CAMBRIDGE ASSESSMENT INTERNATIONAL EDUCATION
Cambridge ICT Starters

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

NEXT STEPS **4282/B**

Stage 2: Exploring Programming **For moderation from 2019**

Maximum time allowed: 1 hour 30 minutes

Additional materials: MyPrograms_4282B.doc
Flowcharting software (optional)

READ THESE INSTRUCTIONS FIRST

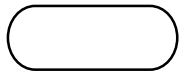
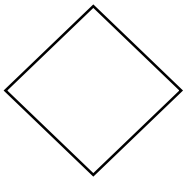
Write your Centre number, candidate number and name on all the work you hand in.

For Tutor Use		
Exploring Programming		
Candidate was able to:	**Pass/ Merit**	**Please tick**
Plan an algorithm involving repetition to draw a simple shape or pattern.	P	
Create a program using repetition to produce a simple shape or pattern.	P	
Predict the output of a program that includes repetition.	P	
Plan an algorithm to draw a complex shape or pattern, using decomposition.	M	
Create a procedure and use it in a program to draw a complex shape or pattern.	M	
Tutors also need to complete and sign the Learning Objectives Record Sheet for each Candidate.		

This document consists of **8** pages. Blank pages are indicated.

Next Steps – Stage 2 – Exploring Programming

Flowchart symbol key:

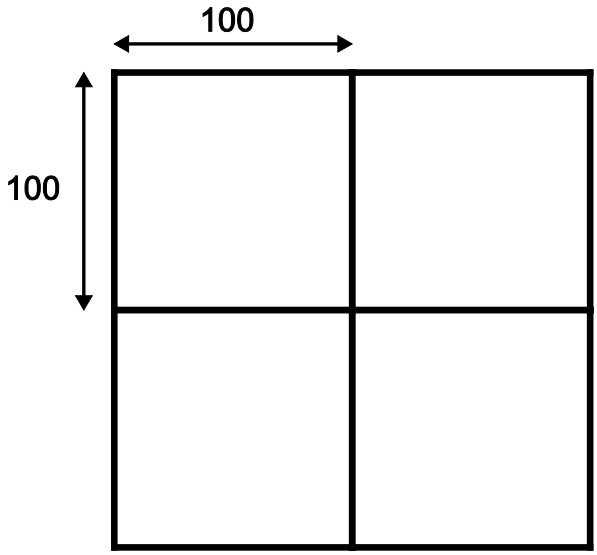
Symbol	Name	Description
	Terminator	Shows the start and end of a process
	Data	Shows inputs and outputs
	Decision	Shows a decision that branches a process
	Connector	Connects up the process
	Process	Shows a step in the process
	Procedure	Shows a named set of instructions which perform a specific process

Centre number		Candidate number		Candidate name	

Next Steps – Stage 2 – Exploring Programming

Section A

The pattern below is made up of four squares.
Each side of a single square is 100 steps.
After each square is drawn, a 90 degree rotation is made before the next square is drawn.



1 Create a flowchart of instructions to produce the pattern, using repetition where appropriate. You may draw your flowchart by hand, or use software.

2 Write your name on your flowchart if you have drawn it by hand. If you have used software, take a screenshot (print screen) of your flowchart and *paste* it into **MyPrograms_4282B.doc**

(LO1)

3 *Open* Scratch.

4 Create a program in Scratch to produce the pattern shown above.

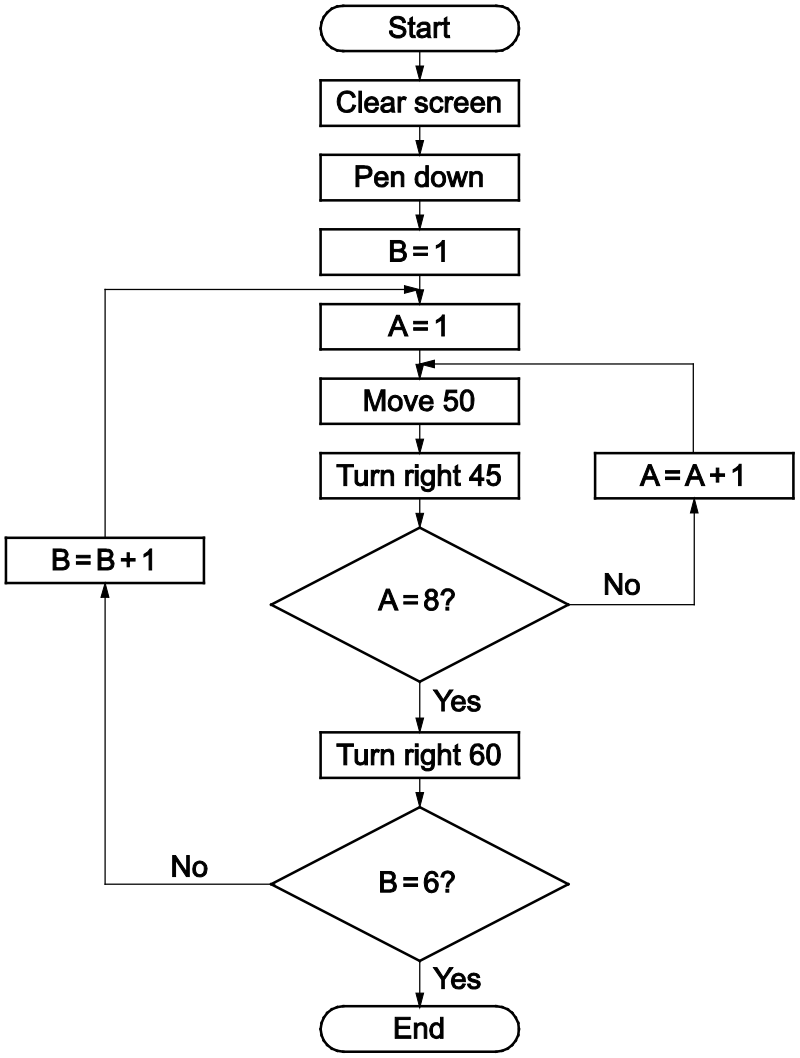
5 When your program is complete, take a screenshot (print screen) showing your code and output. *Paste* your screenshot into **MyPrograms_4282B.doc**

(LO2)

Centre number		Candidate number		Candidate name	

Next Steps – Stage 2 – Exploring Programming

6 The program below will produce a simple pattern when run.



Write down a prediction of the pattern that the program will make.

(LO3)

Centre number		Candidate number		Candidate name	

Next Steps – Stage 2 – Exploring Programming

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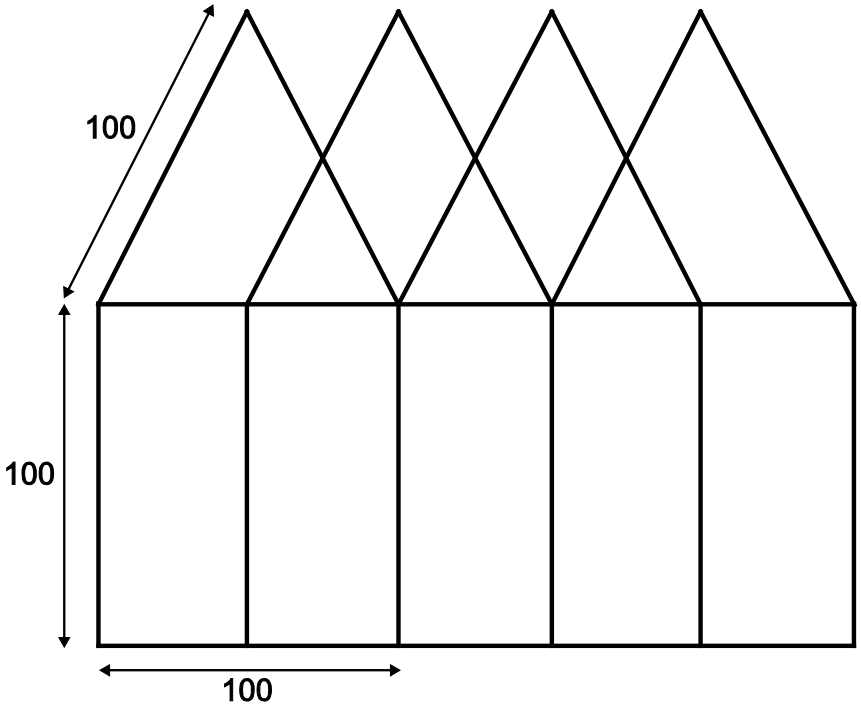
Centre number		Candidate number		Candidate name	

Next Steps – Stage 2 – Exploring Programming

Section B

The pattern below can be decomposed into **two** regular shapes.
Each side is 100 steps.



1 Create a flowchart of instructions for each shape to be drawn individually. Label your flowcharts as **Shape1** and **Shape2**. You may draw your flowcharts by hand, or use software.

2 Write your name on your flowcharts if you have drawn them by hand. If you have used software, take a screenshot (print screen) of your flowcharts and *paste* them into **MyPrograms_4282B.doc**

3 Create a flowchart for the pattern above to be drawn, using your flowcharts for **Shape 1** and **Shape 2** as procedures.

4 Write your name on your flowchart if you have drawn it by hand. If you have used software, take a screenshot (print screen) of your flowchart and paste it into **MyPrograms_4282B.doc**

(LO4)

Centre number		Candidate number		Candidate name	

Next Steps – Stage 2 – Exploring Programming

5 *Open* Scratch.

6 Create procedures in Scratch to draw each of the two shapes in the pattern.

7 Create a program in Scratch to draw the pattern shown on page 6. You should include your procedures in your program.

8 When your program is complete, take a screenshot (print screen) showing your code and output. *Paste* your screenshot into **MyPrograms_4282B.doc**

(LO5)

Centre number		Candidate number		Candidate name	

Next Steps – Stage 2 – Exploring Programming

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