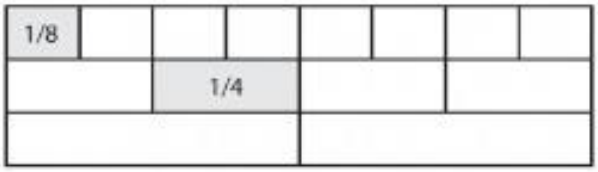
Fractions 2

Tenths

Your child will be learning about equivalent fractions (fractions that have the same value as each other, e.g. $^1/_2 = {}^2/_4$) over the coming days. S/he will also be learning how to express a number as a fraction of another number and s/he will be solving real-life problems based on fractions. Your child needs to know some of the mathematical language associated with fractions: fractions, equivalence, equal, the same value, fraction wall/chart, signs (<, = and >), bigger/smaller amount, above/below the line, number line/strip.

The fraction wall – revision

Revise the work done earlier in the year using the following sets: halves, quarters, eighths and tenths; thirds, sixths, ninths and twelfths; and halves, fifths and tenths. You may have kept your fraction wall from your previous work on fractions. If not, you could print a fraction wall from the internet or you could ask your child to make a copy of the fraction wall from page 101 of *Busy at Maths 4* using an A4 sheet of paper.



Ask your child to cut out each fraction strip. Ask him/her to manipulate the fractions to show equivalence (fractions that are equal) by placing them on top of each other, e.g. place two quarters over one half to show that they are equivalent/equal/the same. Place six eighths over three quarters in the same way.

Extension 1: Call out two different fractions. Encourage your child to call out a fraction that is bigger than that. For example, if you call out $^1/_2$, your child can say $^5/_8$, $^3/_4$, $^6/_8$, $^7/_8$. Help your child to check the answer by comparing the specific fraction strips.

Extension 2: Encourage your child to add different fractions e.g. $^1/_2 + {}^1/_6$. To do this, s/he must convert $^1/_3$ into $^2/_6$. Then the fractions are easy to add.

Finding the whole amount

Activity 1

For this activity, you will need an A4 sheet of paper divided into eight equal pieces and at least 32 cubes, marbles, pasta shells or whatever you may have to hand.

Pose a problem to your child, such as: One-eighth of my cubes is 3. Ask your child to place three cubes on one of the eight sections of the piece of paper. Ask him/her to come up with a strategy to find out how many cubes you have altogether. You may like to try this strategy:

- *How many equal pieces has the paper been divided into?*
- *How many of the eighths contain cubes? Yes, just one!*
- *How many cubes are there on $^1/_8$? Yes, three!*
- *If we know that $^1/_8 = 3$, how can we find $^8/_8$? Yes, we just multiply the answer by 8.*
  So 3 x 8 = 24. The total is 24!

Encourage your child to place three cubes on each section/eighth to verify the answer.

Activity 2

Using the same page and cubes, place four cubes on any three of the sections/eighths of the paper. Ask your child to come up with a strategy to find out how many cubes you have altogether. You may like to try this strategy:

- *How many of the eighths contain cubes? Yes, three!*
- *How many cubes are in $^3/_8$? Yes, $^3/_8 = 12$.*
- *If we know that $^3/_8 = 12$, how can we find $^1/_8$? Yes, we simply divide the total by 3. So 12 ÷ 3 = 4. That means that $^1/_8 = 4$.*
- *If we know that $^1/_8 = 4$, how can we find $^8/_8$? Yes, we just multiply the answer by 8. So 4 x 8 = 32. The total is 32!*

Encourage your child to place three cubes on each section/eighth to verify the answer. You can do this activity with different numbers.

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Money 2

Coins and notes

Your child will be dealing with the multiplication and division of money over the coming days. S/he will also be dealing with real-life problems involving money. Your child needs to know the mathematical language associated with money: money, cost, euro, cent, multiplication, division, digits, charge, change, shared, estimate, prices, cost, buy, buying, metre, reduction, sale price, item, rental rates, renting, restaurant bills, receipts, labelled packs.

Giving change from €5/€10/€20

Ask your child to make some price tags for items with prices up to €19·99 using Post-it notes. Put the price tags on a range of items in the home, e.g. beans, cereal, kettle, vase, bowl, schoolbag, jumper, jeans.

Give your child a selection of coins as well as €5, €10 and €20 notes. If you don't have real money, feel free to use Monopoly or play money. Explain to your child that s/he will play the role of shopkeeper and that you will play the role of shopper. You will have a €5 note and will buy only one of the items that have price tags on them. You should hand in a price tag, e.g. for the cereal, which could cost €2·92, and offer the €5 note in payment. The shopkeeper has to give change to you. Encourage your child to count on when giving change, e.g. €2·92 + 3c → €2·95 + 5c → €3·00 + €2·00 → €5. Change = 3c +5c + €2 = €2·08. After a number of transactions have taken place, you can swap roles, with your child now playing the role of shopper.

Extension: Encourage your child to buy more than one item (but the total price must not exceed €20). S/he must add up the prices (mentally or using a pencil and paper) before calculating the change to be given from €5, €10 or €20 notes.

Shopping trips

Bring your child along to help with the grocery shopping. As you walk through the aisles, ask your child to look for the prices of the items you want to buy. Encourage your child to round the price of each item to the nearest euro. Using these rounded prices, ask your child to keep track of the approximate total cost of the items in the trolley. When you get to the till, compare the estimated total with the actual total shopping bill.

Shopping – multipacks

On your shopping trips, look out for special offers that involve multipacks. Give your child a calculator and encourage him/her to calculate the prices of individual items:

- *How much does a pack of 12 toilet rolls cost? Calculate the cost of one toilet roll.*
- *How much does a single tin of tomatoes cost?*
- *How much does a multipack of three tins cost? Calculate the cost of one tin from the multipack.*
- *Which is better value: three single tins of tomatoes or the multipack of three tins?*

Receipts

Keep a receipt from a grocery shop. Sit with your child and analyse the receipt.

- *What shop is this receipt from?*
- *What date was this receipt issued?*
- *What was the total of the shopping bill?*
- *How much change did I get?*
- *Did I buy more than one of any item?*
- *How many items did I buy?*
- *Did I save any money by buying items on special offer?*
- *If six bananas cost €1·29, what was the cost of one banana?*
- *Look at the price of a box of cereal. How much would four boxes of cereal cost?*

Catalogue shopping

Give your child a shopping catalogue (e.g. from a toy, grocery, hardware or clothes shop). Give your child problems to solve, such as:

- *If a football costs €13·20, how much would nine footballs cost?*
- *If I bought a jumper and a pair of jeans, how much change would I get from €50?*
- *Name six items that I could buy with €20.*
- *If I bought four bowls, what change would I get from €15?*

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Length 1

Home/School Links Sheet 22

Centimetres and metres

Your child will be learning about centimetres and metres over the coming days. Your child needs to know some of the mathematical language associated with the metric system: length, centimetres (cm), metres (m), measure, longer, shorter, total, decimals, fractions, metre stick, more/less than, long, longer, equal, distance, high, tenth, hundredth, decimal point.

Get measuring – centimetres and metres

Source a ruler and a metre measure. You can make a metre stick, a metre strip or metre string using a metre on a tape measure. Or you may prefer to just use the tape measure! Ask your child to examine both the ruler and the metre by asking such questions as:

- *How many centimetres are on the ruler?*
- *How many centimetres are in a metre?*
- *How many centimetres are in $^1/_2$ / $^1/_4$ / $^3/_4$ of a metre?*

Your child needs to know the best measuring length or tool to use when measuring different items. Ask him/her questions such as: Would you use a ruler or a metre measure to measure the height (or length or width) of a mug/radiator/door/plant/shoe/car/door/window/garden/football pitch?

Extension 1: Gather a selection of household items and ask your child to measure the length/height or width of each one.

Extension 2: Invite your child to arrange the household items in order from shortest to longest.

The metre – a closer look

Help your child to practise reading the metre sticks in both fraction and decimal form. Ask him/her questions such as:

- *How many centimetres are in 0·5m?*
- *What is 37 centimetres in fraction form and decimal form?*
- *What is another name for $^7/_{10}$ metre?*
- *How many centimetres are in 0·82m?*

Long jump

Set up a long jump area in the your hall or garden. Make sure that your child will not be in any danger from traffic, stones or sharp objects. Mark a start position. Invite the members of your family (or friends) to jump in the long jump. Using a metre measure (or extended measuring tape), encourage your child to measure the length of each jump. Encourage him/her to record the lengths in centimetres and metres in both decimal and fraction form, e.g. 1m 59cm or 1 $^{59}/_{100}$m or 1·59m.

Chalk drawings

Give your child a bar of chalk, a ruler and a metre measure. Set your child different lengths that s/he must measure out on the patio area of your garden or on a path (ensuring that your child is not in any danger from traffic). Alternatively, you can use long strips of paper and pencils or crayons. Ask your child to:

- *Draw a line that is 9cm long.*
- *Draw a line that is 1·04m long.*
- *Draw a line that is $^8/_{10}$ of a metre long.*
- *Draw a line that is 2m 26cm long.*
- *Draw a line that is $^{73}/_{100}$ of a metre long.*

Family height chart

Help your child measure the height of each family member. Encourage your child to predict how tall each person is before using a tape measure to find their exact height.

Extension: Using the tape measure, your child could also measure the length of each family member's leg, arm, distance around the waist/shoulders/wrist/ankle, etc.

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Decimals 3

Your child will be learning about adding and subtracting whole numbers and decimals up to two places of decimals as well as multiplying and dividing decimal numbers up to two places of decimals over the coming days. S/he will need to know the mathematical language associated with decimals: tenths, hundredths, decimals, decimal number, decimal fraction, estimate, swap, unit, ten, hundred, thousand, whole numbers, decimal point, point, value of digits, place holder, centimetre, metre, kilometre, hundreds house, tens house, units house, tenths house, hundredths house, addition, plus, minus, subtraction, take, divide, multiply, regroup, exchange.

Note 1: All the activities in Home/School Links Sheet 11 and Home/School Links Sheet 16 can be revised here to further consolidate the concept of decimals along with the following activities.

Note 2: It is crucial that children always estimate before adding or subtracting decimals.

The shopkeeper game

One player acts as the shopkeeper. To begin, the shopkeeper has all the base ten materials.

Player A rolls a die (preferably a nine-sided die, but a regular six-sided die will work too) and collects that number of hundredths (1c coins) from the shopkeeper. Player B takes his/her turn and collects the number of hundredths that is shown on his/her die from the shopkeeper. Play continues like this until a player has more than nine hundredths (1c coins). For example, if Player A had eight hundredths (1c coins) and rolled the die and got a 4, s/he would now have 12 hundredths (1c coins) altogether.

Player A must then go to the shopkeeper and swap the 12 hundredths for one tenth (one 10c coin) and two hundredths (two 1c coins). Play continues until the first player to make €1 (1 unit) is the winner.

Extension: Each player has €1 (unit) to begin with. Player A rolls the die and gives back the number of hundredths shown to the shopkeeper. For example, if Player A throws a 4, s/he will need to go to the shopkeeper and break up a unit into 100 hundredths. S/he is then in a position to give back four hundredths (1c coins). Player B takes his/her turn and gives back the number of hundredths shown on the die. Play continues until one player has given back all their hundredths.

Definitions

A decimal number is a number that has a decimal part. For example, 9 is a whole number but 9·3 is a decimal number.

A decimal fraction is the decimal part of a decimal number. For example, 9·3 is a decimal number, but $^{3}/_{10}$ or 0·3 is the decimal fraction because it is less than 1.

The decimal point

Discuss the function of the decimal point with your child. We use a decimal point to separate the units from the fractions. Anything to the left of the decimal point is made up of whole numbers. Anything to the right of the decimal point is made up of fractions or pieces of numbers. The decimal point is always placed between the units and the tenths house.

Explain to your child that 0·43 in words is zero point four three or forty-three hundredths or four tenths and three hundredths. Similarly, 3·92 is three point nine two or $3\ ^{92}/_{100}$ or $3 + {}^{9}/_{10} + {}^{2}/_{100}$.

Note: It is important to make the connections between fractions and decimals at all times, in so far as it is possible.

Where does the decimal point go?

Give your child a series of problems involving addition, subtraction, multiplication and division of decimals along with the answers with the decimal points missing. Encourage your child to estimate the answer by adding, subtracting, multiplying and dividing the whole numbers and then invite him/her to determine where the decimal point should be inserted in the answer.

For example:

12·78 + 5·2 = 17·98 (13 + 5 = 18)

23·8 – 6·91 = 16·89 (24 – 7 = 17)

2·14 x 6 = 12·84 (2 x 6 = 12)

9·27 ÷ 3 = 3·09 (9 ÷ 3 = 3)

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