



# Computer Talent Search

A project of the Institute of IT Professionals South Africa

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# JUNIOR

## Grades 6 and 7

**Not to be used before 16 March**

If you are NOT in grade 6 or 7, please report that you have the wrong paper.  
Only when the teacher says “START”, may you begin.

1. Write your personal details and your answers on the answer sheet provided.
2. You will have 45 minutes to complete the 15 tasks.
3. You may answer the questions in any order, but it is important to place the answer in the correct line on the answer sheet.
4. Leave the tasks you find difficult for last.

The mark allocation is as follows.

A section: +6 marks for every correct answer.

B section: +7 marks for every correct answer.

C section: +7 marks for every correct answer.

If you do not answer a question or answer incorrectly, you get 0 (zero) for that task.

The maximum mark is 100.

Wait for the teacher to say “START”.

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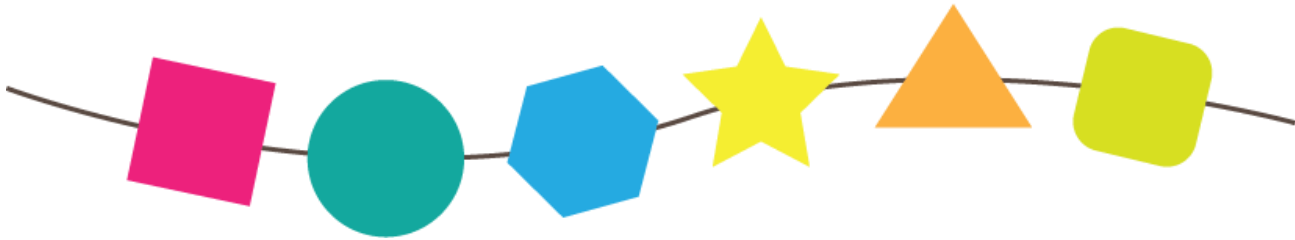


**Standard Bank**

# A1 Bracelet

ID362 / JA1 / IA1

Emily has broken her favourite bracelet. The broken bracelet now looks like this:



## Question:

Which of the following four bracelets shows what the bracelet looked like when it was whole? Write down the letter of your answer in the appropriate block on the answer sheet.

A



B



C



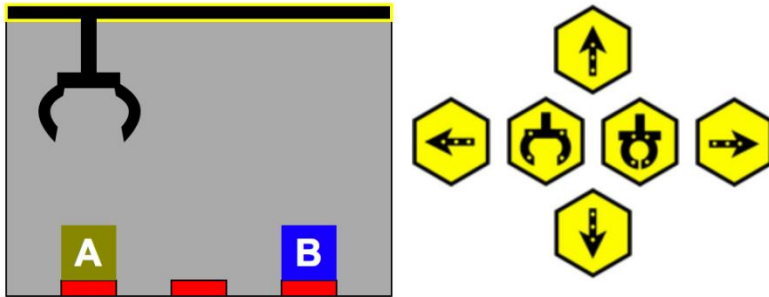
D



## A2 Crane Operating

ID372 / JA2

The crane in the port of Lodgedam responds to six different input commands:



1. Left
2. Right
3. Up
4. Down
5. Grab
6. Release

Crate A is in the left position, crate B is in the position on the right.

### Question:

Which is the correct set of instructions to swap the position of the two crates. Write down the letter of the correct answer in the appropriate block on your answer sheet.

- A. (Down, Grab, Up, Right, Down, Release, Up)
- B. (Down, Grab, Up, Right, Down, Release, Up) (Right, Down, Grab, Up, Left, Left, Down, Release, Up) (Right, Down, Grab, Up, Right, Down, Release)
- C. (Right, Right, Down, Grab, Up) (Left, Left, Down, Release, Up)
- D. (Down, Grab, Up, Right, Right, Down, Release, Up) (Down, Grab, Left, Down, Release, Up) (Down, Grab, Up, Right, Down, Release, Up)

# A3 Dream Dress

ID367 / JA3 / IA2

Kate wants to buy her dream dress. It must

- have short sleeves, and
- have more than 3 buttons, and
- have stars on its sleeves.

Four shops sell only the dresses shown.

## BeaverYorker



## BeaverNova



## B&B



## TomTeaver



### Question:

Which one of these shops sells Kate's dream dress? Write down the name of the shop in the appropriate block on your answer sheet.

- BeaverYorker
- BeaverNova
- B&B
- TomTeaver

A4 Mushrooms

ID363 / JA4

Three beavers, *Sad*, *Tail* and *Talky*, are standing in a forest.

Each wants to go where there are mushrooms. Arrows in the picture to the right show the directions the beavers will walk.

**Where do the beavers end up?**  
Indicate the square by a letter and number. Eg the *Talky* beaver is at C3 at the start.

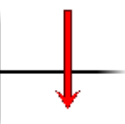
Sad






















Tail



Talky



	A	B	C	D	E	
1						1
2						2
3						3
4						4
5						5
	A	B	C	D	E	

Write the reference of the square where the beavers end up: Eg. *Sad* B2, *Tail* D4, *Talky* E5. You need to have all three correct to get marks. There are no part marks. It is 6 or 0. Write your answer in the appropriate block on your answer sheet.

# A5 Setting the table

ID360 / JA5

Bob has set the breakfast-table as shown in the picture.



## Question:

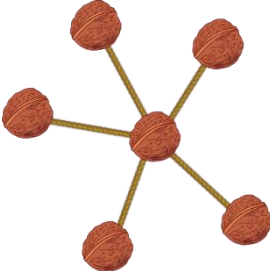
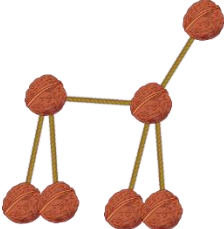
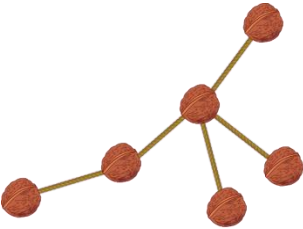
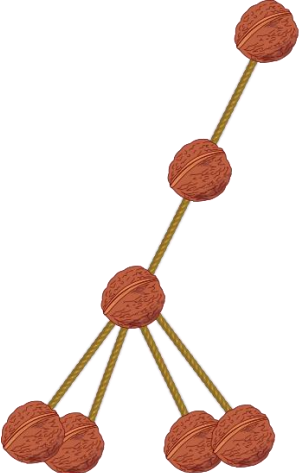
In which order has he placed the objects on the table? Write down the letter of the answer in the appropriate block on your answer sheet.

- A. Table cloth, napkin, cup and saucer, knife, plate
- B. Table cloth, napkin, cup and saucer, plate, knife
- C. Napkin, knife, table cloth, cup and saucer, plate
- D. Table cloth, cup and saucer, napkin, plate, knife

# B1 Walnut Animals

ID365 / JB1

Gerald was playing in the woods. He used nuts and sticks to create four toy animals.

Starfish	Dog	Sea lion	Giraffe
			

His sister managed to bend the animals around without removing any of the sticks.

Gerald was very upset because he really loved the figure of a dog.

**Question:**

Which of the following figures can be bent back to make the figure of the dog again? Write down the letter of the answer in the appropriate block on your answer sheet.

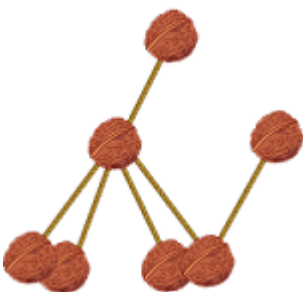
A.



B.



C.



D.



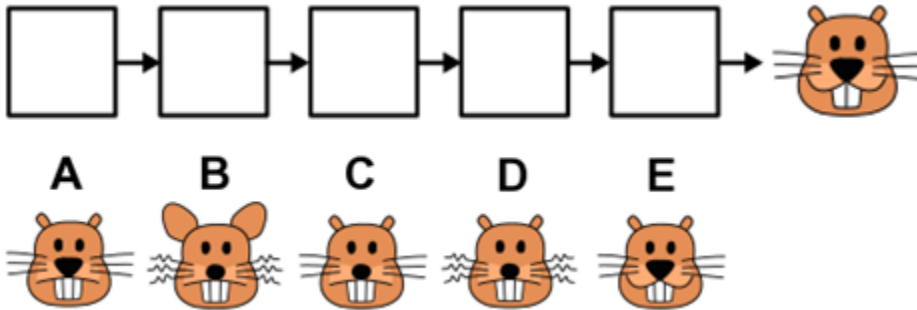
## B2 Animation

ID371 / JB2 / IA5

Taro is planning an animation of a face that is made from a sequence of pictures.

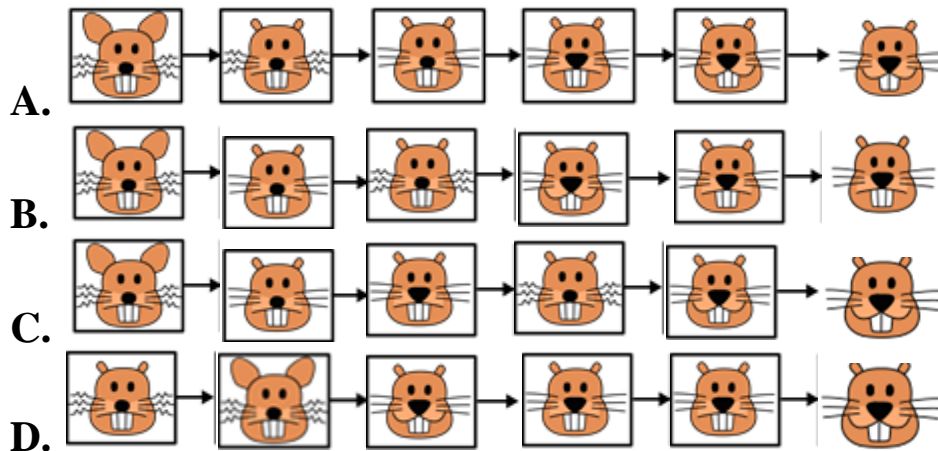
To make the animation run smoothly, only one feature of the face should change from one picture to the next.

Unfortunately, the pictures got mixed up. Now Taro must find the correct order again. Luckily, he knows which picture is last.



### Question:

Which of the answers A, B, C or D are in the correct order? Write down the letter of the correct answer in the appropriate block on your answer sheet.





## B3 Geocaching

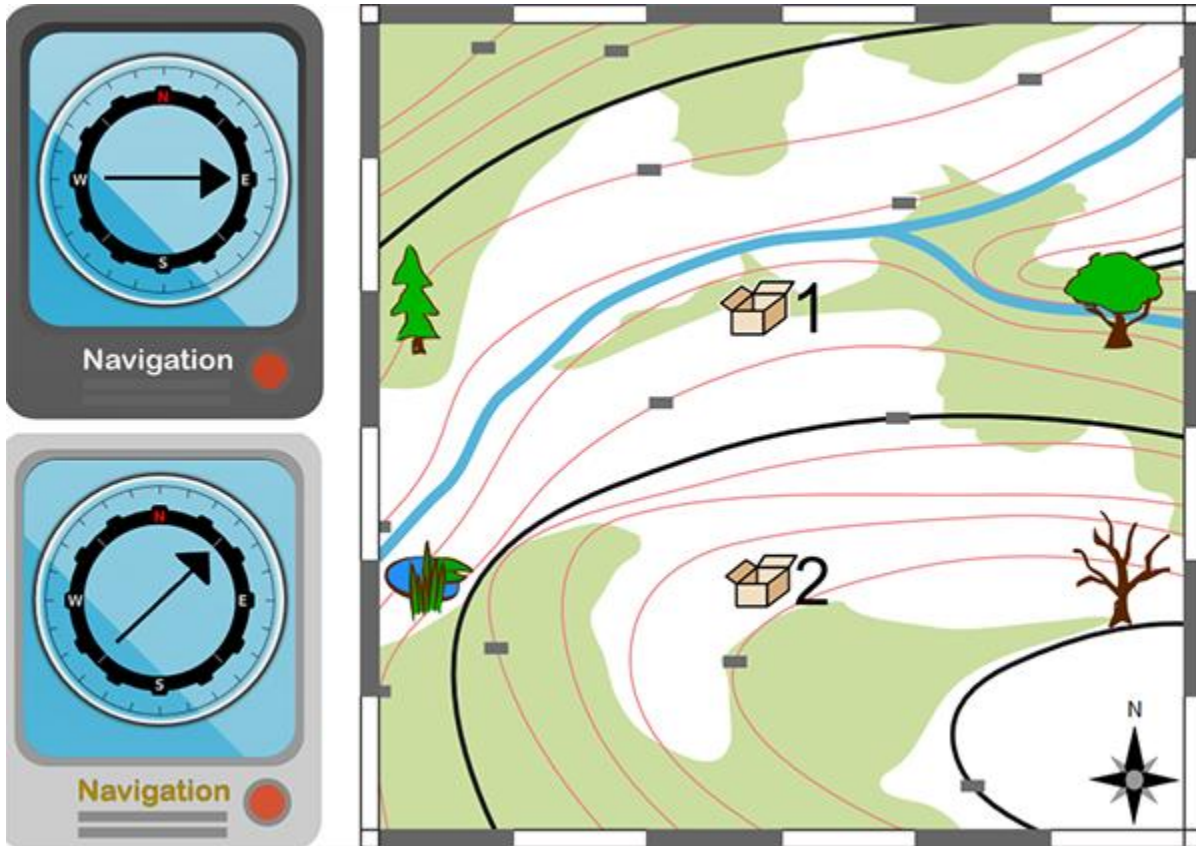
ID369 / JB3 / IA3

Two friends, Anna and Bob, are searching for treasure.

They have a smartphone app that shows them the direction to the treasures they are looking for.

The two boxes on the map show where the treasures are.





Anna is searching for box 1. Bob is looking for box 2.



Anna and Bob are standing in the same place. The picture shows the map and a screenshot of the smartphones.

### Question:

Where are Anna and Bob standing? Write down the letter of the correct answer in the appropriate block on your answer sheet.

- A.  B.  C.  D. 

## B4 Super Power Family

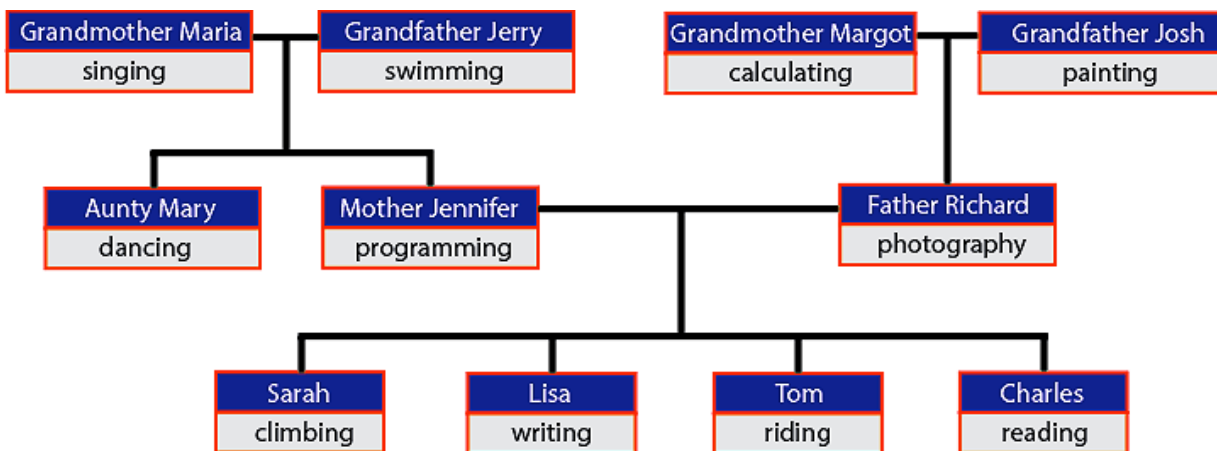
ID329 JB4 / IA4 / SA3 / EB1

- All members of this family have abilities.
- A daughter inherits all her abilities from her mother.
- A son inherits all his abilities from his father.
- Each family member also has one extra ability.

The diagram below shows the relationships between the members. It also shows the extra ability for each member.

Examples:

- Mother Jennifer has inherited the ability to sing from Grandmother Maria, and she also has the ability to program.
- Lisa inherits two abilities from her mother and also has the ability of writing. This means she can write, program and sing.



**Question:**

Look at the diagram above. Which one of the following statements is true? Write down the letter of the answer in the appropriate block on your answer sheet.

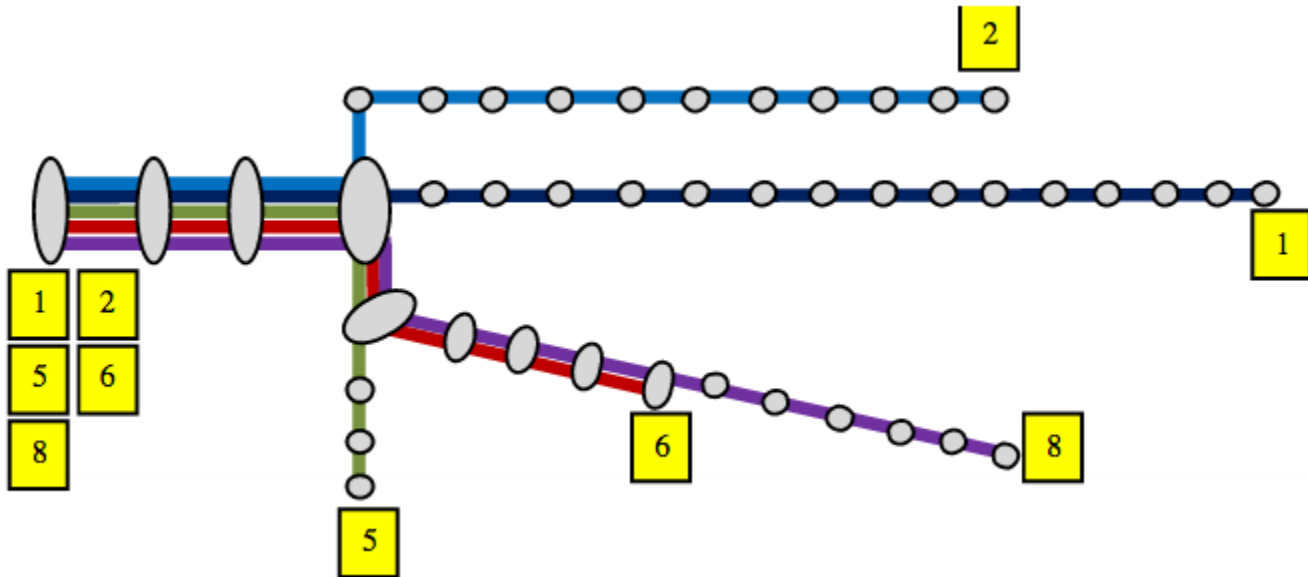
- A. Sarah has abilities in reading, programming and singing.
- B. Aunt Mary has abilities in dancing and swimming.
- C. Tom inherits from Grandmother Margot the ability to calculate.
- D. Tom's abilities are riding, painting and photography.

# B5 Trains

ID361 / JB5

The train lines in Beaver City all have their own number. Unfortunately the numbers are only shown on this map.

You cannot see the line number anywhere when you are on a train!



You get onto a train at the main station where all the lines begin.

After three stations your train makes a turn, and at the next station it makes another turn.

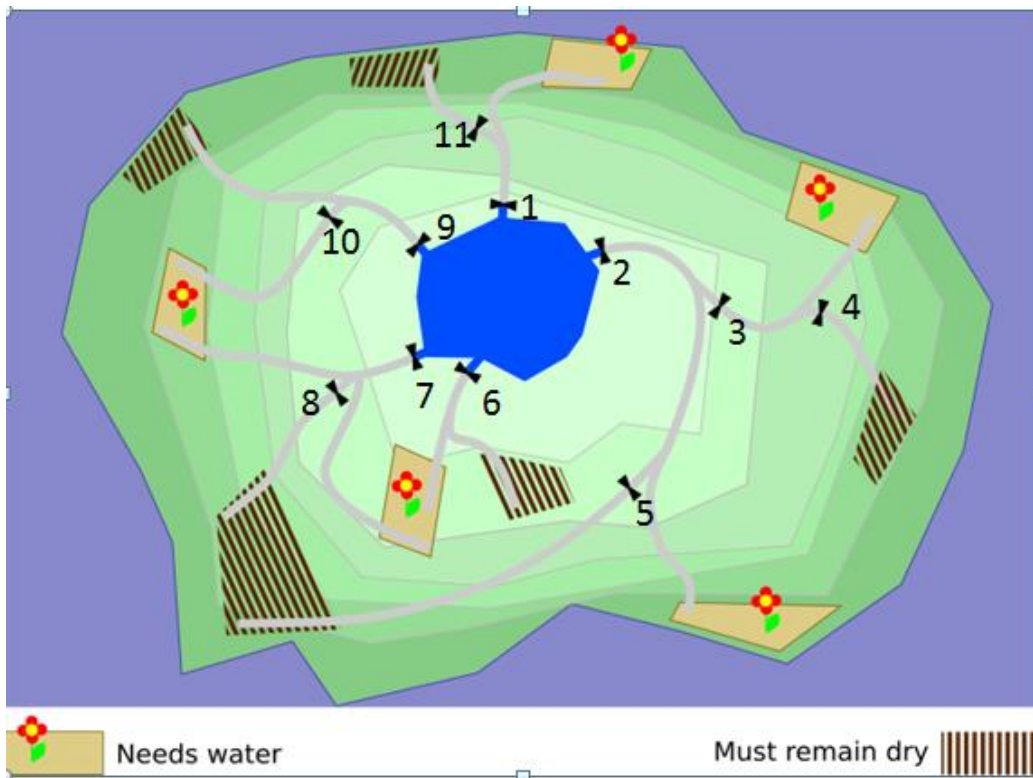
Four stations later you have arrived at your destination.

## Question:

Which train line were you on? Write down the answer in the correct block on your answer sheet.

# C1 Beaver Dam

ID359 / JC1



The Birchtree family needs to water their fields. Only the fields with flowers need to be watered. The other fields must remain dry.

The sluice gates from 1 to 11 are closed on the illustration

If a gate is open, water will flow through the canal from the high lake in the middle to the low fields.

A flower field must get water:



An empty field must remain dry:



## Question:

Help the Birchtree family produce a plan to open the correct gates and leave the others closed so that water **only** flows to the fields with flowers in them.

Which gates need to be open? Write down the letter of the correct solution in the appropriate block on your answer sheet.

A: Open 1, 2, 3, 4

B: Open 4, 5, 6, 8

C: Open 1, 2, 3, 7

D: Open 1, 2, 6, 7, 9

# C2 Drawing Patterns

ID322 / JC2 / IB2

## Target Pattern

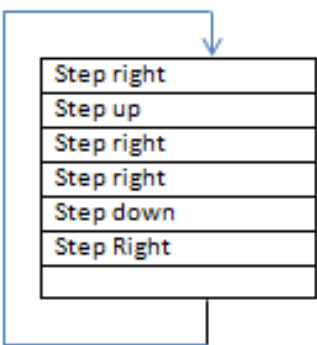


## Start

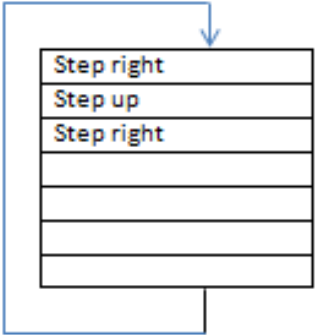


Your job is to select the sequence of instructions that draws the target pattern shown above.

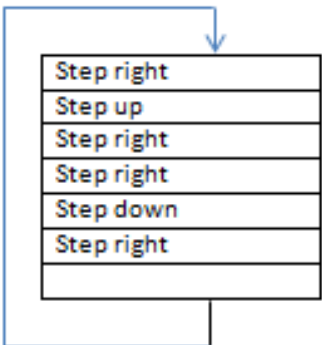
Write the letter of your answer in the appropriate block on your answer sheet.



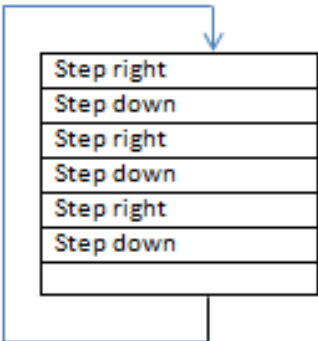
A. Repeat seven times



B. Repeat twelve times



C. Repeat six times



D. Repeat six times

# C3 Throw the dice

ID376 / JC3 / IB4 / SB1

After school the young beavers are used to playing together.

To avoid quarrels about where to play, they throw a normal six sided die.

The decision is found according to this rule:

1	IF	The first throw is greater than the second throw
2	THEN	We go to play in the woods
3	ELSE	
4	IF	The third throw is less than the first throw
5	THEN	We go to play at the river
6	ELSE	We go to play on the sports field

## Question:

Which sequence of throws will send the young beavers to the sports field? Write down the letter of the answer in the appropriate block on your answer sheet.

A.

●●●

●●●

●●●

●●●

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B.

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C.

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D.

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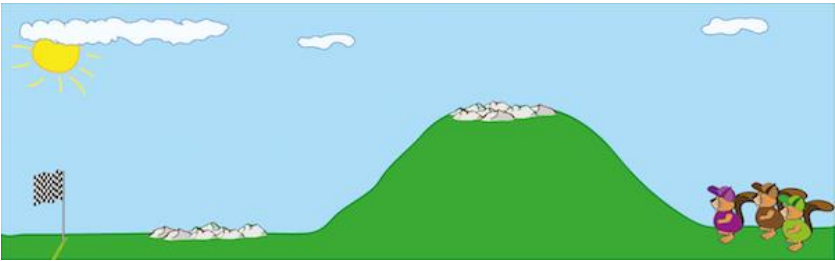
# C4 Cross Country

ID373 / JC4 / IB5

Three very fast beavers will compete in a cross-country run.

Mr. Brown will overtake one beaver when running uphill.	
Mrs. Pink will overtake one beaver when running downhill.	
Mrs. Green will overtake one beaver when running across rocks.	

The course is shown in the picture: uphill, followed by some rocks, downhill and then some more rocks.



Mrs. Pink starts in the first position, followed by Mr. Brown and then Mrs. Green.

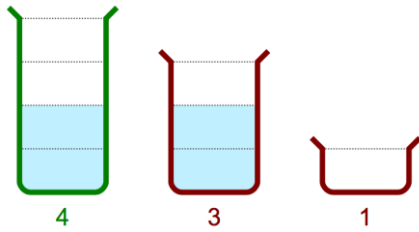
**Question:**

In which order will the beavers finish the race? Write down the letter of the correct answer in the appropriate block on your answer sheet.

- A. Mrs Pink, Mr Brown, Mrs Green
- B. Mrs Green, Mrs Pink, Mr Brown
- C. Mr Brown, Mrs Green, Mrs Pink
- D. Mr Brown, Mrs Pink, Mrs Green

## C5 Fair share

ID308 / JC5 / IC2 / SB3



Hamid has a 4 litre beaker full of a hazardous chemical. Kazim has an empty 3 litre beaker and another empty 1 litre beaker.

Hamid and Kazim want to share the chemical between them equally and use a machine to do this safely.

The machine can pour one beaker in to another. It stops pouring when a beaker is completely emptied or filled, whichever happens first.

### Question:

Find the sequence of pours that produces equal shares of the chemical for Hamid and Kazim. Pouring from the 4 litre beaker to the 3 litre beaker is shown as  $4 \rightarrow 3$ , etc.

Your sequence must use the minimum number of pours possible. Write down the letter of the correct pours in the appropriate block on your answer sheet.

- A.  $4 \rightarrow 1$ ,  $4 \rightarrow 3$ ,  $1 \rightarrow 4$ ,  $3 \rightarrow 1$ ,  $1 \rightarrow 4$
- B.  $4 \rightarrow 1$ ,  $1 \rightarrow 3$ ,  $4 \rightarrow 1$ ,  $1 \rightarrow 3$
- C.  $4 \rightarrow 1$ ,  $4 \rightarrow 3$ ,  $1 \rightarrow 4$ ,
- D.  $4 \rightarrow 3$ ,  $3 \rightarrow 1$ ,  $1 \rightarrow 4$