pupils to adults. The results of these tests showed that the memory of a person was 20 to 30% better following the simple mathematics and reading aloud training than before such training. Furthermore, I had dementia patients perform simple mathematics and read aloud two to five days a week over a period of six month. When compared to those patients who did not perform the exercises, the results of those who did showed that activity levels in the prefrontal cortex that can affect cognitive functions, were increased.

Brain Training

Using Dr Kawashima’s Brain Training

It is vitally important to continue training. Dr. Kawashima’s Brain Training™: How Old Is Your Brain? provides simple mathematics, reading aloud, and other exercises, offering the best in brain training that is also fun to play every day. The best time to train is in the morning, when your brain is at its most active. It only takes a few minutes each day, so make a little time and keep on training!

Verification of Training

Using the Latest Technology

I used an optical topography system (Picture 1), a device that creates images of the activity in the human brain, to scientifically verify how the prefrontal cortex can be stimulated while training with Dr. Kawashima’s Brain Training: How Old Is Your Brain?

Many different types of exercises were tested; only those exercises that demonstrated a clear increase in brain activity (Picture 2) were selected for use in the software.
The Brain Age Check
I created a best-fit approximation (Figure 1) from data collected from 120 subjects, 20 in their twenties, 20 in their thirties and so on up to 20 in their seventies. The results of your BRAIN AGE CHECK in Dr. Kawashima’s BRAIN TRAINING: HOW OLD IS YOUR BRAIN? are calculated using this approximation.

Please note that the BRAIN AGE CHECK has been created to enable you to monitor the progress of your brain training when using Dr. Kawashima’s BRAIN TRAINING: HOW OLD IS YOUR BRAIN? only and for no other purpose whatsoever.

I'll be here to support your training! Nice to meet you!

Nintendo DS System Controls

Dr. Kawashima’s BRAIN TRAINING: HOW OLD IS YOUR BRAIN? is played by turning your Nintendo DS system vertically.

START
Press during training to return to the Menu Screen.

Touch Screen
All control is performed via the Touch Screen. Left-handed users will be asked to turn the Nintendo DS system around once the software starts up in order to have the Touch Screen on the left side.

Display Screen
Displays explanations of controls and training questions of the exercises.

Microphone
The microphone is used to detect sound.

POWER Button
Make sure that the Nintendo DS system’s power is off and insert the Dr. Kawashima’s Brain Training: How Old Is Your Brain? Game Card into the Game Card slot on the back of the system and push until it clicks into place.

Turn the power on and the Health and Safety Screen shown to the right will appear. Once you have read it, touch the Touch Screen.

To turn the power off, press and hold the POWER Button. On the Nintendo DS Menu Screen, touch the Brain Training: How Old Is Your Brain? Panel to progress to the Title Screen.

If your Nintendo DS system is set to AUTO MODE, you can skip the previous setting process. See the Nintendo DS Instruction Booklet for more details.

In this software you can choose between six different languages: English, German, French, Spanish, Italian and Dutch.

The language displayed during use of the software does not depend on the one set on the console, rather the one selected in the software at the first start-up. Please note: the software’s title on the Nintendo DS Menu Screen will appear in the language that your Nintendo DS system is set to, and may not correspond with the language you selected in the software.

Follow the instructions and advice displayed on the Display Screen to progress through Dr. Kawashima’s Brain Training: How Old Is Your Brain?

Language Selection
This icon allows you to select one of the six available languages for this software.

Quick Play
Undergo a QUICK BRAIN AGE CHECK, a QUICK TRAINING and a QUICK SUDOKU.

Daily Training
Perform your daily training and a full brain age test.

Sudoku
Solve sudoku puzzles to stimulate your brain.

Download
• Play mathematics training against other users using DS Wireless Communications.
• Download the Quick Play version to another Nintendo DS system.
• Download a sudoku puzzle on your Nintendo DS system.

If you close the Nintendo DS while the power is on, it will automatically switch to power-saving Sleep Mode. It will resume normal mode when opened again.
Daily Training

Your First Training Session

First you must create personal data to save your daily records. A maximum of four different personal data can be created. Touch NEW DATA FILE and follow the instruction.

Confirm the Date

Confirm that the DATE displayed is correct. Touch YES if the date and time are correct and proceed to the next step. Touch NO if they are incorrect. To change time settings, you must first turn the Nintendo DS system’s power off. See the Nintendo DS Instruction Booklet for more details on time settings.

Writing Hand

Select your writing hand. If you are right-handed, touch RIGHT and proceed to the next step. If you are left-handed, touch LEFT, then follow the instructions to turn the Nintendo DS system upside down and bring the Touch Screen around to the left side.

Determining Current Brain Age

First you will be presented with an explanation of the brain. Once this has finished, you must determine your current score in the form of a “brain age”. Parts of this test may require you to speak the answers, so you will be asked if your surroundings are quiet and if you can speak freely. If you can, the Colour Recognition Test (STROOP TEST) will begin; otherwise, you will start taking the CALCULATIONS X 20 test.

NOTE: The effectiveness of voice recognition varies depending upon the individual. Young children or women may find it especially difficult for their voices to be recognized perfectly. Young children or women may find that recognition of their voices improves if they speak a little more deeply than normal.
STROOP TEST
Say the colour of the letters of the displayed colour name into the Nintendo DS system’s microphone. There are four possible answers: red, blue, yellow, and black. The word written itself is usually not the answer.

CALCULATIONS X 20
On the Touch Screen, write the answers to the simple sums shown on the Display Screen as fast as you can. You must answer 20 sums in a row.

In this case, the answer is red.

Create Personal Data
When the test is finished, you must give the personal data a name. Use the stylus to write a name within the box provided.

Touch SELECT to proceed to date-of-birth entry. Using the Touch Screen, enter the final two digits of your year of birth. Touching the arrow below the 19 will change it to a 20 for anyone born after the year 2000. Touch SELECT when finished.

Enter your month and day of birth in the same way, then touch SELECT.
Your current score will be displayed in the form of a "brain age". Once you have accepted the score, touch TO DATA SELECT SCREEN. The Personal Data Selection Screen will appear.

*Please see “The Brain Age Check” on page 10 for more information.

If you wish to continue and begin brain training, touch the data you just created. The Stamp Calendar Screen will appear.

A Confirmation Screen containing your entered information will be displayed. If everything is correct, touch SELECT to proceed to the next step. If you wish to change anything, touch REVISE to return to the Name Entry Screen.

**Brain Age Test Results**

Your current score will be displayed in the form of a "brain age". Once you have accepted the score, touch TO DATA SELECT SCREEN. The Personal Data Selection Screen will appear.

*Please see “The Brain Age Check” on page 10 for more information.

If you wish to continue and begin brain training, touch the data you just created. The Stamp Calendar Screen will appear.

**Training**

The Stamp Calendar Screen

Today’s date will flash.

Perform a BRAIN AGE CHECK.

View Graphs of your Daily Results.

Change OTHER OPTIONS.

Stamps are awarded on days you have trained.
Events
Depending on the day and on the time, an event will occur when you touch your personal data.

Memory Quiz
A random question will appear. Write the answer to the question in the space provided. You will be asked the same question a few days later, so remember exactly what you write.

Picture Quiz
You will be asked to draw a picture of a certain object, person, animal, or the like. Touch NEXT and an answer picture will be displayed. Compare it with your own.

Starting Training
Touch TRAINING on the Stamp Calendar Screen and the Training Menu will be displayed. Touch the training you wish to perform.
Touch RULES to the right of each training title to view a description of how to perform that training.

When the training is complete, your results will be shown on the Display Screen. The Touch Screen will display the top three records for that training. Touch NEXT to proceed. You will be shown an animation depicting the rank of your results.

You can perform the same training as many times as you like each day, but the results will only be recorded the first time.
Some advice and a graph of your recent training results will be displayed. Touch MORE and at the end NEXT to proceed.

If you perform at least one type of training, you will be awarded a stamp on the stamp calendar for that day. Performing more than one type of training will not award extra stamps.

You can also change your stamp design. See page 32 for details.

**Types of Training**

There are only three types of training available at first. Fulfilling certain conditions will increase the types of training you can perform.

**CALCULATIONS X 20**

Helps train your brain through the high-speed solving of simple sums. The sums appear on the Display Screen. Write the answer on the Touch Screen as quickly as possible. Your total time for solving 20 sums will be recorded.

**CALCULATIONS X 100**

Same as the above, but with 100 sums.
READING ALOUD
Reading aloud helps stimulate the prefrontal cortex. While reading out loud is the most effective, silently reading to oneself also works. Read the displayed text as quickly as possible. Touch NEXT at the top of the Touch Screen to flip the pages. Your time for reading the entire text will be recorded.

LOW TO HIGH
Numbers will appear in the boxes on the Display Screen for only an instant. The same boxes, empty, will then be displayed on the Touch Screen. Touch them in order of the lowest number to the highest.

SYLLABLE COUNT
The Display Screen features a sentence. Count the number of syllables contained in the sentence and write it on the Touch Screen.

HEAD COUNT
People will go in and out of the house on the Display Screen. Keep track of how many remain in the house at the end and write that number on the Touch Screen.

TRIANGLE MATH
Add or subtract the adjacent numbers at the top of the triangle on the Display Screen according to the symbols between them. Then add or subtract the two product numbers to get the answer and write this on the Touch Screen.

Negative numbers are treated in the following way:

\[
\begin{align*}
1 - (-2) &= 1 + 2 = 3 \\
1 + (-2) &= 1 - 2 = -1 \\
(-1) - (-2) &= -1 + 2 = 1 \\
(-1) + (-2) &= -1 - 2 = -3
\end{align*}
\]
TIME LAPSE
On the Touch Screen, write the time difference between the top clock and the bottom clock.

VOICE CALCULATION
Answer simple sums out loud.

\[
\begin{align*}
10 - 1 &= 9 \\
8 + 0 &= 8 \\
13 - 7 &= 6
\end{align*}
\]

Brain Age Check
Touch BRAIN AGE CHECK on the Stamp Calendar Screen.
Three tests will be performed in a row. Quitting at any time will not produce a result.

Your current brain age result will be displayed. Touch NEXT to proceed.

A graph of your brain age results will be displayed. Touch NEXT to proceed.
You can perform the brain age test as many times as you like each day, but the results will only be recorded the first time.
Brain Age Tests

CALCULATIONS X 20
Also used in full brain age testing. Write the answers to simple sums on the Touch Screen as quickly as possible.

STROOP TEST
Also used in full brain age testing. Say the colour of the letters of the displayed colour names into the microphone.

WORD MEMORY
Remember as many of the 30 displayed words as you can in two minutes. You then have three minutes to write as many of the words as you remember on the Touch Screen, one after the other.

SPEED COUNTING
Touch PRESS HERE TO START and a countdown will appear. When the countdown reaches zero, count out loud from 1 to 120 as fast as you can. Be sure to pronounce each number clearly. Touch DONE! when you have finished the counting.

CONNECT MAZE
Link the displayed characters A → 1 → B → 2 → C → 3... in alternating sequential order using a single line. Be as fast as possible and do not to touch the wrong character.

NUMBER CRUNCHER
Numbers with various characteristics will be scattered across the Display Screen. Write on the Touch Screen the answer to the question above them.
Your training and brain age histories are displayed as easy-to-read graphs.

**Change Month Icon**
Change the month displayed on the graph.

**Two Months Icon (2 MOS.)**
Switch to a graph showing two months’ worth of results.

**Compare Results Icon (COMPARE)**
Compare the results of multiple sets of personal data. Only displayed when at least two sets of personal data have been created.

**Settings**
From here you can change reading font size displayed during the reading aloud exercise, change handedness setting, and erase personal data.

Once personal data is deleted, it cannot be restored. Be careful!

Fulfilling certain conditions also allows you design your own original stamp and view my TIPS. The key is to keep on training!
**CHANGE SIGNATURE**
Change the signature used to name the personal data.

**STAMP DESIGN**
Design a new stamp to use on the stamp calendar. Touch DESIGN STAMP and the Stamp Design Screen will appear. Draw your new design in the space provided and touch SELECT when finished. Creating a new stamp will also turn all previously stamped stamps into the new original design.

**TIPS**
View the advice you have received after completing training.

---

**Quick Play**
Try a QUICK BRAIN AGE CHECK, a QUICK TRAINING or a QUICK SUDOKU. Great for testing your friends’ brains.

**Quick Brain Age Check**
Undergo a simple brain age test without having to create personal data. Touch QUICK BRAIN AGE CHECK. Follow the instructions displayed on-screen. Touch PRESS HERE TO START to begin the test.

The Colour Recognition Test will begin. Your score will be displayed once the test has been completed. As this is only a simple test, the brain age displayed will always be indicated by tens. Touch END to return to the Quick Play Menu.
Quick Training

Here you will have to undergo a CALCULATIONS X 20 training. Touch QUICK TRAINING. The Writing Hand Selection Screen will appear. If you are right-handed, touch RIGHT and proceed to the next step. If you are left-handed, touch LEFT, then follow the instructions to turn the Nintendo DS system upside down and bring the Touch Screen around to the correct side.

Instructions for the training will be displayed on the Display Screen. Touch PRESS HERE TO START on the Touch Screen to begin the training. Simple sums will be shown on the Display Screen. Write the answers on the Touch Screen as quickly as possible.

Quick Sudoku

Touch QUICK SUDOKU and the Writing Hand Selection Screen will be displayed. After following the instructions, you can start with a sudoku puzzle. For the rules on the sudoku play, see next page.

You can quit the game whenever you want. Touch QUIT and you will go back to the Quick Play Menu. The data will not be saved.
Sudoku

To solve a sudoku puzzle, you must fill in the squares with a number from 1 to 9. But you need to follow three rules when writing in numbers!

First, each column must contain only one of each number from 1 to 9.

Second, each row must contain only one of each number from 1 to 9.

And finally, each 3 x 3 box must contain only one of each number from 1 to 9.

If you fulfill all three conditions and fill every square, you will clear the puzzle!

Touch the square you want to fill in to zoom in on it. Write a large number in the enlarged square.

To note a possible answer, write a small number in the square. This is called an “Option”. Each square can hold up to nine Options.

To erase your answer, write a “0” in the square or tap ERASE.
If you want to quit a puzzle, tap SAVE & QUIT to save your game so you can come back to it later.

If you are playing the QUICK SUDOKU, tap QUIT to stop playing. You will not be able to save your game in this version.

When on a zoomed-in square, tap an arrow to move in that direction.

Touch the square you want to fill in to zoom in on it. Write a large number in the enlarged square.

Tap UNDO to take back your last answer.

You can choose to be notified when you enter a wrong answer. If you select YES, you can get up to five wrong answers before you fail the puzzle. If you choose NO, you won’t know if an answer fits until you get every answer right. But no matter how many wrong answers you input, you won’t fail the puzzle.
Download

You can enjoy the DS Download Play using the Nintendo DS wireless feature. See page 45 and 46 for details on the Nintendo DS Wireless Communications (DS Download Play).

Calculation Battle X 30

Race to be the first to answer 30 simple sums. Two to 16 people can participate with a single DS Card. The Nintendo DS system with the DS Card inserted will act as the Host System; all other systems will be Client Systems.

Host System

Touch DOWNLOAD on the Main Menu Screen and the screen shown on the right will appear. Touch CALCULATION BATTLE X 30 and the number of participants (including the Host System) will be displayed. Once everyone is gathered, touch NEXT. Download to the clients will begin.

Client System

Data will be transferred to you from the Host System. Once the download is finished, you will be asked to select a language and then your writing hand. Once every participant has done so, a countdown will begin.

Select your writing hand. If you are right-handed, touch RIGHT and proceed to the next step. If you are left-handed, touch LEFT, then follow the instructions to turn the DS upside down and bring the Touch Screen around to the correct side.

Once all participants have selected their writing hands, a countdown will appear and the training will begin.
Start the Battle

After the 30 questions have been asked, the time it took you to answer them will be displayed along with your rank. If you wish to play again, touch NEXT.

To end CALCULATION BATTLE X 30 you must turn off the power to your Nintendo DS system.

Communication Error

If the screen on the right is displayed, turn off the power to your Nintendo DS system and try downloading the data again.

Send Demo

It is also possible to download the Quick Play version to another Nintendo DS system. The system with the DS Card inserted will act as the Host System and will transmit the Quick Play version. The other system will be the Client System, receiving the Quick Play version.

Host System

Touch DOWNLOAD on the Main Menu Screen and the screen seen on the right will be displayed. Touch SEND DEMO and a Client Search Screen will appear. When a Client System accepts the download, you will see a screen with the message SENDING TO [client name]. Touch NEXT and wait for the download to finish.

Client System

Once the download finishes, the Language Selection Screen will be displayed and, after selection, the Quick Play Version Title Screen will appear. Select QUICK PLAY and the three following modes will be displayed: QUICK BRAIN AGE CHECK, QUICK TRAINING and QUICK SUDOKU. You can then choose which one to play. See pages 33 – 35 for more details on these modes.

The demo version will remain in memory until you turn the power off.
DS Wireless Communications
(Single-Card Play)

Here is an explanation of how to play using Single-Card Play.

The Things You’ll Need
- Nintendo DS system: One for each player
- DR KAWASHIMA’S BRAIN TRAINING: HOW OLD IS YOUR BRAIN? Game Card: One

Connection Procedures

Host System:
1. Turn the power on. If the Start-up Mode of your system is set to MANUAL MODE, the Nintendo DS Menu Screen will be displayed.
2. Touch the BRAIN TRAINING: HOW OLD IS YOUR BRAIN? Panel.
3. Now, follow the instructions on pages 40–43.

Client System:
1. Turn the power on. The Nintendo DS Menu Screen will be displayed.
2. Touch DS DOWNLOAD PLAY. The Game List Screen will appear.
3. Touch the BRAIN TRAINING Panel.
4. You will be asked to confirm your choice. Touch YES to download game information from the Host System.
5. Now, follow the instructions on pages 40–43.

Notes
Guidelines for Communications

For best results when using the wireless communications feature, follow these guidelines:

The icon is an indicator of wireless communications. It appears on the Nintendo DS Menu Screen or Game Screen.

The DS wireless icon indicates that the associated choice will activate the wireless communications function. DO NOT use DS Wireless Communications in prohibited areas (such as in hospitals, on aeroplanes etc.). For further information regarding the usage of the wireless communications function, please refer to the separate Health and Safety Precautions Booklet included with your Nintendo DS system.

The icon, which is displayed during wireless communications, is an indicator of the current wireless signal strength. There are four levels of signal strength. A stronger signal reception will provide smoother wireless communications play. When wireless communications are in progress, the Power Indicator LED will blink rapidly.

For best results, follow these guidelines:

• Begin with the distance between systems at about 10 metres (30 feet) or less and move closer or farther apart as desired, keeping the signal strength at two or more bars for best results.
• Keep the maximum distance between systems at 20 metres (65 feet) or less.
• The systems should face each other as directly as possible.
• Avoid having people or other obstructions between the Nintendo DS systems.
• Avoid interference from other devices. If communications seem to be affected by other devices (wireless LAN, microwave ovens, cordless devices, computers), move to another location or turn off the interfering device.

Tips For Better Results

Voice Recognition

• The ideal distance to be from the Nintendo DS system when speaking into the microphone is about 20 – 30 cm (8 – 12 inches). Be careful, as the microphone is very sensitive, and shouting or blowing may hinder the voice recognition.
• The environment should be quiet. Pronounce each word as clearly as possible, and try to avoid using strong dialects or accents.

Handwriting Recognition

• Use printed letters (please refer to what you see on the DS screen, and write as close to this as possible).
• Write one letter after another, accents included.
• Write out the words in their entirety, as the software may recognise the right word once it’s written out in full.
• If a letter isn’t recognised, try writing it in another way (for instance, in capitals or italics).
• Write from left to right.
• When writing a letter try to do so lifting the stylus up as little as possible (in other words, try to trace the letter, keeping the stylus in contact with the Touch Screen as much as possible).
**Profile**

Dr Ryuta Kawashima

New Industry Creation Hatchery Center, Tohoku University

Born 1959, Chiba City, Chiba Prefecture, Japan

Graduated Tohoku University School of Medicine. Completed course of research at Tohoku University, Graduate School of Medicine. Guest researcher at the Karolinska Institute, Sweden. Associate Professor, Assistant Professor, then Tenured Professor at Tohoku University. Former member of the National Council concerning Language and Culture. Foremost Japanese researcher of brain imaging, focusing on the functionality of different parts of the brain.

**Staff Credits**

**Director**
Kouichi Kawamoto

**Assistant Directors**
Masamichi Sakaino
Noriko Kitamura

**Graphic Designers**
Tadashi Matoshita
Masani Ueda
Mikio Mishima
Yo Ohnishi

**Programmers**
Shinji Kitaara
Yoshinori Katsuki
Jun Ito

**Sound Director**
Masami Yone

**Music Composition**
Minako Hamano
Akito Nakatsuka

**Manual Designers**
Nanako Kinoshita
Sachiko Nakamichi

**Support Programmers**
Yuki Morieaki
Yasuaki Tahara
Shunsuke Murata
Takeshi Shimada

**Data Compression Engineer**
Hirohito Yoshimoto

**Technical Support**
Yoshito Yasuda
Shintaro Jikumaru
Hirokazu Kakui

**NCL Product Testing**
Yoshinori Oie
Yasuhiro Matsumoto
Yasuke Amato
Super Mario Club

**Coordinators**
Yosie Oku
Masaki Tawara

**Special Thanks**
Kimiko Nakamichi
Tomeaki Kuroume
Naoya Morimura
Yoshie Matsushita
Hidenori Fuji
Hisashi Kikunaka
Eiko Kimura

**Project Gutenberg**

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**dbnl** (www.dbnl.org)

**European Localisation Coordination**
Marcus Krause

**Translation**
Thomas Itö
Martin Weers

**Spanish**
Jesús Espí Tinoco
Inés Rubio San Martín

**Italian**
Barbara Pisani

**UK English**
Nick Ziegler

**Dutch**
Robert de Boer

**Testing Team**
Erkan Kasap
Alessio Danieli

**Manual Localisation and Layout**
Silke Sczyrba
Britta Henrich
Martin Lienhard
Jens Peppel
Sabine Mischel
Nadine Straub
Sascha Nickel

**Progress Management**
Masaaki Nishita

**Producer**
Shinya Takahashi

**Executive Producer**
Satoru Iwata