/**** GOOGOL MATH GAMES VERSION 3.6 DOCUMENTATION ****/

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/**** INTRODUCTION ****/

Thank you for trying my program, Googol Math Games. I wrote these
games to help kids (and parents) have some fun while learning
math. Parents, teachers, and children from all around the world
have become registered users of Googol Math Games!

As of September 1993, I have received letters and registrations
from all 50 states in the U.S.A., Guam (USA), Puerto Rico (USA),
US Virgin Islands (USA), and Australia, Austria, Botswana,
Canada, Chile, Czechoslovakia, Costa Rica, Belgium, Denmark,
England, Egypt, Finland, France, Germany, Greece, Guatemala,
Honduras, Ireland, Israel, Italy, Japan, Mexico, The Netherlands,
New Zealand, Norway, South Africa, Sweden, Switzerland, Tanzania,
Thailand, and Wales.

That includes every continent except Antarctica, where it's just
a bit too cold for kids and Googol Math Games!

/**** SPECIAL THANKS TO... ****/

Thanks and a tip of the hat to:

        Microsoft   Fabrice Bellard
         : BASIC P.D.S. V7.1 Compiler   : LZEXE

        Genus Microprogramming
         : PCX Programmer's Toolkit & GX Text & GX Effects

/**** CONTENTS ****/

/**** SHAREWARE AND REGISTRATION INFORMATION ****/

Shareware lets you try software, and then pay the author after
you decide to use the program. When you register Googol Math
Games (for only $10), you will receive the following bonuses:

    <> The latest version of Googol Math Games.

    <> One free disk... your choice of:

            Googol Bonus Disk (Six original games)
              Googol Review (Number and word problems)
      Paul's Classroom Math (Math drills)
                Flashcards (EGA Math practice)
               Lugnut City (EGA Fun math game!)
       Wolfie's Music Games (EGA Ten fun music games)
     Googolpede for Win 3.1 (Completely resizable)

    <> A sincere thank you!

If your kids try the program once or twice, like it, and
continue
to play the games, then you really should register!

"Super Registration" is just $35, and includes the latest
version
of ALL EIGHT programs listed above. These programs contain
about
twenty games, all for less than the cost of ONE commercial
game!

Everything is completely guaranteed! If you are not completely
satisfied with any of the programs, I will refund your money.

If you have doubts about sending a check to a mysterious Post
Office Box on an island (really!), please just send a postcard
first. Ask for more information, and I'll send you an up to
date
listing of all my programs! Thanks.

There should be a separate text file on the disk, called
"GOOGOL.FRM". You can print this out, or if it's missing, just
print the form from within the game itself. If you have any
questions or suggestions about the program, please include them
with your registration form!

All information on the order form, including your name and
address, is strictly confidential, and not for sale to anyone
for
any reason. I'm in the educational software business, not the
mailing list business!

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--------------------------------------------------
|   In Australia only, you may register by        |
|   sending A$15 to the Official Distributor:      |
|                                                  |
|        Alphon Edugames                           |
|        221 Ridley Road                           |
|        Bridgeman Downs 4035 AUSTRALIA            |
--------------------------------------------------
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/**** GETTING STARTED ****/

To run the Googol Math Games V3.6, you need:

      <> An IBM or compatible computer.
      <> CGA graphics (or higher).
      <> At least 512K memory, with about 450K free.

The games will NOT run on a Hercules monochrome system with a
"CGA simulator" program.

If you see the error message "Out of String Space", this means
that not enough RAM is available. Remove all memory-resident
programs, including menu programs, and try again!

/**** GETTING STARTED - FLOPPY DISKS ****/

Never run this or any program from the original disk. Make
backups and run from them! Use DISKCOPY on your DOS disk to
copy
the disk. If you are not familiar with DOS commands, please
find
someone who is, and have them explain it all to you!

Now that you have backups made, put the original disk away in a
safe place. If all goes well, you will never need it again!

Do not put a write protect tab on the disk! All of the games
need
to read and write high score files to the disk.

Put the disk in your active drive - usually drive A, but any
drive will work. The games are all in one giant EXE file. Just
type GOOGOL at the DOS prompt to get started. It takes a while
to
load, but after that there are no delays between games.
Don't take the disk out of the drive until you are all finished
and back to DOS, because the games write high scores to the
disk.

/**** GETTING STARTED - HARD DISKS ****/

Follow these directions to put the Googol Math Games onto your
hard disk. If you are not completely familiar with the
following
commands, please find someone who is, to help you!

      1. Your hard disk must have at least 300K free.
      2. Use MKDIR or MD to make a new subdirectory. (MD
GOOGOL).

3. Use CHDIR or CD to get to the subdirectory. (CD
GOOGOL).
4. Put the Googol Math Games disk in drive A.
5. COPY A:*.* will copy all the files into the
subdirectory.
6. To play the Googol Games, just type: CD\GOOGOL
                                                GOOGOL
7. Good Luck!

On a hard disk, always use the DOS command "CD" to change to
the

proper subdirectory. Don't use the PATH command, since PATH
usually only finds COM, EXE, and BAT files.

/**** GOOGOL CLIMBER ****/

At the Googol Climber menu, use the up and down arrow keys to
choose the type of problems that you want to work with, and the
left and right arrows to choose the speed. FAST will be too
fast
on 286, 386, or faster machines, and SLOW will be too slow on
older machines. Experiment to see which works best!

Press RETURN to begin the game! An incomplete equation will
flash
at the bottom of the screen, then eight numbers will appear.
Only
one of these numbers is the correct answer! Your goal is to
guide
the little climber to this answer, and make him jump up and hit
it! As soon as the eight numbers are on the screen, the action
begins, and the little climber starts hopping across the
screen.
You control the climber with the left and right arrow keys, and
make him jump with the up arrow key.

Remember to just TAP the keys, if you hold them down you're
likely to run into serious trouble!

If the correct answer is on a higher floor, you will need to
carefully jump through the tiny hole in the floor. If you miss
the hole and bump your head, you will lose 1 climber, and have
to
start over! If you need to go to a lower floor, you will need
to
wiggle back and forth with the left and right arrow keys until
you fall through the hole in the floor.

You must avoid the 4 balls at all times. You can hop over them,
or run away, and go through the "back door" to get away from
them. Be careful when changing floors! If you hit a ball, you
will lose 1 climber, and have to start over!

When you are under the correct answer, press the up arrow to
jump
up and hit it. Since the higher floors are harder to reach, the
answers are worth more there. Also, as you advance to higher
levels, the point values go up!

If you need help with any problem, just press X for a complete
explanation. There is no score penalty for watching this
explanation, however there is a time penalty - you will have to
watch the entire explanation. There is no way to stop it once
it
has started.

After you solve 20 problems, you will advance to level 2, and
the
4 balls will move faster. You will continue to advance one
level
after every 20 problems, until level five. This is the fastest
speed. You begin the game with 3 climbers, and when they are
all
gone, the game is over.

You will have one chance to play "Match Score" to win one extra
free life! There's a 10% chance you'll match the spinning
number!

/**** GOOGOLPEDE ****/

At the Googolpede menu, use all four arrow keys to choose the
type of problems that you want to work with, and the speed,
then
press RETURN to begin the game!

Speed 1 is very slow, 4 or 5 is medium, and 9 is incredibly
fast!
On fast machines, speed 9 is too fast to be playable, but speed
8
should be just barely manageable!

An equation will appear at the bottom of the screen. It will be
either TRUE or FALSE. In the center of the screen a T and F
will
appear, and the Googolpede will start moving across the screen.
Your goal is to guide the Googolpede into the T, if the
equation
is true, or the F, if the equation is false.

Every once in a while, a "Bonus Block" will appear. If you hit
this block, the Googolpede will get longer, so your final score
will be higher!

Remember to just TAP the keys, if you hold them down you're
likely to run into serious trouble!

While playing the game, if you are moving in any direction, you
can not instantly go the other direction. For example, if you
are
moving to the right, only the up and down arrow keys will work.
If you want to reverse, you must turn twice!

There are three ways to lose. You can hit the wall, or hit the
wrong answer, or hit yourself. When you lose, the game is
immediately over! There's no second chance in Googolpede!

Every time you hit a correct answer, your Googolpede will get
longer. This will raise your score, but it will also increase
the
difficulty, since there will be more of "yourself" to run into!

If you need help with any problem, just press X for a complete
explanation. There is no score penalty for watching this
explanation, however there is a time penalty - you will have to
watch the entire explanation. There is no way to stop it once
it
has started.

When you lose, your final score will be calculated. The length
of
the GOOGOLPEDE will be multiplied by the speed, and by the
skill
level (addition = 1, subtraction = 2, etc., up to all four =
7).
Therefore, if you are playing at speed 1, level 1, you will
only
get 1 point for each segment of your GOOGOLPEDE, and if you
play
at speed 9, skill 7, you will get 63 points for each segment!

If you don't like the flashing screen at the end of each round,
the "/SD" command line option turns this off.

/**** GOOGOLVADERS ****/

At the Googolvaders menu, use all four arrow keys to choose the type of problems that you want to work with, and the speed, then press RETURN to begin the game!

Speed 1 is the usual beginning speed, with one new problem every 5 seconds. Speed 2 delivers two problems every 5 seconds, and Speed 3 presents three every 5 seconds.

After the introduction, the game screen will appear. Your shooter is at the bottom of the playfield, and incomplete equations will begin to descend from the top. Use the left and right arrow keys to move back and forth, and press the number keys (at the top of the keyboard, above QWERTYUIOP) to fire the missing numbers up to the equations.

To shoot a number from 1 to 9, just press the matching key. To shoot a 10, press the 0 (zero) key. To shoot an 11, press the - (minus) key, and to shoot a 12, press the = (equals sign) key. These are all in a row at the top of the keyboard.

When you shoot a correct answer, the key buffer is untouched, so you can "type ahead". If you make any mistakes, then the key buffer is cleared!

Your goal is to defend your base as long as possible from the descending invaders. Eventually you will lose! You will see why when you get to Speed 5, where there are 5 new problems every 5 seconds. That's just a little too much to keep up with!

Every time that you shoot a correct number, your score will be increased by the following formula: 10 x speed (1 to 5) x skill (1 to 7) Every time you make a mistake, which is shooting a wrong answer, or shooting at a blank column, your score will be decreased by half of that amount.

After you solve 20 problems, you will advance to level 2. You will continue to advance one level after every 20 problems, until level five. This is the fastest speed in Googolvaders!

If you need help with any problem, just press X for a complete
explanation of the bottom problem in the column that you are
under. Just as in the other games, there is no score penalty
for

watching this explanation.

When playing Googolvaders, the robots will never appear during
Speed 4 or 5. You have to concentrate on math at those levels!

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/**** COMMAND LINE OPTIONS ****/
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There are several different command line options. They can be
used in any combination.

        /CGA   Use CGA color menu on EGA or higher system.

        /D   Use database file.

        /N   Noise off.

        /R   Robots off.

        /SD   Special Googolpede switch (see below!)

        /T   Take Turns option.

        /\SUBDIR   Specify subdirectory for score and data files.

The /CGA option should not be necessary! The program detects
your
graphics card type, and automatically chooses CGA or EGA color
menus. But... if you run into any mysterious problems with the
EGA menu, you can use the /CGA option. Then the program will
use
the "old" color menu.

Type GOOGOL /D at the command line for "Database". This will
save
all the information from every game to the file GOOGOL.DAT.
Then
you can look at the file later with any file viewing program.
If
this file becomes too large, just delete it from the DOS
command
line, and the program will start a new GOOGOL.DAT file.

The /N option starts Googol without noise. You can turn the
noise
back on by pressing "S" anytime in the games.

There are now three different "Robots", and if they become
tiresome, you may type GOOGOL /R at the command line to turn
them
completely off.

The /SD switch turns off the color flash when you "crash" in
the
game Googolpede. This option is not necessary for 99.99% of
computers, but if you run into Googolpede problems, try it!

Type GOOGOL /T at the command line to "Take Turns". This will
simply pop up the Rename screen after each game.

The subdirectory option is useful on some network systems. It
lets you specify exactly where the score and data files will be
located. This option isn't necessary for most users!

```
/**** COMMAND LINE OPTIONS - CONTINUED ****/

The subdirectory option NEEDS accurate input! There must be a
forward slash, a backslash, and then the directory name. Here
are
some samples:

    GOOGOL /\MYDIR
    GOOGOL /\GAMES\GOOGOL\MEGAN

All of the command line options may be combined, in any order.
Spaces aren't important - but don't ever put any spaces in any
subdirectory names! Here are some more samples:

    GOOGOL /N /D /\MATH
    GOOGOL /T/CGA/SD/R  /\TEMP   /N /D

Here are some ILLEGAL samples - these won't work:

    GOOGOL D N            (Missing slashes)
    GOOGOL /\ NONO        (Spaces in subdir name)

I hope this isn't too confusing. If you are familiar with DOS
and
batch files, you can write a one line BAT file for each user.

/**** MISCELLANEOUS KEYS - B - "BOSS" BOGUS SPREADSHEET ****/

This is a synthetic spreadsheet screen which is almost always
available during the Googol games, by pressing the B key. The
spreadsheet doesn't do anything, but you can move the cursor
around! Press the spacebar to return to the game. You can NOT
get
into the BOSS subroutine if you are in any other subroutine,
such
as Change Colors, Display High Scores, etc.

/**** MISCELLANEOUS KEYS - C - COLOR MENUS ****/

Googol now has two color menus, one for CGA systems, and one
for
EGA or VGA. The screens are still four colors, but the new EGA
menu has many more possible combinations!

Press "C" almost anytime to pop up the color menu. The program
will use the CGA or EGA menu, depending on your graphics card.

The CGA menu has 52 combinations. If this isn't the ultimate
CGA
color menu, let me know! Use the up and down arrow keys to
change
```

the background color, and the left or right keys for the
palette.

The EGA color menu lets you choose from 43,680 different color
combinations. That's 16 x 15 x 14 x 13. When you're moving
around
this menu, you will automatically "hop over" any matching
colors.
There are lots of interesting combinations, and quite a few
that
are just barely readable!

Your color selections are saved in the GOOGOL.SCO file, so the
same colors will be used the next time you run Googol.

```
            /**** MISCELLANEOUS KEYS - D - DISPLAY HIGH SCORES ****/

            Just press D to display the top ten scores for any game, and
  the
            spacebar to return to whatever you were doing.

            /**** MISCELLANEOUS KEYS - G - GOOGOL DEFINITION ****/

            A Googol is a number consisting of 1 followed by 100 zeros.

                  Exactly 10,000,000,000,000,000,000,
                             000,000,000,000,000,000,
                             000,000,000,000,000,000,
                             000,000,000,000,000,000,
                             000,000,000,000,000,000,
                                       000,000,000.

            Press "G" almost anytime to see this on the screen!

            /**** MISCELLANEOUS KEYS - H - HELP SCREEN ****/

            The new help screen (in V3.6) now lists every available key,
  and
            lets you choose one immediately. For example, from the help
            screen, you can press "C" to go directly to the "Color Menu",
  or
            press "R" to go to the "Rename" screen. This means that you
  just
            have to remember ONE KEY - "H" to get to the help screen, or
  hit
            the "F1" key, whichever you prefer.

            /**** MISCELLANEOUS KEYS - L - LEVEL MENU ****/

            Press "L" for the Level Menu, to choose the highest number used
            by the games. You still have to choose the type of problems
  from
            the game menus, but the Level Menu controls the highest number.

            /**** MISCELLANEOUS KEYS - P - PAUSE GAME ****/

            Press "P" for new "transparent" pause during games. Then press
            the spacebar to continue with the game. The "Pause Sprite"
  loops
            through almost every type of special effect in the Genus FX
            library. In order, the effects are: Wipe, Split, Crush, Slide,
            Sand, Drip, Explode, Diagonal, Spiral, and Random.

            /**** MISCELLANEOUS KEYS - Q - QUIT ****/
```

Press the Q key or the ESC key almost anytime to quit from any
of
the games. You will be asked "Are You Sure?". Press Y to quit,
or
N to go back to what you were doing. Please note that if you
quit
while playing a game, your score will not be saved!

/**** MISCELLANEOUS KEYS - R - RENAME YOURSELF ****/

The new "Rename" screen has spaces for ten player names, each
up
to sixteen characters long. Use the arrow keys to move around,
and press enter when the pointer is next to your name.

To type in a new name, just move the cursor to the right place,
and start typing - that's all there is to it!

If you would like to delete a name, you can either type over
it,
or press ALT-D to zap it (with a zapping noise, of course).

All of the names are stored in the GOOGOL.SCO file.

/**** MISCELLANEOUS KEYS - X - EXPLANATIONS ****/

If you press the X key while playing any of the Googol games,
you
will see a complete explanation of the current problem. There
is
no way to stop this once it has started!

/**** ERASING THE HIGH SCORE FILE ****/

The high scores are all contained in a standard DOS file. If
you
delete the score file, the games will automatically create a
new,
empty file.

    Just type: DEL GOOGOL.SCO

Note - If you try to TYPE the score file, you will see the
message "Googol Version 3.6 High Score File", then a beep, then
nothing! All of the information is after a "fake" end of file
marker, so you can't see anything else. Unlike some games, you
can't simply type your name and "1,000,000" into the score
file.
In fact, if the program finds anything funny in the file, it
will
create a new, empty score file! So, no cheating!

/**** PRODUCTION HARDWARE ****/

The "Googol Math Games" program was originally produced on a
Tandy 1200 system. The original 8088-4.77 was replaced with a
SOTA 80286-12 card. That machine is still running perfectly!

The venerable Tandy machine is now overshadowed by a new "Snap
It
Together Yourself" generic 386 computer. It's a lot faster!

/**** PRODUCTION SOFTWARE ****/

The Googol Math Games were produced with the Microsoft BASIC
P.D.S. V7.1 compiler, Z-Soft's PC-Paintbrush, the Genus PCX
Programmer's toolkit, and dozens of utilities too numerous to
mention! There are about 200,000 bytes of source code, and
almost
80,000 bytes of graphics files.

The README-1.EXE program was written in Borland's Turbo C.

/**** HOW TO PRINT GRAPHICS SCREENS - PART ONE ****/

Before running Googol, or any other graphics program, you have
to
run a program called GRAPHICS.COM. This program should be on
your
original DOS disk, or in your DOS subdirectory. When you run
GRAPHICS.COM, it doesn't print any messages! It just skips a
line
and gives you the DOS prompt again.

There are a few things that can go wrong, however... If you
have
a laser printer, it probably requires a special driver program.
This is something that may have come with the printer, or you
may
have to ask the dealer or manufacturer for help.

If you are using DOS 4.01, then a file called GRAPHICS.PRO is
also required. This is on one of your original DOS disks, but
the
installation process doesn't copy this file! You'll have to
find
those original disks, and copy GRAPHICS.PRO to your working
disk.

If you have DOS 5.0 or DOS 6.0, then you'll have to look at the
manuals, or type HELP GRAPHICS. That will load the help file
which explains all of the newer GRAPHICS options.

After GRAPHICS is loaded, you should be able to print the
certificate, or any screen, just by pressing Shift-PrtSc. If
all
else fails, you may want to try booting from an absolutely
plain
boot disk, with no CONFIG.SYS or AUTOEXEC.BAT files. Then load
GRAPHICS, and then run the games. This would avoid any possible
conflicts with other programs. To make a plain boot disk, just
FORMAT /S a new disk, and copy COMMAND.COM to it.

On a hard disk system, you can use a batch file like this:

        CD\DOS
        GRAPHICS
        CD\GOOGOL
        GOOGOL
        CD\

/**** HOW TO PRINT GRAPHICS SCREENS - PART TWO ****/

Press "!" almost anytime in the program, and you will see a

little "Yes / No" box. If you choose Yes, then the screen will
be
saved to a standard PCX file. That is, the screen >under< the
little box! The file is always named TEMP.PCX. Then you can
load
this file into your favorite paint program, and print it from
there! Every time that you save the TEMP.PCX file, it will
overwrite any previous TEMP.PCX file. This should help to avoid
"hard disk clutter", since there won't be dozens of different
PCX
files (unless you rename them from DOS).

If you are running Googol, and you can't remember the secret
PCX
key, just hit "H" or "F1" for the help screen. Then you'll see
that it's "!", and you can use it right from the help screen.

/**** SUPER REGISTRATION DETAILS ****/

When you send in the $35 Super Registration, you will receive
seven complete DOS programs, and one Windows 3.1 game...

Googol Math Games: The very latest version of this program!

Googol Bonus Disk: This is a collection of six games, all of
them
non-shareware and available only from the author. There are
four
math games, and two non-math puzzles just for fun. CGA & 512K.

Googol Review: Review has standard number problems with many
different levels (+-x/). There are also math word problems,
with
millions of different combinations, and all of the options that
you have seen in "Googol Math Games". CGA & 640K.

Paul's Classroom Math: This is a text mode math drill program,
intended for classrooms. There is complete recordkeeping for up
to 60 students. There are no graphics, no noises, and no
frills!

Flashcards: This is a simple EGA math practice program, with no
high scores to worry about. EGA & 512K.

Lugnut City: How about a run-jump-and-shoot maze game, with
just
the right amount of math? Lugnut City has ten mazes to explore,
and you can even design your own mazes! EGA & 512K.

Wolfie's Music Games: There are ten different games in this
program, and they all teach music notes and piano keys. There
are
many skill levels, so everyone can compete for high scores!

Googolpede for Windows 3.1: This is a little version just for
Windows users, and it's completely resizable, even in the
middle
of a game. Lots of extra Windows style features, too!

Please remember, most of these programs require EGA graphics,
so
they will NOT run on older CGA monitors. If you have a VGA or
SVGA monitor, that's great - everything will work perfectly!

The special price of $35 is based on "7 games times $5", which
covers all of the regular DOS programs. The Windows 3.1 program
is included in the package at no extra cost.

/**** CONCLUSION ****/

Thanks very much for reading this far! I have tried to answer all
of the most common questions about Googol Math Games in this
document. If I missed anything, please write and ask!

      Paul T. Dawson
      Chincoteague Island, Virginia, U.S.A.
      September 9, 1993

/**** THAT'S ALL, FOLKS! ****/

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