

NSCG Maths Number Booklet 1

The following pages contain activities that you can have a go at prior to attending NSCG in September.

There are 4 Activity booklets for you to do, this is called Number 1, and there are Measure 2, Data 3 and Shape 4 booklets to follow.

Quite a few of the activities have real world math applications, these will help to keep your skills fresh for your start @ NSCG in September.

If you need help you can there are lots of helpful resources on-line with YouTube having a large selection of video help. Try searching for the activity titles and adding Corbett maths after it, e.g. Simplifying fractions Corbett maths.

Answers can be found on the page that you found the questions on. Also you can contact us on

sc.gcse.maths@nscg.ac.uk or

nl.gcse.maths@nscg.ac.uk

Good luck with the activities and let's keep those minds active.

If you find the activities easy, try looking on the Corbett maths website for questions help and more. Also you could have a go at the initial assessment activities.

Activity 1: Working with place value



1. Write 4,025 in words.

Th H T U

4 0 2 5

2. Write six thousand, four hundred and seventy-two in figures.

Th H T U

six four seven two

3. Here are the results of an election to be school governor at Hawthorn School:

1. John Smith: 436 votes
2. Sonia Cedar: 723 votes
3. Pat Kane: 156 votes
4. Anjali Seedher: 72 votes

Who won the election?

Activity 2: Using negative numbers in everyday life

1. The following table shows the temperatures in several cities on one day.

City	Temperature
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A	-2°C
B	-5°C
C	-1°C
D	-8°C
E	-3°C

- Which are the coldest and warmest cities?

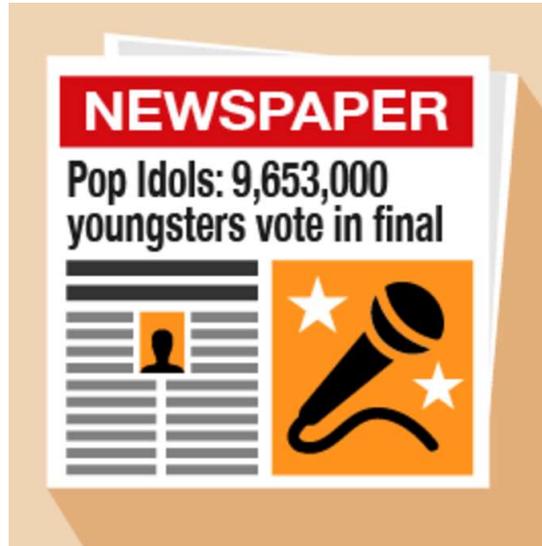
2. A particular brand of ice cream includes the following note in its storing instructions:

- For best results, store in temperatures between -10°C and -6°C

If your freezer's temperature was -11°C , would it be OK to keep this ice cream in it?

Activity 3: Looking at numbers

1. Look at this newspaper headline:



- Write down the number in the millions column.
- Write down the number in thousands column.
- Look at the details below. Who won the *Pop Idols* competition?
 - Will: 4,850,000 votes
 - Gareth: 4,803,000 votes

2. Look at the data in the following table. It gives the temperatures of five cities on a Monday in January.

City	Temperature
London	0°C
Paris	-1°C
Madrid	10°C
Delhi	28°C
Moscow	-10°C

- Which city was the coldest?
- Which city was the warmest?
- How many cities have a temperature below 5°C?

3. You buy a jumper for £24 and a skirt for £18. How much do you spend altogether?

4. You have £48. You spend £26. How much do you have left?

Activity 4: Using multiplication and division

You can use a calculator in this activity.

1. What are the answers to these sums?

a. 6×4

b. 3×9

c. 5×7

d. $36 \div 9$

e. $48 \div 6$

f. $15 \div 3$

2. Wine glasses come in boxes of 10. There are 25 boxes in a crate. How many wine glasses are there in one crate?

3. A circus is selling tickets at £19 for adults and £11 for children. How much would it cost for two adults and two children to go?

Activity 5: Rounding to 10, 100 and 1,000

1. Round these numbers to the nearest 10:

a.64

b.69

c.65

2. Round these numbers to the nearest 100:

a.325

b.350

c.365

3. Round these numbers to the nearest 1,000:

a.4,250

b.4,650

c.4,500

d.4,060

Activity 6: Bill's shopping

1. Bill has £20 to spend on his shopping. Here's a list of the items he selects, along with how much they cost:



The image shows a shopping list on a piece of paper with a red pen next to it. The list is titled 'MY SHOPPING LIST' and contains the following items and prices:

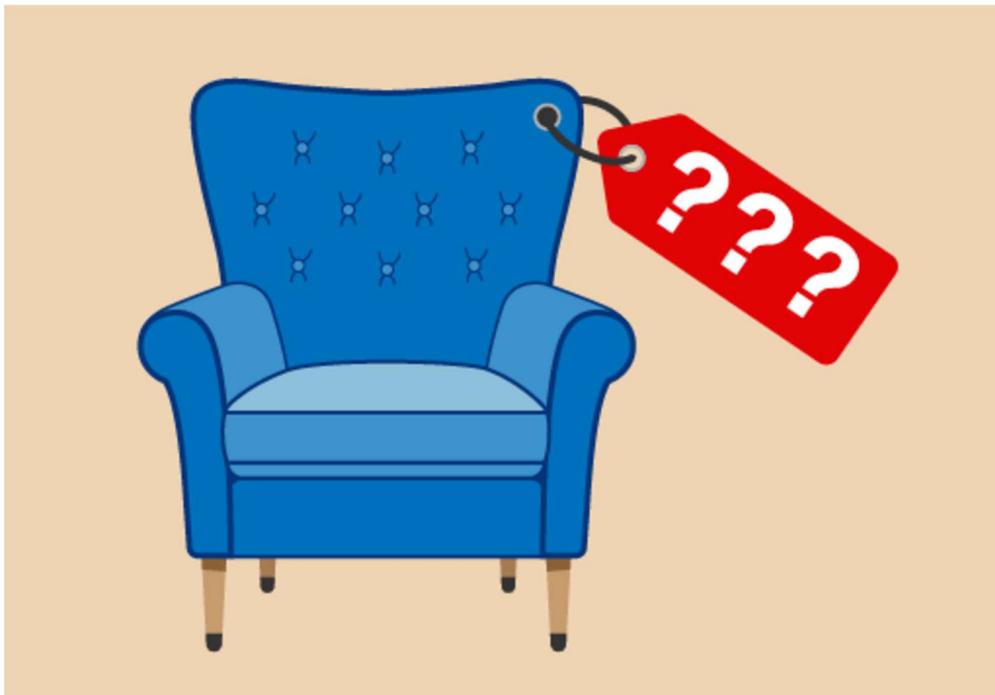
Item	Price
British beef mince	£2.20
Eight thick beef sausages	£1.24
Thick sliced white loaf	72p
Pasta (500g)	79p
Corn flakes	£1.78
Chocolate biscuits	£1.29
Milk (6 pints)	£2.12
Potatoes	£1.98
Tomatoes	69p
Bananas	90p
Apples	£1.49
Coffee	£4.13

Use your rounding skills to work out whether Bill has enough money to pay for all of his shopping.

2. Can you total all of the items on the shopping list to see what the actual cost of Bill's shopping is?

Activity 7: Rounding

1. The population of a city is 6,439,800. Round this number to the nearest million.
2. Tickets to a concert cost £6 each. 6,987 tickets have been sold. Approximately how much money has been collected?
3. 412 students passed their Maths GCSE this year at Longfield High School. 395 passed last year. Approximately how many students passed GCSE Maths over the last two years?
4. Four armchairs cost £595. What is the approximate cost of one armchair?



5. A box contains 18 pencils. A company orders 50 boxes. Approximately how many pencils is that?

Activity 8: Fractions in order of size

1. Put these fractions in order of size, with the smallest first:

$$\frac{1}{2} \quad \frac{1}{4} \quad \frac{3}{8} \quad \frac{3}{4}$$

2. What should you replace the question marks with to make these fractions equivalent?

$$\frac{1}{3} = \frac{?}{6}$$

$$\frac{1}{4} = \frac{?}{8}$$

$$\frac{1}{5} = \frac{?}{10}$$

$$\frac{1}{2} = \frac{?}{10}$$

Activity 9: Putting fractions in order

1. Put these fractions in order of size, smallest first:

$$\frac{1}{6}, \frac{3}{10}, \frac{1}{3}, \frac{11}{15}, \frac{2}{5}$$

2. Put these fractions in order of size, smallest first:

$$\frac{3}{10}, \frac{4}{5}, \frac{2}{15}, \frac{1}{6}$$

Activity 10: Paying in instalments



A family plans to have its kitchen extended.

The cost of this project is £12,000.

The builder they have chosen to carry out this job has asked for the money to be paid in stages:

1. $\frac{1}{4}$ of the money to be paid before starting the project.
2. $\frac{1}{2}$ of the money to be paid a month later.
3. The remainder to be paid when the extension has been built.

How much is the builder asking for during Stage 1 and Stage 2?

Activity 11: Decimal dilemmas

1. Four children are taken to the funfair. One of the rides, the Wacky Wheel, has the following notice on it:

- For safety reasons, children must be over 0.95 m tall to go on this ride.
- Margaret is 0.85 m tall.
- David is 0.99 m tall.
- Suha is 0.89 m tall.
- Prabha is 0.92 m tall.
- Who is allowed to go on the ride?



2. Six athletes run a race. Their times, in seconds, are as follows:

Sonia	10.95
Anjali	10.59
Anita	10.91
Aarti	10.99
Sita	10.58
Susie	10.56

- Who gets the gold, silver and bronze medals?



3. In a gymnastics competition, the following points were awarded to four competitors.

Who came first, second and third?

Janak 23.95

Nadia 23.89

Carol 23.98

Tracey 23.88

Activity 12: Rounding

1. Work out approximate answers to these by rounding each decimal number to the nearest whole number:

a. $3.72 + 8.4$

b. $9.6 - 1.312$

c. 2.8×3.4

d. $9.51 \div 1.5$

2. Round the following numbers to two decimal places:

a. 3.846

b. 2.981

c. 3.475

Activity 13: Using decimals



1. You buy a box of corn flakes for £2.65 and a bottle of milk for £1.98.
 - a. What is the total cost of these items?
 - b. You pay for them with a £5 note. How much change should you get?
2. You go on holiday to Italy. The rate of exchange is £1 = €1.4. How many euros do you get for £8?
3. You go out for a meal with three friends, and the total cost of the meal is £56.60. You decide to split the bill equally. How much do each of you pay?
4. Convert 6.25 m to cm.

Activity 14: Comparing discounts

The same diamond ring is being sold at different prices, and with different percentage discounts, in two different shops.



Which shop offers the better deal?

Activity 15: Calculating percentage increases and decreases

1. You buy a car for £9,000. Its value depreciates (decreases) by 25% annually. How much will the car be worth at the end of the first year?
2. Since the start of the 21st century, the shares in the InstaBank have risen by 30%. If the price of one share was £10 in 2000, what is it worth now?

Activity 16: Looking for equivalencies

1. What is 20% of £600?
2. If you walked 0.25 km each day, what fraction of a kilometer have you walked?
3. House prices have increased by in the last five years. What is this increase as a percentage?
4. A DIY shop is holding a '50% off' sale on kitchens. How much would you pay for a new kitchen worth £8,000 in the sale?
5. You buy an antique necklace for £3,000. After ten years, its value increases by 20%. How much is it now worth?

Activity 17: Using ratios

1. The ratio of sand to cement required to make concrete is 3:1.

How much of each is needed in order to make 60 m^3 of concrete?

2. Read the label from a bottle of wallpaper stripper:

- Dilute: add 1 part wallpaper stripper to 7 parts water.

How much wallpaper stripper and water is needed to make 16 litres of solution?

3. To make a solution of hair colourant you need to add one part of hair colourant to four parts of water. How much hair colourant and water is needed to make 400 ml of solution?

Activity 18: Scaling up recipes

1. This recipe makes ten large cookies:

- 220 g self-raising flour
- 150 g butter
- 100 g caster sugar
- 2 eggs

How much of each ingredient is needed to make 20 cookies?

2. This recipe makes four servings of strawberry milkshake:

- 800 ml milk
- 200 g strawberries
- 4 scoops of ice cream

How much of each ingredient is needed for two people?

3. This recipe makes dessert for two people:

- 300 ml milk
- 60 g powder

How much of each ingredient is needed to serve six people?

Activity 19: Looking at ratio and proportion

Note: Calculators not allowed.

1. A label on a bottle of curtain whitener says that you should add one part concentrated curtain whitener to nine parts water.

How much curtain whitener and water is needed to make up a 2,000 ml solution?

2. Here is a recipe for a low-fat risotto for two people:

- 200 g mushrooms
- 175 g rice
- 180 ml water
- 180 ml evaporated milk
- Salt and pepper

How much of each ingredient is needed if you want to cook enough risotto for six people?

Activity 20: Using formulas

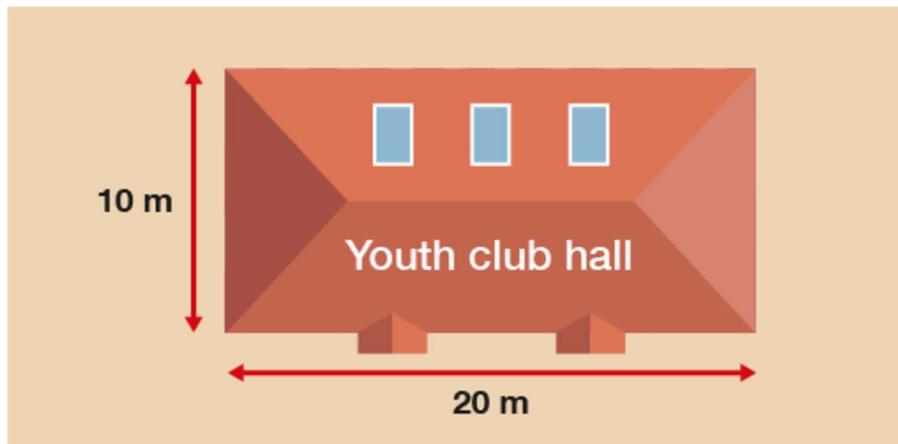
1. Harvey earns £7.75 per hour. How much will Harvey earn in 8 hours?

2. A joint of pork takes 40 minutes per kilogram to cook, plus an extra 30 minutes to ensure the outside is crisp.
 - a) How long will it take for a 2 kg joint of pork to cook?
 - b) How long will it take for a 1.5 kg joint of pork to cook?

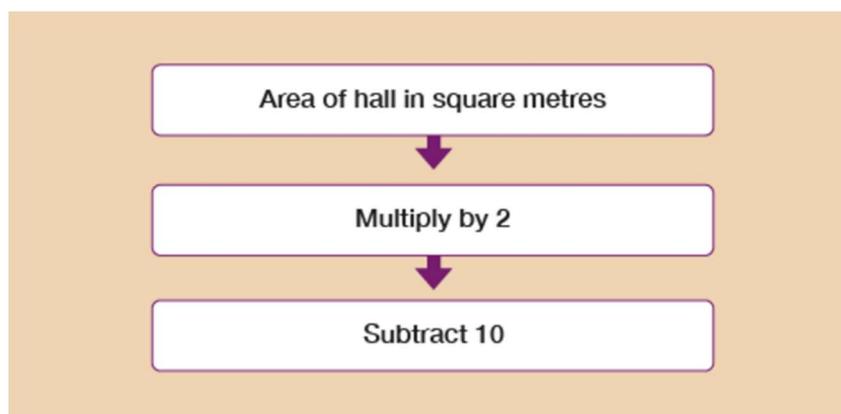
3. A mobile phone contract costs £15 a month for the first four months, then £20 a month after that. How much will the phone cost for one year?

Activity 21: Using function machines

1. The battle of the bands will take place in the youth club hall.



Shazad uses the following rule to find out the number of people allowed in any hall:



- a) What is the number of people allowed in the youth club hall?

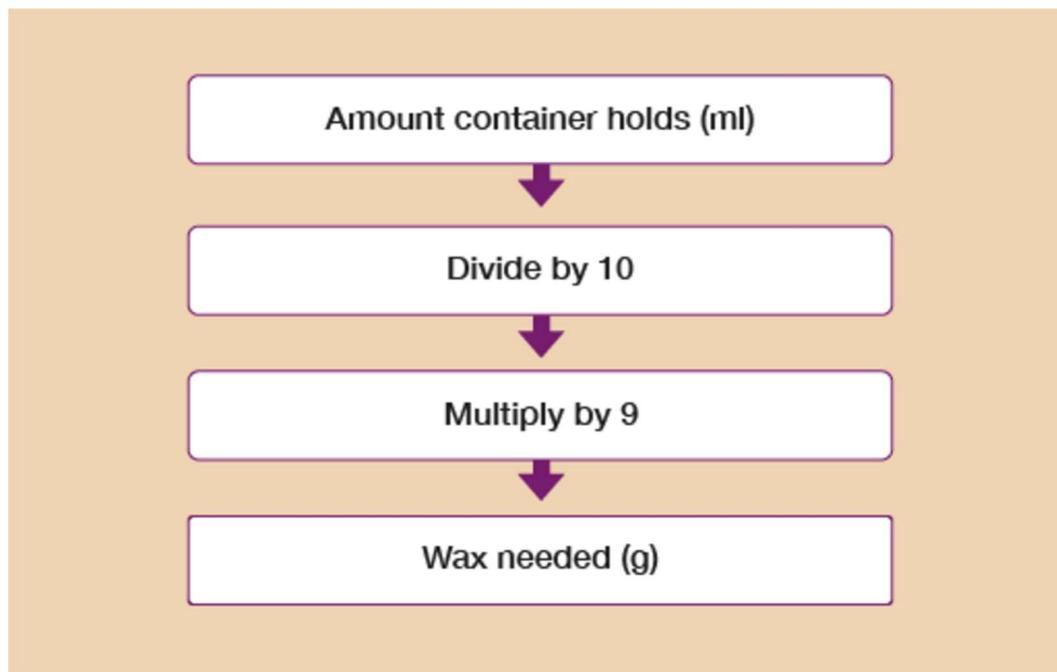
2. Simon meets a trainer at the leisure centre to set fitness goals. The trainer uses the following rule to calculate Simon's BMI:

$$\text{Simon's weight in kg} \div 3 = \text{Simon's BMI}$$

One of Simon's fitness goals is to have a BMI between 19 and 25.

He currently weighs 72 kg. Is he meeting his fitness goal?

3. Lena makes candles in containers. She knows a rule to work out how much wax she needs (measured in grams) to use for each container (measured in ml):



4. Lena has a container that holds 200 ml. How many grams of wax should Lena use in this container?

5. Kofi sells souvenir photographs to visitors at the karting centre. The cost price of each photo is £2.

Kofi uses this rule to work out the selling price of each photo that will cover his costs and make a profit:



Kofi thinks that the photos should be sold for £8. Is this correct?

Find the answers on the page that you found this work
For help and support
sc.gcse.maths@nscg.ac.uk OR nc.gcse.maths@nscg.ac.uk

