Homes

_TEACHERS NOTES

RIBA KS3 | **Mathematics Activity**

INTRODUCTION + ACTIVITY /

The session is introduced with the power point presentation featuring Towncaster architects Sophie and Tomas and the Mayor of Greater Towncaster. The Mayor sets the scene and what she thinks the city needs. Sophie and Tomas narrate their approach to these needs and make a design solution for which they enlist the help of your students and their mathematical skills. In this activity pupils work in groups of 4 or 5. Each group is provided with an activity sheet and materials (listed on the activity sheet) to create a plan for new homes for Towncaster.

New homes are an important for issue for the nation and for the population of a thriving town. Housing can take up a lot of space and needs to be of the right type to meet different peoples's needs, so good planning is of high value.

KS2 / Learning Aims

- **Shapes**
- **Nets**

Students will learn about geometry develop spatial, craft and problem solving skills aided physical model making.

- **Scale**
- **Size Translation**

Students will be introduced to the concept of scale which will developed by using a grid to expand a drawing. They will also practice their drawing skills.

- **Numbers**
- **Tables**

Students will practice addition and multiplication using a simple table. Calculations can be done long hand or with a calculator.

ARCHITECTURE + DESIGN / Learning Aims

The planning exercise which students are being asked to engage in shows how big issues in society can be addressed using a process which has simple steps which need information, skills and creativity.

Students can be encouraged to try different layouts for their plan and different combinations. In this way they can learn that there are limitations to what can be done but can still generate lots of different outcomes.

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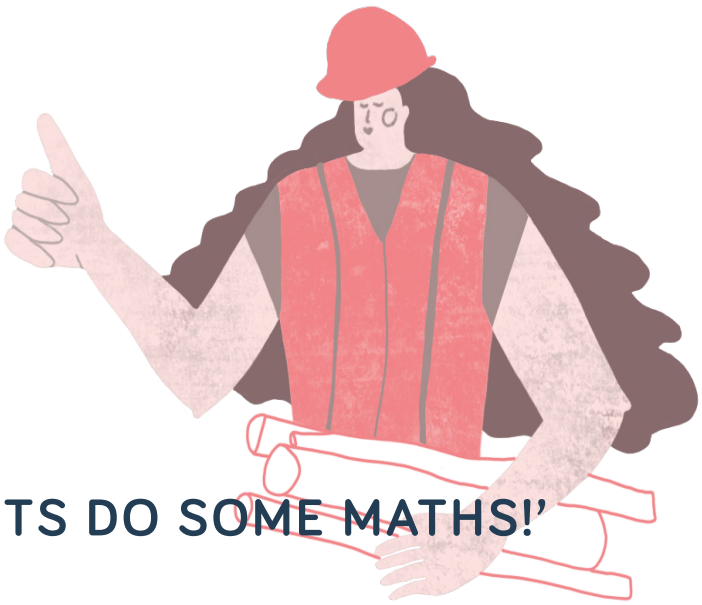
NOTES/

You can choose whether students work in groups of 4 and 5 or as a whole class. This is project which lends itself to up-scaling to occupy a large floor area if you wish. Students will make a large model but the activity can be broken down into simple tasks, some of which are repetitive. It is recommended that within each group students are initially assigned to different roles: setting out the large A0 plan; cutting cut and assembling 'Nets'. The group should discuss different plans before deciding how much housing to make.



'LETS DO SOME MATHS!'

NETS/

In these notes you have been provided with a set of 'nets'. You can directly print these on to card or stiff paper ready for cutting. If you don't have a printer that can handle heavy papers or card then alternatives are: Print 'net' onto plain paper, cut out and use to make the models; Print 'net' onto plain paper, cut out and draw around it on to card... You can choose to pre-prepare some of the more complicated 'nets' if you prefer.

The 'nets' are best completed using sticky tape but due to time lost when students try to find the end of the tape, it's recommended that sticky tape should be provided on dispensers. Alternatively, you can provide a supply of ready cut lengths.

A0 PLAN/

You might not be able to directly obtain an A0 sheet of paper to build the 1:250 model of the town on. You can pre-prepare an A0 sheet by sticking together smaller sheets of paper or card.

Many pupils may find the concept of scale difficult to grasp straight away. An easy way to do the translation from the A4 sheet to the A0 sheet is just to remember each length is just four times bigger. Setting out a grid will really help. You may wish to help set out the grids to ensure accuracy.

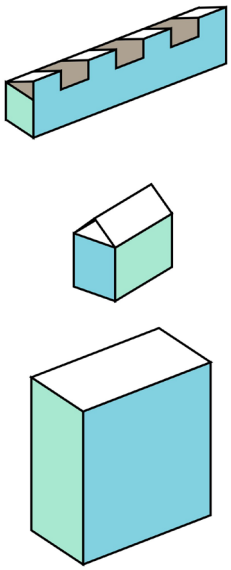
You make the big plan richer by creating areas of colour (pen or cut out paper) to represent parkland gardens, roads and rivers etc.

You are provided with an A4 1:000 plan as part of these notes.

CALCULATIONS/

Calculations can be done using the table below. This can be printed out as many times as you need.

Pupils can be encouraged to try out different solutions and approaches. Pupils can do the calculations before housing is made. Alternatively housing can be set out on the model and then calculated to see if it is right. An organic approach is to add some housing first and then work out what extra housing you need.



Calculation Table /

NUMBER OF PEOPLE = CAPACITY of UNIT X NUMBER of UNITS

UNIT TYPE	CAPACITY of UNIT	No. of UNITS	No. of PEOPLE
Large House	6 People		
Housing Block	120 People		
Row of Small Houses	50 People		

TOTAL: