The Stratford

Town Centre Maths Trail

Contents

Quick Start

- Start at the Stratford library in the Grove.

- Follow the instruction starting on page 4

- Keep notes of any interesting shapes page 13

- Keep notes of any bargains you see in shop windows or on the market on page 12

- The numbers on the map show different points on the route. So, if you are short of time, just do part of the route.

- Have a good time !

The Stratford Town Centre Maths Trail was written by Manny Dhesi. It is published by the Stratford Education Action Zone. The activities and concept are by Chris Olley from a trail originally prepared for Lewisham Education Business Partnership.

About the Trail

Welcome to the Stratford town centre trail. This booklet is intended to show you round the centre of Stratford, taking a detailed look at some of the most interesting sites in the town. Along the way you will be looking at a range of numbers and shapes and sizes. During the trail there are spaces to make a note of things that you see. When you have finished, there is a range of activities to follow up the things you have been looking at. So, when you are tired out from the walk, sit down with a nice drink and reflect on what you have seen.

The trail and the activities are intended to be suitable for all age groups. We hope that families and school groups alike will want to do the trail. If there is something you don't understand or you are not sure about, then just skip that bit. We don't expect everyone will want to do everything, but we hope that you find things in here that are interesting and fun. We would be pleased if you want to find out more or you would like to look further into the ideas in this trail. The library makes an excellent place to start.
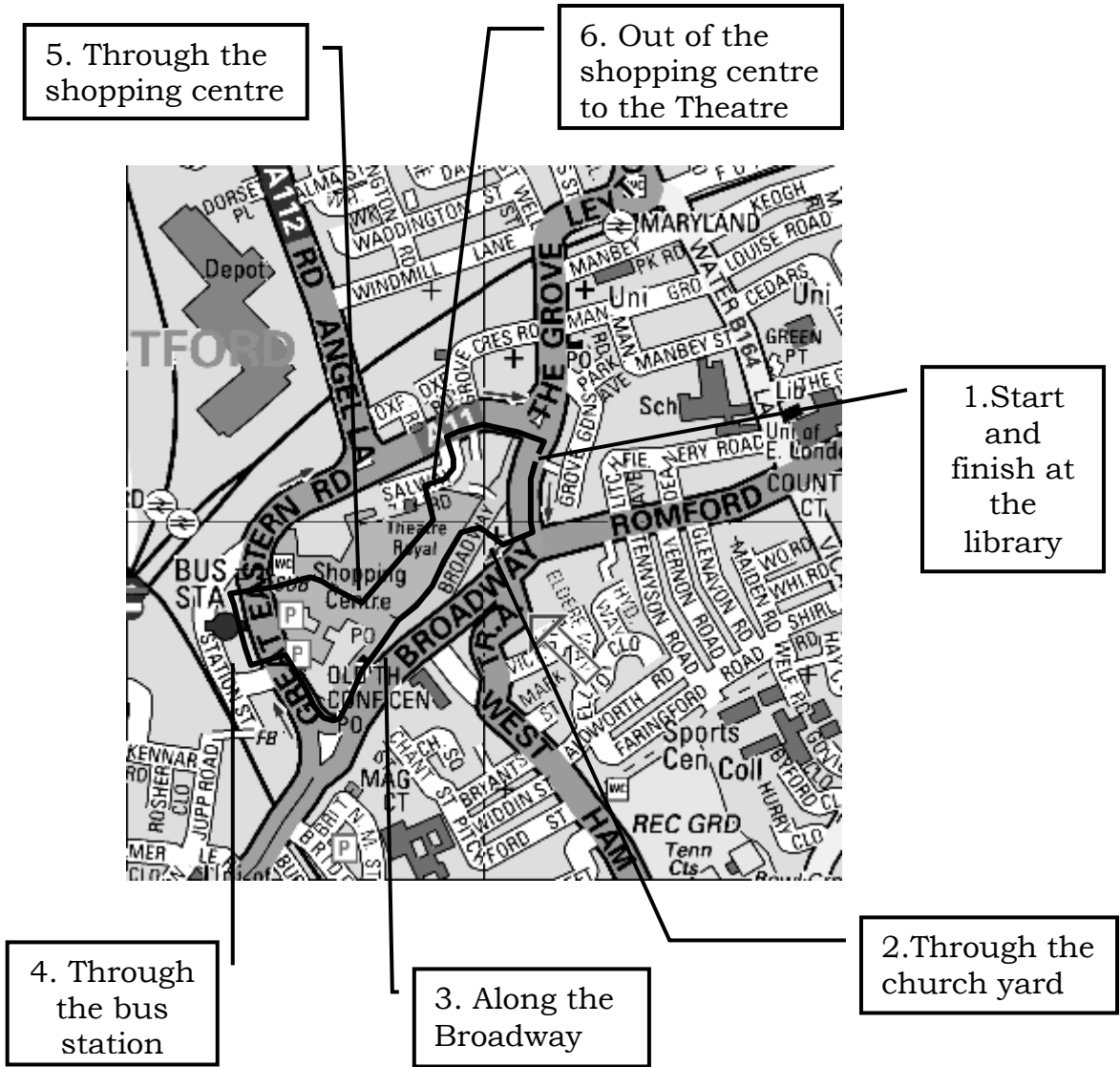
The trail goes from the Stratford library and works its way around the centre of Stratford before returning to the library.

As you go round you may notice interesting or unusual shapes of objects, there is a special page for these. Draw a little sketch and name them if you can on page 13.
Finally, if you see any good bargains or special deals in the shops or on the market, write these down on page 12.

The trail map has numbers for various parts of the route. The numbers are shown again in the trail description. If you are short of time and just want to do part of the route, follow the numbers.

3

The Trail Map

5. Through the shopping centre

6. Out of the shopping centre to the Theatre

1. Start and finish at the library

2. Through the church yard

3. Along the Broadway

4. Through the bus station

The Trail

Start from outside the Library.

There are 2 monuments outside the library facing each other. For each one write down the name of the person and the date of their births and deaths

Where did the poet live?

From the library, turn left towards St Johns Church and walk to the pedestrian crossing.
Stop at the Ibis Hotel on the corner.

How much does a room cost at the hotel?
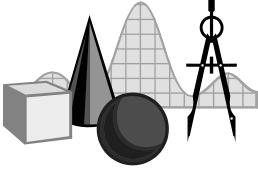
How much is this for 4 persons?

Look at the road signs
What is number of road that takes you to West Ham?

Look at the paving slabs here. They are in different colours. Choose a black section. Quickly estimate the number of slabs needed for your section.

How could you work this out quickly?

Interesting Shapes Opportunity

Look at the shapes in the buildings around the area by the library

While going around the trail there are a number of signs on posts, for example:

- **Health Risk signs: 'Do Not Feed the Pigeons'**

- **CCTV signs**

How many of each can you spot on the trail?
Complete this tally chart.
Include other signs that you can spot?

Sign Post	Tally	Frequency
CCTV		
Health Risks		

Why do you think feeding pigeons is a health risk?

Draw a graph of this information when you have finished the trail.

Cross at the crossing and enter the church grounds.

How many different windows can you see in the church?

Name the shapes they are made up of.

Take one single window and estimate the number of small panels required to make up that window

Find one gravestone and write down any dates. Say what they mean.

Go through the other exit of the Church grounds.
Turn left and walk along the Broadway staying by the side of the Church.
Walk down to the Obelisk.

Who is this memorial for?

Estimate the height of the Obelisk?

When was it built?

Cross the road (The Broadway) towards Stratford Mall, turn left and walk past McDonalds.
Stop at the Post Office.

Look at the information on the post box outside.
What are the collection times for Monday to Friday?

How are these different to weekend collections?

When is the next collection?

Carry on to corner of the Broadway and Great Eastern road.
Stop and look at blue glass building across road.

Estimate the number of glass panels on the front of the building. (Try to do this without counting each panel).

Walk up a bit so you can see side of the building.
How many glass panels are used for this side?

Estimate how many panels would be needed for the whole building.

Stratford Bus Garage

Interesting Shapes Opportunity

Look all around the bus and train stations.

The station roof is made up of 3D shape. Try to describe it.

How many of this shape are needed for whole of roof?

Cross at the crossing to Stratford Bus Station and find the information board.

Which number buses leave at bus stand D?

Which number bus goes to Manor Park?

When is the earliest bus for Manor Park?
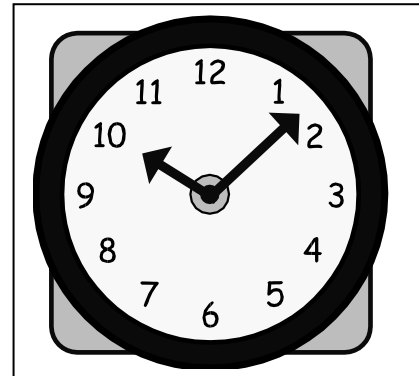
Go to first Bus stand

Count how many seats in one bus stand.

How many bus stands are there in the station ?

Work out how many people can sit in the bus station.

How did you work this out?

Walk through the station to the clock. There is a stone bench on the other side of the clock. Go and sit on that.
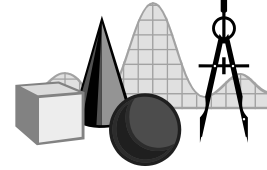

What time is on the clock?

What is this in the 24 hour clock?

What time will it be in 4½ hours?

Estimate the height of the clock structure?

Cross over to the Stratford Mall

*Interesting Shapes
Opportunity*

Look at the entrance to the
Mall and the Shop signs

Walk through the Mall

*Best Bargains
Opportunity*

Look in the shop windows and
the market stalls. Write down
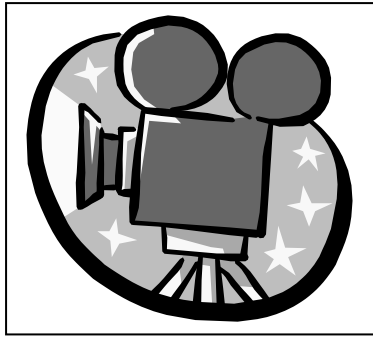the best bargains you can see.

Stop at 'Going Places' travel agents

Pick somewhere to go on holiday.
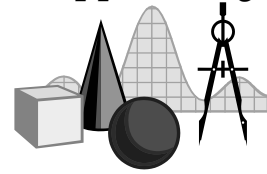Where is it to?

For how long?

Work out how much it will cost for 4 people to go.

Go to the centre of the mall and stop

Interesting Shapes Opportunity

Look up at ceiling. What shapes can you see?

Take the north mall towards Currys.
Carry on through the exit at the end and follow around until
you get to the Picture House Cinema and stop.

What is the next film you can watch?

How long will you have to wait for it to start?

Walk around the cinema and be careful when crossing at the junctions.
Carry around until you get across to Safeways and are back at the library.
Go into the library to look at some ISBN's

On the back of every book in the library is an ISBN. (This stands for International Standard Book Number). Write down a few ISBNs. You can often find them just above the bar code.

Best Bargains

On this page make a note of any good bargains you see in the shops. If you find a 20% discount, write down an example to show how much the item costs now. If you find 2 packs of 3 ice-creams for the price of one, work out how much each box costs and how much each ice-cream costs.

Interesting or Unusual Shapes

On this page make a note of any interesting or unusual shapes you have seen. Make a sketch to help you remember and name the shapes, if you can. If not look them up when you get home.

Making a Good Estimate

Don't forget, an estimate is *not* a guess ! To make a good estimate you should break the problem down to smaller parts. You can make a good guess for each small part. Then you calculate your estimate.

For Example:
I want to estimate the height of a tall room.
The room is roughly the same height as 4 doors.
I guess the door is roughly 2 metres high (most doors are). So I calculate:
I estimate the height of the room is $2 \times 4 = 8$ metres high.

4 doors
= 8 metres

2 metres
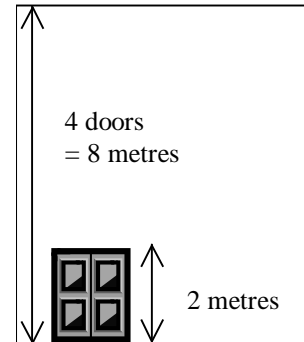
Use this space to do the calculations for your estimation opportunities. (The church windows, the obelisk at the church, the blue glass building, the station clock).

Things To Do With Your Information

On this trail you have collected lots of information. These pages contain some questions you may like to think about. Also they have ideas about making use of the information you have collected.

Shapes

- Different objects are made in different shapes. Why ? (E.g. most windows are rectangular, but some are not).
- What are the most common shapes? Why ?

Look at your page of interesting and unusual shapes. Why have the shapes been used ? Why is one shape better than another to do each job ? Write about your ideas.

Best Buys

- Look at the types of offers you have seen. Which are the best ones ?
- Would you prefer 30% off, or getting 3 for the price of 2 ?

Look at your page of best bargains. Write about your ideas.

Numbers

- Some numbers are used to say how big something is. (E.g. "It's 1.83 metres high").
- Some numbers are used to say how many there are of something. (E.g. 500 sheets of paper).
- Some numbers are just codes to let you know which particular one something is. (E.g. bus number 61).

Look through the answers in your trail booklet. Find examples of numbers which are used to show *how big*, *how many* or are *codes*.

Costs

You wrote down the cost of staying at the Ibis Hotel.
- What is the cost for two people sharing a room ?
- Work out the cost for two people staying in two separate rooms.
- Work out the total cost for 3 business people, each needing their own room, staying for three nights.

You write down the cost of a holiday.
Work out the cost for a family with two adults and two children. (The children cost half the adult price).

Dates

You have collected lots of information about dates.
Answer questions like these:

- How long did it last ?

- How long did they live for ?

- How long ago did it happen ?

- When will it's centenary be ?

- When will other anniversaries be celebrated ?

The Post Office

- How many collections are there on one *weekday* ?

- How many collections are there on one *Saturday* ?

- Suppose (on average) there are 150 letter in the box each time it is emptied.

- How many letters would be collected on a weekday?

- How many letters would be collected on a Saturday?

- Why are fewer collections at the week-end ?

Tally Charts

- You collected information about different street signs.
- Draw a bar chart to illustrate this information.
- Which is the most common type of street sign ?
- Which is the least common ?
- *Why* do think this is ?
- How would you improve your survey if you did it again ?

ISBNs

The International Standard Book Number (ISBN) always has 10 digits. It tells libraries and bookshops about the book in one number. It is a code.

ISBNs are made up like this:

$$0 \qquad 14 \qquad 004181 \qquad 8$$

Language   Publisher   Book   Check digit

The language for 0 is English. The publisher for 14 is Penguin. This book 004181 is a mathematical puzzle book called 'Tangram'. Check with a librarian.

Look for books by other publishers or in different languages. Compare their ISBNs.

The check digit allows a computer to check that an ISBN has been entered correctly. Here is how it works.

$$\underline{0 \ \ 14 \ \ 00 \ \ 4181 \ \ 8}$$

we do: $0\times10 + 1\times9 + 4\times8 + 0\times7 + 0\times6 + 4\times5 + 1\times4 + 8\times3 + 1\times2 + 8\times1$

which is: $0 + 9 + 32 + 0 + 0 + 20 + 4 + 24 + 2 + 8 = 99$

We divide the answer by 11.

$$99 \div 11 = 9$$

If it divides exactly (which it did), then the ISBN is correct.
If not there must be a mistake.

Check that the ISBN's you found in the library are correct.