Design a mural

Name _____ **Class** _____ **Date** _____

Instructions

Mrs Sanburg wants her school's Maths teachers to make a tile mural on the Reeves Stage wall to celebrate Maths Week. The space measures 1 sq m.

Mrs Sanburg needs to decide how many of each coloured tile to purchase.

Each tile is 10 cm x 10 cm.

Mr McNamee wants red, blue and gold tiles in the mural because they are the school colours. He wants twice as many red as blue and three times as many blue as gold.

Ms Ham wants green in the mural.

Mrs Churchill wants orange in the mural.

Mrs Baker wants pink in the mural.

Mr Greening wants black in the mural.

Each teacher must have at least one tile in the mural and tiles cannot be cut into fractions.

Part 1 – Planning (group work 15–20 min)

Make a suitable plan for the mural. *(Note: Mrs Sanburg needs to know how many of each colour to purchase, not where they go.)*

Be sure you meet all the requirements.

Below are some grids for rough working (to assist you in your planning).

Submit this sheet with your investigation.

Part 2 – Individual work (20–30 min)

Part A

Using your group's colour plan, make a table showing the fraction, decimal and percentage of each colour in the mural.

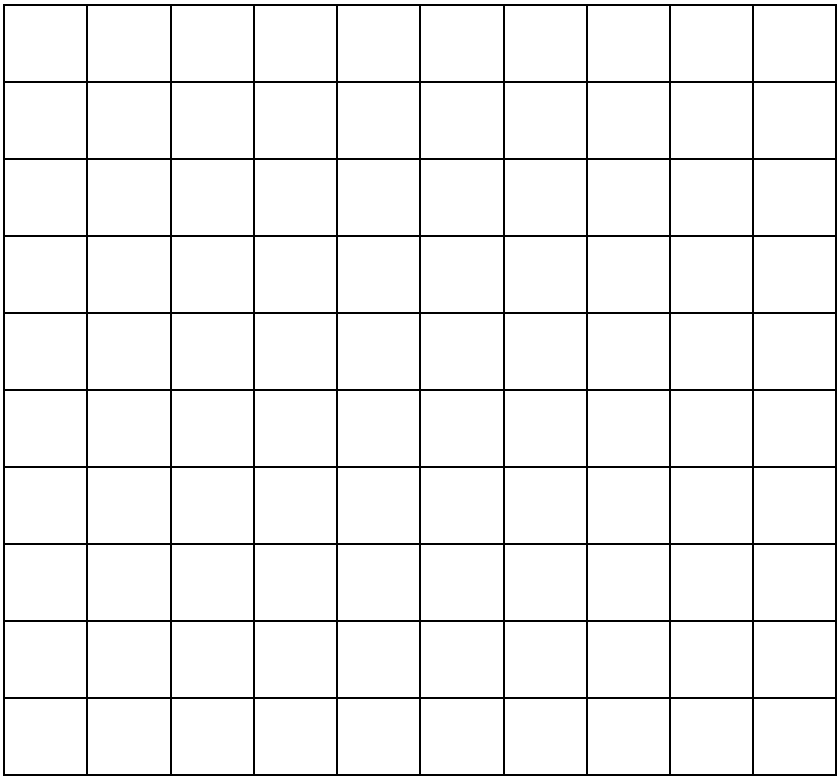
Colour	Fraction(/100)	Decimal	Percentage

Part B

Mrs Sanburg says that all the tiles will be used. Design a mural with the largest possible area covered in blue tiles that still fits all the teachers' requirements.

Show **calculations** to justify that your plan has the largest possible area of blue. Place your mural plan on the attached grid.

(Note: You only need to determine quantity of colours. Placement of tiles comes later.)



Explain how your colour plan satisfies each Maths teacher.

Mrs Sanburg decides that she wants the mural's size to be doubled to 2 m x 2 m. One student, Mia, says she will need twice as many tiles, but Olivia, another student, is not sure and says she might need four times as many tiles. Who is correct? Show your solution using diagrams and calculations.

Part 3 – Homework

Show **your** design for the mural that satisfies all of the requirements.

Make it a mathematical design and then explain why your design is mathematical.

Use some of these words in your explanation:

symmetrical	Geometrical	equilateral	triangular
Square	Rectangular	shape	reflection
numerical	Diagonal	parallel	perpendicular

Design

Explanation

10 x 10 grid

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