

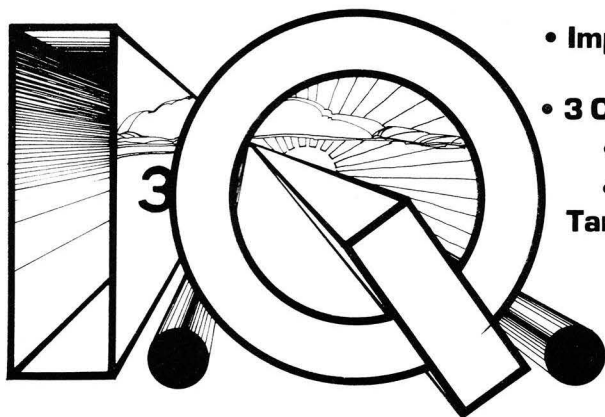
# KNOW YOUR CHILD'S IQ

## VIC 20

COLOR COMPUTER

**cassette**  
SOFTWARE

**THIS PROGRAM IS FOR ENTERTAINMENT ONLY, IT  
SHOULD NOT BE USED FOR DIAGNOSTIC NOR EVALUATIVE  
PURPOSES.**



- Improves Performance in School Tests
- 3 Comprehensive Tests
  - 100 Questions
  - Automatic and Tamperproof Scoring

**Glenn Wilson and Diana Grylls**

**A useful and fascinating guide to your child's achievement and performance potential specially adapted for VIC-20**

By arrangement with Glenn Wilson, Diana Grylls and MacDonald Futura Publishers Limited  
This Program requires the use of an 8K or 16K RAM Expansion Cartridge in the VIC-20

 **commodore**  
COMPUTER



# KNOW YOUR CHILD'S IQ

Glenn Wilson and Diana Grylls

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### **WARNING**

Please note that the results of these tests will be **INVALID** if the supervising adult prompts or helps the child with any of the answers. The child should not be praised or reprimanded during the test.

Wherever possible the test to be undertaken should be loaded and ready for the child to begin immediately.

## Introduction

This VIC-20 Child's IQ Test program has been adapted from the well-known Futura book 'Know Your Child's IQ' by Doctor Glenn Wilson and Diana Grylls. Three of the book's tests have been incorporated in the VIC program:—

Classification  
Scientific understanding  
Pattern completion

For the proper running of the program, it is essential for there to be adult supervision to ensure accurate scoring. Both the program and the data have been verified for accuracy by Doctor Wilson.

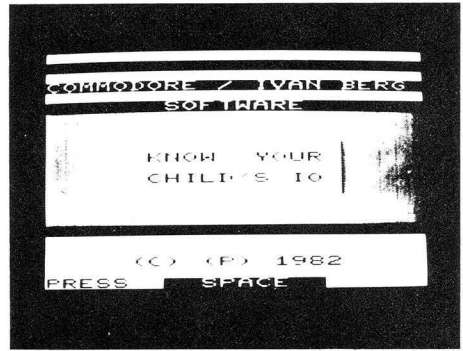
The score obtained from each test is transformed into a quotient according to the age of the child. When the three tests have been completed, the three 'quotients' are combined to give an indication of your child's IQ (see introduction for further explanation).

## Loading and Running

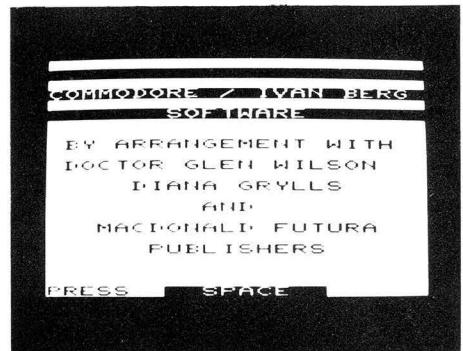
1. Switch off VIC to clear the memory completely and make sure your 8K or 16K RAM Expansion Cartridge is plugged into the slot at the back of VIC before carrying out the following:—
2. Switch on VIC. Place the OPERATING SOFTWARE cassette in the cassette deck and ensure that the tape is rewound. (NOTE: The OPERATING SOFTWARE program is recorded twice on each side of the cassette for problem-free loading).
3. Type LOAD "IQ" (Don't forget the quotation marks) and press RETURN. VIC will respond with PRESS PLAY ON TAPE.
4. Press PLAY on the cassette deck and VIC will respond with SEARCHING FOR IQ and then after a few seconds FOUND IQ LOADING. Loading will take a couple of minutes.

If VIC does not display FOUND IQ LOADING after approximately 30 seconds, carry out steps 1 to 4 again. If VIC does load the program but presents LOAD ERROR on screen, carry out steps 1 to 4 again but DO NOT REWIND THE TAPE. Remember the program is recorded twice on each side of the cassette. Once the program is loaded VIC will display READY.

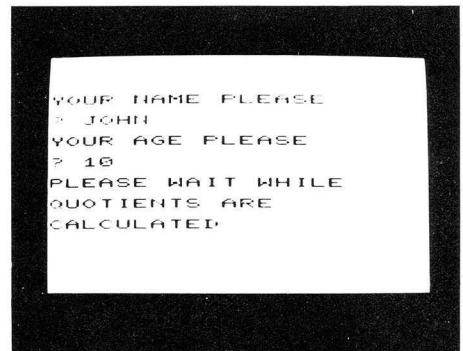
5. Type RUN and press RETURN.



6. This is the program title. Press the Keyboard Space Bar as requested.

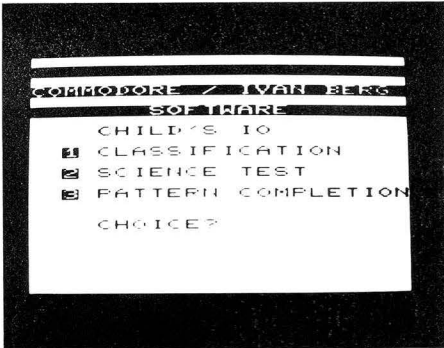


7. This credit page will then appear on the screen. Press the Space Bar once again.



- 7a. Before starting the tests, VIC must know the age of the child doing the test, as this affects the scoring. Enter the age as a whole number of years as of the child's last birthday, ie. 5 years 11 months

should be entered as 5. The tests are only appropriate for children in the range 5-11 years and ages outside these will be rejected.



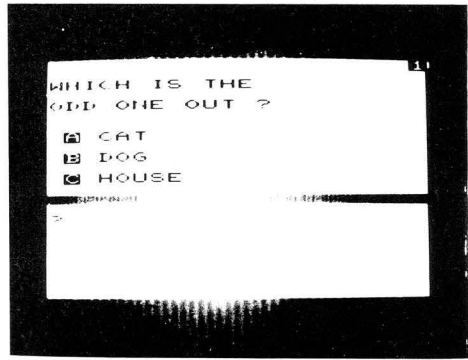
8. This is the Program's Main Menu. As you can see, there are three tests. The most efficient way of using this program is to do each test in the sequence presented on the Main Menu. Select your option from the Main Menu, say 1, Classification, and press RETURN. The VIC will ask you to load the Data cassette. Take the Operating Software cassette out of the cassette deck. Replace this with the Data cassette and make sure that it is rewound. Press the Space Bar as requested.

9. VIC will ask you to PRESS PLAY ON TAPE and will begin to search for CLASSIFICATION. VIC will begin to load the questions and the number of the questions will appear on the screen as they are loaded. The Classification test has 40 questions which are all loaded at one time. The other two tests have 30 questions each.

The Pattern Completion test consists of graphical questions and has to be loaded in two segments, one of 18 questions, the second of 12. In the case of this test, the play button on the cassette deck can remain pressed down and once the first 18 questions have been answered, VIC will automatically load the next 12.

Note: If you have a 16K RAM expansion, all 30 questions will be automatically loaded.

The Classification Test will be loaded in two sections if an 8K RAM pack is in use.

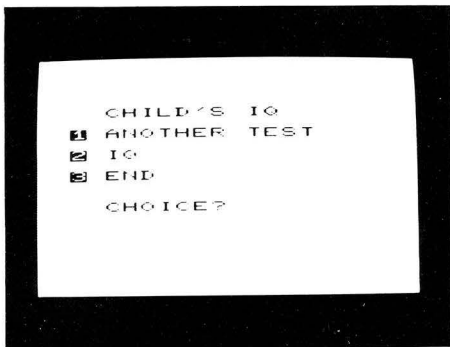


10. After all the questions have been loaded, here is the first question. As you can see, it is a multiple choice question requiring the child to choose the 'odd one out'. An answer of 'A', 'B' or 'C' is required, which is then typed and RETURN pressed. The number of each question appears in a small box in the top right hand corner of the screen. VIC will then check the answer (but will not tell you whether it is 'right' or 'wrong') and goes on to the next question.

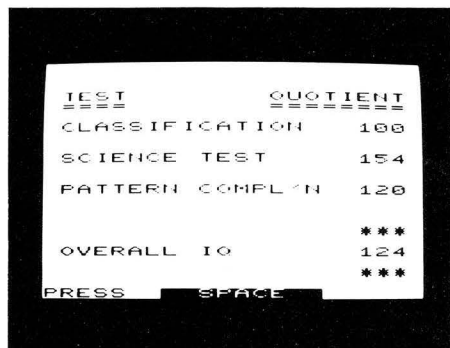
11. The Scientific Understanding and Pattern Completion tests are conducted differently. With the Scientific Understanding test, the questions appear on the screen and the child is required to give a verbal answer. The adult supervising the test should then consult pages 8-10 which give a set of possible answers to the question. The function key indicated next to the answer that was closest to the one given by the child, should then be pressed followed by RETURN.

The Pattern Completion test requires the child to have paper and pencil ready. The test consists of a series of patterns in which the bottom right hand square has been left blank. The child is required to complete the pattern by drawing the design which he thinks should go there. If the child does not get the idea, the adult may demonstrate by completing the pattern for the first question. As with the Scientific Understanding test, the adult supervising the test should consult page 11 and check whether the pattern drawn by the child is the correct one.

12. After all the questions for an entire test are completed, VIC will compute the scores and display the quotient for that test. With all three tests, the questions get successively harder as they are intended for use with a wide age range of children. VIC automatically terminates the test if 5 consecutive wrong answers are given.

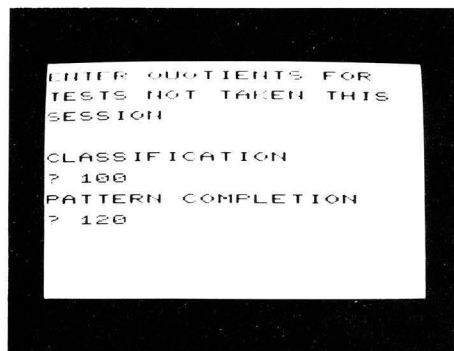


13. Press SPACE and VIC will ask you if you want another test, insert 2. Provided that you are doing the tests in the order specified in the Menu, there will be no need to rewind the tape. If, however, you are not doing the tests in the specified order, rewind the tape on receiving the prompt REWIND TAPE PRESS SPACE.



14. Once all three tests have been completed, VIC computes an IQ from the individual quotients.

15. If you do not wish to do all three tests in one 'session' (which is advisable), write down the quotients for the completed tests and select 'end' from the Menu to terminate the program.



16. If all three tests have been completed, but at different times, select 'IQ' from the Menu. VIC will then ask you for the quotients of the tests that have not been done during this 'session'. After giving them, VIC will compute an IQ from the individual quotients.

## Introductory Note

The three tests in this VIC-20 program have several purposes. Most obviously, they will enable parents to arrive at some estimate of how bright their child is. Many will think that they already know this. With understandable interest they have watched the intellectual progress of their offspring and no doubt concluded that they have either a moron or a genius on their hands. In either case they are likely to be wrong. For one thing, they are very emotionally involved with their own children. For another, they have limited experience of the intelligence of other children, basing their concept of what is average on other children in the family or perhaps a few local kids. IQ tests are designed to overcome these two biases. When given strictly in accordance with the instructions, they produce results that are little affected by feelings and prejudices. The scores obtained by the particular child are compared with scores gained by a wide range of children of comparable age, selected not just from around the corner but from all parts of the country and representing all socioeconomic groups. This is why an IQ score may provide information which is to some degree surprising to the parents. It views the child from a broader perspective.

Having a realistic appreciation of your child's intellectual capabilities maybe helpful in several ways. If a child turns out to be fairly dull, certain injustices may be avoided. Accusations of laziness are unlikely to be of any use, and might be positively hurtful. These should be dropped, along with unrealistic expectations that the child should prepare for a career in medicine, sciences or law. He or she is unlikely to be happy or successful in intellectually demanding occupations such as these. It is better for the parents to encourage the child in other talents and interests such as music, drawing, metal work, mechanics, cooking and so on—wherever the inclination of the child leads. There are a great many rewarding and socially useful pursuits that do not depend on high levels of intelligence. Awareness that a child has low IQ may protect that child from being pushed beyond his capabilities, with the consequent possibility of emotional damage.

It is also useful to know if your child is in truth a little genius. This will help in planning his future education and in pointing him towards a suitable occupation in which his

intelligence is fully utilized. Remember that children of high IQs appear in all socioeconomic groups and highly intelligent parents may produce dull and mentally retarded children. It is particularly when the child's IQ seems out of step with his environment that parents are likely to be deceived concerning it. Some assert that IQ test are instruments used by the middle classes for reinforcing the advantage of their own children, but the opposite is nearer to the truth. IQ tests often provide information about a child's personal capabilities which help him to transcend a deprived background.

These tests also give some indication of the particular strengths and weaknesses of the child. There are three groups of problems giving rise to separate scores which give some clue as to the child's special abilities and disabilities. The classification test depends heavily on verbal ability which is important in many areas of academic achievement and certain occupations such as journalism, secretarial work and politics. Girls are particularly likely to excel in these areas. The scientific understanding and pattern completion subtests draw on logical, spatial, and numerical processes that are essential to occupations such as research, navigation, design and computer programming. On average, boys do better on these skills than girls.

Another usefulness of this program is to give children some experience with IQ tests before the time comes when important decisions hang upon their performance. It is rare for a person to go through life without being required to take an IQ test at some time or another, and the results may affect their scholastic standing, chances of getting a job, or both. Practice on the kind of puzzles used in IQ tests may improve a person's subsequent score by up to 8 points on the scale. While this may seem small in relation to the complete scale, it could nevertheless make the difference between acceptance and rejection for a school or university, or for a desired job. Given the importance of these matters for a child's future, it might be thought that parents have a duty to give their children the advantage of familiarity with the type of questions that are asked in IQ tests. Whether or not one approves of the practice of IQ testing in education and industry, the tests are used and are likely to continue in use for a long time. It is best that your children are ready to deal with them.

## How to use these tests

The program contains three tests, each measuring a different aspect of intelligence. Each begins with instructions as to how they should be administered to the child. **It will be necessary to resist the strong and very human temptation to help the child do his very best by offering little prompts and cues. Only if the tests are given as instructed will the scores displayed on the screen be meaningful.**

**Do not prompt and push the child, and do not tell him when he is right or wrong.** You may go through the answers with him later after the test is finished if he is interested or if you wish to use it as an educational exercise, but these purposes cannot be mixed simultaneously. Especially with young children, it may be necessary to reassure them by telling them that the puzzles get progressively difficult and the later ones are really for older children. Do stop the test if a lot of failures occur in a row.

## Interpretation of Scores

The overall IQ score is based on an average of the three tests. As a result of a longstanding convention, this is expressed in relation to an average of 100, scores above this being higher than average and scores below 100 being lower than average. The IQ score may be interpreted roughly in relation to the following scale:

Above 140	Very superior
120-140	Superior
110-120	High average
90-110	Average
80-90	Low average
70-80	Borderline
Below 70	Mentally retarded

People who achieve success in higher education and who enter the professions nearly always have IQs in the superior or very superior bands. An IQ in this range does not guarantee success in those fields (other attributes such as interest and application are also important) but a high IQ seems to be a fairly necessary prerequisite. Occupations typical of the average and high average ranges are clerks, typists, nurses, salesmen, policemen, and tradesmen. Labourers, farmhands, miners, factory packers and sorters may be of average or below average IQ.

The three individual quotients may be interpreted in a similar way. In each case the average is 100 and the normal range is 80 to 120 (around three-quarters of the population falling between these points).

These quotients are less reliable than the overall IQ—based as they are on a smaller sample of performance, less confidence can be placed in their stability. However, bearing this reservation in mind, we can make some suggestions about what the profile might reveal. If the profile line is high on the left side in particular (classification higher than scientific understanding and pattern completion), the child probably tends to be strong in linguistic/verbal skills rather than logical, spatial and numerical. Such a pattern is found slightly more often in girls than boys and is characteristic of people who enter occupations such as teaching, journalism, social work, diplomacy and secretarial work. The reverse pattern, with the profile line climbing upwards from left to right indicates a relative strength in spatial, numerical and scientific reasoning. This is more characteristic of boys and lends itself to occupations such as engineering, research, driving, navigation, design and computer operation. Thus the shape of the profile line may give some indication of the relative strengths and weaknesses of the child. Note that the differences between the quotients should be at least 20 points before any degree of reliability can be assumed. Even then they should be interpreted with caution unless they vary systematically in the manner described above, ie. a fairly consistent inclination from right to left or left to right.

Apart from the above verbal-spatial dichotomy, which is perhaps the most fundamental differentiation in IQ testing, there



are some other possible causes of striking profiles. A language deficit of some kind, for example if the child's first language is not English, would result in a depression of the classification and perhaps also scientific understanding scores. This handicap should be obvious to the parent or tester even if they are not familiar with the child's background. Of course, in this case, relatively non-verbal quotients will give a better indication of the child's true IQ. Certain kinds of brain damage will interfere more with the pattern completion and classification but these tests are not geared for making diagnosis of this kind, and anyway that should be left to professional psychologists and neurologists.

Hopefully, both parents and child will gain some benefit from these tests. The parent will know the child better—how his intelligence ranks with that of other children, his strength and his weaknesses. The child will benefit both from this knowledge and from the experience of working through the problems, which are typical of those found in the most widely used IQ tests. (An exception is the scientific understanding test which is something of an innovation but believed by us to deal with an important area of intellectual development that has been unduly neglected in traditional tests.) Finally, however, we feel it necessary to emphasize two points of warning in the use of these tests:—

1. Allowance needs to be made for a certain margin of error in all IQ tests. Child IQ tests are less reliable than adult IQ tests and the younger the child is when tested, the less certain we can be about the validity of the result. In this case there is an additional source of error, the inexperience of the test supervisor. To some extent the child is helped or penalized by the tester's failure to administer the tests in exactly the correct manner. At the extreme, we fear that a normal or bright child may be labelled as mentally retarded because the parent has horrendously misinterpreted the instructions or scores. Therefore, if any concern has been created by the outcome of these tests, or if any life decisions are to be based on them, the results should be checked by a qualified vocational psychologist. Such experts have better validated batteries of tests at their disposal and are properly skilled in using them.

2. If your child is confirmed as having a disappointingly low IQ, do not accuse him of being lazy or inattentive at school. A low IQ tells nothing about how hard the child has tried. It merely tells you that he is disadvantaged as regards his chances of displaying academic brilliance. In no way is he to blame for this disadvantage. Nor is the IQ a measure of a child's general worth. Many other attributes such as courage, reliability, emotional stability, sense of humour, sincerity, love and kindness are every bit as important, and possibly a great deal rarer. As someone has said, "It's nice to be important but it's more important to be nice." And remember that there are many specialized talents such as sporting, musical and artistic abilities which are also fairly independent of intelligence. IQ tests are not able to detect the future Olympic gold medallist nor even the budding creative genius. So do not berate your child for any deficiencies these tests may seem to have exposed. Look to his positive characteristics, whether intellectual or otherwise, and give him the support that he will need to develop them to the fullest.

*Glenn Wilson and Diana Grylls*  
1982

## Scientific Understanding

The VIC function keys are used to input the scores for this test. Press the function key next to the answer which is closest to the child's response.

### 1. Where does wool come from?

- f3 Sheep
- f1 Australia/New Zealand
- f5 A shop  
The sewing room

### 2. What do you need to make ice?

- f3 Water and low temperatures
- f1 A refrigerator  
Cold water
- f5 An ice-tray

### 3. Why do hedgehogs have prickles?

- f3 Protection from enemies
- f1 To stop you picking them up
- f5 To fight with

### 4. Why are there no trees in a desert?

- f3 Too dry  
Lack of rain
- f1 Climate no good (probe 'Why not?')
- f5 Too hot  
Soil no good  
All burned down/been chopped down

### 5. Where do pearls come from?

- f3 Oysters
- f1 The sea  
A shell (probe 'What kind?')
- f5 Necklaces

### 6. Where does the Sun go at night?

- f3 The other side of the world  
Below the horizon
- f1 Under the ground  
Down behind the hills/buildings/trees
- f5 Behind the clouds  
Heaven  
Somebody turns it off

### 7. Why do some balloons float up in the air?

- f3 Filled with gas that is lighter than air  
Filled with hydrogen/helium
- f1 Filled with gas (probe 'What kind?')
- f5 Pumped up very full of air  
Owner let go of the string

### 8. Why could we not live on the Moon without a space suit?

- f3 No oxygen/atmosphere for us to breathe  
Extremes of heat and cold because no atmospheric insulation
- f1 Could not breathe (probe 'Why not?')  
Would burn up/freeze (probe 'Why?')
- f5 Would float away into space  
No water to drink  
Monsters would kill us

### 9. How does a parachute slow us down when we are falling?

- f3 Creates air resistance
- f1 Collects a lot of air underneath which drags against it  
The air rushes into it
- f5 It opens up wide  
The man is tied on with strings

### 10. How do scientists know what kind of animal lived millions of years ago?

- f3 Study of fossils/bones preserved in certain kinds of rock
- f1 Digging up remains from under the ground  
Cave drawings
- f5 Reading lots of books  
Talking to primitive tribes that can remember them

### 11. Why do we need blood in our body?

- f3 Delivery of oxygen and nourishment to organs  
Carries auto-immune system (antibodies etc.)  
Elimination of waste products
- f1 To stay alive (probe 'Be more specific')
- f5 Otherwise we bleed to death  
So we look pink

### 12. Why does throwing sand on a campfire put it out?

- f3 Fires cannot burn without air/oxygen  
The sand extinguishes the flame by cutting off the supply of air
- f1 It smothers the flame (probe 'How does it do that?')
- f5 Because the sand is wet  
It knocks the flames off the pieces of wood

**13. How is a rainbow formed?**

- f3 Differential refraction of sunlight through raindrops  
Spectral dispersion of white light  
Raindrops act like little prisms to produce different colours
- f1 Sunlight shining through raindrops  
It's what happens when the sun's rays pass through mist
- f5 Sun shining on the clouds  
God sends it to say there'll be another flood

**14. Why do chameleons change colour?**

- f3 Camouflage  
So enemies cannot see them against their background
- f1 Protection
- f5 They are shy/emotionally disturbed  
They like variety—like people change their clothes

**15. How does an X-ray machine help doctors to see inside the body?**

- f3 The rays pass through some parts of the body easier than others and the pattern emerging on the other side is picked up on a photographic plate
- f1 The rays go through everything but bone  
Rays go through people and are photographed when they come out
- f5 Like a camera that sees through people  
Like the six million dollar man can see through people

**16. Why are light-coloured clothes particularly suitable for summer?**

- f3 They reflect heat  
Dark clothes absorb more heat
- f1 Cooler (probe 'Why?')  
Get too dirty in winter
- f5 Look pretty in sunshine  
Thinner

**17. Why does freezing food preserve it for a longer period?**

- f3 Bacteria are less active at low temperatures  
Stops bugs from spreading
- f1 Kills all the germs
- f5 Keeps the flies off  
Tastes better when it is cold

**18. Why do flowers tend to be brightly coloured?**

- f3 To attract insects (who help with pollination)  
These are the ones we have bred and chosen to cultivate
- f1 Good for survival of plant (probe 'How?')
- f5 So they look pretty

**19. What causes tides at the seaside?**

- f3 Gravitation of the Moon and Sun  
The pull of the Moon as it goes round and round the Earth
- f1 The Sun's gravity  
The Moon
- f5 The sea coming in  
A full moon  
Strong winds offshore  
Rivers getting flooded

**20. How does a bat avoid flying into things?**

- f3 Emits noises which reflect off obstacles  
A kind of radar except using sounds
- f1 Radar  
Very sensitive hearing
- f5 It can see in the dark  
Knows its way around the cave

**21. How does a submarine dive under water?**

- f3 Water pumped into its tanks  
Takes on some water
- f1 They make it heavier than water (probe 'How?')
- f5 They pull the periscope down  
They tilt the nose down and rev the engines

**22. Why do we see a flash of lightning a few seconds before we hear the thunderclap?**

- f3 Light travels faster than sound
- f1 The noise takes a long time to get to us
- f5 The lightning happens first  
Our eyes work faster than our ears

**23. Why does the Moon change its shape?**

- f3 We only see the part that the Sun is shining on  
Depends on angle of the Sun in relation to our viewpoint
- f1 Depends which angle we view from  
Sometimes eclipsed by Earth
- f5 Clouds going past it  
Sometimes it's full moon and sometimes it's a new moon

**24. If you were blindfolded how would you know what direction a sound was coming from?**

- f3 It would be louder on one side than the other  
The noise would reach one ear sooner than the other
- f1 Turn your head from side to side
- f5 Listen hard  
Peep under the blindfold  
Ask somebody who could see

**25. Why are rivers and lakes less salty than the sea?**

- f3 Fed mainly by rainwater which has evaporated off/been distilled from the sea leaving the salt behind  
Rivers constantly refreshed by rainwater
- f1 Sea has been there longer than the rivers  
Salt accumulates in the sea over time
- f5 There are salt mines at the bottom of the sea  
More fish in the sea

**26. Why does a compass needle always point north?**

- f3 Earth's magnetic field  
That is the direction of north magnetic pole
- f1 Magnetism
- f5 Iron deposits under the ground  
Gravitation  
Because the North star is up that way

**27. How do ordinary spectacles (glasses) help some people to see clearly?**

- f3 They correct the faulty focal length of the lens in the person's own eye so that images are better focused at the back of the eye (retina)
- f1 They help the person to focus on things (probe 'How?')
- f5 Magnify things  
Reduce eyestrain/glare

**28. Why is mercury used in thermometers?**

- f3 It expands a great deal when heated
- f1 Very sensitive to temperature (probe 'In what way?')
- f5 You can see it easily  
It looks pretty  
Very heavy

**29. Why do we have seasons like summer and winter?**

- f3 Earth is tilted relative to the Sun and moves around slowly so that sometimes the North Pole is tilted towards the Sun and sometimes the South Pole
- f1 Earth is tilted  
Sun is higher in the sky in summer
- f5 Sun is further away in winter  
Because we go around the Sun  
Sometimes the Sun is on the other side of the Earth  
It would get boring if there were no seasons

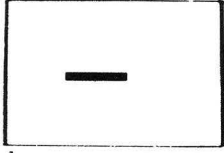
**30. Why does the Moon not fall down to Earth like an apple falling off a tree?**

- f3 Earth's gravity offset by centrifugal force due to orbital motion
- f1 In stable orbit (probe 'What does that mean exactly?')
- f5 It's too far away from Earth's gravity to affect it  
God keeps it up there so it won't get too dark at night

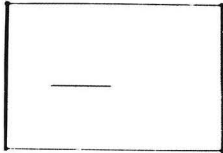
# PATTERN COMPLETION

The VIC function keys are used to input the scores for this test. Press f3 for a correct answer and f1 for an incorrect answer.

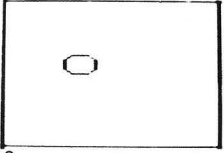
Correct Answers are:



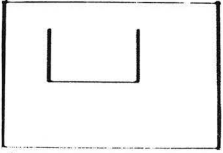
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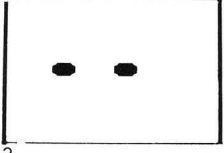
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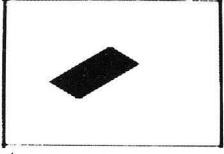
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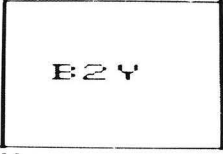
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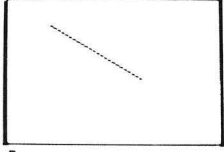
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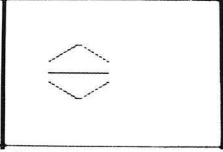
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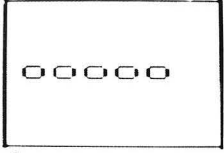
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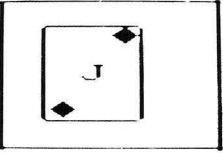
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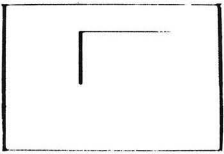
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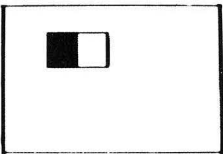
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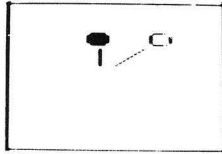
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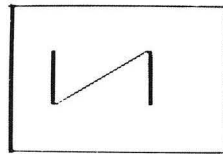
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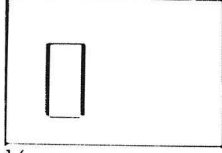
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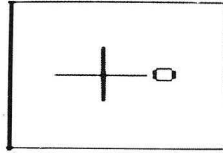
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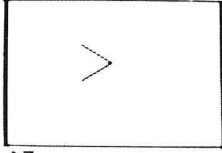
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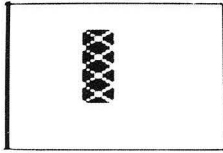
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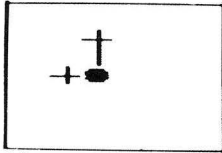
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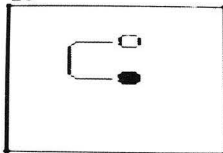
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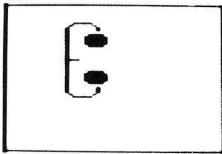
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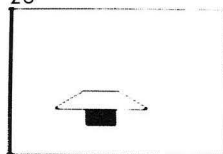
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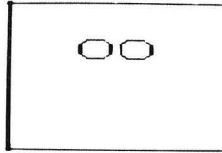
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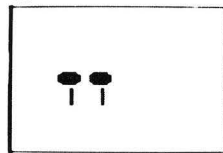
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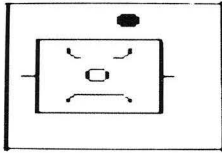
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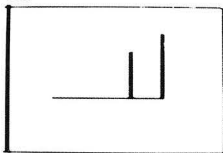
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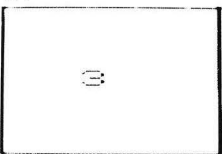
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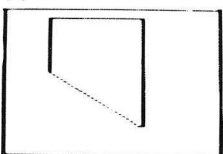
21



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30

### IQ RECORD CHART

DATE	NAME	AGE	SEX	TEST No.	RESULT



The information in this manual has been reviewed and is believed to be entirely reliable. No responsibility, however, is assumed for inaccuracies. The material in this manual is for information purposes only, and is subject to change without notice.

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