

TIMSS 2010/11

Booklet

1

Year 5



TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

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TIMSS New Zealand
Research Division
Ministry of Education
PO Box 1666
Wellington 6140

General Directions

In this test, you will answer mathematics and science questions. You may find some questions easy, and you may find some questions difficult. Try to answer all questions, the difficult ones as well as the easy ones.

For some questions, you choose the answer you think is correct, and tick the circle next to it. Example 1 shows this kind of question with the circle next to the correct answer ticked.

Example 1

How many minutes are there in 1 hour?

- (A) 12
- (B) 24
- (C) 60
- (D) 120

The circle with the letter “C” has been ticked because there are 60 minutes in one hour. If you are not sure about the answer to a question, tick the circle next to the answer you think is best, and move on to the next question.

If you decide to change an answer to a question, draw an X through your first answer, like this: . Then tick the circle next to your new answer. Example 2 shows how to do this.

Example 2

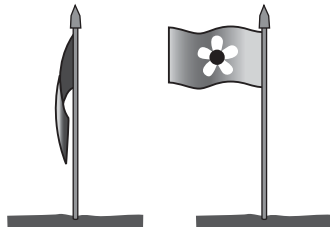
How many minutes are there in 1 hour?

- (A) 12
- (B) 24
- (C) 60
- (D) 120

General Directions (continued)

For some questions, you must write your answer in the space below the question. Words, drawings, or numbers are used in answers to these questions. Example 3 shows a question like this.

There is a flag in John's garden. Sometimes it hangs from the flag pole and sometimes it waves as shown below.



What makes the flag wave?

The wind makes the flag wave.

Example 3

Sometimes, to get full marks, you will need to explain your answers for science questions, or show your working for mathematics questions. Keep your writing and calculations as neat as possible, and give mathematics answers in their simplest form. For problems in the test involving money, suppose you are in a country where the “Zed” is used as the unit of money, like the dollar is in New Zealand.

When you are asked to write an answer, be sure that your handwriting is clear. Think carefully about each question, and answer as completely as possible. If you are not sure about the answer, give the answer you think is best, and move on to the next question.

You will have 36 minutes to work on the first part of the test. You will then have a short break. After the break, you will work for another 36 minutes in the second part.

You may not use a calculator during the test.

Instructions for Part 1

Read each question carefully, and answer it as well as you can. If you are not sure about the answer to a question, choose or write the answer you think is best, and continue with the next question on the test.

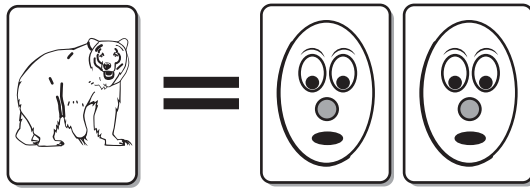
You will have 36 minutes to complete this part of the test.

Do not start working until you are told to do so.

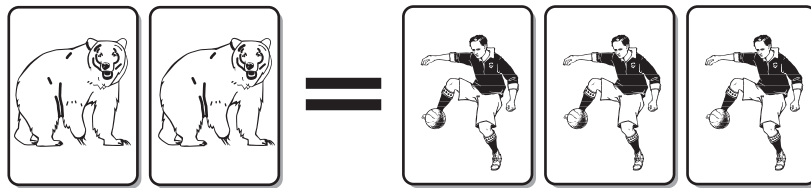
Trading Cards

Instructions: Questions 1, 2, and 3 are about trading cards.

The town fair had a booth where people could trade cards.



1 animal card is worth 2 cartoon cards.



2 animal cards are worth 3 sports cards.

Some children went to the booth to trade cards.

Questions for Trading Cards begin on the next page. 

Trading Cards (Continued)

M01_01

1

Trading Animal Cards

- A. Becky had 5 animal cards to trade for cartoon cards. How many cartoon cards would she get?

10
79
99

Answer: _____ cartoon cards

- B. Jim had 8 animal cards to trade for sports cards. How many sports cards would he get?

10
70 71 79
99

Answer: _____ sports cards

- C. Katrina had 6 animal cards. She wanted to trade them for as many cards as possible.

20
10 11 12
70 79
99

How many cartoon cards would she get? _____

How many sports cards would she get? _____

Should she trade for cartoon cards or trade for sport cards?

Answer: _____

M031346

Questions for Trading Cards continue. 

Trading Cards (Continued)

2

Trading Sports Cards

Steve had 15 sports cards to trade for animal cards. How many animal cards would he get?

Answer: _____ animal cards

M031379

M01_02

10
70 71 79
99

Trading Cartoon Cards

Brad had 8 cartoon cards to trade for sports cards. How many sports cards would he get?

Answer: _____ sports cards

M031380

M01_03

10
70 71 72 79
99

End of Trading Cards section.



4

Pirate Ship



Treasure Ship



The diagram above shows a pirate ship chasing a treasure ship.
Which of the following is the closest estimate to how many ship lengths
there are between the front of the pirate ship and the back of the treasure ship?

- (A) 3
- (B) 4
- (C) 5
- (D) 6

M031002

5

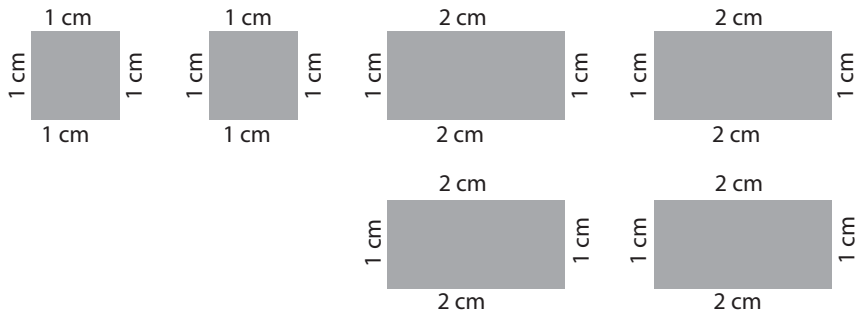
There are 218 passengers and 191 crew members on a ship.
How many people are on the ship altogether?

Answer: _____

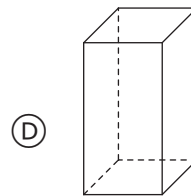
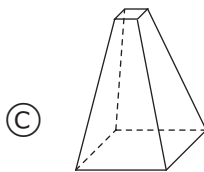
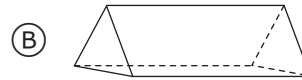
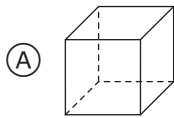
M031313

- (10)
- (70) (79)
- (99)

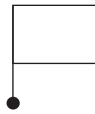
6



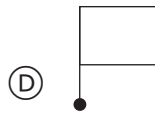
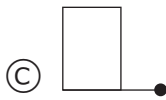
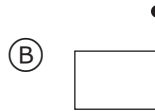
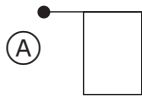
Susan has the 6 pieces of cardboard shown above. Which of the following shapes could Susan make using all 6 of these pieces without cutting them?



7



Which of the following shows the position of the above shape after a half turn (180° rotation)?



M031071

8

The scale on a map indicates that 1 centimetre on the map represents 4 kilometres on the land. The distance between two towns on the map is 8 centimetres. How many kilometres apart are the two towns?

- (A) 2
- (B) 8
- (C) 16
- (D) 32

M031185

9

Duncan first travelled 4.8 km in a car and then he travelled 1.5 km in a bus.
How far did Duncan travel?

- (A) 6.3 km
- (B) 5.8 km
- (C) 5.13 km
- (D) 4.95 km

M051305

M02_01

10

Which fraction is **not** equal to the others?

- (A) $\frac{1}{2}$
- (B) $\frac{4}{8}$
- (C) $\frac{2}{4}$
- (D) $\frac{2}{8}$

M051091

M02_02

11

In a soccer tournament, teams get:

3 points for a win

1 point for a tie

0 points for a loss

Zedland has 11 points.

What is the **smallest** number of games Zedland could have played?

Answer: _____

M051001

M02_03

(10)
(79)
(99)

12

Mary left Apton and rode at the same speed for 2 hours.
She reached this sign.



Mary continues to ride at the same speed to Brandon.
How many hours will it take her to ride from the sign to Brandon?

- (A) $1\frac{1}{2}$ hours
- (B) 2 hours
- (C) 3 hours
- (D) $3\frac{1}{2}$ hours

13

$$23 \times 19 =$$

Answer: _____

M051203

M02_05

10
79
99

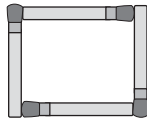
14

Henare makes figures 1 to 4 with matches.

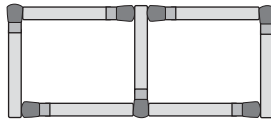
Figures 1, 2, and 3 are shown below.

He needs four matches to make figure 1, seven matches to make figure 2, and ten matches to make figure 3.

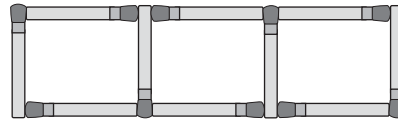
He uses the same rule each time to make the next figure in the pattern.



1



2



3

How many matches will he need to make figure 4?

Answer: _____

M051601

M02_06

10
70 79
99

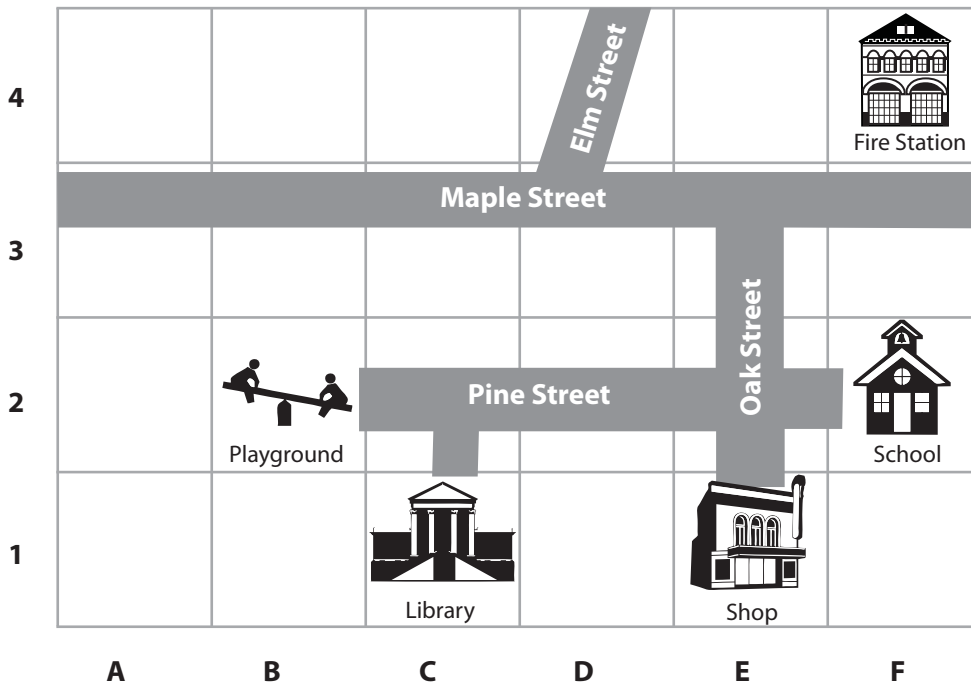
15

A. Complete the table to show where the places are.

The first one has been done for you.

10
70 71 79
99

Places	Grid Square
Playground	B2
School	
Corner of Maple and Oak Streets	

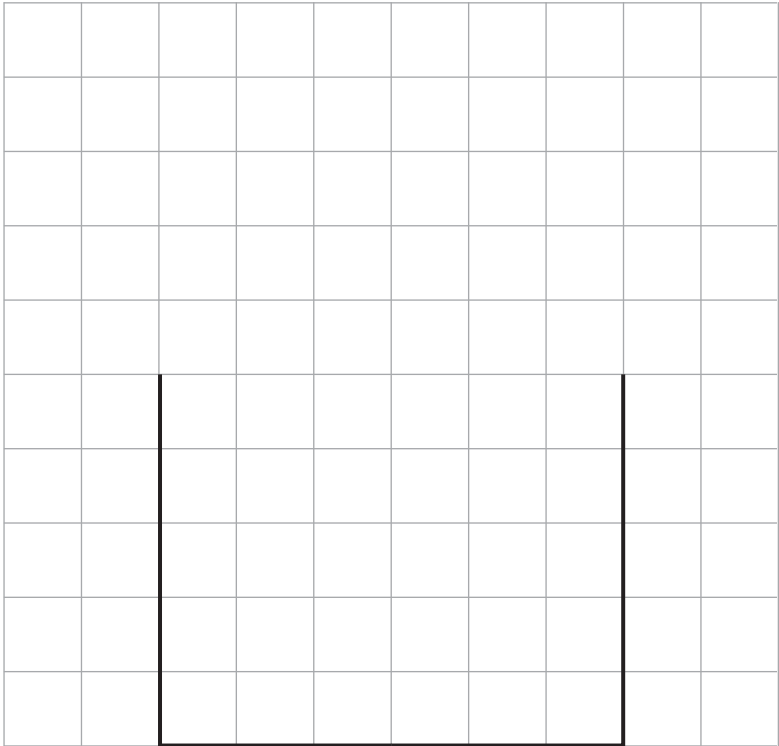


B. Troy lives in a house in square C4. Put an X in the square to show where Troy lives.

10
79
99

16

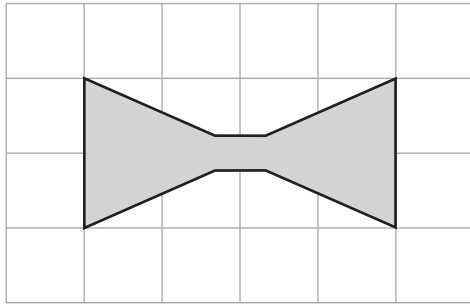
Jay has to draw a shape.
It must have 5 sides.
It must have one line of symmetry.
Jay has started to draw the shape.
Complete Jay's shape.



10 11
79
99

M051015

17







How many lines of symmetry does this figure have?


- (A) 1
- (B) 2
- (C) 3
- (D) 4

M051123

18

Favourite Ice Cream Flavours

Flavour	Number of Children
Vanilla	
Chocolate	
Strawberry	
Lemon	

 stands for
4 children

How many children chose vanilla as their favourite flavour?

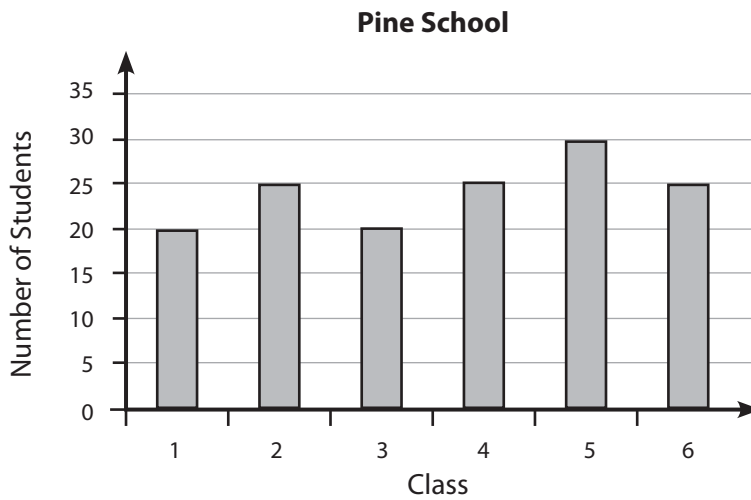
Answer: _____

- (10)
- (70) (79)
- (99)

M051109

19

The graph shows the number of students at each class at Pine School.



In Pine School there is room in each class for 30 students.
How many more students could be in the school?

- (A) 20
- (B) 25
- (C) 30
- (D) 35

M051117



**Do not start working on Part 2
until you are told to do so.**

If you have finished Part 1 of the test before the time is over,
you may go back and check your answers.

Instructions for Part 2

In Part 2, you will answer more mathematics or science questions. You will have 36 minutes to work on this part of the test.

Read each question carefully, and answer it as well as you can. If you are not sure about the answer to a question, choose or write the answer you think is best, and move on to the next question.

Do not start working until you are told to do so.

20

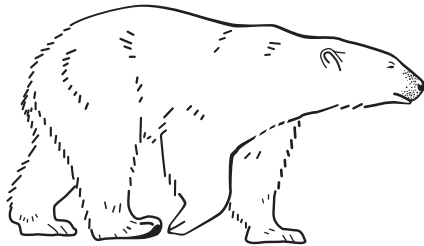
A predator is an animal that feeds on other animals.
Which of these is a predator?

- (A) deer
- (B) wolf
- (C) cow
- (D) goat

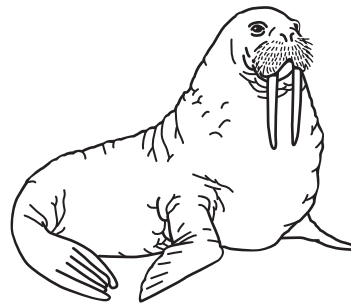
S031356

21

polar bear



walrus



Polar bears and walrus look very different, but both can survive in the extreme cold. A polar bear has a thick coat of fur that helps keep it warm. The walrus has no fur.

What does the walrus have that helps it keep warm?

- (A) fat layers
- (B) tusks
- (C) whiskers
- (D) flippers

S031291

S01_03

22

What do birds, bats and butterflies have in common?

- (A) feathers
- (B) hair
- (C) internal skeleton
- (D) wings

S031230

S01_04

23

The normal temperature of the human body is about 37 degrees Celsius.
Manuel takes his temperature one morning after waking up.
His body temperature is 40 degrees Celsius.

Write down one thing that could have caused his temperature to be higher than normal.

(10)
(70) (71) (79)
(99)

S031325

24

Maria designed an experiment using salt and water. The results of her experiment are shown in the table.

Amount of Salt Dissolved	Water Volume	Water Temperature	Was Mixture Stirred?
15 grams	50 ml	25° C	Yes
30 grams	100 ml	25° C	Yes
45 grams	150 ml	25° C	Yes
60 grams	200 ml	25° C	Yes

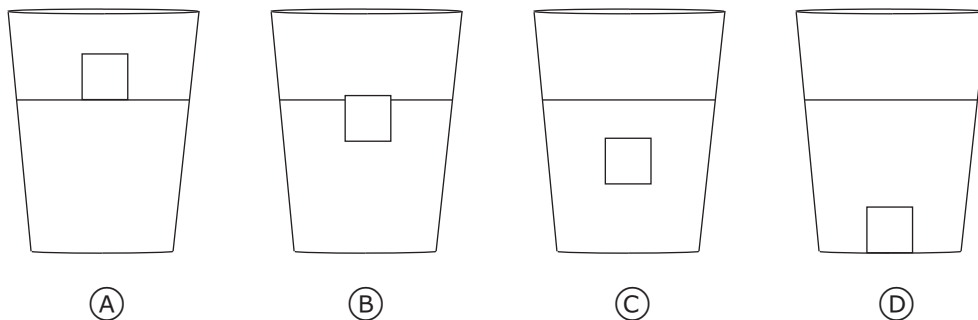
What was Maria studying in her experiment?

- (A) How much salt will dissolve in different volumes of water.
- (B) How much salt will dissolve at different temperatures.
- (C) If stirring increases how fast salt will dissolve.
- (D) If stirring decreases how fast will salt dissolve.

S031068

25

A piece of ice is placed in a glass of water. Which figure best shows the position of the ice in the water?



S031418

S01_07

26

Name two things electricity can be used for in daily life.

Use 1:

(10) (11) (12) (13) (19)
(70) (79)
(99)

Use 2:

(10) (11) (12) (13) (19)
(70) (79)
(99)

S031197

27

During freezing, melting, and boiling, water changes from one state to another state.

Heat needs to be supplied for which of these to take place?

- (A) boiling only
- (B) melting only
- (C) melting and freezing but not boiling
- (D) melting and boiling but not freezing

S031371

S01_08

28

Plants grow best in soils that are rich in which of the following?

- (A) grains of sand
- (B) lumps of clay
- (C) layers of gravel
- (D) decaying plants and animals

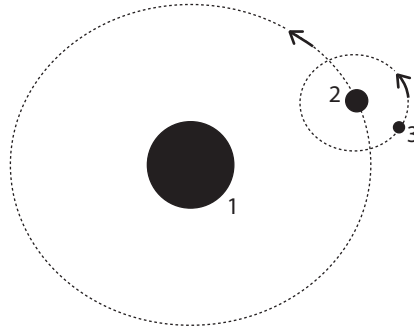
S031376

S01_09

S01_10

29

The figure below shows Earth, the Moon, and the Sun. Each body is labelled by a number. The arrows show the direction each body is moving.



Fill in the correct number next to each body (1, 2 or 3).

Earth is body number: _____

The Moon is body number: _____

The Sun is body number: _____

⑩
⑦⑩ ⑦⑨
⑨⑨

S031044

30

Describe two human activities that can lead to the extinction of animals.

Activity 1:

Activity 2:

⑩ ⑪ ⑫ ⑰
⑦⑩ ⑦⑨
⑨⑨

⑩ ⑪ ⑫ ⑰
⑦⑩ ⑦⑨
⑨⑨

S031390

S01_11

31

The table shows three functions carried out by parts of the human body. Write the name of the body part beside its function. The first one has been done for you.

10
70 71 79
99

Function	Body Part
Supports the body	Skeleton
Pumps blood through the body	
Used for thinking	

S051057

32

A hedgehog is a small spiny animal. When it is frightened it rolls into a ball.



How does this behaviour help the hedgehog?




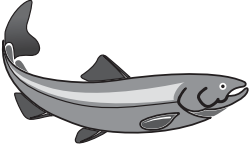

- (A) The hedgehog can roll away quickly.
- (B) The hedgehog looks larger rolled up.
- (C) The hedgehog is harder to see in a ball.
- (D) The hedgehog's soft body parts are covered.

S051032

33

Which animals shown below have a backbone?

Tick one circle for **each** animal. One has been done for you.

Animal	Has a Backbone	
	Yes	No
 heron	<input checked="" type="radio"/>	<input type="radio"/>
 spider	<input type="radio"/>	<input type="radio"/>
 crab	<input type="radio"/>	<input type="radio"/>
 fish	<input type="radio"/>	<input type="radio"/>
 lion	<input type="radio"/>	<input type="radio"/>

S051049

S02_04

34

Why are many desert animals more active at night?

- (A) It is drier at night.
- (B) It is cooler at night.
- (C) There is less danger at night.
- (D) There is less wind at night.

S051033

S02_05

35

Harry grows two centimetres in one month.

Why is eating food that contains calcium important for Harry's growth?

- (10)
- (79)
- (99)

S051173

S02_06

36

Water, ice, and steam all have different temperatures.

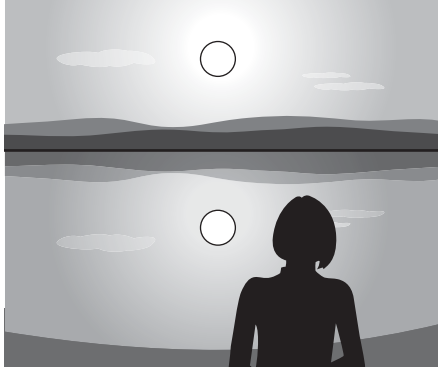
What is the order from coldest to hottest?

- (A) ice, water, steam
- (B) ice, steam, water
- (C) steam, ice, water
- (D) steam, water, ice

S051086

37

Alice watches a sunrise from across a calm lake. She sees a sun in the sky and a sun in the lake as shown below.

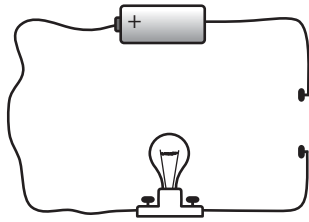


Why does Alice see a sun in the lake?

- (A) The sunlight warms that part of the lake.
- (B) The sky spreads sunlight over the lake.
- (C) The sunlight reflects off the lake water.
- (D) Clouds reflect sunlight into the lake.

38

Hemi connects a battery, a light bulb, and some wire as shown below.



Will the bulb light?

(Tick one box.)

Yes

No

Explain your answer.

10 11
79
99

39

Aroha has two magnets (A and B) and two metal pins that are the same. She slides Magnet A along a table until a pin is attracted to the magnet. She slides Magnet B along a table until a pin is attracted to the magnet.



She finds that Magnet A attracts the pin from 15cm and Magnet B attracts the pin from 10cm.

Steven says that both magnets are equally strong.

Do you agree?

(Tick one box.)

- Yes
 No

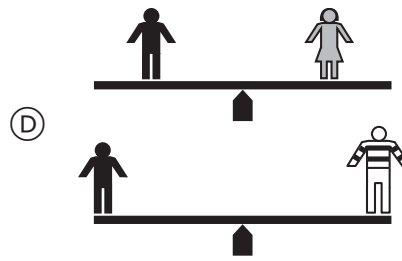
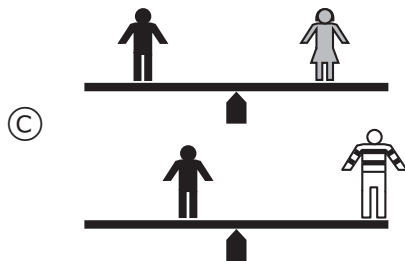
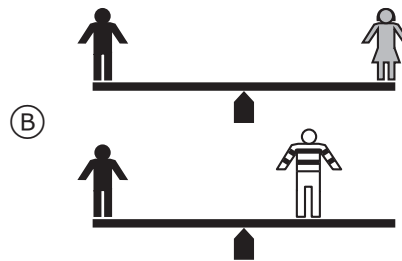
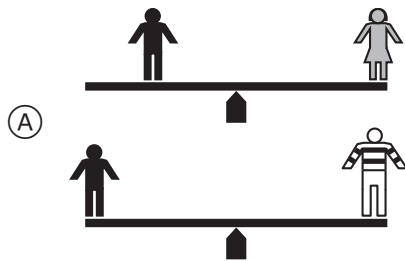
Explain your answer.

40

Nick rides on a seesaw with his sister Kate and then with his brother Leon. Nick is the same weight as Kate, but Leon is twice the weight of Nick.



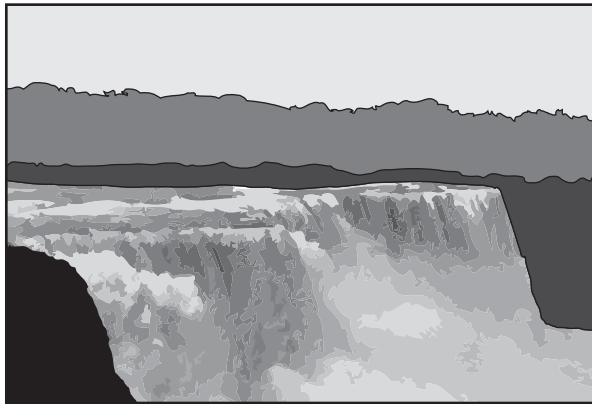
Which figure shows where the children should sit so that Nick can balance first with Kate and then with Leon?



S051071

41

A river flowing over a waterfall has a lot of energy.

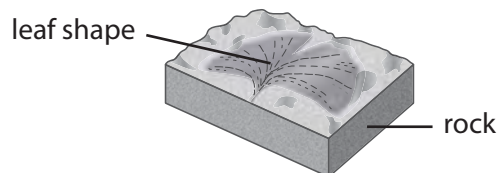


Which of the following is made from waterfall energy?

- (A) hot water
- (B) solar power
- (C) electricity
- (D) drinking water

S051100

The leaf shape in the rock comes from a plant that lived long ago.



About how long ago was the plant alive?

- (A) one year
- (B) one hundred years
- (C) one thousand years
- (D) one million years

S051156



There are no more questions on this test.

If you have finished Part 2 of the test before the time is over, you may go back and check your answers in Part 2. Thank you for taking the time to answer these questions carefully.



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COLLEGE

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TIMSS 2010/11

Booklet

1

Year 5



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