REFLEX ACTION

It soon becomes painfully obvious to most of us that our reflexes become slower as we get older — which is why children and teenagers perform better than adults in arcade games, where a quick response is all-important. The program presented here allows you to measure your reaction times by playing a simple game.

Testing Time

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 10 REM *FOR THE SPECTRUM
 20 INK 7: PAPER 0: BORDER 0
 30 FOR T=0 TO 31: READ A
 40 POKE USR "A"+T,A: NEXT T
 60 DATA 123,231,255,255,245,233,123,100
 70 DATA 34,187,208,49,86,96,178,205
 80 DATA 67,234,45,123,198,255,29,245
 90 DATA 78,100,245,60,50,160,245,189
150 LET M=0: LET A=0: LET V=0: DIM R(5): CLS
220 FOR G=1 TO 5
250 FOR P=1 TO RND*150+50
260 PLOT INT (RND*250),INT (RND*170)
270 IF INKEY$<>" " THEN  GO TO 280
275 BEEP .1,-3: GO TO 265
280 NEXT P
290 FOR A=144 TO 147
320 PRINT AT RND*20,RND*30;CHR$ (A)
330 NEXT A
350 BEEP .05,15: LET C=0
360 LET C=C+1: LET A$=INKEY$
410 IF A$<>" " THEN  GO TO 355
420 LET R(G)=C/66+.05
430 PRINT AT 19,0;"YOU TOOK ";INT (R(G)*100)/100;
440 PRINT " SECONDS TO STOP  "
445 PRINT "THE ENGINES "
450  LET M=M+R(G)
453 FOR J=1 TO 300: NEXT J
455 NEXT G
460 LET A=M/5: CLS
480 PRINT "OVER FIVE TURNS YOUR AVERAGE "
490 PRINT "REACTION TIME WAS ";INT (A*100)/100;
495 PRINT " SECS  "
500 FOR G=1 TO 5: LET V=V+ABS (R(G)-A)
510 NEXT G
520 PRINT : PRINT "YOUR REACTION TIME VARIED BY"
530 PRINT INT (V*20/A);"  PER CENT"
540 PRINT : PRINT "DO YOU WANT ANOTHER GO? (Y/N)"
550 LET R$=INKEY$: IF R$="y" THEN  GO TO 150
560 IF R$<>"n" THEN  GO TO 550
570 INK 0: PAPER 7: BORDER 7: CLS
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 10 REM *FOR THE BBC MICRO AND ELECTRON
 20 MODE 1:CLS:VDU 23;8202;0;0;0:DIM REACT(5)
 30 REM *SET UP CHARACTERS (ASTEROIDS)
 40 FOR J=0 TO 3
 50 VDU 23,237+J,78,100,245,60,50,160,245,189
 60 VDU 23,233+J,89,67,34,156,123,200,256,29
 70 NEXT J
 80 SUM=0:AVERAGE=0:VARY=0:CLS
 90 FOR GO=1 TO 5
100 REM *PLOT STARS
110 FOR DELAY=1 TO 100+RND(300)
120 PLOT 69, RND(1200),RND(1012)
130 IF INKEY(-99)=0THEN 150 ELSE
140 SOUND 1,-15,5,1:GOTO 130
150 NEXT DELAY
160 REM *PLOT ASTEROIDS AROUND SCREEN
170 FOR ASTEROID =233 TO 240
180 X=RND(28):Y=RND(28)
190 PRINT TAB(X,Y);CHR$(ASTEROID)
200 NEXT ASTEROID
210 SOUND 2,-15,150,3
220 REM * TEST SPACE BAR
230 TIME=0
240 IF INKEY(-99)=0 THEN 240
250 REACT(GO)=TIME/100
260 PRINT TAB(3,26);"YOU TOOK ";
270 PRINT;REACT(GO);" SECONDS  "
280 PRINT TAB(3,28);"TO STOP THE ENGINES"
290 FOR I=1 TO 500:NEXT I
300 SUM=SUM+REACT(GO)
310 NEXT GO
320 FORI=1 TO 3000:NEXT I
330 REM *CALCULATE RESPONSE TIME
340 AVERAGE=SUM/5
350 FOR GO=1 TO 5
360 VARY=VARY+ABS(REACT(GO)-AVERAGE)
370 NEXT GO
380 CLS:PRINT:PRINT
390 PRINT "OVER FIVE TURNS YOUR AVERAGE"
400 PRINT"REACTION TIME WAS ";AVERAGE;" SECS."
410 PRINT:PRINT"YOUR REACTION TIME VARIED BY"
420 PRINT INT(VARY*20/AVERAGE);" PER CENT"
430PRINT:PRINT"DO YOU WANT ANOTHER GO Y/N ?"
440 R$=INKEY$(0):IF R$="Y" THEN 80
450 IF R$<>"N" THEN 440 ELSE MODE 4
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We all like to think that our reflexes are pretty good; in fact we tend to assume that our reactions to events are near enough instantaneous. However, our quickest response to a stimulus is likely to be around one-third of a second, which seems fast enough until you consider that a speeding car will have travelled around 10 metres (over 30 feet) in this time. Reaction timings are rarely consistent — alcoholic excess, tiredness or illness can all have an adverse effect on results. Our program is designed to allow anyone's reflexes to be tested, and to make things fairer, the timings are averaged out over five trials.

You play the role of a spaceship pilot who must deliver urgent medical supplies to a colony in the asteroid belt. Speed is vital if the supplies are to arrive in time, but the ship must stop as soon as a collision is imminent. Simply pressing the space bar will stop your craft, allowing you to steer your way past the asteroids. The game displays the time taken between the asteroids appearing on screen and the space bar being pressed. Once you have stopped the ship five times, your average reaction time is calculated. Just to make sure that you don't cheat, the program checks to see if the space bar is held down continuously — if this is the case your engines will stop and a warning noise will sound. At the same time as the asteroids appear on the screen, your ship's radar will issue a high-pitched note. As an exercise, try changing the program so that you receive either an audible or a visual warning, but not both.

A final modification could be to select from two or more options presented on the screen. This would make the program more of a test of judgement and less an indication of simple reaction times.

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