

Program Description I

Program Title	PAPER, ROCK, SCISSORS		
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Program Description, Equations, Variables

This program simulates the old "PAPER, ROCK, SCISSORS" game that you may have played as a kid. (Alternate name: "PAPER, HAMMER, SCISSORS").

SCISSORS CUT PAPER, PAPER COVERS ROCK, ROCK SMASHES SCISSORS

2 beats 1 1 beats 3 3 beats 2

The game may be played to any point. Default game point is 11. Any number played by the calculator that is the same as the user's move is a TIE — no points are awarded; otherwise, the calculator awards one point for each play.

This program has a unique routine which calculates the number of digits to display and the power of 10 needed to display. The routine will work for any score you would ever want to play to.

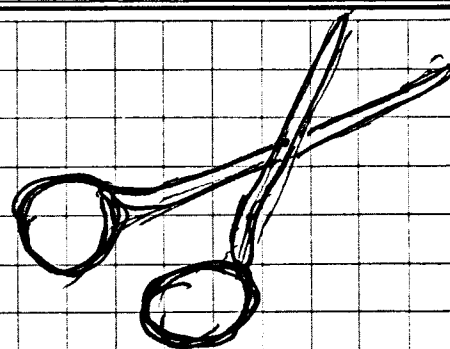
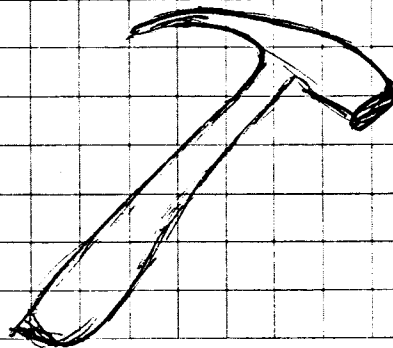
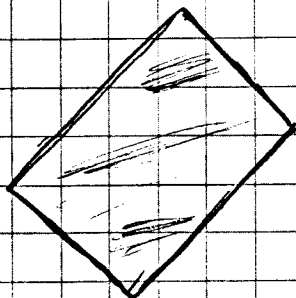
Operating Limits and Warnings

- This program's improved features include individual paper, rock, scissors KEYS (A, B, C) and an improved pseudo-random number generator.

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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Sketch(es)



Sample Problem(s) Use a seed of .1234567899 for this example.

.1234567899 f A → 0.0

Let's play to 7 points.
Start.

7 f D → 1.0

A → 3., 3507.1 (Read upside-down. Calc. loses point.)

A → 1., 0.0 (Tie)

C → 2., 3507.1 (1. LOSE)

C → 1., 55178. (Read upside-down. Calc. won a point.)

B → 3., 55178. (BLISS)

B → 1., 3507.1 (1. LOSE) Check the SCORE.

D → 3.2 (Three to two. User's score is on the left.)

A → 1., 0.0 (TIE)

B → 2., 0.0 (TIE)

C → 2., 3507.1 (1. LOSE)

A → 3., 3507.1 (1. LOSE)

B → 3., 55178. (BLISS) Check the SCORE.

D → 5.3 (Five to three)

B → 1., 3507.1 (1. LOSE)

A → 2., 55178. (BLISS)

B → 1., 3507.1 *** FLASH/PRINT signifies END of the GAME

IF A or B or C → 00.0 *** 0.00 Final SCORE.

D → 7.4 (Seven to four. User won).

Reference(s)

USER'S LIBRARY PROGRAM #02639D

by JOHN C. NELSON.

User Instructions

04191D

1

INITIALIZE (seed)

Paper, Rock, Scissors

GAME POINT

2

PAPER
(1)

SCISSORS
(2)

ROCK
(3)

SCORE
?

NEW
GAME

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS
1	LOAD PROGRAM — SIDES 1 and 2		<input type="text"/> <input type="text"/>	
2	INITIALIZE — Input a seed ($0 \leq \text{seed} < 1$)	seed	f A	0.0
3	OPTIONAL: Input GAME POINT (11, if default)	game point	f D	game point
4	OPTIONAL (at any time): RECALL GAME POINT (FLAG 3 must NOT be set to recall game point.)	—	f D	game point
5	PLAY THE GAME (1) PAPER		A	CALC. PLAY WIN/LOSE*
	(2) SCISSORS		B	CALC. PLAY WIN/LOSE*
	(3) ROCK		C	CALC. PLAY WIN/LOSE*
6	DISPLAY the SCORE (at any time) U = User's score C = Calc. score		D	U.C
7	For a NEW GAME and GTD STEP 3 or 4 or 5 or 6		E	0.0
	* 3507.1 = "1. LOSE" — Calc. loses point 55178. = "BLISS" — Calc. wins point			
	If message is flashed/printed, it signifies that the game is finished. If you press A or B or C now, you will get 00.0***, 0.00.			

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS	
001	Q	g LBL A	INITIALIZE		g x=y	32 51		
		HF?3			GTO 1	22 01		
		HF?3			HF?2	35 71 02		
		GTO f b	INPUT A SEED OR ...	060	GTO 3	22 03		
		h T	"ERROR"		GTO 2	22 02		
		+		0	f LBL 0	31 25 00	RANDOM NUMBER GEN.	
		f SIN			RCL 0	34 00		
		f TAN			9	09		
		h ABS			9	09		
010		STO 0			7	07		
		3			X	71		
		5			g FRAC	32 83		
		0	"1. LOSE"		STO 0	33 00		
		7		070	3	03		
		.			X	71		
		1			f INT	31 83		
		STO 8			1	01		
		5			+	61		
		5			h RTN	35 22		
020		1	"BLISS"	1	f LBL 1	31 25 01	DIFFERENCE IS 1	
		7			HF?2	35 71 02		
		8			GTO 2	22 02		
		STO 9			GTO 3	22 03		
		1		080	2	f LBL 2	31 25 02	CALC. WINS ROUTINE
		1	Default game point		1	01		
		STO 2			STO +6	33 61 06		
E		f LBL E	NEW GAME		f GSB 5	31 22 05	check for end of game	
		DSP 1			RCL 9	34 09		
		0			DSP 0	23 00		
030		STO 5	CLEAR SCORES, FLAG 0		h RTN	35 22		
		STO 6		3	f LBL 3	31 25 03	CALC. LOSSES ROUTINE	
		h CFO			1	01		
		h RTN			STO +5	33 61 05		
A		f LBL A	PAPER	090	f GSB 5	31 22 05	check for end of game	
		1			RCL 8	34 08		
		GTO 1			DSP 1	23 01		
B		f LBL B	SCISSORS		h RTN	35 22		
		2		5	f LBL 5	31 25 05	END OF GAME ?	
		GTO 1			RCL 5	34 05		
040		f LBL C	ROCK		RCL 2	34 02		
		3			g x=y	32 71		
		1	PLAY ROUTINE		GTO 6	22 06		
		HF?0			RCL 6	34 06		
		GTO 9	Game over?	100	h x=y	35 52		
		h CFB			g x>y	32 81		
		f GSB 0			h RTN	35 22		
		DSP 0			RCL 9	34 09		
		h PAUSE	Calc. Play		DSP 0	23 00	SFO for END OF GAME	
		-			h SFO	35 51 00		
050		DSP 1			f -x-	31 84		
		f x=0	Is USER PLAY = CALC. PLAY?		R/S	84		
		h RTN	Yes? STOP, DSP 0.0	6	f LBL 6	31 25 06	CONTINUATION of LBL 5	
		f x<0	Is CALC. PLAY > USER PLAY?		RCL 8	34 08		
		h SFB	Yes? SET FLAG 2	110	DSP 1	23 01		
		h ABS			h SFO	35 51 00	SFO for END OF GAME	
		1			f -x-	31 84		

REGISTERS									
0 SEED	1	2 Game Point	3	4	5 USER'S SCORE	6 CALC SCORE	7	8 3507.1	9 55178.
S0	S1	S2	S3	S4	S5	S6	S7	S8	S9
A	B	C	D	E	I DISPLAY CONTROL				

[illegible]