**Ratio and proportion activity 2**

**A Cool School**

You have been assigned the task of working out what materials are going to be needed for building a new school.



The head teacher wants a really colourful and inventive school.

You will need to know these proportion facts:

Bricks: 1 blue brick for every 5 red bricks

Tiles: 1 pink tiles for every 3 yellow tiles.

Windows: 1 red window for every 2 blue windows.

Tables: 1 orange tables for every 4 green tables.

Chairs: 1 black chair for every 4 white chairs.

What is the ratio of:

1. Blue to red bricks:
2. Pink to yellow tiles:
3. Red to blue windows:
4. Orange to green tables:
5. Black to white chairs:

**First of all, we need to build the school!**

Using the proportion facts, if 60 bricks are being used for the school office. How many of those bricks would be red?

If there are 120 bricks being used for each classroom, how many bricks would be blue, given that there are 5 classrooms?

If there are 1800 bricks being used for the rest of the building, how many of these bricks will be red? How many blue?

Now can you work out the total number of blue and red bricks needed for the whole school?

**Next, we need to get the roof on!**

The head teacher wants the school to look SO jazzy; she wants to use 270 yellow tiles just over her office. How many pink tiles will she have if she does this?

The rest of the tiles will be spread out round the building. If she has 520 tiles on the building, how many of these tiles will be yellow and how many will be pink?

**Now it is time to fit the windows!**

If the entire school has 27 windows, how many blue and how many red windows will it have?

**Every school needs tables to work at!**

Each classroom needs to have enough tables to sit 30 children. Two children can sit at one table. How many tables would you need in each classroom?

How many tables would be orange? How many green?

Remember there are five classrooms. How many tables will be needed altogether? How many of these will be orange? How many green?

**Finally, what good are tables without chairs to sit on?**

Each classroom needs to accommodate 30 children,

How many black chairs would she need to buy for one classroom?

For two classrooms?

Three?

Four?

Five?

What about white chairs?

What is the total number of chairs needed? How many of them are black? How many of them are white?

**Well done!**

**You’ve designed a really colourful school.**

Draw a picture below of the school! Don’t forget to keep the colours to the correct proportion! (Well, at least make it look like that, even if we don’t see all of the building…it would take you ages to draw 1800 bricks!)

**Solutions**

1. Ratio of blue to red bricks is 1:5
2. Ratio of pink to yellow tiles is 1:3
3. Ratio of red to blue windows is 1:2
4. Ratio of orange to green tables is 1:4
5. Ratio of black to white chairs is 1:4

**Bricks**

School office: 10 blue, 50 red.

Classrooms: 100 blue, 500 red.

Rest of building: 300 blue, 1500 red.

Total number of bricks: 410 blue, 2050 red.

**Tiles**

Head’s office: 90 pink tiles

Rest of the building: 130 pink, 390 yellow.

**Windows**

9 red, 18 blue.

**Tables**

15 tables in each classroom, 3 orange, 12 green.

Altogether 15 orange, 60 green.

**Chairs**

|  |  |  |
| --- | --- | --- |
| Number of classrooms | Number of black chairs | Number of white chairs |
| 1 | 6 | 24 |
| 2 | 12 | 48 |
| 3 | 18 | 72 |
| 4 | 24 | 96 |
| 5 | 30 | 120 |

The total number of chairs needed is 150; 30 black and 120 white.