



MINISTRY OF EDUCATION, SINGAPORE
in collaboration with
CAMBRIDGE INTERNATIONAL EDUCATION
Secondary Education Certificate

G2 COMPUTING

K237/02

Paper 2 Lab-based

For examination from 2027

SPECIMEN PAPER

2 hours 15 minutes



You will need:

- Electronic version of GAMESCREEN.svg
- Electronic version of LOSESCREEN.svg
- Electronic version of MYSTERYBUTTON.sprite3
- Electronic version of ORANGMOVIE1.mp4
- Electronic version of ORANGMOVIE2.mp4
- Electronic version of ORANGUTAN1.png
- Electronic version of ORANGUTAN2.png
- Electronic version of VENDINGMACHINES.xlsx
- Electronic version of WINSCREEN.svg

INSTRUCTIONS

- Answer **all** questions.
- You must do all the tasks using an authorised computer. You are **not** allowed to bring in or take out any pieces of work or materials on paper or electronic media or in any other form.
- Save your work using the file name given in the question.
- Save each task as you complete it.
- You may use an approved calculator.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [].

This document has **12** pages. Any blank pages are indicated.



Singapore Examinations and Assessment Board



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You are required to complete three tasks.

- For task 1, you will draw a logo and create a slide presentation that uses the logo.
- For task 2, you will complete a spreadsheet.
- For task 3, you will create a game.

Task 1 – Media software

You are required to draw a logo and create a slide presentation about an orangutan conservation project.

Open your presentation software.

- 1 Draw the logo shown in Figure 1.1.

Save your file regularly as:

TASK1LOGO_<Centre Number>_<Index Number>.pptx

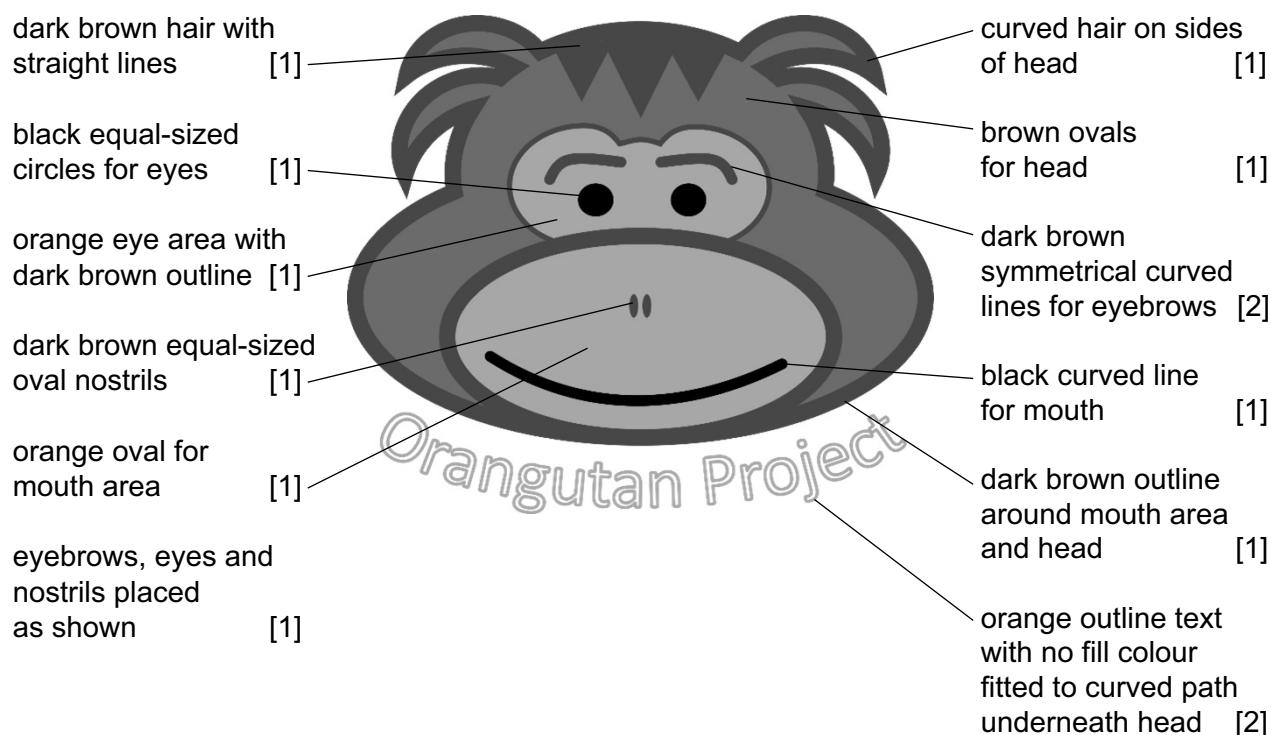


Figure 1.1

Save your file.

- 2 Export the logo as a raster graphic with a transparent background in png format. [1]

Save your file as:

TASK1LOGO_<Centre Number>_<Index Number>.png

Turn over

3 You have been given four files:

- **ORANGUTAN1.jpg**
- **ORANGUTAN2.jpg**
- **ORANGMOVIE1.mp4**
- **ORANGMOVIE2.mp4**

Use the text and files shown in the storyboard in Figure 1.2 to create a presentation.

Save your file regularly as:

TASK1PRES_<Centre Number>_<Index Number>.pptx

Slide 1



Slide 2

ORANGMOVIE1.mp4
Very rare

Slide 3

ORANGUTAN1.jpg
Good climbers

Slide 4

ORANGUTAN2.jpg
Live in trees

Slide 5

ORANGMOVIE2.mp4
Semi-solitary

Slide 6

Visit the
Orangutan Project

Figure 1.2

[1]

Slide 1

use the slide master
to create a dark green
background on
all slides [1]

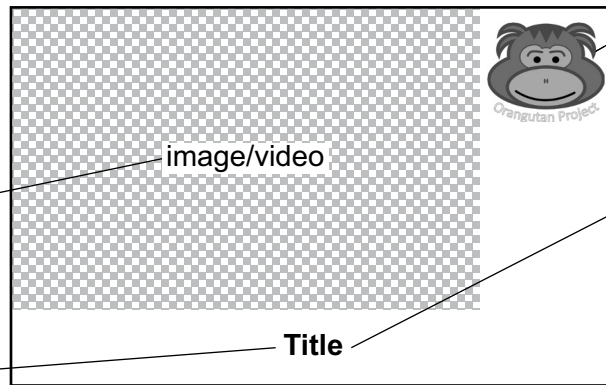


add your raster
graphic **TASK1LOGO**
to the centre of
slide 1 and resize to
16 cm high [1]

Slides 2–5

resize and crop the images and videos to be 16 cm high and 25 cm wide with the orangutans fully visible [2]

use the slide master to set the title on each slide to orange and point size 44 [2]



use the slide master to add the logo in the top right-hand corner of each slide [1]

use the slide master to place the title in the bottom centre of each slide [1]

Slide 6

centre the title [1]



- 4** Add a split transition between each slide.

Set the duration of each transition to 0.25 seconds.

[2]

- 5** Trim the **ORANGMOVIE1.mp4** video to be 4 seconds long.

Start at 1.5 seconds and stop at 5.5 seconds.

[2]

- 6** Set each slide to display for 4 seconds.

[1]

Save your file.

[Total: 30]

Task 2 – Spreadsheet

A company that manages vending machines uses spreadsheet software to calculate their sales figures each month.

Open the file **VENDINGMACHINES.xlsx** and you will see the data shown in Figure 2.1.

	A	B	C	D	E	F	G	H
1								
2		vending machine sales						
3		machine ID	machine type	location	January sales	February sales	March sales	total sales per machine
4			cotton candy	airport	4038	956	4592	
5			cotton candy	hospital	1506	864	2494	
6			orange juice	garage	4784	1081	4391	
7			orange juice	shopping mall	4448	993	3139	
8			orange juice	airport	580	4381	704	
9			orange juice	hospital	3468	3056	1583	
10			popcorn	hospital	3658	864	1758	
11			books	shopping mall	2594	3458	1709	
12			books	garage	4923	2637	3168	
13			books	airport	3897	4472	1881	
14								
15		sales by location						
16		location	January	February	March	number of machines	average sales per machine	ranking
17		airport						
18		shopping mall						
19		garage						
20		hospital						
21								
22		location with highest average sales						
23								
24		sales 2026						
25		location	food	drinks	books	number of machines	average sales per machine	ranking
26		airport	\$31,200.00	\$21,452.00	\$25,840.00	3	\$26,164.00	2
27		shopping mall	\$0.00	\$18,920.00	\$22,100.00	2	\$20,510.00	4
28		garage	\$0.00	\$25,090.00	\$35,400.00	2	\$30,245.00	1
29		hospital	\$37,540.00	\$17,430.00	\$0.00	3	\$23,247.00	3

Figure 2.1

Complete the spreadsheet to calculate statistics based on the sales data.

Save your file regularly as:

TASK2SS_<Centre Number>_<Index Number>.xlsx

- 7** The **machine ID** is made from the first two characters of the **machine type** and the first two characters of the **location**.

For example, a popcorn machine at the airport would have 'poi' as its **machine ID**.

In cell **B4**, enter a formula that uses functions to generate the **machine ID**.

Copy this formula into **B5:B13**.

[3]

- 8** Set the format of cells **E4** to **H13**, **C17** to **E20** and **G17** to **G20** to display the values in dollars (\$) with no decimal places. [1]

- 9** In cell **H4**, enter a formula to calculate the **total sales per machine** for January to March.

Copy this formula into **H5:H13**.

[1]

- 10** In cell **C17**, enter a formula that uses a function to calculate the total sales for **January** based on the location given in cell **B17**.

Copy this formula into **C17:E20**.

[4]

- 11** In cell **F17**, enter a formula that uses a function to find the **number of machines** that have the location given in cell **B17**.

Copy this formula into **F18:F20**.

[3]

- 12** In cell **G17**, enter a formula to find the **average sales per machine** from January to March for each machine in the location given in cell **B17**.

Copy this formula into **G18:G20**.

[1]

- 13** Ranking is determined by the **average sales per machine**.
A ranking of 1 shows the highest average sales per machine.
A ranking of 4 shows the lowest average sales per machine.

In cell **H17**, enter a formula that uses a function to show the ranking of the **average sales per machine** in cell **G17**.

Copy this formula into **H18:H20**.

[3]

- 14 In cell **E22**, enter a formula that uses functions to display the **location** that has the ranking of 1 for the average sales from January to March. [3]
- 15 Use the data from the **sales 2026** table in Figure 2.1 to create the chart shown in Figure 2.2. You must include the legend, title, axes values and axes labels as shown. You do **not** need to use the same fill pattern for the series. [6]

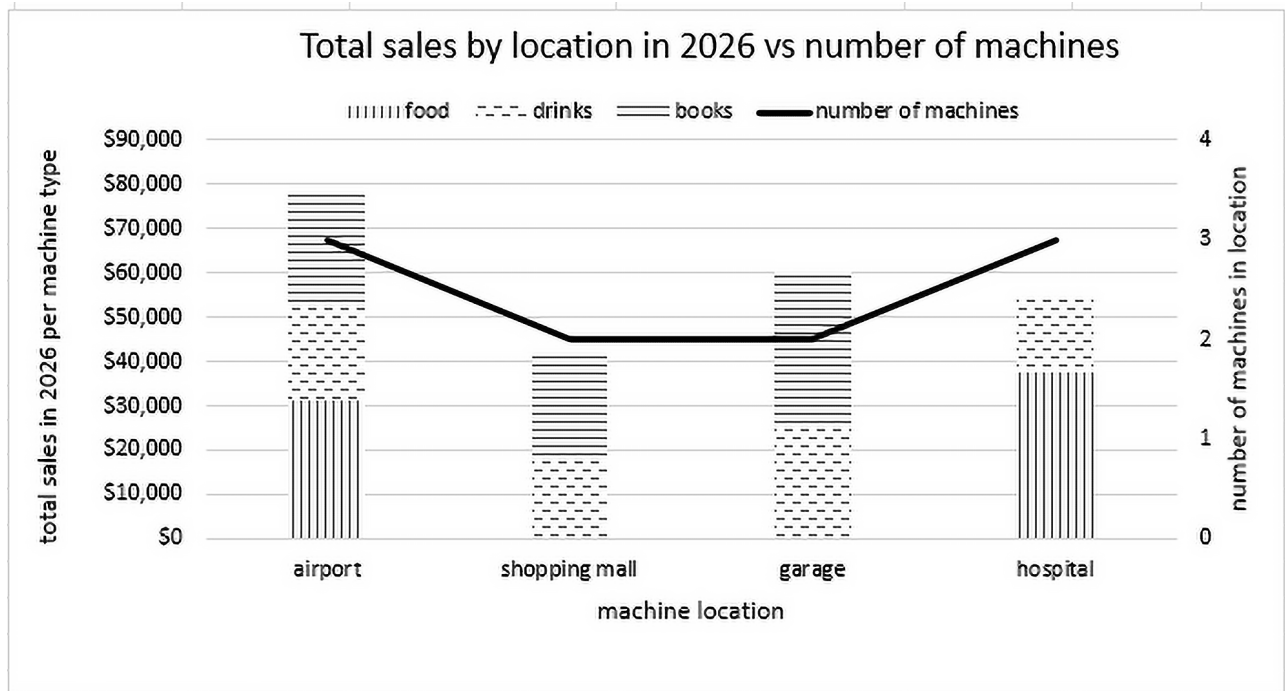


Figure 2.2

Save your file.

[Total: 25]

Task 3 – Programming

Create a game where the player:

- memorises the position of random numbers
- clicks each number in order of smallest to largest.

If each number is clicked in the correct order, the game displays a win screen. The game then resets but with a set of larger numbers.

If each number is clicked in the incorrect order, the game displays a lose screen. The game then ends.

Create variables and broadcast events as needed to complete the task.

You have been given four files:

- **MYSTERYBUTTON.sprite3**
- **GAMESCREEN.svg**
- **WINSCREEN.svg**
- **LOSESCREEN.svg**

Open your programming software.

Save your file regularly as:

TASK3GAME_<Centre Number>_<Index Number>.sb3

16 Delete the default sprite.

Create a list named **game_nums**.

Define a custom block **for the stage** named **initialise** that:

- accepts a number **max** as input
- replaces the contents of **game_nums** with **five** different random numbers from 1 to **max** (inclusive).

Add scripts so that the same number does not appear more than once in **game_nums**.

For example, if **initialise** is used with an input of 10, the result may appear as shown in Figure 3.1.

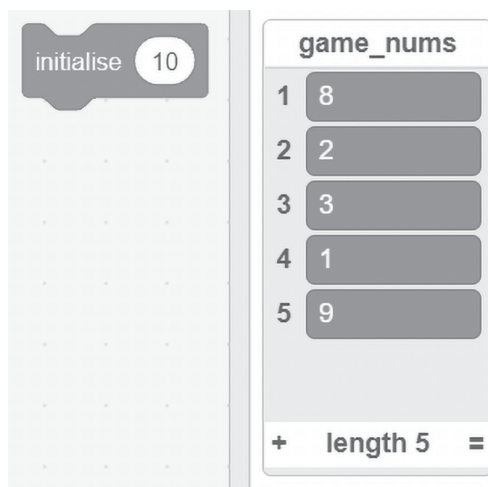


Figure 3.1

[6]

17 Use the file **MYSTERYBUTTON.sprite3** to add **five** buttons as separate sprites.

Position the five buttons randomly in the game window. The buttons should not be touching.

Add **GAMESCREEN.svg**, **WINSCREEN.svg** and **LOSESCREEN.svg** as backdrops.

[2]

18 Add scripts so that all five buttons are shown when the message **startgame** is received.

Add scripts so that each button waits 1 second, then displays a message showing a different number from **game_nums** for 3 seconds.

The player should be able to view and memorise which number each button displays.

Create a list named **user_choices**. Add scripts so that clicking each button stores the same number displayed by each button in the list **user_choices**.

Add scripts to hide each button when clicked by the player.

[4]

19 Create variables named **game_max** and **score**.

Add scripts to initialise **game_max** to 5 and initialise **score** to 0 at the start of the game. [1]

20 Complete the game such that when the game starts:

- all variables and lists are hidden except **score**
- **game_nums** is initialised using your custom block **initialise** with the input **game_max**
- **user_choices** is cleared
- **GAMESCREEN.svg** is set as the backdrop
- the buttons display their numbers and the player can click on the buttons. [5]

21 Complete the game such that during the game:

- after each button is clicked, check **user_choices** to see if the number stored is greater than the previous number stored:
 - if the number is smaller than the previous number, the game ends. All sprites are hidden and the backdrop **LOSESCREEN.svg** is displayed
 - if the number is greater than the previous number, the game continues
- when **all** the buttons have been clicked:
 - **score** is increased by 1
 - **game_max** is increased by 10
 - the backdrop **WINSCREEN.svg** is displayed for 1 second
 - the game repeats from the start. [7]

Save your file.

[Total: 25]

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Copyright acknowledgements

Task 3

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