



Pandemic Introduction

Games test our abilities and may even educate us by reflecting upon an environmental event and/or mental attitude. They can expand our horizons, but also be just an escape and rewarding form of entertainment. The aim of any Game is keeping the rules and direction of flow easy to follow, but with variables that can create elaborate complexities which add to the enjoyment. As in the Game of Chess one 'Learns the Rules to Master the Game'.

The first rule is a Game must comply with and be realistically played within the environment designed around it. There must be an end goal to which it progressively flows, hence has **Direction**. Interactive components, **Actions, Events, Hazards** that are encountered, direct the Game to its ultimate conclusion, **Success or Defeat**. Further tests to skill and determination are the **boundaries**, set Countdowns, **Time limits** or as a depleting number of **Turns**, or reducing strengths, **Financial** losses, **Energy** levels or simply lost Game **Lives**.

QBITS 2020 Challenge

You might have guessed following the lockdown with Covid19 that **Pandemics** became an obvious theme. The Project began as a simple statement: - **QBITS Pandemic** – the World Health Organisation (**WHO**) with a team of **Specialist** set out to limit the **Spread**, find a **Cure**, then **Vaccinate** the population to **Eradicate** a new and **Deadly Virus**.

Artwork began with a **World Map** and **City locations** to which was added an **Outbreak** Tracker, Infection **Rate** and duration of Play **Status** indicators, values derived from a depleting number of **City Virus Cards** and an increasing **Rate of Infection**. Activity was conceived as a number of **Events** and **Actions** taken.

The Game starts with an initial **Outbreak**, then as the game progresses more City areas become Infected. The Challenge was determining a level of difficulty tied into the ability of a Player being able to develop a Game **Strategy**. Increased Opportunities greatly increase the enjoyment of Playing as well as determining the Chances of Winning.

QBITS Pandemic Intro

The Intro Screen (see previous page) shows a Mission Statement outlining the nature of the Game, a World Map and eight WHO Specialists, four of which are randomly chosen to become the Team for each New Game. Press any key and the Game Screen is displayed.



QBITS Pandemic Game Screen

The headings across the top show selected **WHO Headquarters**, which remains the city of choice at the beginning of each game. Centre page is **QBITS Title**, followed by the accumulated **Deaths** and confirmed **Cases** which are updated as the Game progresses.

For a (N)ew Game press 'N' or to (E)xit press 'E'

Down left side is **OUTBREAKS** Tracker and below this the 4 relocatable **MED** centres.



Each time a **MED** centre is Built in an Infected city the **R**: rate is cleared (**R:0**). Bottom right are listed the four **Specialists** chosen from the eight and recruited for each Game.



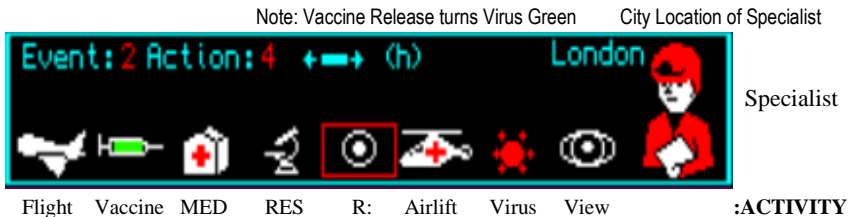
On the right side of the screen **STATUS** Boxes show the number of **Turns** left to play and number of **Cities** Infected. Below this is the **Infection Rate Indicator** which scales up each time an **Epidemic** occurs. This escalates the number of **Cities** with further Infection Increases at the end of a turn until a **Cure Vaccine** is released. If the **R**: factor of a city exceeds 3 then the linked Cities **R**: rates are raised by 1. If any of the linked city **R**: rates rise above 3 this can trigger a cascade of **Outbreaks**.

SPECIALISTS: Operations Planner Dispatcher Researcher Scientist Doctor Field Medic Quarantine



QBITS Pandemic Game





City Card Deck is Randomly shuffled the first twelve cards set an initial **Outbreak**. The Game then begins after choosing one of four Cities to be the WHO Headquarters.






QBITS Pandemic Turns


This can appear quite complex with the decisions to be taken. A Player **Specialist** carries out **2 Events** and **4 Actions** that may be taken in any order. The **Event / Action** image is selected using the **Left & Right Cursor Keys** and by pressing the **Spacebar**. The Red highlight will disappear and a printed **Prompt** is displayed requiring a response. **Enter** will confirm the activity and **Spacebar** will return without the activity taking place. The **City** location when required will be identified by a **crosswire** with the **Population R:** and **City Name** displayed just above the activity window. Whatever decisions are made all **Events** and **Actions** must be taken to move onto the **Next Turn / Player Specialist**.

Events: 2 (Select from:)

-  **Flight** Move **Specialist** to another City
-  **Vaccine** Deliver clear City Infections **R:** (active only after Vaccine Release)
-  **MED** Relocate **MED** Centre to another City
-  **RES** Add **RE**Search Credit (active until Vaccine Release)

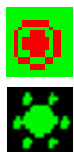
Action: 4 (Combination of :)

-  **R:** Reduce the **R:** rate in current City if applicable.
-  **Airlift** Move **Specialist** +/- four cities from current location.
-  **Virus** Release **Vaccine** if current Specialist has required credits

View:  Use **Left & Right Cursor keys** to move City to City across Map shown by crosswires, **Population, R:** rate and **City Area names** are displayed.

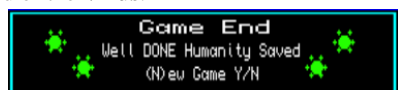
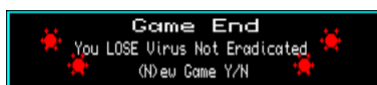
QBITS Pandemic Virus Spread

At the end of each **Specialist/Player Turn** and until a **Vaccine** is released, Infections continue in accordance with the next card drawn from the City Deck and with **Global Infection Rates 2/3/4**. An **Epidemic** card automatically raises **R:** Rate by 3.



QBITS Pandemic Game End

The Game is **Lost** if more than seven **Outbreaks** occur or if the number of **Turns** runs out without managing to **Clear** all **Infected Cities**. For a **Specialist Team to Win** all infected Cities have to be cleared of the **Virus**.



















Pressing **(h)** will display the attribute of current **Specialist** and the current **City locations** of all four.



QBITS Pandemic Activity

Activity such as the **Cure** and **Vaccine** Release are dependent on the state of play. The **R**: Rate is active if the current City Infection is above zero. Once enough **Cure** credits are gathered a **Vaccine** can be released and further city Infections stop. Event ‘evt%’ & Action ‘act%’ together with each **Specialists Attribute** are tabled below: -

	Flight: evt%-1 <i>Dispatcher</i>	This Offers transfer of a Specialist to the next City in Card Deck. Useful to reach an Infected City. <i>Destination extended to any City 1-48</i>	
	Vaccine: evt%-1 <i>Field Medic</i>	Delivers to a group of Cities based around next City in Card Deck. Once delivered City R: is zero. <i>Delivery extended to any City 1-48</i>	
	MED Centre: evt%-1 <i>Operations</i>	Relocation of MED Centre to next City in Deck. Upon arrival City R: is reduced to zero <i>Relocation extended to any City 1-48</i>	
	RESearch: evt%-1 <i>Scientist</i>	Adds Credits to Specialists Total <i>Gains an extra Turn added to Countdown</i>	
	R: rate act%-1 <i>Planner</i>	Reduce R: by one for one Action <i>Free Turn against Countdown</i>	
	Airlift: act%-1 <i>Quarantine</i>	Offers Transfer of Specialist to group of local cities. Once in location can use R : rate to reduce Infections <i>Upon arrival City R: is reduced to zero</i>	
	Cure: act%-1 <i>Researcher Doctor</i>	If Specialist has 5 Credits and in City with a MED Centre – Cure Vaccine can be released. <i>As before but requires only 4 not 5 Credits</i> <i>With 5 Credits can release Vaccine from any City</i>	 
	View Info:	Access any City Area show Population and Infection Status	

QBITS Pandemic Strategy

The opening rounds are Containment and Acquiring **RESearch** credits to activate the release of a **Vaccine**, this is a top priority. Any Specialist with 5 credits can release the Vaccine but only when they are stationed in a City with a **MED Centre**. The exceptions to this rule are the **Researcher** who only requires 4 credits and the **Doctor** who with 5 credits can release the Vaccine from any city.

Once a **Vaccine** is released then the Virus **Spread** is halted, but then it becomes a race to clear all cities of infection before running out of **Turns**.

QBITS Pandemic Graphics

Drawing the characters for QBITS Pandemic and knowing I wanted them to be scalable led to thoughts about the detail and when scaling up or down what might remain recognisable.

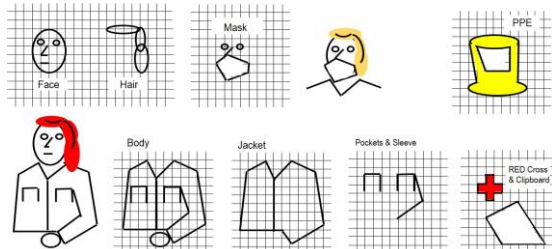
When our eyes scan any area, the brain is analysing for pattern recognition. It is one of the reasons why changing shades of light appear to reveal previously hidden images. Looking at cloud formation or staring long enough at the weave of a carpet, your brain in trying to make sense. It will no doubt aspire to link it to a familiar shape such as a face or animal. It is therefore not difficult to create a familiar and recognisable image with only a few lines.

I use a grid to work out the x,y offsets from a common starting point, then add CIRCLE/Ellipse their size or start and end of LINE positions. To this I need only a channel ID, the Window x,y graphic coordinates and a Scale to position on screen.

QBITS Pandemic Specialists

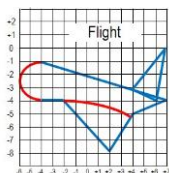
A face for example needs only a round circle with two smaller circle for eyes and three short lines to represent the nose and mouth. Adding hair to a face can be achieved with ellipse shapes, one on top for very short, extending the side with a second for average length and a third lower down to resemble long hair. To help maintain the face outline I overlay with ARCs drawn in black.

The left and right sides of the torso are split to achieve the v neck. This is because the FILL command of S/SuperBASIC cannot be used with re-entrant shapes. Overlaying with black lines divides the jackets into two halves, and outlines the sleeve and pockets.



Changes in colour for jacket and hair with differing lengths can create a variety of Characters. Adding Head Gear, a Mask, Clipboard, Stethoscope and not forgetting PPE gear all help broaden the Roles they might represent.

QBITS Pandemic Events Actions



Drawing Object Graphics are a combination of **ARC's** & **LINE's**, with and added LINE or ARC to emphasize the image.



QBITS Pandemic Procedures

Init_win Set Window Sizes and Screen Locations
Init_scn Sets out Pandemic Graphics
QBITS_Title Pandemic Heading

Init_Roles Specialists Identities
Init_Info Specialties Attributes
Init_city Map Location of City's
Draw_city
Init_map Display of World Map
Draw_map

Intro_Pandemic Displays Mission Statement
Intro_Roles Displays Specialists (Vector Graphics)
MEDTeam Select WHO Headquarters
Draw_OB Draw Outbreak Graphics
Draw_Stat Draw Status - Cards left to draw & Number of Infected Cities
Draw_IR Draw Infection Rate Indicator

QBITS_Pandemic Main Menu
GNewExit Select a New Game or Exit
Game_End Displays Result Failure or Success
Help_Info Displays Specialists Attribute and Locations

Activity Events & Actions Taken
City_chg, Vacc_chg, MED_chg, RES_chg, Role_chg, Move_chg
Cure_chg, Virew_chg

City_Shuffle City Cards - Virus Infections & Distribution
City_loc, City_pos, Spread, Infect, Outbreack, Epidemic

City_Info Pandemic Activity & Highlighted Actions
City_Update, City_Visit, ActEvent
City_HGL, Role_HGL, MED_HGL, Rate_HGL, Cure_HGL, Act_HGL

Specialists Vector Graphics
Face, Hair, Body, Hood, PPE, Mask, Scope, Clip, Skull, AVirus
MEDCamp, Vaccine, Copter, Flight, ViewInfo, RESearch,
WHO_Symbol

QBITS Pandemic Code

1000 REMark **QBITS_Pandemic_bas** [QBITS Pandemic 2023 QL 40TH - QPC2] vM30

1002 dev\$='win1_':MODE 4:gx=0:gy=0 :REMark Basic Settings

1004 **WHEN ERROr :CONTINUE:END WHEN**

1006 REMark **Import QBITSConfig Settings - QPC2**

1007 OPEN_IN#9,dev\$&'QBITSConfig':INPUT#9,gx\gy\dn\$\dev\$:CLOSE#9

1010 REMark **Settings**

1011 REMark Time Approx 45min: To PAUSE - Suspend Actions and/or Events

1012 rate=2:evt%=2:act%=4 :REMark Infection rate : Events : Actions

1013 tnum=120 :cres=5 :REMark City Deck Turns: Vaccine release Credits

1014 cres=5 :REMark Number Credits for Vaccine Release

1016 Init_win:Ichk=0:QBITS_Pandemic

1018 **DEFine PROCedure QBITS_Pandemic**

1019 IF Ichk=0:Intro_Pandemic:Init_Scrn:Init_Info:Ichk=1

1020 **New_Game**:c=1:w=1:v=1:vn=13:gir=2:s=1:Role_HGL 7,s:num=tnum:m%=4

1021 **REPEAT Game_Ip**

1022 **ActEvent**:IF num<=1 OR ob>7 OR ctr=0:**Game_End**

1023 IF act%=0 AND evt%=0

1024 Act_HGL 2,6:CLS#0:Role_HGL 5,s:s=s+1:IF s>4:s=1

1025 IF v=1

1026 FOR haz=1 TO rate

1027 BLOCK#3,230,10,0,12,0:vn=vn+1:num=num-1

1028 r%=RND(1 TO 8):IF r%=3 OR r%=7:**Epidemic:ELSE Spread**

1029 END FOR haz

1030 END IF

1031 **Act_HGL 0,6:act%=4:evt%=2:m%=4:ActEvent:Role_HGL 7,s**

1032 END IF

1033 en=Team(s,1):**Rate_HGL en**

1034 **Act_HGL 2,m%:k=CODE(INKEY\$(-1)):**Act_HGL 0,m%

1035 **SElect ON k**

1036 =72,104:INK#0,7:**Help_Info Role(s)** :REMark (H)elp

1037 =192:m%=m%-1:IF m%<0:m%=7

1038 =200:m%=m%+1:IF m%>7:m%=0

1039 = 32:a%=m%+1:INK#4,2:**Activity**:a%=0:IF Ichk=1:CLS#0:num=num-1:Ichk=0

1040 = 78,110,81,113:CLS#0:INK#0,7:**GNewExit** :REMark (N)ew Game or (Q)uit

1041 = 35:IF Tck%=0:Tck%=1:ELSE Tck%=0 :REMark (#) TestMode On/Off

1042 =232:IF Tck%=1:act%=0:evt%=0 :REMark F1 Next Specialist

1043 =236:IF Tck%=1:num=tnum :REMark F2 Reset Turns

1044 =240:IF Tck%=1:**Spread** :REMark F3 Checks

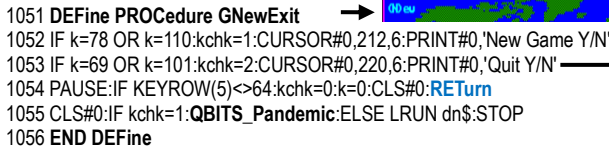
1045 =244:IF Tck%=1:**Epidemic**:IF gir=7:gir=2 :REMark F4 Checks

1046 =248:IF Tck%=1:**Outbreak** cn :REMark F5 Checks

1047 **END SElect**

1048 **END REPEAT Game_Ip**

1049 **END DEFine**



Game End
Well DONE Humanity Saved
ODeu Game Y/N

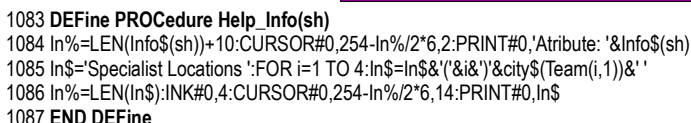
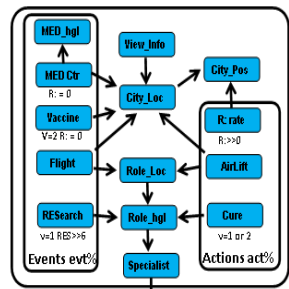
Game End
You LOSE Virus Not Eradicated
ODeu Game Y/N

Event: 2 Action: 4 

The diagram illustrates the CitySim model's information and hazard flow. Key components and their interactions include:

- Global IR** (IR Rate 2334) and **Virus shuffle** both influence the **Epidemic** state.
- The **Epidemic** state (R: +3) influences **Spread** (R: +1) and **Infect City** (R: >3).
- Spread** influences **Infect City** and **City Info**.
- Hazards** (influenced by **Virus shuffle**) influence **Spread** and **Infect City**.
- Outbreaks** and **Infect City** have a bidirectional relationship.
- Infect City** influences **City Info** (Pap/R: / Name), **City Update**, and **City_hgl**.
- City Info** influences **City Update**.
- City Update** influences **Deaths / Cases**.
- City_hgl** is influenced by **Infect City** and **Colour: White / Red**.

Event & Action Choices for containing the Virus **Spread**, Vaccination **Research** credits and **Eradication** of the **Virus**.



1089 DEFine PROCEDURE Activity

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1090 IF a%=1 AND evt%>0                                :City_chg      :REMark Flight
1091 IF a%=2 AND evt%>0 AND v=2                          :Vacc_chg     :REMark Vaccine
1092 IF a%=3 AND evt%>0                                  :MED_chg      :REMark MED Centre
1093 IF a%=4 AND evt%>0 AND v=1 AND Team(s,2)<5          :RES_chg      :REMark RESEARCH Credit
1094 IF a%=5 AND act%>0 AND city(en,7)>0                :Rate_chg     :REMark R: rate
1095 IF a%=6 AND act%>0:cn=Team(s,1)                    :Move_chg     :REMark Airlift
1096 IF a%=7 AND act%>0 AND v=1                        :Cure_chg     :REMark Release Cure
1097 IF a%=8                                              :View_chg     :REMark Info Check
1098 IF vn>48:vn=1
1099 END DEFine

```

1101 DEFine PROCEDURE City_chg

```

1102 INK#3,2:CUSOR#3,4,12:PRINT#3,'Commercial Flight ← Rtn'
1103 BLOCK#3,2,4,118,14,2:BLOCK#3,12,3,126,16,2
1104 cn=virus(vn):cm=cn                                :REMark Role(s)=3 Dispatcher
1105 IF Role(s)=3:sm=cn-48:em=cn+48:ELSE sm=cn:em=cn
1106 City_loc:IF lchk=1:Team(s,1)=cn:City_Visit cn:vn=vn+1:evt%=evt%-1
1107 END DEFine

```



1109 DEFine PROCEDURE Vacc_chg

```

1110 INK#3,2:CUSOR#3,4,12:PRINT#3,'Vaccine ← City Drop → ← Rtn'
1111 BLOCK#3,2,4,136,14,2:BLOCK#3,12,3,146,16,2
1112 cn=virus(vn):cm=cn                                :REMark Role(s)=7 Field Medic
1113 IF Role(s)=7:sm=cn-48:em=cn+48:ELSE sm=cn-RND(1 TO 8):em=cn+RND(1 TO 8)
1114 City_loc:IF lchk=1:city(cn,7)=0:City_Info cn:vn=vn+1:evt%=evt%-1
1115 END DEFine

```



1117 DEFine PROCEDURE MED_chg

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1118 INK#3,2:CUSOR#3,4,12:PRINT#3,'Relocate MED Centre ← Rtn'
1119 BLOCK#3,2,4,130,14,2:BLOCK#3,12,3,146,16,2
1120 cn=virus(vn):cm=cn                                :REMark Role(s)=1 Operations
1121 IF Role(s)=1:sm=cn-48:em=cn+48:ELSE sm=cn:em=cn
1122 City_loc
1123 IF lchk=1
1124 MEDCtr(c)=cn:MED_HGL 5,c:city(cn,7)=0:City_Info cn
1125 v n=vn+1:evt%=evt%-1:c=c+1:IF c>4:c=1
1126 END IF
1127 END DEFine

```



1129 DEFine PROCEDURE RES_chg

```

1130 INK#3,2:CUSOR#3,4,12:PRINT#3,'Bank RESEARCH Credit ← Rtn'
1131 BLOCK#3,2,4,136,14,2:BLOCK#3,12,3,146,16,2:c=s
1132 REPEAT RES_Ip
1133 IF Team(c,2)<cres:k=CODE(INKEY$(-1)):ELSE EXIT RES_Ip
1134 SElect ON k
1135 =32: EXIT RES_Ip
1136 =10:Team(c,2)=Team(c,2)+1:vn=vn+1:evt%=evt%-1:lchk=1:EXIT RES_Ip
1137 END SElect
1138 END REPEAT RES_Ip
1139 IF lchk=1 AND Role(s)=5:num=num+2                    :REMark Role(s)=5 Scientist
1140 Cure_HGL 5,c
1141 END DEFine

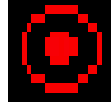
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1143 DEFine PROCEDURE Rate_chg
1144 INK#3,2:CURSOR#3,4,12:PRINT#3,'Reduce R: rate ← Rtn'
1145 BLOCK#3,2,4,100,14,2:BLOCK#3,12,3,110,16,2
1146 REPEAT Rate_lp
1147   City_pos en:k=CODE(INKEY$(-1)):City_pos en
1148   IF k=10 AND city(en,7)>0:city(en,7)=city(en,7)-1:act%=act%-1:chck=1
1149   CURSOR#2,252,168:PRINT#2,city(en,7):Rate_HGL en
1150   IF k=32 OR city(en,7)=0 OR act%<1:EXIT Rate_lp
1151 END REPEAT Rate_lp
1152 IF lchck=1 AND Role(s)=2:num=num+1 :REMark Role(s)=2 Planner
1153 END DEFine

```



```

1155 DEFine PROCEDURE Move_chg
1156 INK#3,2:CURSOR#3,4,12:PRINT#3,'Airlift to ← Next City → ← Rtn'
1157 BLOCK#3,2,4,148,14,2:BLOCK#3,12,3,158,16,2
1158 cm=cn:sm=cn-act%:em=cn+act%:mact%=act%:City_loc
1159 IF lchck=1
1160   IF cm<Team(s,1):mact%=Team(s,1)-cm :REMark < used act% count
1161   IF cm>Team(s,1):mact%=cm-Team(s,1) :REMark > used act% count
1162   IF cn=Team(s,1):RETURN
1163   IF Role(s)=8:city(cn,7)=0:City_Info cn :REMark Role(s)=8 Quarantine
1164   Team(s,1)=cn:City_Visit cn:act%=act%-mact%
1165 END IF
1166 END DEFine

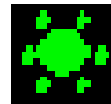
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1168 DEFine PROCEDURE Cure_chg
1169 IF v=2:RETURN
1170 IF Role(s)=4 AND Team(s,2)=cres-1:Team(s,2)=cres :REMark Role(s)=4 Researcher
1171 tchck=0:FOR i=1 TO 5:IF Team(s,1)=MEDCtr(i):tchk=1:EXIT i
1172 IF tchk=0 AND Role(s)<>6:RETURN :REMark Role(s)=6 Doctor
1173 IF Team(s,2)<5
1174   INK#3,2:CURSOR#3,4,12:PRINT#3,'No Vaccine Available Rtn'
1175 ELSE
1176   INK#3,4:col=4:CURSOR#3,4,12:PRINT#3,' Vaccine Released Rtn'
1177   v=2:ch=3:AVirus 4,95,5
1178 END IF
1179 BLOCK#3,12,3,128,16,col:PAUSE
1180 END DEFine

```



```

1182 DEFine PROCEDURE View_chg
1183 INK#3,2:CURSOR#3,4,12:PRINT#3,'View ← City Area Info → Rtn'
1184 BLOCK#3,12,3,138,16,2:cm=cn:sm=cn-48:em=cn+48:chk=2:City_loc
1185 END DEFine

```



```

1187 DEFine PROCEDURE City_Shuffle
1188 DIM virus(48):FOR i=1 TO 48:virus(i)=i
1189 FOR c=48 TO 3 STEP -1
1190   ran=RND(1 TO c-1):temp=virus(c):virus(c)=virus(ran):virus(ran)=temp
1191 END FOR c
1192 END DEFine

```



```

1194 DEfINE PROCEDURE City_loc
1195 REMark cn city number:cn transitional:sm start/ em end city
1196 REPeat Move_lp
1197 IF cm< 1:cn=48+cm :REMark cm<1 [48+ -cm : 48/47/46 etc]
1198 IF cm>48:cn=cm-48 :REMark cm>48 [cm -48 : 1/ 2/ 3 etc]
1199 City_pos cn:k=CODE(INKEY$(-1)):City_pos cn
1200 SElect ON k
1201 =192:cm=cm -1:IF cm<sm:cm=sm:ELSE cn=cm
1202 =200:cm=cm+1:IF cm>em:cm=em:ELSE cn=cm
1203 =32:Ichk=0:EXIT Move_lp
1204 =10:Ichk=1:EXIT Move_lp
1205 END SElect
1206 END REPeat Move_lp
1207 END DEfINE

```



```

1209 DEfINE PROCEDURE City_pos(n)
1210 mx=city(n,1):my=city(n,2):INK#2,7:INK#1,7:OVER#1,-1
1211 LINE#1,mx,10 TO mx,86:LINE#1,10,my TO 184,my:OVER#1,0:City_Info n
1212 END DEfINE

```



```

1214 DEfINE PROCEDURE Spread
1215 BLOCK#3,230,10,0,12,0:en=virus(vn):Infect en,1
1216 INK#3,2:CURSOR#3,2,12:PRINT#3,'Virus Increase ',city$(en):PAUSE 80
1217 END DEfINE

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```

1219 DEfINE PROCEDURE Infect(ci,r)
1220 city(ci,7)=city(ci,7)+:City_Info ci:City_Update ci:PAUSE 20
1221 IF city(ci,7)>3:city(ci,7)=3:City_Info ci:Outbreak ci
1222 END DEfINE

```



```

1224 DEfINE PROCEDURE Outbreak(ci)
1225 BLOCK#3,230,10,0,12,0:ob=ob+1:IF ob>7:Game_End
1226 INK#3,2:CURSOR#3,2,12:PRINT#3,'Outbreak in Surrounding Areas'
1227 BLOCK#2,6,90,4,50,1:INK#2,7
1228 FOR i=1 TO 9:CURSOR#2,4,50+i*9 :PRINT#2,ob$(i):PAUSE 3
1229 OVER#2,1 :CURSOR#2,25,46 +ob*12:PRINT#2,ob:OVER#2,0
1230 PAUSE 50:BLOCK#3,230,12,0,12,0
1231 n1=city(ci,4):IF city(n1,7)<3:Infect n1,1
1232 n2=city(ci,5):IF city(n2,7)<3:Infect n2,1
1233 n3=city(ci,6):IF city(n3,7)<3:Infect n3,1
1234 END DEfINE

```



```

1236 DEfINE PROCEDURE Epidemic
1237 BLOCK#3,230,10,0,12,0:en=virus(vn):Infect en,3
1238 INK#3,2:CURSOR#3,2,12:PRINT#3,'Epidemic in ',city$(en):'
1239 rate=4:IF gir<6:rate=3:IF gir<4:rate=2
1240 City_Shuffle:gir=gir+1:IF gir>7:gir=7
1241 STRIP#2,0:INK#2,7:CURSOR#2,485,116:PRINT#2,rate:STRIP#2,1
1242 PAUSE 80
1243 END DEfINE

```

```

1245 DEFINE PROCEDURE City_Info(n)
1246 INK#2,7:p$=city(n,3);pl=LEN(p$)
1247 CURSOR#2,198,168:PRINT#2,p$(1 TO pl-2);';p$(pl-1);'m'
1248 CURSOR#2,252,168:PRINT#2,city(n,7):Rate_HGL n
1249 CURSOR#2,302,168:PRINT#2,city$(n)&FILL$(' ',14-LEN(city$(n)))
1250 END DEFINE

```



```

1252 DEFINE PROCEDURE City_Update(ca)
1253 City_HGL ca,7,7:PAUSE 5:City_HGL ca,7,2:PAUSE 5:City_HGL ca,2,2
1254 INK#2,7:=2:ac$="":od$="":IF ac>99900:Game_End
1255 ac=ac+city(ca,3):od=ac:Str$=ac*2:sl=LEN(Str$)
1256 IF sl<4:ac$='.'&Str$(1 TO sl-2):ELSE ac$=Str$(1 TO sl-3)&'.'&Str$(sl-2)
1257 CURSOR#2,460,16:PRINT#2,FILL$(' ',5-LEN(ac$));ac$;'m'
1258 od=ac-RND(500 TO 999):Str$=od:sl=LEN(Str$)
1259 IF sl<4:od$='.'&Str$(1):ELSE od$=Str$(1 TO sl-4)&'.'&Str$(sl-3 TO sl-2)
1260 CURSOR#2,400,16:PRINT#2,FILL$(' ',5-LEN(od$));od$;'m'
1261 END DEFINE

```

```

1263 DEFINE PROCEDURE City_Visit
1264 c$=city$(Team$(s,1)):INK#3,5:CURSOR#3,160,0:PRINT#3,FILL$(' ',14-LEN(c$))&c$
1265 END DEFINE

```

```

1267 DEFINE PROCEDURE City_HGL(cn,c1,c2)
1268 x=city(cn,1):y=city(cn,2)
1269 INK#1,c1:CIRCLE#1,x,y,2:INK#1,c2:FILL#1,1:CIRCLE#1,x,y,.8:FILL#1,0
1270 END DEFINE

```

```

1272 DEFINE PROCEDURE Role_HGL(col,s)
1273 BLOCK#3,36,40,240,0,0:INK#2,col
1274 CURSOR#2,400,174+s*10:PRINT#2,Team$(Role(s)):Cure_HGL 5,s
1275 Specialist 3,126,17,Role(s):City_Visit
1276 END DEFINE

```

```

1278 DEFINE PROCEDURE MED_HGL(col,w)
1279 BLOCK#2,8,40,4,184,1:INK#2,col:w$=city$(MEDCtr(w))
1280 CURSOR#2,6,174+w*10:PRINT#2,'> ':FILL$(' ',14-LEN(w$));w$
1281 END DEFINE

```



```

1283 DEFINE PROCEDURE Rate_HGL(cn)
1284 IF city(cn,7)=0:City_HGL cn,7,7:INK#3,7:ELSE INK#3,2
1285 CIRCLE#3,66,6,3:FILL#3,1:CIRCLE#3,66,6,1:FILL#3,0
1286 END DEFINE

```

```

1288 DEFINE PROCEDURE Cure_HGL(col,c)
1289 BLOCK#2,12,40,492,184,1:INK#2,col
1290 CURSOR#2,480,174+c*10:PRINT#2,Team(c,2); '<'
1291 END DEFINE

```

1295 DEFine PROCEDURE Specialist(ch,x,y,d)

1296 SElect ON d

1297 =1:Face 0,1,x,y:Hair 2,1,x,y:Body 2,0,x,y:Hood 2,x,y:Clip 7,x,y

1298 =2:Face 0,1,x,y:Hair 16,1,x,y:Body 4,1,x,y

1299 =3:Face 7,0,x,y:Hair 2,2,x,y:Body 5,1,x,y:Clip 7,x,y

1300 =4:Face 0,1,x,y:Hair 6,2,x,y:Body 3,1,x,y

1301 =5:Face 0,1,x,y:Hair 5,2,x,y:Body 248,2,x,y:Mask x,y

1302 =6:Face 0,1,x,y:Hair 6,1,x,y:Body 7,1,x,y:Scope x,y

1303 =7:Face 7,0,x,y:Hair 2,1,x,y:Body 32,2,x,y:Hood 32,x,y:Cross x-2,y+4

1304 =8:Body 6,0,x,y:PPE 6,x,y

1305 END SElect

1306 END DEFine

Operations
Planner
Dispatcher
Researcher
Scientist
Doctor
Field Medic
Quarantine



1308 DEFine PROCEDURE Face(col,fil,x,y)

1309 INK#ch,7:FILL#ch,fil:CIRCLE#ch,x,y-6,4,.8,PI:FILL#ch,0

:REMark Face

1310 INK#ch,col:CIRCLE#ch,x-2,5,y+.5,.5:CIRCLE#ch,x+.5,y+.3,.5

:REMark Eyes

1311 LINE#ch,x-1,y+.4 TO x-2,y-1.2 TO x-.4,y-1.3

:REMark Nose

1312 LINE#ch,x-1.5,y-2.6 TO x+.5,y-2.6

:REMark Mouth

1313 END DEFine



1315 DEFine PROCEDURE Hair(col,lgh,x,y)

1316 INK#ch,col:FILL#ch,1:CIRCLE#ch,x,y+3,4,.4,PI/2:FILL#ch,0

:REMark Top

1317 IF lgh>0 :FILL#ch,1:CIRCLE#ch,x+3,5,y+1,2,.4,PI:FILL#ch,0

:REMark Back

1318 IF lgh>1 :FILL#ch,1:CIRCLE#ch,x+3,5,y-2,3,.4,PI:FILL#ch,0

:REMark Long

1319 INK#ch,0 :ARC#ch,x-3,y+3 TO x+2,y+3,PI/2:ARC#ch,x+2,y+3 TO x+3,y-2,200

1320 END DEFine



1322 DEFine PROCEDURE Body(col,pkt,x,y)

1323 INK#ch,col:FILL#ch,1

:REMark Left side

1324 LINE#ch,x-1,y-8 TO x-2,y-14 TO x-6,y-14 TO x-5,y-7 TO x-2,y-5 TO x-1,y-8

1325 FILL#ch,0:FILL#ch,1

:REMark Right side

1326 LINE#ch,x-1,y-8 TO x-1,y-14 TO x+1,y-16 TO x+7,y-14 TO x+6,y-7

1327 LINE#ch TO x+2,y-5 TO x,y-8:FILL#ch,0

1328 INK#ch,0:LINE#ch,x-1,y-15 TO x+4,y-12 TO x+3,5,y-9

:REMark Sleeve

1329 INK#ch,0:LINE#ch,x-.5,y-8 TO x-1,5,y-14

:REMark Mid Divide

1330 IF pkt>0:INK#ch,0:LINE#ch,x+2,y-11 TO x+2,y-9 TO x,y-9 TO x,y-11

1331 IF pkt>1:INK#ch,0:LINE#ch,x-4,y-11 TO x-4,y-9 TO x-2,y-9 TO x-2,y-11

1332 INK#ch,7:FILL#ch,1:CIRCLE#ch,x-.7,y-15,1.6:FILL#ch,0

:REMark Hand

1333 INK#ch,0:CIRCLE#ch,x-.7,y-15,1.6

1334 END DEFine



1336 DEFine PROCEDURE Hood(col,x,y)

1337 INK#ch,col:FILL#ch,1:CIRCLE#ch,x-1,6,y+4,3,6,.8,-PI/5:FILL#ch,0

1338 FILL#ch,1:CIRCLE#ch,x+.5,y+4,4,.8,-PI/2:FILL#ch,0:INK#ch,0

1339 ARC#ch,x-4,y+3 TO x+2,y+3,PI/3:FILL#ch,1:CIRCLE#ch,x-2,y+3,4,1:FILL#ch,0

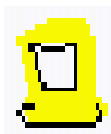
1340 END DEFine



```

1342 DEFine PROCEDURE PPE(col,x,y)
1343 INK#ch,col:FILL#ch,1:CIRCLE#ch,x-.5,y+3.4,.4,PI/1.8:FILL#ch,0
1344 FILL#ch,1:CIRCLE#ch,x+.5,y-.5.5.5,.3,PI/2:FILL#ch,0
1345 INK#ch,0:CIRCLE#ch,x,y-6.5,.3,PI/2 :FILL#ch,1:INK#ch,col
1346 LINE#ch,x-.5,y+3 TO x+.4,y+3 TO x+.4,y-5 TO x-.3,y-5 TO x-.5,y+3:FILL#ch,0
1347 FILL#ch,1:INK#ch,7
1348 LINE#ch,x-.3.5,y+2 TO x+.2,y+2 TO x+.2,y-3 TO x-.2,y-3 TO x-.3.5,y+2
1349 FILL#ch,0:INK#ch,0:ARC#ch,x-.3.5,y+2 TO x+.2,y+2,PI/5
1350 LINE#ch,x+.2,y+2 TO x+.2,y-.3.5 TO x-.2,y-.3.5 TO x-.3.5,y+2
1351 FILL#ch,1:INK#ch,2:CIRCLE#ch,x-.7,y-15,1.4:FILL#ch,0:FILL#ch,1
1352 LINE#ch,x,y-14 TO x+.3,y-13 TO x+.4,y-15 TO x+.1,y-16 TO x+.5,y-14:FILL#ch,0
1353 END DEFine

```



```

1355 DEFine PROCEDURE Mask(x,y)
1356 FILL#ch,1:INK#ch,7
1357 LINE#ch,x-2,y TO x-.4,y-1 TO x-.2,y-5 TO x,y-5 TO x+.3,y-2 TO x-.2,y
1358 FILL#ch,0:INK#ch,0
1359 LINE#ch,x-2,y TO x-.4,y-1 TO x-.2,y-5 TO x,y-5 TO x+.3,y-2 TO x-.2,y
1360 END DEFine

```



```

1362 DEFine PROCEDURE Scope(x,y)
1363 INK#ch,2:ARC#ch,x-.4,y-2 TO x+.3,y,PI:FILL#ch,1:CIRCLE#ch,x+.3,y-1,.6
1364 LINE#ch,x-.5,y-4 TO x-.2,y-14:CIRCLE#ch,x-2,y-14,1.2,.5,PI:FILL#ch,0
1365 END DEFine

```



```

1367 DEFine PROCEDURE Clip(col,x,y)
1368 INK#ch,col:FILL#ch,1
1369 LINE#ch,x-1,y-15 TO x-.4,y-12 TO x+.1,y-9 TO x+.4,y-13 TO x-.1,y-15:FILL#ch,0
1370 INK#ch,0 :LINE#ch,x-2,y-15 TO x-.4,y-12 TO x+.1,y-9 TO x+.4,y-13 TO x-.1,y-15
1371 END DEFine

```



```

1373 DEFine PROCEDURE Cross(x,y)
1374 FILL#ch,1:INK#ch,7:CIRCLE#ch,x,y,2.2:FILL#ch,0:FILL#ch,1:INK#ch,2
1375 LINE#ch,x-1.6,y+.4 TO x+.6,y+.4 TO x+.6,y-.4 TO x-1.6,y-.4 TO x-1.6,y+.4
1376 LINE#ch,x-.4,y+1.5 TO x+.4,y+1.5 TO x+.4,y-1.5 TO x-.4,y-1.5 TO x-.4,y+1.5
1377 FILL#ch,0:INK#ch,5
1378 END DEFine

```



```

1380 DEFine PROCEDURE Skull(x,y)
1381 INK#ch,7:LINE#ch,x-.4,y-3 TO x+.4,y-6:LINE#ch,x-.4,y-6 TO x+.4,y-3
1382 LINE#ch,x-.4,y-3 TO x-.8,y-3:LINE#ch,x-1.2,y-2.5 TO x+.6,y-2.5
1383 FILL#ch,1:LINE#ch,x-.3,y+1 TO x-.2,y-1.5 TO x+.2,y-1.5 TO x+.3,y+1
1384 ARC#ch, x+.3,y+1 TO x-.3,y+1,PI:FILL#ch,0:INK#ch,0
1385 FILL#ch,1:LINE#ch,x,y TO x-.8,y-1.5 TO x+.8,y-1.5 TO x,y:FILL#ch,0
1386 FILL#ch,1:CIRCLE#ch,x-1.5,y+.5,.9:FILL#ch,0
1387 FILL#ch,1:CIRCLE#ch,x+.1.7,y+.5,.9:FILL#ch,0:INK#2,5
1388 END DEFine

```



```

1390 DEFine PROCEDURE AVirus(col,x,y)
1391 LOCal a,b,r,c:RESTORE 1393:INK#ch,col
1392 FOR i=1 TO 7:READ a,b,r:FILL#ch,1:CIRCLE#ch,x+a,y+b,r:FILL#ch,0
1393 DATA 0,0,2,-1.8,3.2,.6,1.8,3.2,.6,-3.2,0,.6
1394 DATA 3.2,0,.6,-1.8,-2.8,.6,1.8,-2.8,.6
1395 END DEFine

```



```

1397 DEFine PROCEDURE MEDCamp(x,y)
1398 INK#ch,7:FILL#ch,1:LINE#ch,x-3,y TO x+2,y+3 TO x+5,y+1
1399 LINE#ch TO x+5,y-3.8 TO x+3,y-5 TO x-3,y-5 TO x-3,y:FILL#ch,0
1400 INK#ch,0:LINE#ch,x+3,y-5 TO x+3,y TO x,y+2
1401 LINE#ch,x+3,y TO x+5,y+1.2:Cross x,y-2
1402 END DEFine

```



```

1404 DEFine PROCEDURE Vaccine(x,y)
1405 INK#ch,7
1406 LINE#ch,x-4,y+1.2 TO x+2,y+1.2 TO x+3,y+.6 TO x+3,y-.6 TO x+2,y-1.2
1407 LINE#ch TO x-4,y-1.2 TO x-4,y+1.2:LINE#ch,x+3,y TO x+6.6,y
1408 LINE#ch,x-6,y TO x-4,y:LINE#ch,x-6,y+2 TO x-6,y-2
1409 FILL#ch,1:INK#ch,4
1410 LINE#ch,x-3,y+.6 TO x+1.8,y+.6 TO x+1.8,y-.6 TO x-3,y-.6 TO x-3,y+.6
1411 FILL#ch,0:INK#ch,7
1412 END DEFine

```



```

1414 DEFine PROCEDURE Copter(x,y)
1415 INK#ch,7:LINE#ch,x-5,y TO x+6,y:LINE#ch,x,y-1 TO x-5,y-5
1416 FILL#ch,1:LINE#ch,x,y TO x+6,y-4 TO x+4,y-4:ARC#ch TO x,y-6,-PI/4
1417 LINE#ch TO x-4,y-6:ARC#ch TO x-5,y-5,-PI:LINE#ch TO x-2,y-4 TO x,y
1418 FILL#ch,0:CIRCLE#ch,x+6.5,y-4,1:POINT#ch,x+6.5,y-4
1419 Cross x+1,y-4
1420 END DEFine

```



```

1422 DEFine PROCEDURE Flight(x,y)
1423 INK#ch,7
1424 FILL#ch,1:ARC#ch,x-4,y-4 TO x-4,y-1,-PI:LINE#ch TO x+7,y-4 TO x+4,y-5
1425 LINE#ch TO x+2,y-8 TO x-2,y-4 TO x-4,y-4:FILL#ch,0
1426 FILL#ch,1:LINE#ch,x+4,y-3 TO x+7,y TO x+6,y-4 TO x+4,y-3:FILL#ch,0
1427 INK#ch,0:ARC#ch,x-2,y-4 TO x+4,y-5,-PI/4
1428 END DEFine

```



```

1430 DEFine PROCEDURE ViewInfo(x,y)
1431 INK#3,7:CIRCLE#3,x,y,5,.6,PI/2
1432 CIRCLE#3,x,y,3:FILL#3,1:CIRCLE#3,x,y,.8:FILL#3,0
1433 END DEFine

```



```

1435 DEFine PROCEDURE REsearch(x,y)
1436 INK#ch,7:ARC#ch,x+2,y TO x+5,y+4,PI:LINE#ch,x,y+1 TO x+4,y+1:FILL#ch,1
1437 LINE#ch,x+2.5,y+2.5 TO x+6,y+5 TO x+5.5,y+5.5 TO x+2,y+3 TO x+2.5,y+2.5
1438 FILL#ch,0:LINE#ch,x+2,y-2.5 TO x+6,y-2.5 TO x+5,y-1 TO x+3,y-1 TO x+2,y-2.5
1439 END DEFine

```



```

1441 DEFine PROCEDURE WHO_Symbol(x,y)
1442 INK#ch,248:FILL#ch,1 :CIRCLE#ch,x,y,8,.6,PI/2:FILL#ch,0
1443 INK#ch,7:FILL#ch,0 :CIRCLE#ch,x,y,8,.6,PI/2:FILL#ch,0
1444 INK#ch,0:FILL#ch,1 :CIRCLE#ch,x,y,5 :FILL#ch,0
1445 INK#ch,7:FOR i=1 TO 3:CIRCLE#ch,x,y,5-i*1.5
1446 LINE#ch,x-4.5,y TO x+4.5,y:LINE#ch,x-3.5,y+3.5 TO x+3.5,y-3.5
1447 LINE#ch,x+3.5,y+3.5 TO x-3.5,y-3.5
1448 INK#ch,7:FILL#ch,1:CIRCLE#ch,x,y,5,.1,PI:CIRCLE#ch,x,y+4,.8:FILL#ch,0
1449 END DEFine

```



1451 REMark Init Pandemic

1453 DEFine PROCEDURE Init_win

1454 OPEN#4,scr_:OPEN#3,scr_:h=.5

1455 WINDOW#4,512,256,gx,gy :PAPER#4,0:CLS#4

1456 WINDOW#3,280,42,gx+116,gy+183:PAPER#3,0:SCALE#3,26,0,0 :BORDER#3,1,5

1457 WINDOW#2,508,226,gx+2,gy+1 :PAPER#2,0:SCALE#2,130,0,0:BORDER#2,1,3

1458 WINDOW#1,456,162,gx+28,gy+22 :PAPER#1,1

1459 WINDOW#0,508,30,gx+2,gy+226 :PAPER#0,0:CLS#0:BORDER#0,1,3

1460 END DEFine

:

1462 DEFine PROCEDURE Init_Scrn

1463 CLS#3:PAPER#2,1

1464 FOR i=0 TO 8:BLOCK#2,14,224, 0+i*12,0,1:BLOCK#2,14,224,490-i*12,0,1:PAUSE 2

1465 FOR i=1 TO 8:BLOCK#2,18,180,92+i*18,0,1:BLOCK#2,18,180,394-i*18,0,1:PAUSE 2

1466 QBITS_Title:INK#1,224:SCALE#1,96,0,0:m=.5

1467 Init_map:Init_city:Draw_city:Draw_OB:Draw_Stat:Draw_IR:ch=2

1468 QBold 2,5,1,-2,5, 'WHO Headquarters':WHO_Symbol 55,123

1469 QBold 2,5,1,396,5, 'Deaths Cases':Skull 158,123

1470 QBold 2,5,1,160,168, 'Popu: R: Area:'

1471 QBold 2,5,1,-5,30, '(N)ew':QBold 2,5,1,456,30,'(Q)uit'

1472 QBold 2,5,1, 36,174, 'MED Centre' :MEDCamp 6,30

1473 QBold 2,5,1,394,174,'SPECIALIST' :RESearch 206,27

1474 END DEFine



1476 DEFine PROCEDURE QBITS_Title

1477 CURSOR#2,10,10 :CSIZE#2,2,1:OVER#2,1

1478 INK#2,2:FOR i=0 TO 1:CURSOR#2,164+i,2:PRINT#2,'QBITS Pandemic'

1479 INK#2,6:FOR i=0 TO 1:CURSOR#2,166+i,3:PRINT#2,'QBITS Pandemic'

1480 CSIZE#2,0,0:OVER#2,0:INK#2,7

1481 END DEFine

QBITS Pandemic

1483 DEFine PROCEDURE QBold(ch,col,cs,cx,cy,Str\$)

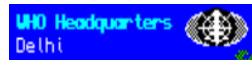
1484 INK#ch,col:OVER#ch,1

1485 FOR a=1 TO LEN(Str\$)

1486 FOR b=0 TO cs:CURSOR#ch,cx+b+a*(5+cs),cy:PRINT#ch,Str\$(a)

1487 END FOR a:OVER#ch,0

1488 END DEFine



1490 DEFine PROCEDURE New_Game

1491 LOCAL w,x,y:RESTORE 1492:FOR i=1 TO 6:READ w,x,y:BLOCK#2,w,10,x,y,1

1492 DATA 48,4,16, 36,400,16, 36,460,16, 30,198,168, 6,252,168, 84,300,168

1493 STRIP#2,0:BLOCK#2,110,42,0,182,1:BLOCK#2,110,42,394,182,1

1494 ob=1:FOR i=2 TO 7:CURSOR#2,25,45+i12:PRINT#2,' '

:REMark Outbreaks

1495 rate=2:INK#2,7:CURSOR#2,485,116:PRINT#2,rate

:REMark Infections

1496 STRIP#2,1:BLOCK#2,20,11,479,66,0:BLOCK#2,20,11,479,84,0

:REMark Status

1497 CLS#3:INK#3,7:Draw_city:City_Shuffle:dc=0:ac=0:vn=1

:REMark Deaths Cases

1498 CURSOR#3,40,6:PRINT#3,'WHO Announce New Global Pandemic'

1499 FOR i=1 TO cm:city(i,7)=0

1500 FOR i=1 TO 4:Infect virus(i),1:Infect virus(i+4),2:Infect virus(i+8),3

1501 MEDTeam:Init_Roles:INK#3,5

1502 CURSOR#3,4,1:PRINT#3,'Event: Action: ← → (h)':BLOCK#3,10,3,120,5,5

1503 ch=3:Flight 7,9:Vaccine 22,6,6:MEDCamp 36,6,5:RESearch 48,4

1504 Rate_HGL cn:Copter 79,5,9:AVirus 2,95,5:ViewInfo 109,6

:REMark Activities

1505 END DEFine

1507 DEFINE PROCEDURE MEDTeam

1508 DIM MEDCtr(5):RESTORE 1520:INK#3,7:CLS#3

1509 CURSOR#3,40,6:PRINT#3,'Select WHO HQ & Specialists Team'

1510 CURSOR#3,26,22:PRINT#3,'(N)ew York (L)ondon (D)elhi (B)eijing'

1511 k=CODE(INKEY\$(-1)):CLS#3:INK#2,7

1512 SELECT ON k

1513 =66,98:cn=41 (B)eijing

1514 =68,100:cn=35 (D)elhi

1515 =78,110:cn=13 (N)ew York

1516 =REMAINDER :cn=18 Default (L)ondon

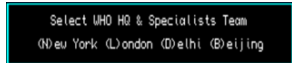
1517 END SELECT

1518 CURSOR#2,4,16:PRINT#2,city\$(cn)&FILL\$(' ',8-LEN(city\$(cn)))

1519 FOR i=1 TO 4:READ MEDCtr(i):MED_HGL 5,i

1520 DATA 13,18,35,41 :MEDCtr(5)=cn

1521 END DEFINE



1523 DEFINE PROCEDURE Draw_OB

1524 ob\$='OUTBREAKS':ob=1:x=12:a=1.9:INK#2,7

1525 FOR i=1 TO 9:CURSOR#2,4,50+i*9:PRINT#2,ob\$(i)

1526 FOR i=1 TO 7

1527 y=45+i*7:INK#2,0:FILL#2,1

1528 ARC#2,x-a,y+a TO x+a,y+a,-PI TO x+a,y-a,-PI TO x-a,y-a,-PI TO x-a,y+a,-PI

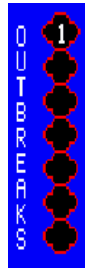
1529 FILL#2,0:INK#2,2

1530 ARC#2,x-a,y+a TO x+a,y+a,-PI TO x+a,y-a,-PI TO x-a,y-a,-PI TO x-a,y+a,-PI

1531 END FOR i

1532 INK#2,7:OVER#2,1:CURSOR#2,25,58:PRINT#2,'1':OVER#2,0

1533 END DEFINE



1535 DEFINE PROCEDURE Draw_Stat

1536 CURSOR#2,464,54:PRINT#2,'STATUS'

1537 BLOCK#2,22,13,478,65,2:BLOCK#2,20,11,479,66,0

1538 BLOCK#2,22,13,478,83,2:BLOCK#2,20,11,479,84,0

1539 INK#2,2:CIRCLE#2,198,78,3:FILL#2,1:CIRCLE#2,198,78,1.3:FILL#2,0

1540 BLOCK#2,26,13,448,65,2:BLOCK#2,24,11,449,66,5

1541 INK#2,0:ARC#2,195,88 TO 200,88,-PI/2:LINE#2,200,90 TO 201,88 TO 199,87

1542 END DEFINE



1544 DEFINE PROCEDURE Draw_IR

1545 INK#2,7:CURSOR#2,446,102:PRINT#2,'INFECTION'

1546 CURSOR#2,476,130:PRINT#2,'RATE':x=210:y=60:INK#2,0

1547 FILL#2,1:CIRCLE#2,x,y+2.2.5 :FILL#2,0

1548 FILL#2,1:CIRCLE#2,x-2.5,y-2.2.5:FILL#2,0

1549 FILL#2,1:CIRCLE#2,x+2.5,y-2.2.5:FILL#2,0 :INK#2,2

1550 CIRCLE#2,x-2.5,y-2.2.5:CIRCLE#2,x,y+2.2.5:CIRCLE#2,x+2.5,y-2.2.5

1551 FILL#2,1:INK#2,0:CIRCLE#2,x,y,2:FILL#2,0

1552 END DEFINE



```

1554 DEFINE PROCEDURE Init_Roles
1555 DIM Team$(8,11),Team(8,2),Role(8):RESTORE 1561:ch=2:INK#ch,5
1556 FOR i=1 TO 8:READ t$:Team$(i)=t$:Team(i,2)=0:Role(i)=i
1557 FOR t=8 TO 3 STEP -1
1558   ran=RND(1 TO t-1):temp=Role(t):Role(t)=Role(ran):Role(ran)=temp
1559 END FOR t
1560 INK#2,3:FOR i=1 TO 4:Team(i,1)=cn
1561 DATA 'Operations ','Planner ','Dispatcher ','Researcher '
1562 DATA 'Scientist ','Doctor ','Field Medic','Quarantine '
1563 END DEFINE

```

```

1565 DEFINE PROCEDURE Init_Info
1566 DIM Info$(8,42):RESTORE 1567:FOR i=1 TO 8:READ Info$(i)
1567 DATA 'MED Centre - Relocate to any City (R:>0)' :REMark Operations
1568 DATA 'R: rate - Reduce with a Free Turn' :REMark Planner
1569 DATA 'Flight - Extended to any City' :REMark Dispatcher
1570 DATA 'Release Vaccine - with one less Credit' :REMark Researcher
1571 DATA 'Banking Research Credits - Gain extra Turn' :REMark Scientist
1572 DATA 'Vaccine Release - Can be from any City' :REMark Doctor
1573 DATA 'Vaccine Delivery - Extended to any City' :REMark Field Medic
1574 DATA 'R: Rate - Reduced to Zero on entering City' :REMark Quarantine
1575 END DEFINE

```

```

1577 DEFINE PROCEDURE Intro_Pandemic
1578 LOCAL mx,m$:ch=2
1579 BLOCK#2,504,181,0,0,0:BLOCK#2,112,50,0,174,0:BLOCK#2,112,50,392,174,0
1580 QBITS_Title:STRIP#2,0:INK#2,5:RESTORE 1582
1581 FOR i=1 TO 4:PAUSE 5:READ mx,m$:CURSOR#2,mx,20+i*10:PRINT#2,m$
1582 DATA 60,' As Chief Medical Advisor to WHO the World Health Organisation'
1583 DATA 60,'a team of Specialists are assembled to help you fight a new and'
1584 DATA 60,'Deadly Virus. Your aim is to Contain the Outbreak, Find a Cure,'
1585 DATA 96,'Vaccinate the Population and Eradicate the Disease.'
1586 PAUSE 5:SCALE#1,180,-80,-20:m=1:INK#1,2:Init_map
1587 WHO_Symbol 34,121:WHO_Symbol 180,121:ch=2:Intro_Roles
1588 MEDCamp 66,32:RESearch 14,16:Copter 34,20
1589 MEDCamp 148,32:Vaccine 182,15:AVirus 2,196,15
1590 INK#3,7:CURSOR#3,54,12:PRINT#3,'Press any Key to Continue...':PAUSE
1591 END DEFINE

```

```

1593 DEFINE PROCEDURE Intro_Roles
1594 LOCAL x,y,s,c,r:ch=2:RESTORE 1600
1595 INK#2,5:CURSOR#ch,208,166:PRINT#2,'WHO Specialists'
1596 FOR i=1 TO 8
1597   READ x,y,s:Specialist 2,x,y,s:PAUSE 5
1598   READ c,r,$:INK#2,5:CURSOR#2,c,r:PRINT#2,r$
1599 END FOR i
1600 DATA 12,75,4,48,90,'Researcher', 204,75,8,392,90,'Quarantine'
1601 DATA 24,65,3,70,108,'Dispatcher', 192,65,7,366,108,'Field Medic'
1602 DATA 36,55,2,24,144,'Planner', 180,55,6,440,144,'Doctor'
1603 DATA 48,45,1,36,160,'Operations', 168,45,5,412,164,'Scientist'
1604 END DEFINE

```



1606 REMark Pandemic Maps

1608 **DEfINE PROCEDURE** Init_city

1609 **RESTORE** 1624:**READ** cm

:REMark cm city max:c city number

1610 DIM city\$(cm,14),city(cm,7)

1611 FOR i=1 TO cm

1612 **READ** city\$(i)

:REMark Name

1613 **READ** city(i,1),city(i,2)

:REMark Grid x,y

1614 **READ** city(i,3)

:REMark Population

1615 **READ** city(i,4),city(i,5),city(i,6)

:REMark Connected Cities

1616 city(i,7)=0

:REMark Infection Rate

1617 END FOR i

1618 **END DEfINE**



1620 **DEfINE PROCEDURE** Draw_city

1621 FOR i=1 TO cm:City_HGL i,7,7

1622 **END DEfINE**

1624 DATA 48

:REMark City Info

1625 DATA 'San Francisco',14,66,460,2,3,47,

'Los Angeles',16,62,1310,1,4,10

1626 DATA 'Vancouver',17,75,240,1,5,6,

'Mexico City',26,51,2440,2,7,9

1627 DATA 'Chicago',33,74,800,3,10,12,

'Atlanta',36,62,560,5,6,13

1628 DATA 'Miami',36,57,610,4,9,10,

'Lima',36,32,1000,9,11,15

1629 DATA 'Bogota',40,42,980,4,7,8,

'Washington',40,66,620,5,6,13

1630 DATA 'Santiago',44,17,660,8,14,48,

'Montreal',45,73,410,5,13,18

1631 DATA 'New York',45,69,2370,10,12,16,

'Buenos Aires',54,16,1270,11,15,28

1632 DATA 'Sao Paulo',62,23,2120,8,14,17,

'Madrid',85,68,620,13,18,20

1633 DATA 'Lagos',88,44,1600,15,20,23,

'London',88,76,1380,12,19,22

1634 DATA 'Paris',90,73,1250,18,20,21,

'Algiers',92,65,500,16,17,19

1635 DATA 'Milan',96,70,820,19,24,25,

'Stockholm',98,81,140,18,21,24

1636 DATA 'Kinshasa',98,35,1430,17,28,29,

'St Petersburg',103,81,750,21,22,26

1637 DATA 'Istanbul',105,69,1480,21,27,31,

'Moscow',106,75,1790,19,24,41

1638 DATA 'Cairo',108,57,2040,25,29,32,

'Johannesburg',107,17,800,14,23,34

1639 DATA 'Khartum',111,50,520,23,27,32,

'Baghdad',115,63,870,27,30,33

1640 DATA 'Tehran',120,65,1600,25,26,30,

'Barhain',121,56,170,29,30,33

1641 DATA 'Karachi',132,57,2750,32,34,35,

'Mumbai',136,51,2770,28,33,36

1642 DATA 'Delhi',138,57,2660,33,37,41,

'Chennai',140,45,1330,34,37,40

1643 DATA 'Kolkata',145,56,1410,35,36,38,

'Bankok',154,50,1450,37,39,42

1644 DATA 'Ho Chi Minh',158,47,1010,38,40,42,

'Jakarta',159,35,3020,36,38,48

1645 DATA 'Beijing',162,68,2490,26,35,44,

'Hong Kong',162,55,720,39,43,46

1646 DATA 'Shanghai',163,62,3400,42,44,45,

'Seoul',167,66,2560,41,43,47

1647 DATA 'Taipia',167,56,700,43,46,47,

'Manila',168,50,2270,42,45,48

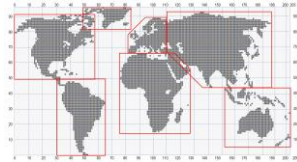
1648 DATA 'Tokyo',174,66,3780,1,44,45,

'Sydney',182,14,500,11,40,46

:

1650 **DEFINE PROCEDURE Init_map**

1651 **RESTORE 1753:READ map:Draw_map** :REMark Greenland
1652 **RESTORE 1678:READ map:Draw_map** :REMark America North
1653 **RESTORE 1743:READ map:Draw_map** :REMark Europe
1654 **RESTORE 1705:READ map:Draw_map** :REMark Asia
1655 **RESTORE 1695:READ map:Draw_map** :REMark America south
1656 **RESTORE 1666:READ map:Draw_map** :REMark Africa
1657 **RESTORE 1728:READ map:Draw_map** :REMark Australasia
1658 **END DEFINE**



1660 **DEFINE PROCEDURE Draw_map**

1661 **FOR** i=1 **TO** map
1662 **READ x,y,n:FILL 1:LINE x,y TO x+n,y TO x+n,y-h TO x,y-h TO x,y:FILL 0**
1663 **END FOR** i
1664 **END DEFINE**

1666 **DATA** 68

:REMark Africa

1667 **DATA** 89,65,7, 85,64,11, 104,64,1, 109,64,1, 83,63,14, 82,62,17, 102,62,3
1668 **DATA** 82,61,24, 82,60,26, 103,60,7, 80,59,30, 79,58,32, 79,57,32, 78,56,34
1669 **DATA** 78,55,34, 77,54,36, 78,53,35, 78,52,36, 78,51,36, 77,50,38, 77,49,39
1670 **DATA** 78,48,39, 78,47,39, 120,47,2, 79,46,43, 80,45,42, 80,44,42, 82,43,7
1671 **DATA** 92,43,29, 94,42,27, 95,41,24, 95,40,23, 94,39,23, 94,38,21, 95,37,20
1672 **DATA** 96,36,19, 96,35,18, 97,34,17, 97,33,18, 97,32,18, 97,31,18, 97,30,18
1673 **DATA** 125,32,1, 97,29,18, 120,29,2, 96,28,19, 119,28,3, 96,27,18, 117,27,4
1674 **DATA** 96,26,16, 117,26,4, 97,25,15, 117,25,3, 97,24,14, 117,24,3, 98,23,14
1675 **DATA** 116,23,4, 98,22,14, 116,22,4, 98,21,13, 117,21,2, 98,20,12, 98,19,12
1676 **DATA** 99,18,11, 100,17,8, 100,16,7, 100,15,3, 104,15,1



1678 **DATA** 102

:REMark America North 102

1679 **DATA** 34,90,4, 41,90,1, 44,90,2, 47,90,2, 50,90,1, 52,90,1, 32,89,9
1680 **DATA** 46,89,1, 49,89,7, 13,88,9, 29,88,1, 34,88,8, 45,88,2, 51,88,7
1681 **DATA** 9,87,26, 36,87,2, 43,87,5, 49,87,2, 54,87,4, 10,86,40, 54,86,5
1682 **DATA** 6,85,40, 51,85,6, 7,84,37, 46,84,2, 53,84,4, 4,83,38, 50,83,2
1683 **DATA** 54,83,2, 4,82,7, 13,82,27, 49,82,3, 3,81,5, 16,81,23, 48,81,5
1684 **DATA** 55,81,1, 3,80,2, 6,80,1, 16,80,24, 48,80,8, 1,79,2, 16,79,26
1685 **DATA** 47,79,10, 17,78,27, 46,78,10, 17,77,27, 46,77,10, 17,76,38, 16,75,1
1686 **DATA** 18,75,32, 17,74,31, 50,74,2, 56,74,1, 16,73,20, 39,73,11, 55,73,3
1687 **DATA** 16,72,22, 41,72,12, 15,71,22, 38,71,1, 41,71,7, 50,71,2, 14,70,22
1688 **DATA** 37,70,10, 14,69,25, 40,69,6, 13,68,31, 13,67,30, 13,66,28, 13,65,28
1689 **DATA** 13,64,27, 15,63,24, 15,62,23, 15,61,1, 17,61,20, 15,60,1, 17,60,11
1690 **DATA** 36,60,2, 15,59,2, 18,59,9, 36,59,2, 16,58,1, 18,58,8, 36,58,2
1691 **DATA** 16,57,1, 19,57,7, 36,57,1, 17,56,1, 19,56,6, 20,55,5, 34,55,5
1692 **DATA** 20,54,6, 30,54,2, 38,54,2, 20,53,6, 29,53,3, 41,53,2, 21,52,10
1693 **DATA** 37,52,1, 40,52,3, 45,52,1, 23,51,8



1695 **DATA** 55

:REMark America South

1696 **DATA** 28,50,6, 29,49,5, 31,48,3, 32,47,2, 39,47,2, 42,47,2, 33,46,2
1697 **DATA** 35,46,1, 38,46,10, 36,45,14, 37,44,13, 37,43,17, 37,42,18
1698 **DATA** 37,41,18, 36,40,19, 35,39,21, 35,38,20, 56,38,3, 35,37,27, 35,36,28
1699 **DATA** 35,35,30, 36,34,30, 36,33,30, 37,32,28, 37,31,27, 38,30,26, 38,29,25
1700 **DATA** 39,28,24, 41,27,22, 42,26,21, 43,25,20, 43,24,19, 43,23,19, 43,22,16
1701 **DATA** 43,21,15, 43,20,15, 43,19,15, 43,18,14, 43,17,14, 43,16,13, 44,15,12
1702 **DATA** 44,14,9, 44,13,9, 44,12,7, 44,11,7, 44,10,5, 45,9,5, 46,8,4, 45,7,5
1703 **DATA** 46,6,5, 46,5,5, 53,4,1, 47,4,3, 47,3,3, 49,2,2, 50,1,4



1705 DATA 145 :REMark Asia 145
 1706 DATA 134,92,3, 130,91,11, 128,90,17, 146,90,2, 122,89,2, 125,89,26, 155,89,5
 1707 DATA 100,88,7, 122,88,45, 172,88,1, 106,87,4, 112,87,1, 115,87,63, 106,86,5
 1708 DATA 112,86,71, 106,85,2, 109,85,72, 182,85,3, 106,84,75, 106,83,76, 106,82,66
 1709 DATA 175,82,5, 106,81,63, 175,81,2, 175,81,2, 106,80,62, 175,80,3, 106,79,61
 1710 DATA 175,79,4, 106,78,61, 176,78,3, 106,77,64, 177,77,2, 106,76,63, 170,76,1
 1711 DATA 178,76,1, 106,75,64, 171,75,1, 106,74,65, 172,74,1, 106,73,65, 172,73,1
 1712 DATA 106,72,1, 108,72,2, 112,72,6, 120,72,51, 106,71,1, 109,71,1, 111,71,6
 1713 DATA 121,71,49, 173,71,1, 113,70,5, 121,70,49, 173,70,3, 108,69,2, 114,69,5
 1714 DATA 122,69,46, 173,69,1, 106,68,13, 121,68,47, 175,68,1, 106,67,13, 122,67,40
 1715 DATA 166,67,2, 174,67,1, 107,66,14, 122,66,43, 167,66,2, 174,66,2, 112,65,53
 1716 DATA 167,65,3, 173,65,3, 112,64,53, 168,64,1, 171,64,4, 111,63,54, 171,63,2
 1717 DATA 111,62,54, 171,62,1, 111,61,55, 111,60,9, 121,60,45, 111,59,9, 122,59,44
 1718 DATA 112,58,9, 125,58,41, 113,57,9, 124,57,1, 132,57,34, 167,57,1, 113,56,13
 1719 DATA 133,56,32, 166,56,2, 114,55,12, 133,55,30, 166,55,1, 114,54,13, 134,54,1
 1720 DATA 136,54,9, 148,54,10, 115,53,11, 136,53,8, 149,53,9, 116,52,9, 136,52,7
 1721 DATA 150,52,8, 160,52,1, 167,52,1, 116,51,7, 136,51,6, 150,51,9, 167,51,2
 1722 DATA 117,50,5, 137,50,4, 152,50,8, 167,50,2, 117,49,3, 137,49,4, 153,49,7
 1723 DATA 168,49,2, 138,48,3, 153,48,1, 155,48,6, 168,48,1, 138,47,3, 153,47,1
 1724 DATA 155,47,4, 167,47,1, 169,47,1, 139,46,2, 153,46,1, 157,46,2, 166,46,1
 1725 DATA 169,46,1, 171,46,1, 139,45,1, 141,45,1, 153,45,1, 169,45,3, 141,44,2
 1726 DATA 154,44,2, 170,44,2, 155,43,2, 155,42,2, 156,41,1



1728 DATA 91 :REMark Australasia
 1729 DATA 165,43,2, 152,42,2, 164,42,3, 153,41,2, 163,41,3, 154,40,2, 161,40,6
 1730 DATA 168,40,2, 171,40,1, 173,40,1, 154,39,3, 161,39,6, 168,39,1, 170,39,1
 1731 DATA 173,39,1, 155,38,3, 161,38,5, 167,38,3, 175,38,2, 155,37,4, 162,37,4
 1732 DATA 167,37,3, 173,37,1, 176,37,2, 180,37,3, 189,37,1, 156,36,3, 167,36,1
 1733 DATA 169,36,1, 177,36,7, 190,36,1, 157,35,2, 167,35,1, 179,35,7, 187,35,2
 1734 DATA 191,35,1, 158,34,5, 180,34,6, 191,34,2, 161,33,4, 166,33,1, 168,33,1
 1735 DATA 171,33,1, 180,33,4, 185,33,2, 193,33,2, 167,32,1, 170,32,1, 186,32,1
 1736 DATA 194,32,2, 195,31,1, 175,30,3, 182,30,1, 174,29,4, 181,29,3, 170,28,8
 1737 DATA 181,28,3, 169,27,10, 181,27,3, 168,26,16, 166,25,18, 196,25,1, 164,24,21
 1738 DATA 196,24,1, 163,23,23, 197,23,1, 162,22,24, 162,21,25, 162,20,25, 162,19,25
 1739 DATA 162,18,25, 162,17,24, 162,16,9, 172,16,14, 161,15,6, 173,15,12, 161,14,3
 1740 DATA 175,14,8, 176,13,6, 198,13,1, 176,12,6, 198,12,1, 178,11,1, 197,11,3
 1741 DATA 196,10,2, 178,9,2, 194,9,1, 177,8,2, 192,8,2, 190,7,3, 188,6,2



1743 DATA 52 :REMark Europe
 1744 DATA 100,88,6, 98,87,8, 97,86,9, 96,85,5, 102,85,4, 95,84,5, 101,84,5
 1745 DATA 93,83,6, 101,83,5, 93,82,7, 101,82,5, 93,81,7, 103,81,3, 96,80,3, 101,80,5
 1746 DATA 86,80,1, 87,79,1, 94,79,1, 96,79,2, 101,79,5, 85,78,4, 94,78,2, 98,78,8
 1747 DATA 84,77,2, 87,77,3, 93,77,13, 84,76,2, 87,76,3, 91,76,15, 87,75,1
 1748 DATA 90,75,16, 88,74,18, 87,73,19, 88,72,18, 88,71,18, 84,70,7
 1749 DATA 95,70,3, 99,70,7, 84,69,7, 94,69,1, 100,69,6, 83,68,6
 1750 DATA 94,68,1, 98,68,1, 101,68,2, 83,67,6, 98,67,2
 1751 DATA 101,67,2, 83,66,5, 97,66,2, 102,66,2



1753 DATA 23 :REMark Greenland
 1754 DATA 64,95,1, 79,95,2, 52,94,2, 56,94,8, 65,94,20, 51,93,2, 55,93,5
 1755 DATA 62,93,21, 52,92,5, 60,92,22, 50,91,5, 64,91,17, 65,90,15, 65,89,15
 1756 DATA 66,88,13, 65,87,12, 64,86,9, 64,85,6, 79,85,4, 64,84,5, 79,84,3
 1757 DATA 64,83,4, 64,82,2

