I. E. A.

IEA/1 A
IEA/1 B
IEA/1 K

BOOKLET 1

SCIENCE

SCIENCE

This test contains questions dealing with different branches of Science. Some you will know about from your school work, some from your general knowledge and others you will be able to answer by using commonsense. Others you may not be able to do. Do not waste time over questions you cannot do; leave them and go on to the next question. You can come back to questions you have missed later, if you have time. You may answer even if you are not quite sure, but do not guess blindly.

Each of the questions or unfinished statements in this test is followed by five suggested answers, lettered A,B,C,D, or E. You have to decide which <u>one</u> answer you think best and then on your answer card make a solid pencil mark in the oval containing the correct answer letter.

Here is an example of how to fill in the answer on your answer card. Remember that the examples given on this page are to be answered in the section marked L on your answer card.

1. How long does the earth take to travel once around the sun?

   A. A day.
   B. A week.
   C. A month.
   D. A year.
   E. None of the above.

Since the earth travels round the sun in a year, the answer space D should be marked. This has been done on the answer card for question 1 in the example section L.

Now try these three questions for practice. Fill in the space of your chosen answer on the answer card in section L.

2. Water would be turned into ice by

   A. heating it.
   B. stirring it quickly.
   C. putting salt in it.
   D. pouring it into a shallow dish.
   E. cooling it.

3. Which day of the year in the southern hemisphere has the longest period of daylight?

   A. 21st January.
   B. 21st March.
   C. 22nd December.
   D. 23rd September.
   E. 22nd June.

Sometimes you may be asked to pick out the <u>one</u> <u>wrong</u> answer or the one that does <u>not</u> fit in with the others.

4. Which of the following does <u>NOT</u> belong to the same group as the others?

   A. Eagle.
   B. Lion.
   C. Mouse.
   D. Elephant.
   E. Deer.

DO NOT TURN OVER UNTIL YOU ARE TOLD TO DO SO.

SECTION A

1. The sun is the only body in our solar system that gives off large amounts of light and heat. We see the moon because it is

   A. reflecting light from the sun.
   B. without an atmosphere.
   C. a star.
   D. the biggest object in the solar system.
   E. nearer the earth than the sun.

2. Imagine yourself leaving a rocket ship on the surface of the moon. You would

   A. be overcome with molten lava.
   B. weigh less.
   C. be poisoned by the atmosphere.
   D. shoot off into space.
   E. burn to death with the heat of the sun.

Questions 3 - 6 refer to the following chart which shows some readings made at different times on three days.

	6.0 a.m.	9.0 a.m.	12.0 Noon	3.0 p.m.	6.0 p.m.
Monday	15° C	17° C	20° C	21° C	19° C
Tuesday	15° C	15° C	15° C	10° C	9° C
Wednesday	8° C	10° C	14° C	14° C	13° C

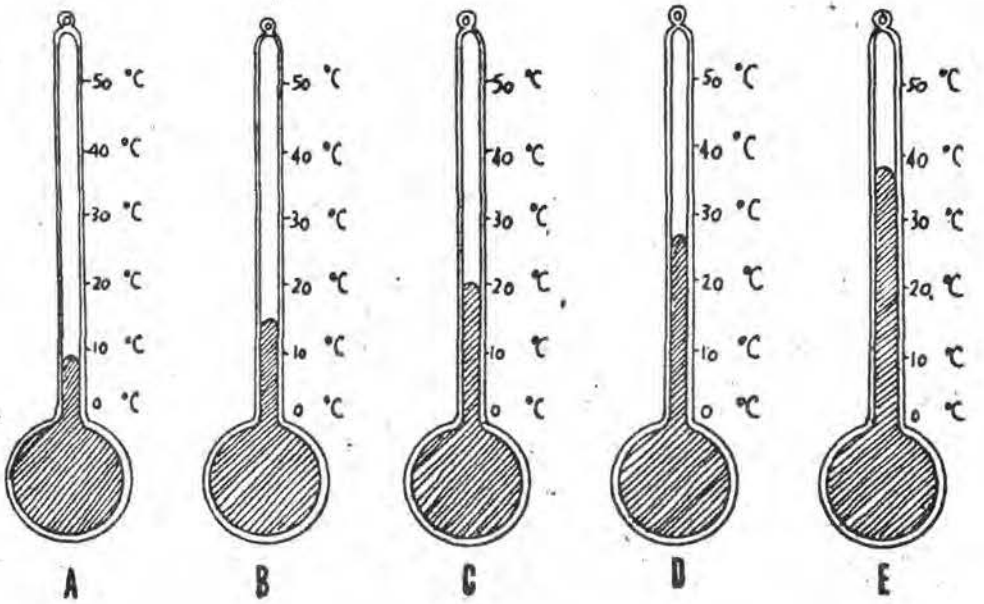
3. To obtain these readings it was necessary to have a

   A. ruler and a thermometer.
   B. barometer and a clock.
   C. ruler and a clock.
   D. thermometer and a barometer.
   E. thermometer and a clock.

4. When was the highest temperature recorded?

   A. Noon on Monday.
   B. 3.0 p.m. on Monday.
   C. Noon on Tuesday.
   D. Noon on Wednesday.
   E. 6.0 p.m. on Wednesday.

5. Which of the following instruments gives the temperature at 6.0 a.m. on Wednesday?



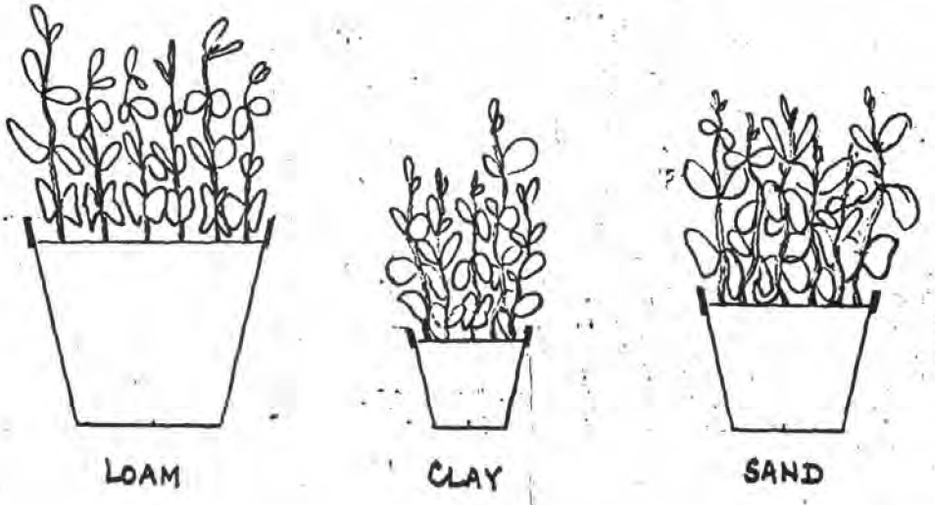
6. On one day a cool wind began to blow. When do you think this happened?

A. Monday morning.
B. Monday afternoon.
C. Tuesday morning.
D. Tuesday afternoon.
E. Wednesday afternoon.

7. Which of the following statements is true about seeds?

   A. All plants produce seeds.
   B. All fruits contain a large number of seeds.
   C. All seeds are good to eat.
   D. Every seed contains a young plant, stored food and a seed coat.
   E. The food stored in seeds is always in the cotyledon.

8. Tom wanted to learn which of three types of soil - clay, sand or loam - would be best for growing beans. He found three flowerpots, put a different type of soil in each pot, and planted the same number of beans in each, as shown in the drawing. He placed them side by side on the window sill and gave each pot the same amount of water.



Why was Tom's experiment NOT a good one for his purpose?

   A. The plants in one pot got more sunlight than the plants in the other pots.
   B. The amount of soil in each pot was not the same.
   C. One pot should have been placed in the dark.
   D. Tom should have used different amounts of water.
   E. It would get too hot on the window sill.

9. John put some seeds on moist cotton wool in a dish. Jane put some seeds of the same kind into a glass full of water by the side of his. After two days John's seeds sprouted but nothing seemed to happen to Jane's. Which of the following is the most probable explanation?

A. Jane's seeds had been kept dry for too long.
B. Jane did not allow her seeds enough air.
C. Jane did not put the glass in a warm enough place.
D. Jane should have used a different kind of seed.
E. Jane did not use any cotton wool.

10. John's pet rabbit was injured by a car and became lame. Some months after the accident she produced a litter. Which of the following describes what the babies would probably be like?

A. All of them would be lame because the mother was.
B. Most of them would be lame but not all of them because the father was not lame.
C. Most of them would not be lame because the father was not lame.
D. None of them would be lame because the mother's lameness was due to an accident.
E. Only one of them would be lame because the mother was lame.

11. A certain wild bird has webbed feet. In which of the following places would you be most likely to find it?

A. A forest.
B. A meadow.
C. A cornfield.
D. A desert.
E. A lake.

12. Paint applied to an iron surface prevents the iron from rusting by

A. preventing nitrogen from coming in contact with the iron.
B. reacting chemically with the iron.
C. preventing oxygen and moisture from coming in contact with the iron.
D. preventing carbon dioxide from coming in contact with the iron.
E. making the surface of the iron smoother.

13. Which one of the following is often used for making the metal containers in which food is preserved and sold?

A. Tin with a thin coating of steel.
B. Steel.
C. Nickel.
D. Copper.
E. Steel with a thin coating on it.

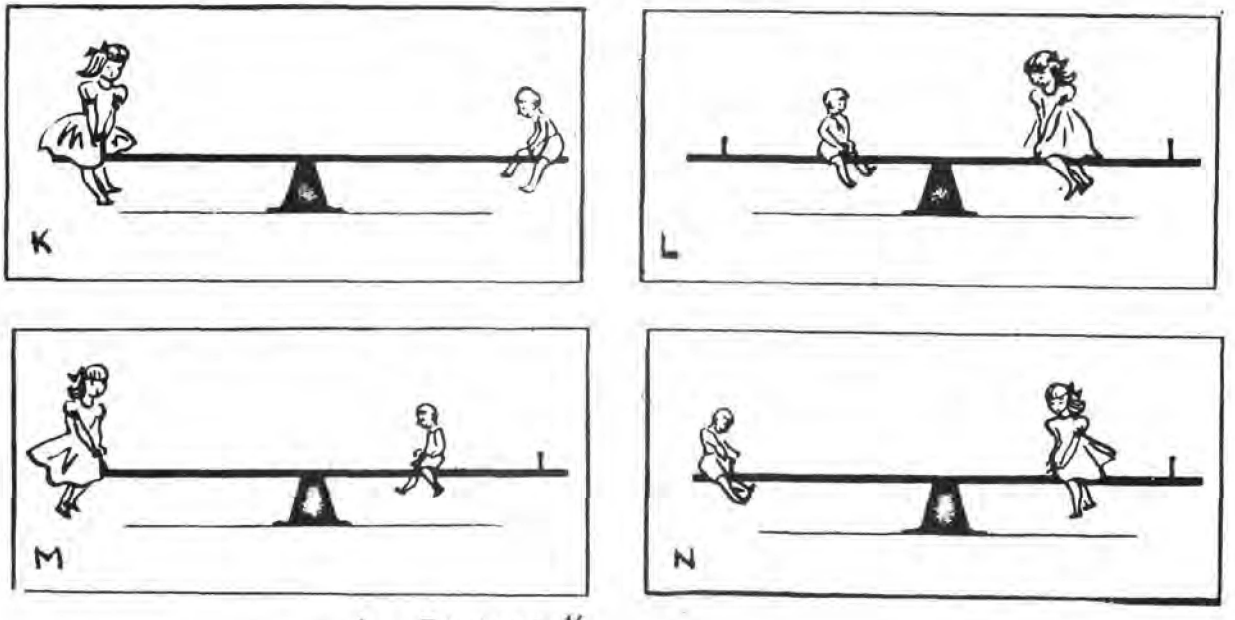
14. Mary and Jane each bought the same kind of rubber ball. Mary said, "My ball bounces better than yours." Jane replied, "I'd like to see you prove that." What should Mary do?

A. Drop both balls from the same height and notice which bounces higher.
B. Throw both balls against a wall and see how far each ball bounces off the wall.
C. Drop the two balls from different heights and notice which bounces higher.
D. Throw the balls down against the floor and see how high they bounce.
E. Feel the balls by hand to find which is the harder.

15. In order to open a can of tomato juice Betty punched <u>two</u> holes. Why do you think she did this? To

A. let the juice pour out of the can more slowly.
B. let the air go into one hole while the juice poured out of the other.
C. let the air get into the can before the juice was poured.
D. let the juice pour out of the can more quietly.
E. watch how the juice was pouring out.

16. Betty wanted to seesaw with her little brother, George. Which picture shows the best way for Betty, who weighed 100 pounds, to balance George, who weighed 50 pounds?



A. Picture K
B. Picture L
C. Picture M
D. Picture N
E. None of these

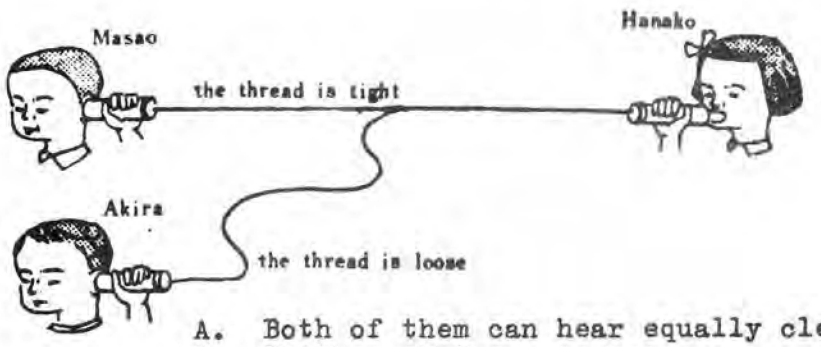
17. Tony was using his hand pump to put more air in the tyre. After a while he found that it became harder to use the pump. This was because the

A. air in the tyre pushed against the pump.
B. air started to leak out of the pump.
C. pump got too hot to hold.
D. pump got too sticky to push.
E. tyre is bigger than the pump.

18. When water is boiling it

A. changes colour.
B. becomes heavier.
C. changes to steam.
D. gets hotter.
E. stops bubbling.

19. The picture shows Masao and his friends playing with a thread-telephone. Hanako is speaking. Masao and Akira are trying to listen. Which of them can hear her speak?



A. Both of them can hear equally clearly.
B. Neither of them can hear.
C. Akira alone can hear clearly.
D. Masao alone can hear clearly.
E. Both of them hear equally faintly.

20. Harry wondered if sound is able to travel through water. To find out by an experiment which of the following should he do?

A. Hit two stones together in a jet of water.
B. Hit two stones together above the water of a lake or swimming pool and listen to the sound.
C. Put his ear next to the water of a lake or swimming pool and hit two stones together above the water.
D. Put his head under the water of a lake or swimming pool and hit two stones together in the water.
E. Drop a stone into the water and listen for the splash.

END OF SECTION A

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SECTION B

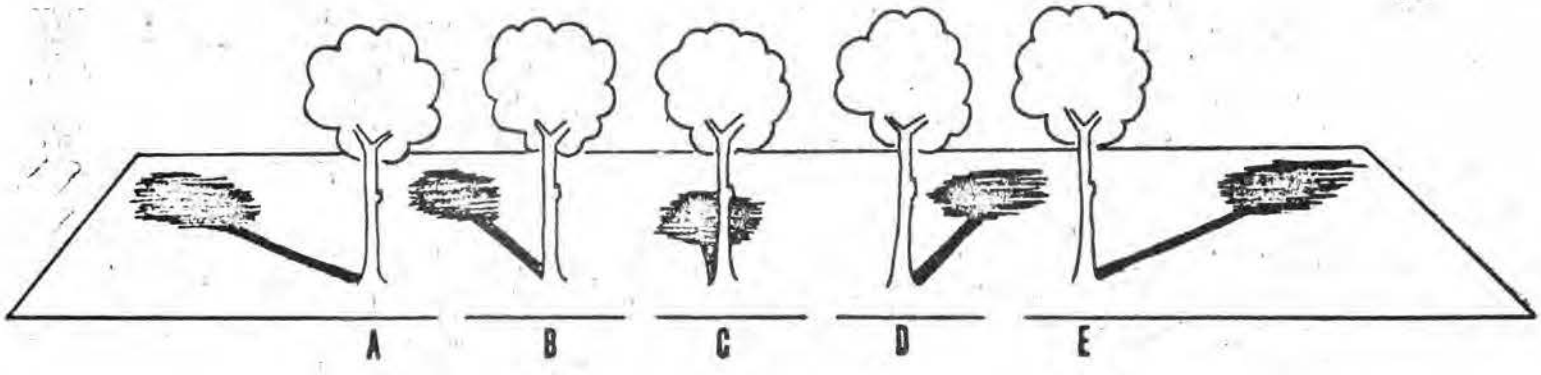
1. Let us imagine you are taking a trip to the moon in a rocket ship. As the rocket ship approaches close to the moon, you would be travelling through

   A. air.
   B. clouds.
   C. gas.
   D. space without air.
   E. time.

2. About how long would it take a rocket ship to reach the moon?

   A. Two hours.
   B. Several hours.
   C. A few days.
   D. A light-year.
   E. Several years.

3. At different times during a sunny day a tree was seen to have cast a shadow of different length as shown in the diagrams below. Which diagram shows the shadow at mid-day (12.00 hours)?



4. The reason that milk kept in a refrigerator does not go sour is that the cold

   A. changes the water of the milk into ice.
   B. separates the cream.
   C. slows down the action of bacteria.
   D. keeps flies away.
   E. causes a skin to form on the surface.

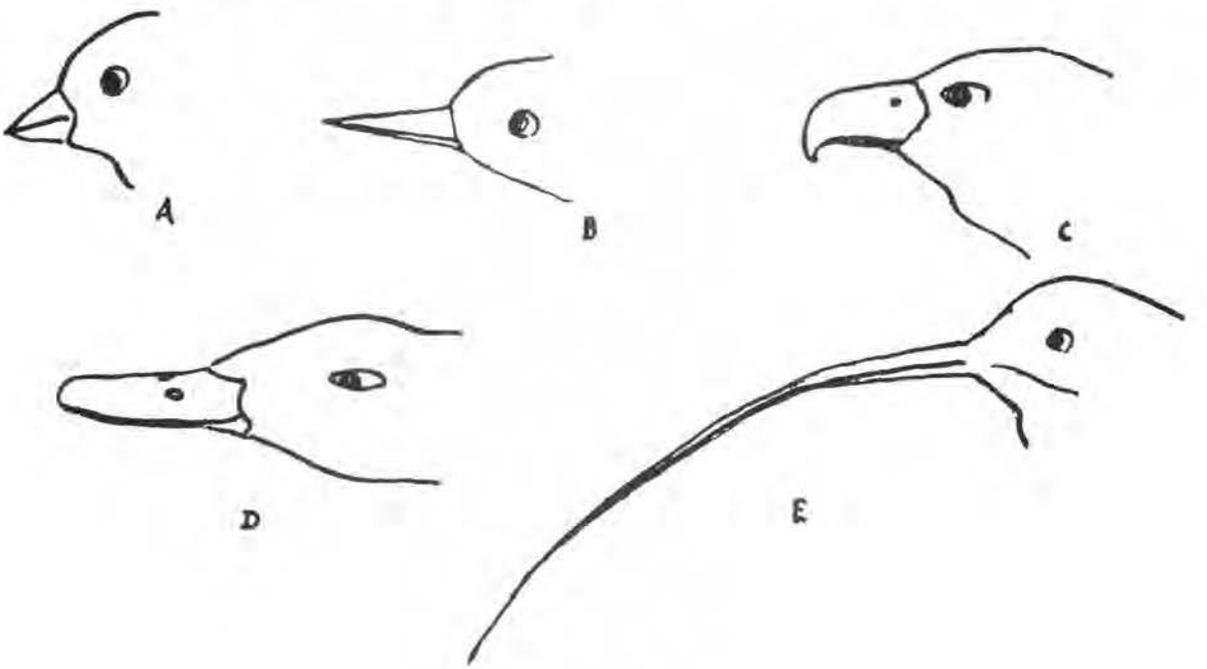
5. Which one of the following plants is NOT grown for food?

   A. Wheat.
   B. Rice.
   C. Potato.
   D. Sugar cane.
   E. Cotton.

6. John brought the skull of a dead animal to school. His teacher said she did not know what the animal was but she was sure that it was one that preyed on other animals for its food. Which clue, do you think, led her to this conclusion?

   A. The eye sockets faced sideways.
   B. The skull was much longer than it was wide.
   C. There was a projecting ridge along the top of the skull.
   D. Four of the teeth were long and pointed.
   E. The jaws could work sideways as well as up and down.

7. While Joe was sitting under a tree, he watched a bird getting insects from between the cracks of the bark. Which drawing shows the kind of beak this bird had?



8. If, immediately before and after a 50 metre race, your pulse and breathing rates were taken, you would expect to find

   A. no change in pulse but decrease in breathing rate.
   B. an increase in pulse but no change in breathing rate.
   C. an increase in pulse and breathing rate.
   D. a decrease in pulse and breathing rate.
   E. no change in either.

9. Flowers cannot usually produce seeds unless

A. they are visited by insects.
B. they appear in the summer.
C. they are on plants growing in good soil.
D. they produce nectar.
E. suitable pollen is placed on their stigmas.

10. Some seeds germinate best in the dark, others in the light, while others germinate equally well in the dark or the light. If you wanted to find out by means of an experiment to which group a certain kind of seed belonged, you would sow some of the seeds on damp blotting paper and

A. keep them in a warm place in the dark.
B. keep one batch in the light and another in the dark.
C. keep them in a warm place in the light.
D. sow some on dry blotting paper and keep them in the light.
E. sow some on dry blotting paper and keep them in the dark.

11. Which one of the following animals does <u>not</u> usually live in the kind of place shown?

A. Zebras on grassy plains.
B. Seals on rocky sea shores.
C. Beavers on river banks.
D. Monkeys in forests.
E. Moles in rocky places.

12. John gave some reasons why kettles and kitchen pans are often made of copper. Which of his reasons was wrong?

A. Copper is a bad conductor of heat.
B. Copper is a tough metal.
C. Copper can be polished to give a pleasing finish.
D. Copper is easy to shape.
E. Copper does not dissolve in hot water.

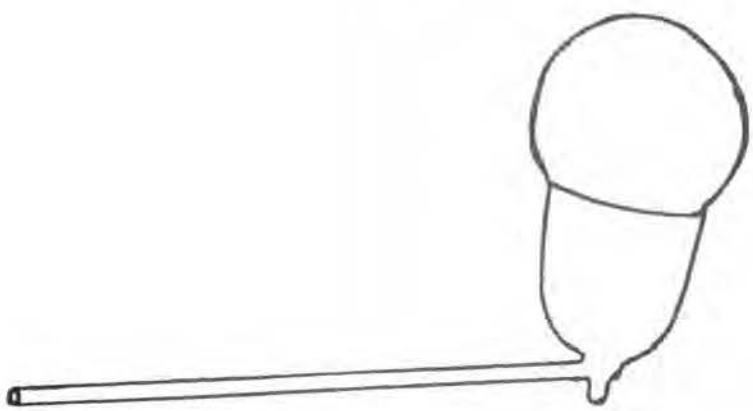
13. What gas in the air is essential for us to breathe in order to live?

A. Nitrogen
B. Oxygen.
C. Carbon dioxide.
D. Hydrogen.
E. Water vapour.

14. When Tom threw his rubber ball into the air, it came back to the ground because

A. the air pushed it back.
B. rubber always bounces back.
C. the earth pulled it back.
D. the air is very light.
E. the earth is a large magnet.

15. Ann was playing with a bubble pipe. When the bubble was the size of the one in the picture, she took the pipe out of her mouth. What do you think happened to the bubble after that?



A. It got larger for a time and then stayed at this size.
B. It got smaller for a time and then stayed at this size.
C. It got smaller and smaller and disappeared into the pipe.
D. It stayed on the pipe without getting larger or smaller.
E. It became larger and larger until it burst.

16. Some children had made a space-ship from wooden boxes. Today they are making plans for their first trip to the moon. Judy says, "Scientists tell us that the moon has no atmosphere." Jack asks, "How can we keep in touch with each other?" Which one of the children's ideas is best?

A. Judy says, "Let's take a garden hose to use as a speaking tube."
B. Phil says, "Let's find out from Mr. Jones where he got his hearing aid. We could take some of those."
C. Joe says, "Let's make sure we take enough walkie-talkies with plenty of fresh batteries."
D. Betty says, "Let's bring along some large megaphones like the cheerleaders use."
E. John says, "Our voices would carry better on the moon and there would be no problem."

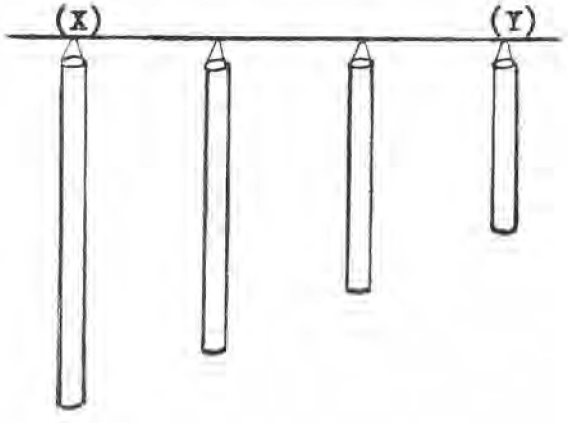
17. Betty was trying to take the metal screw-top off a jar of jam but it wouldn't turn. What should Betty do in order to open the jar with the least risk of breaking it?

A. Force the cap off with a screw driver.
B. Run hot water on the glass part of the jar.
C. Run cold water on the cap.
D. Hammer the cap off.
E. Run hot water on the cap.

18. As part of an investigation a cupful of water and a similar cupful of petrol were placed on a window sill on a hot sunny day. A few hours later it was observed that both the cups had less liquid in them and that there was less petrol left than water. The experiment showed that

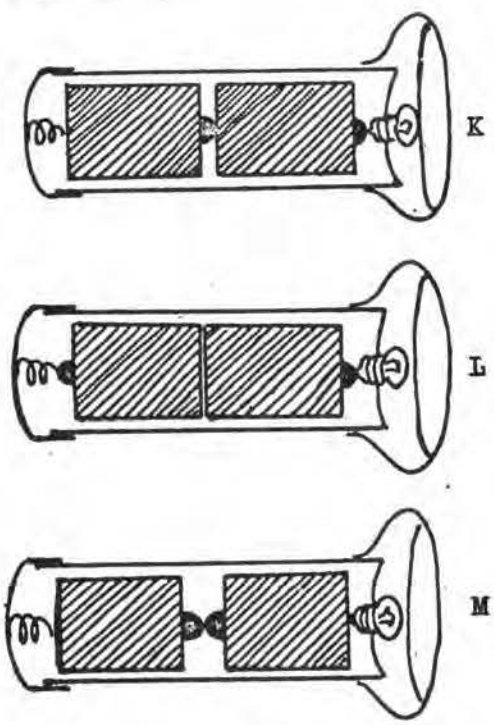
A. all liquids evaporate.
B. petrol gets hotter than water.
C. some liquids evaporate faster than others.
D. liquids will only evaporate in sunshine.
E. water gets hotter than petrol.

19. Some boys made a set of chimes by cutting four pieces of pipe of different lengths from a long metal pipe and hanging them as shown in the picture below. Which of the pipes gave the lowest note when they struck it with a hammer?



A. Pipe (X)
B. Pipe (Y)
C. All gave the same note.
D. You cannot tell without trying.
E. It depends on where you hit it.

20. A flashlight holds two cells. In order to make it work, in which of the following ways must we place the cells?



A. As in K
B. As in L
C. As in M
D. Either as in L or M
E. None of these would do.

END OF SECTION B

DO NOT TURN OVER UNTIL YOU ARE TOLD TO DO SO

SECTION K

Section K should be entered here. It is to be found in the Questionnaire Bulletin.

At the end of the Section, please print :

END OF BOOKLET 1

IEA/1K

THE PLACE OF SCIENCE
IN THE SCHOOL
AND IN THE WORLD OUTSIDE

These questions are being given to a number of children in several countries to find out what they think about Science and the part it plays in their lives. For most of the questions there are no right or wrong answers, so this is NOT a test. We just want to know what you think.

The answers to these questions should be put in Section K on your answer card. Blacken in the oval which contains the letter of the answer you choose for each question. If you wish to change an answer you may, but be sure to erase the mark for the old answer completely.

For each of these four questions, select the best answer, and indicate it by marking the appropriate letter.

1. The marks I get in Science are usually .....

   A. better than in most other subjects.
   B. about average compared with other subjects.
   C. worse than in most other subjects.

2. I like Science .....

   A. more than most other subjects.
   B. about the same as other subjects.
   C. less than most other subjects.

3. I would like to study Science after the end of this school year.

   A. Yes.
   B. Not sure.
   C. No.

4. I hope that in my career I will be able to make use of some of the Science I learned at school.

   A. Yes.
   B. Not sure.
   C. No.

Below is a list of things you might do outside school. Look at each one and if it is something you do very often or used to do very often, mark A. If you have ever done it at all, mark B. If you have never done it, mark C.

5. Visit a Science museum.

   A. Often.
   B. Sometimes.
   C. Never.

6. Go to meetings of a scientific club.

   A. Often.
   B. Sometimes.
   C. Never.

7. Build working models of ships, cars or aeroplanes.

A. Often.
B. Sometimes.
C. Never.

8. Build a radio set or other piece of electronic apparatus.

A. Often.
B. Sometimes.
C. Never.

9. Visit an airfield to watch the planes.

A. Often.
B. Sometimes.
C. Never.

10. Visit a harbour to watch the ships.

A. Often.
B. Sometimes.
C. Never.

11. Read a science fiction book.

A. Often.
B. Sometimes.
C. Never.

12. Look at the moon or the planets through a telescope.

A. Often.
B. Sometimes.
C. Never.

13. Do Chemistry experiments with your own equipment.

A. Often.
B. Sometimes.
C. Never.

Below is a list of some things you may do. If you do, Mark A. If you do not, but would like to, mark B. If you are not interested to do it, mark C.

14. Make a hobby of studying or collecting flowers or leaves.

A. I do it.
B. I would like to.
C. I am not interested.

15. Make a hobby of studying or collecting insects.

A. I do it.
B. I would like to.
C. I am not interested.

16. Make a hobby of studying or collecting rocks or fossils.

A. I do it.
B. I would like to.
C. I am not interested.

For the following questions indicate whether each of the statements is usually true for <u>you</u> in <u>your school.</u>

17. We have regular Science lessons.

A. Yes.
B. No.

18. We have a textbook for Science.

A. Yes.
B. No.

19. Our Science lessons include laboratory experiments in which we all take part.

A. Yes.
B. No.

20. We make observations and do experiments during our Science lessons.

A. Yes.
B. No.

21. The teacher gives us questions to answer while we do our experiments.

A. Yes.
B. No.

22. We usually make up our own problems and design our own experiments.

A. Yes.
B. No.