Family Maths Toolkit

Family Maths Activities

Maths & Money
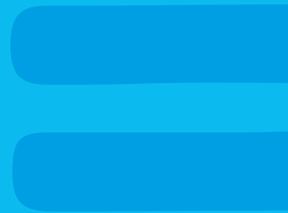
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National Numeracy
Getting on with numbers

Family Maths Toolkit

1 2 3 4

Introduction

Focused on maths and money, this family engagement resource aims to promote enjoyment of maths and understanding of money through discussion and working together.

This activity pack, created by National Numeracy, contains fun, 'real life' activities for children to do with their families. They are aligned to the English National Curriculum, and encourage children and families to explore the numeracy involved in money management.

There are 18 activities in the pack. They are organised in this pack by key stage, so that they get progressively harder - but you may wish to use activities that match the area of the maths curriculum on which your children are working or that are based around a particular money theme.

The individual activity sheets are not marked with the age or key stage, but they are colour coded so you can tell the difference. Please note that the level is based on average expectations for the key stage - children may be working below or above this, so draw on activities from other age groups if you need to.

This pack contains:

- An overview showing the suggested split of the activities by key stage and by numeracy topic from the English National Curriculum.
- 18 activities, in the order given in the overview.

The activities are open-ended, so no answers are provided.

For schools and education settings
We recommend the following approach for using the activities:

- A whole class/group approach and even a whole school/organisation approach.
- If children are working well above or below age-related expectations, select an activity from a different age group.
- Hold a workshop to model the activity discussions for less confident parents.
- Emphasise that any member of the family can work with the child being given the activity.
- If there are no adults helping out at home, we suggest finding an older school buddy, mentor or volunteer to help in a club.
- The parent/carer does not have to have any special knowledge of school maths or equipment.
- Encourage children to be creative: take photos, draw pictures, write calculations or create diagrams.
- Encourage both adult and child to use the comment box to promote reflection and help you understand what they think about each activity.
- Put completed activities on show so that children and families can learn from each other that there is not just one answer but many ways of approaching problems.

Any questions, please email:
enquiries@nationalnumeracy.org.uk

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For parents and carers

However you might feel about maths, you can make a huge difference to your children's numeracy learning.

All the evidence shows that talking about everyday maths helps develop children's maths confidence. Here are some questions that you can ask each other when tackling the activities:

- What do we need to do?
- What information do we have? What do we need to find out?
- Would any equipment help?
- What do you notice when...?
- Shall we make a guess and see if it works?
- What could we do if we get stuck?
- If we were doing this again, is there anything we could do differently?

You can adapt these activities to suit your family's interests and use whatever items you may have to hand, at home or out and about.

You might want to take photos, draw pictures, write calculations or create diagrams - it's up to you!

Do use the comment boxes to reflect your discussions and thoughts as you complete each activity together.

Overview and Curriculum links

Family Maths Toolkit

Key Stage / Age Group	Activities	Curriculum links
EYFS (age 3-5)	Teddy bear's picnic	Count reliably from 1-20.
	Toys' day out	Say one more or one less.
	Which coin?	Start to add and subtract single digit numbers.
KS1 (age 5-7)	At the funfair	Recognise and know the value of different denominations of coins and notes.
	Restaurant dinner	Use symbols for £ and p.
	Tooth Fairy	Combine amounts to make a particular value.
KS2 Lower (age 7-9)	Film studio tour	Add and subtract amounts of money, using both £ and p in context.
		Compare and calculate pounds and pence.
		Solve simple money problems using fractions and decimals.
	In and out	Add and subtract to solve problems involving money.
		Solve simple problems using fractions and decimals.

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Overview and Curriculum links

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Key Stage / Age Group	Activities	Curriculum links
KS2 Lower (age 7-9)	Shopping for a picnic	Recognise symbols £ and p. Combine amounts to make a value. Add/subtract amounts of money, using £ and p in practical contexts. Solve simple problems involving fractions and decimals.
KS2 Upper (age 9-11)	Mobile phones	Use all four operations to solve problems involving money. Use the skills of rounding and estimating up to 3 decimal places.
	Shopping for a picnic 2	Estimate, compare and calculate money in pounds and pence. Use all four operations to solve money problems, using decimal notation. Recognise % and solve problems using percentage. Use skills of rounding and estimating, including up to 3 decimal places, to solve problems.
	Weekend river study trip	Use all four operations to solve problems involving money and decimal notation. Use rounding and estimating to calculate costs.
KS3 (age 11-14)	A weekend away with a friend	Compare two quantities using percentages. Use unit pricing to solve problems.

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Overview and Curriculum links

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Key Stage / Age Group	Activities	Curriculum links
KS3 (age 11-14)	Trainer dilemma	Solve problems involving percentages. Solve original value problems and calculate simple interest.
	Weekly shopping	Define % as 'number of parts per hundred'. Interpret percentages and percentage changes as a fraction or decimal. Solve problems using % change - increase or decrease. Use unit pricing to solve problems.
KS4 (age 14-16)	Family holiday	Develop the use of formal mathematical knowledge to interpret and solve problems, including in financial contexts.
	Mountain bike: Spend or save?	Solve problems involving simple and compound interest.
	The student's challenge	Develop the use of formal mathematical knowledge to interpret and solve problems, including in financial contexts.

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Teddy bear's picnic

Talk about

The toys are buying food for the teddy bear's picnic. Choose 3 or 4 toys to go on the picnic.

Put simple prices on some items from the food cupboard. For example, one biscuit could cost 5p, or a carrot could cost 2p. Keep all prices under 10p.

Play and explore

Use coins 1p, 2p, 5p and 10p.

Give each toy some coins. The toys take it in turns to choose an item and pay for it with their coins. What do they choose?

Do the toys have any money left over? What could they do with it? Talk about saving it for another day, or spending it on another item of food, or giving it to a charity.

Apply to real life

Go to a local shop with some coins to spend. Look at prices and decide how to spend the money together.

Make it fun and praise your child's effort even if they are still learning the value of the coins.

> You can use the pretend coins on the next page if you don't have real coins available. Cut them out and draw dots on the back to show how much they are worth – e.g. 2 dots for a 2p coin. This helps children understand the values of each coin

Family comments:

Child comments:

Curriculum Link

- Count reliably from 1-20
- Say one more or one less
- Start to add and subtract single digit numbers
- Key vocabulary – pence, coins, left-over, save, spend, price, value of coins

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Teddy bear's picnic

Toys' day out

Talk about

All the toys would like to have a day of fun.
Look at pictures of a fair or theme park.

Play and explore

Make a pretend funfair for the toys to go on – perhaps a pretend swing, a roundabout, a car ride. Choose 3 or 4 toys to go on the pretend day out.

Choose a price for each of the 'rides'. Use coins 1p, 2p, 5p, 10p and 20p.

Give each toy some coins – will they each have the same? The toys take it in turns to choose a ride and pay for it with their coins.

(You can use the pretend coins on the next page if you don't have real coins available. Cut them out and draw dots on the back to show how much they are worth – e.g.. 2 dots for a 2p coin. This helps children understand the values of each coin)

Apply to real life

Is there somewhere like this you could go locally with some coins to spend? Look at prices and make choices of how to spend the money together. Make it fun and praise your child's effort even if they are still learning the value of the coins.

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Toys' day out

Family comments:

Child comments:

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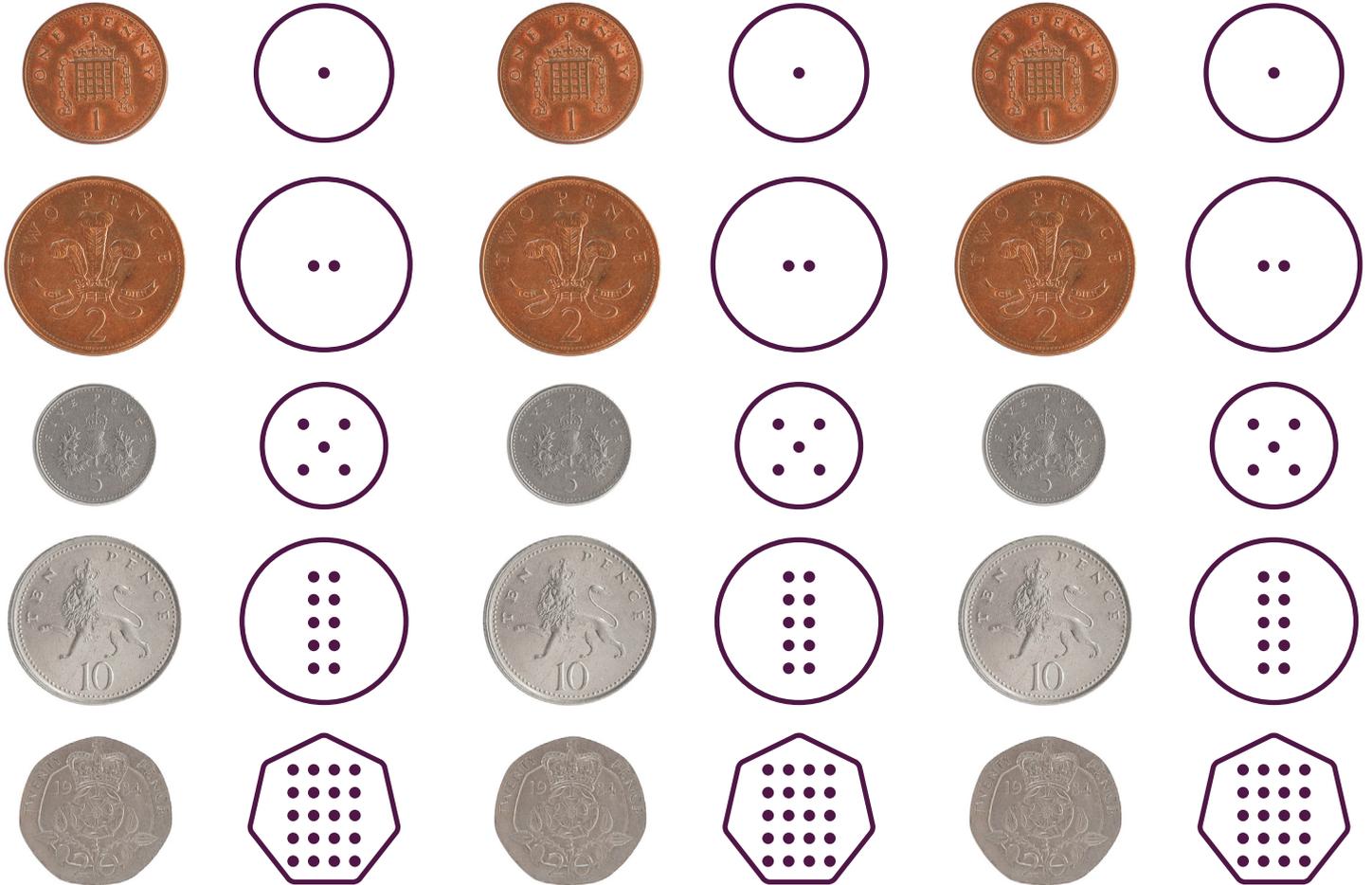
Which coin?

Talk about

Look at some real coins from 1p to 20p and talk about the difference in shape, size and colour. Is the biggest coin worth the most?

Use counting to show that two 1p coins equals a 2p coin.

Play and explore

Cut out the coin cards to play a game of snap or a matching game. Ensure the game is fun and praise children for recognising the coins rather than winning the game.

Use the cards to develop the idea of 'equal value' of different coins. Encourage children to touch the coins as they count.

Place a mix of real coins in a bag and try to identify the coin by feeling.

Apply to real life

Visit a shop with some real coins and talk about what you can buy with them. Encourage spending within a set amount.

Talk about where you keep money - safely in a wallet or purse. Suggest children use a piggy bank or glass jar.

Family comments:

Child comments:

Curriculum Link

- Count reliably from 1-20
- Say one more or one less
- Start to add and subtract single digit numbers
- Key vocabulary – penny, pence, coins, same value

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Which coin?

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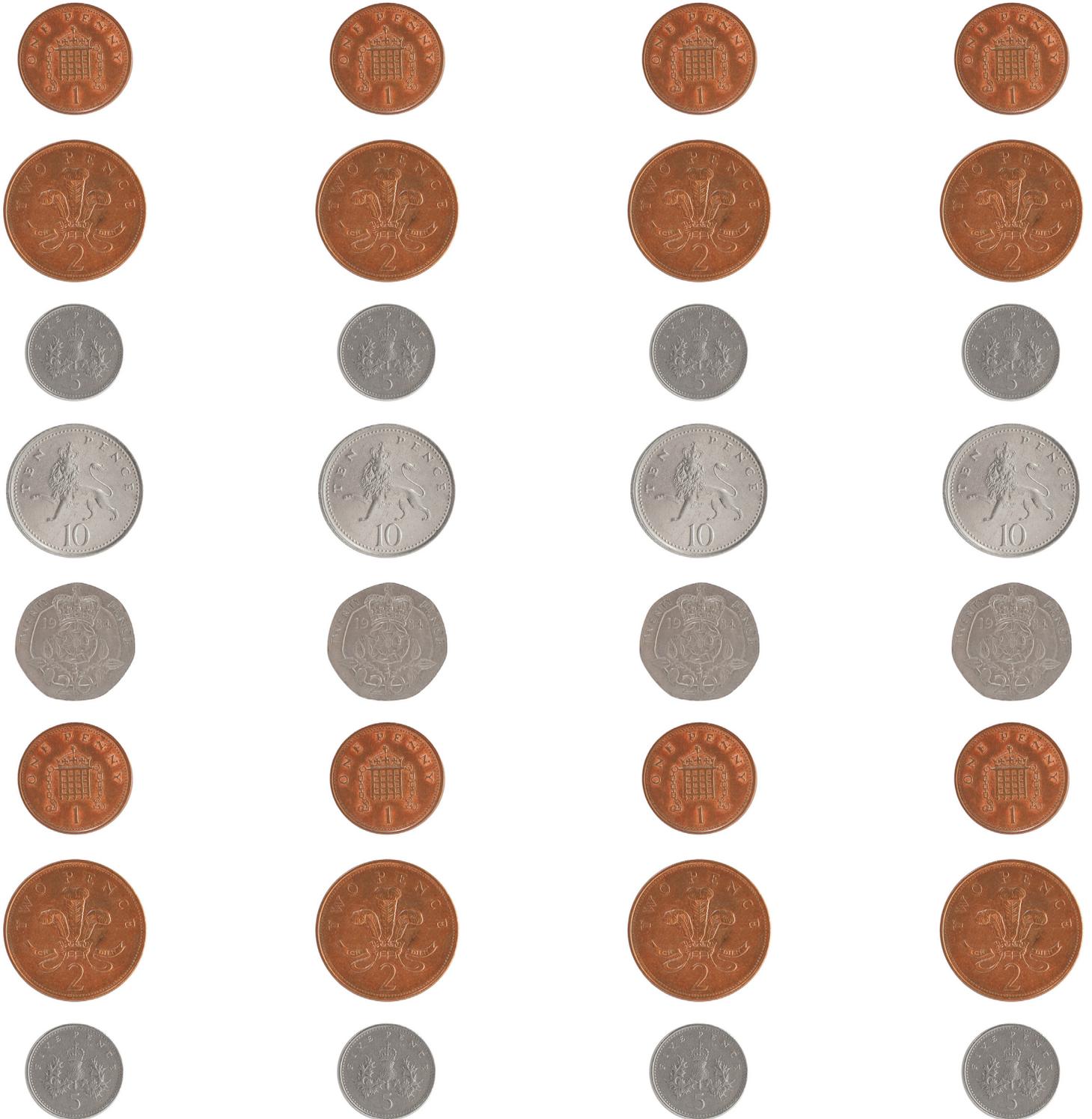
At the funfair

Coconut shy special offer: 3 games for £1

Talk about

Imagine you have £12.00 to spend at the funfair. What would you spend it on?

How much money would you like to take with you?

In a family of 5 people, what do you think the total spending money would be?

Play and explore

Pretend you have your own fairground. What rides, games, food and drink would you have there?

What prices would you give them? Can you think of some special offers?

Special offer: Ride the Ferris Wheel 3 times and get a free voucher for any other ride

Price List

Hook a duck	£1.00
Coconut shy	£0.50
Bumper cars	£3.00
Ghost train	£2.50
Carousel	£2.20
Spinning teacups	£1.50
Ferris wheel	£2.00
Helter-skelter	£1.25
Drinks	£0.80
Candyfloss	£1.40
Toffee apple	£0.90
Popcorn	£1.95

Family comments:

Child comments:

Curriculum Link

- Recognise and know the value of different denominations of coins and notes
- Use symbols for £ and p
- Combine amounts to make a particular value
- Key vocabulary – pence, pounds, special offer, spend, free, amount

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Restaurant dinner

Talk about

Some people like going out to a restaurant or café to have a meal.

Have a look at the example menu and imagine you have £5 each to spend – what would you choose? What healthy choices could you make?

Example Menu

Main course		Dessert	
Beefburger or veggie burger	£2.00	One scoop of ice cream	50p
Burger toppings:		Ice cream toppings:	
Fried onions	30p	Raspberry sauce	20p
Tomato	free	Wafer	10p
Lettuce	free	Cream	50p
Slice of cheese	30p		
Pickled gherkin	10p	**Drinks**	
		Fruit juice	20p
Bread roll	50p	Milk	10p
Side salad	10p	Lemonade	50p
Coleslaw	10p	Water	free
One portion of chips	£1.00		
Tomato sauce	20p	**Extras**	
Mayonnaise	20p	Napkin	10p

Restaurant dinner

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Play and explore

Write a menu for a dinner at home, giving prices to each item like in the example. Make sure the whole menu adds up to more than £5 so that people have to choose what they can have within their £5.

Include things that you **need** to eat and things you **want** to eat. Make the prices for the **want** items higher.

Have fun taking your family's food orders! How much does each person's order come to?

Apply to real life

If possible, visit a real restaurant or café and give your child a budget to choose from (even if you still pay!)

Family comments:

Child comments:

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Tooth Fairy

Talk about

The tooth fairy leaves some money for Tanya's teeth.

In a year, Tanya lost 4 teeth and the fairy has left 50p, £1, £1, and £2 for different teeth.

Which coins could the fairy leave for a tooth?

Would you rather have 6 x 20p or 1 x £1?

The tooth fairy says that to save a trip, Tanya could save one tooth until the next one comes out – so she could either have 80p now or £2 if the fairy comes for two later. What would you do?

Use real coins or the pictures of coins on the extra sheet to talk about it.

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Tooth Fairy

Apply to real life

Talk about where else children might get money from – perhaps as a birthday present. Talk about how some children earn pocket money by doing helpful jobs for their family. You could compare this to grown-ups earning money from a job.

Talk about what you do with money. What would you like to spend some money on now? What would you like to save up for? Is there a charity you would like to give some money to? Perhaps to help some other people or animals.

You could use 3 glass jars – one for spending, one for saving, and one for sharing – and share the money between them. Talk about what is going in which jar and why.

Use glass jars so it is easy to see the money grow!
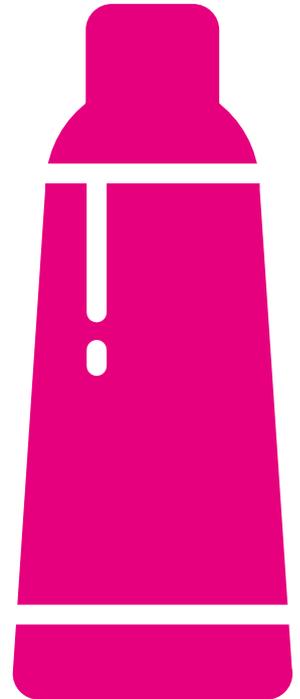
Family comments:

Child comments:

Curriculum Link

- Recognise and know the value of different denominations of coins and notes
- Use symbols for £ and p
- Combine amounts to make a particular value
- Key vocabulary – pence, pounds, coins, notes, share, total, spend, save, share

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Tooth Fairy

Film studio tour

Talk about

The Robinson family (1 adult and 3 children) are planning a visit to a famous film studio tour and they have this information to help them plan their day:

Tickets	Adult ticket: £47 Child ticket (age 5-15): £38 Family ticket (2 adults and 2 children OR 1 adult and 3 children): £150
Food	Take away pizza: £8.50 Take away burger: £4.80 Juice: £1.50 Fizzy drink: £2.50 Ice creams: £1.50 Meal in restaurant: £7.50 each Pack a picnic to take: around £12 for everyone
Travel	Bus: £12 per person Train: £22 per adult; £15 per child Car: £50 for petrol
Extras	Learn to 'fly' using special effects: £5 each Have your photo taken in a famous costume: £3.50 each Go on steam train ride: £3.00 each Ticket for all 3: £10
Souvenirs	Pencil: 50p Souvenir guidebook with pictures: £4.80 T-shirt: adult £18; child £15

Mr Robinson has £270 to spend on the day – what could the family do? What would you choose? What might he say 'no' to if the children asked?

How could he save money? Would he have any left over?

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Film studio tour

Apply to real life

£270 is a lot of money. What could you do that costs less money than going on this studio tour?

Choose somewhere you would like your family to visit for a day. Talk about why you want to go there: have you seen it advertised or heard about it?

Plan a simple budget – remembering any travel, tickets and food you'd need to buy!

If you split the cost equally between your family, what fraction of the total cost would each family member pay?

Would you need to save up for your day out?
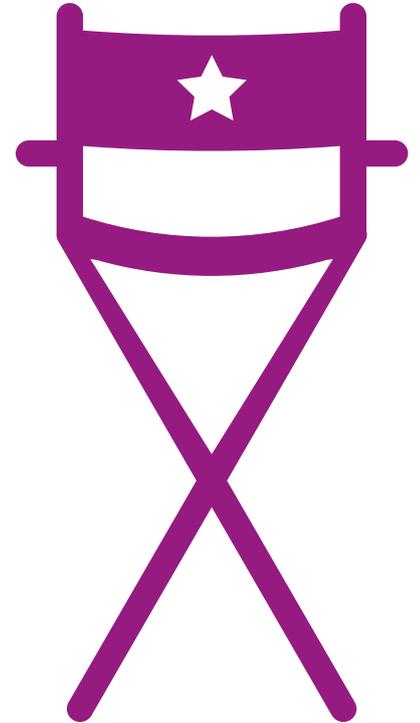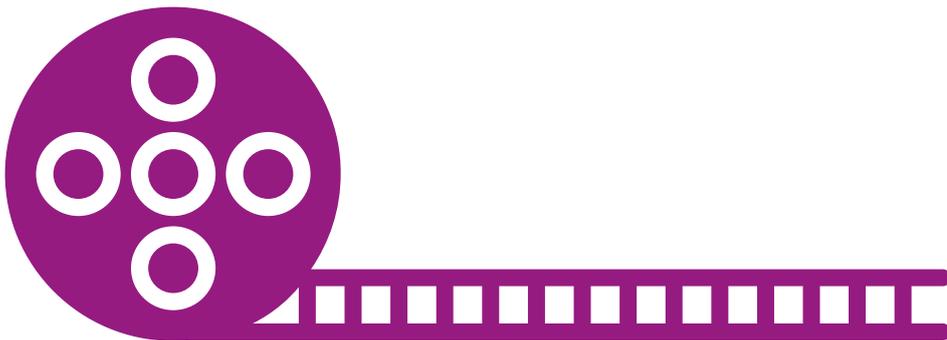
Family comments:

Child comments:

Curriculum Link

- Add and subtract amounts of money, using both £ and p in context
- Compare and calculate pounds and pence
- Solve simple money problems using fractions and decimals
- Key vocabulary -price, cost, spend, save, budget, total, fraction, advert

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In and out

Talk about

All families need money to pay for the things they need but where does it come from? Discuss where your family get money from (income) and what they regularly spend it on (outgoings).

Income:

- Usually a salary or a wage (from which income tax and national insurance contributions are taken)
- Benefits
- Pensions

Outgoings:

- Mortgage or rent
- Utility bills such as: electricity, gas, water, phones
- Essentials such as food

How does money make us feel? What can we use our money for? As an estimate, what percentage is spent on bills and essentials? Can we use our money to help other people?

Think carefully about what you **want** and what you **need**. **Needs** are the things we **must** have to live, like food, clothing and somewhere to live. **Wants** are things we might **like** to have, for example a new game or toy - or a fancy car! Wants are things we can live without.

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In and out

Apply to real life

Where does **your money** come from – presents? pocket money? tooth fairy? selling things you don't want or need?

Some children are given regular pocket money, and some children are given pocket money for doing chores or tasks around the house. What do you and your family think is the best way?

Think about how much money you are given or earn through tasks each month. If you saved ¼ of your income for a year, how much might you have at the end of a year? What could you buy?
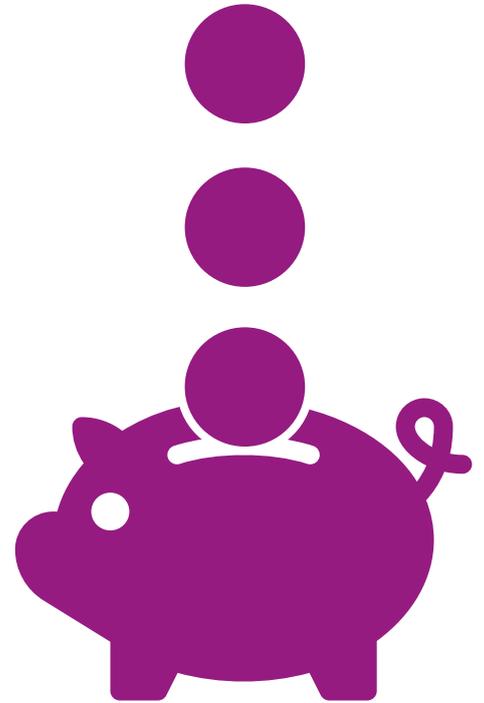
Family comments:

Child comments:

Curriculum Link

- Add and subtract to solve problems involving money
- Solve simple problems using fractions and decimals
- Key vocabulary – pence, pound, price, cost, buy/sell, spend, pay, budget, expenses, total, amount, net pay, gross pay, deductions

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Shopping for a picnic

Talk about

Prital and Mita are planning a picnic. These are the things they want to take but they only have £10.00 to spend. What choices do they have to make?

Are the offers all good? Do they need that much?

Food	Price	Special offers
Bread rolls	Pack of 4 for £2.00 or 60p each	
Samosas	4 for £1.60	Large pack: 10 for £3.50
Cheese	500g for £3.00 or 250g for £2.00	
Apples	20p each	Pack of 5 for £1.50 Buy one pack, get one pack free
Doughnuts	19p each	Large pack: 12 for £2.40
Orange juice	Bottle 600ml for £4.80	Pack of 5 x 100ml cartons for £2.50
Grapes	500g for £1.80	Buy one pack, get one pack half price
Bar of chocolate	200g for £1.70	Buy two for £3.50
Water	free	

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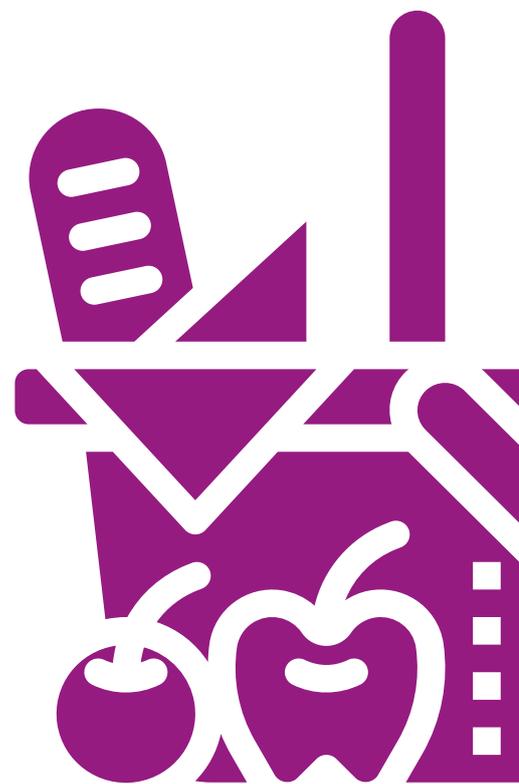
Shopping for a picnic

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Apply to real life

Plan food for your family for a day out – look in a shop or online and work out the cost. Which items do you **need** (to eat sensibly) or **want** (treats such as cake)? Are there any items on special offer?

Tips for grown-ups

Make sure that the choices offered to your child are foods that they will eat, so that the discussions are about money more than food!

Be positive about the maths as a way of saving money and using money wisely.

Family comments:

Child comments:

Curriculum Link

- Recognise symbols £ and p
- Combine amounts to make a value
- Add/subtract amounts of money, using £ and p in practical contexts
- Solve simple problems involving fractions and decimals
- Key vocabulary – price, cost, offers, spend, save

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Mobile phones

Talk about

A lot of people pay a regular phone bill. Some households have a landline phone and many people have a mobile phone. But how are they paid for?

Landline	The bill usually includes the cost of the line rental and the cost of phone calls made.
Mobile phone – contract	The customer agrees to pay a monthly bill for a set time, e.g. a year. Signing up to a contract will give the buyer a set amount of calling minutes, text messages and data per month. If you go over these limits, there is usually an extra charge.
Mobile phone – 'pay as you go'	With this plan, the customer only pays for the units used (minutes, text and data). The unit costs are often higher than with a contract but there are no fixed monthly fees.

Imagine

Rudy is looking for a new phone for himself and one for his granny. He estimates that he will use 500 minutes of calls and 2300 texts but not very much data. His granny only uses the phone to make calls but she likes to have long chats!

Look at the options on the next page. Which of these would be the best options for each of them? Or would another type of phone deal be better for Granny?

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Mobile phones

	Good value phones	Sparkle phones	Fantastic phones	Top class phones	Out of this world phones
Minutes	400	600	800	900	1000
Texts	2500	1500	2000	3000	Unlimited
Data	100MB	200MB	1GB	500MB	2GB
Price per month	**£12.80**	**£15.50**	**£18.00**	**£19.00**	**£20.75**

Rudy's parents say he could reduce the number of his calls and have the cheapest phone. What do you think?

Apply to real life

Think about any phones there are in your household. What is included in the cost for each and how are they paid? Who contributes to paying the phone costs?

Does everyone have the best value for money?
How could you save money?

Family comments:

Child comments:

Curriculum Link

- Use all 4 operations to solve problems involving money
- Use the skills of rounding and estimating up to 3 decimal places
- Key vocabulary – pence, pound, price, cost, spend, pay, budget, expenses, total, amount, cheapest, value for money

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Shopping for a picnic 2

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Talk about

Suzie and Simon are planning a picnic for their family of 4 people. These are the things they want to take but they only have £10.00 to spend. What choices do they have to make?

Are the offers all good? Do they need that much?

Food	Price	Special offers
Bread rolls	Pack of 4 for £2.00	60p each or 5 for £2.40
Ham	4 slices for £1.60	Large pack of 10 slices for £3.50
Cheese	500g for £3.00	15% off if you buy 2 packs
Apples	Pack of 5 for £1.60 Buy one , get one free	25p each
Flapjacks	19p each Small pack of 5 for 90p	Special offer: Large pack of 12 for £2.40
Orange juice	Bottle 600ml for £4.80	Pack of 5 x 100ml cartons for £2.50
Grapes	500g for £1.75	10% off if you buy 2 packs 25% off if you buy 4 packs
Bar of chocolate	1 bar of 200g for £1.70	Special offer: 4 for £6.90
Water	free	

They have a coupon for 15% off if they spend more than £9. Does that help?

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Shopping for a picnic 2

Apply to real life

Decide on a budget and plan food for your family for a day out.

Estimate the cost first. Is the total likely to be within the budget you agreed?

Then look in a shop or online and work out the actual cost for your chosen list. Are there any items on special offer – is it worth buying a bigger packet for later? Think about which items you **need** (to eat sensibly) and which you **want** (treats such as cake). Do special offers make things more tempting? Remember offers being advertised may be misleading – but have fun finding real savings!

Tip: round things up or down to estimate
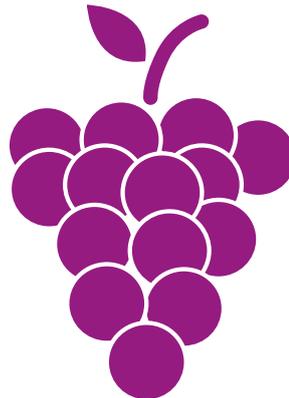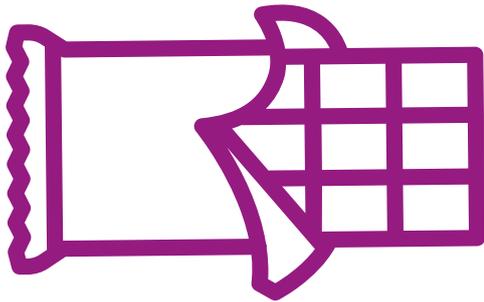
Family comments:

Child comments:

Curriculum Link

- Estimate, compare and calculate money in pounds and pence
- Use all four operations to solve money problems, using decimal notation
- Recognise % and solve problems using percentage
- Use skills of rounding and estimating, including up to 3 decimal places, to solve problems
- Key vocabulary – price, cost, total, save, offers, reduction, budget

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Weekend river study trip

Talk about

Frederick and Zofia are going on a school weekend trip to study a river in summer. They will be staying in a hut and can only take one rucksack for everything they need including food. Water will be provided to drink, but they need to take a lunch, dinner and breakfast to eat.

They have a budget of £30 each. Five people are going so they could pay 20% of toilet rolls and pay for ⅕ of a loaf bread each, for example. Look at the **resource sheet** for their ideas. What would you advise them to take?

Imagine

Imagine you were going on a camp with 3 friends, and mindmap what you **need** and what you would **like**:

Food? Torch? Toilet roll? Hat? Sun cream? Chocolate? How many of each do you need? Would your list be different to Frederick and Zofia's? Estimate the total cost for your list and calculate your budget. Consider these statements:

* This is a wise spending choice because…
* I need this to keep safe because…
* Buying this is being sensible because…
* This is a useful item to take because…
* I could save money by…

Family comments:
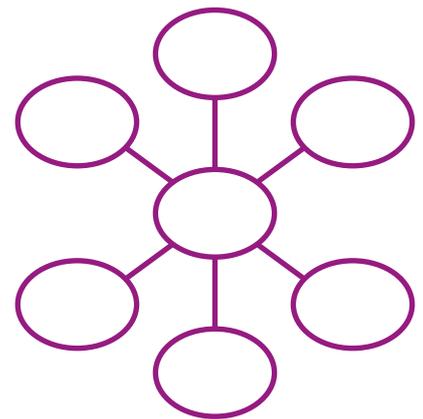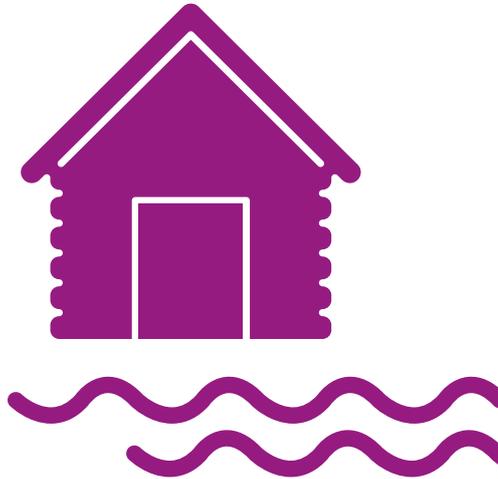
Child comments:

Curriculum Link

* Use all 4 operations to solve problems involving money and decimal notation
* Use rounding and estimating to calculate costs
* Key vocabulary – budget, price, cost, total, estimate

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Weekend river study trip

Resource sheet

Item	Cost
Loaf of bread	59p
Packet soups	29p each or a box of 4 for 82p
Bag of porridge	500g for 65p
Milk	2 pints for 85p
Teabags	£2.15 for 80
Sausages	£2.95 for 8
Eggs	6 for 89p
Tomatoes	18p each or packet of 5 for £1.00
Bananas	Pack of 5 for 69p
Biscuits	Pack for 49p
Tin beans	85p each or a multipack of 4 for £2.90
Packets of crisps	35p each or a multipack of 8 for £2.00
Bar of chocolate	£2.00
Bottle of water	2L for £1.20
Toilet rolls	£2.50 for 4
Torch	£8.49
Sun cream	Travel size £2.75 or large size £8.50
Sun hat	£7.45
Shower gel	£1.90
Toothpaste	Travel size 80p or large tube £2.65
Matches	58p
Magazine	£4.20
Box of plasters	£1.50
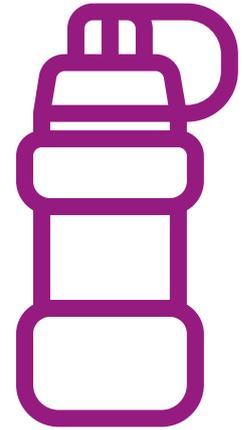
Can take from home

Clothes	No cost
Towel	No cost

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National Numeracy
Getting on with numbers

A weekend away with a friend

Imagine

Imagine you had £300 to spend on a weekend away with a friend – where would you like to go? What would you like to do? Would you choose somewhere luxurious or somewhere cheap so you can do more?

Use brochures or online research to find out the costs of the trip you fancy. How long would it take you to save up for it?

Plan a budget. Using a table like the one on the next page helps you to be sure you have not missed anything important.

Talk about

Compare with other members of your family and their choices – have you chosen the same things? What have you done differently?

What percentage of the £300 budget have they used? Who has the best value for money – and what makes it the best value?

Family comments:

Child comments:

Curriculum Link

- Compare two quantities using percentages
- Use unit pricing to solve problems
- Key vocabulary - spend, price, cost, total, budget, value for money

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A weekend away with a friend

Options	Costs	Most expensive	Cheapest
Travel			
Car (need to estimate fuel costs)			
Train			
Bus			
Flight			
Accommodation			
Camping			
Caravan			
Activity park			
B and B			
Hotel			
Food			
Self-catering (need to estimate)			
B and B (need to buy lunch/dinner)			
Full board			
Activities			
Free (such as the beach)			
Adventure activities			
Cinema or theatre			
Museum			
Other			
Total			

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Getting on with numbers

Trainer dilemma

Talk about

Charlie would like a new pair of trainers and has asked his parents to pay for them. His friend has the designer-brand trainers, but Charlie's parents say they're too expensive.

Charlie's income

Saturday job – paper round	£7.50 an hour from 7.00am to 9.00am
Weeding a neighbour's garden	£2 a week
Household jobs	£5 a week
Monthly income total	£88.00 Plus a £20 birthday present = **£108.00**

£18.99
Unbranded trainers

Charlie's outgoings

Swimming club	£4.50 a week
Bus to swimming	£1.80 a week
Drinks at the youth club	£3.00 a week
Sweets	£4 a week
Gaming	£3 a month
Comic	£4.85 a week
Monthly outgoings total	**£75.60**

£72.99
Designer-brand trainers

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Trainer dilemma

What you would advise Charlie to do and why? Would you buy the unbranded pair? Would you save up for the designer-brand pair to impress your friends? What would your family advise Charlie to do? Do they think the same as you?

If Charlie bought the designer-brand trainers himself, he'd need to save up. How much could he save each month? Could he change his income or outgoings to buy the trainers sooner?

If Charlie's parents bought the trainers for him, they have an option to spread the cost over 10 weeks (with 15% simple interest added). How much would they pay per week? Is this a good offer? If Charlie offered to pay the interest, would this be reasonable? What do you think his parents would say?

Charlie's been told that the prices for both pairs of trainers will go up in 4 months' time – would this affect what you would advise him to do?

Apply to real life

Think about something you might really like and explore the different ways you could pay for it. Write a simple budget like Charlie's example and plan how you could save for a large item.

Family comments:

Child comments:

Curriculum Link

- Solve problems involving percentages
- Solve original value problems and calculate simple interest
- Key vocabulary – price, buy/sell, spend, pay, save, budget, expenses, total, increase, amount, simple interest, credit

Registered charity no: 1145669

National Numeracy
Getting on with numbers

Weekly shopping

Talk about

All families need to buy food. How much does your family usually spend on grocery shopping in a week? Who does the shopping and how do they decide what to buy?

On the next page is a receipt from the Lee family. What savings have they made? What fraction of their items would you consider to be 'luxury' – what percentage of their spend is this?

One week, the supermarket have an offer of 20% off all fresh fruit and vegetables. How much would this save the Lee family? Would you buy more fruit and vegetables with this offer?

Apply to real life

Look at your weekly shop receipt. Did you get any special offers or savings – maybe you used coupons or bought larger packs to save money?

If possible, go to a shop (or look online), and find 5 special offers – what percentage do they save the customer on average? Would you recommend them to the person paying the bill? Are 'special offers' always good value for money?

Family comments:

Child comments:

Curriculum Link

- Define % as 'number of parts per hundred'
- Interpret percentages and percentage changes as a fraction or decimal
- Solve problems using % change – increase or decrease
- Use unit pricing to solve problems
- Key vocabulary – budget, total, savings, reduce, percentage, average

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National Numeracy
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Weekly shopping

Family Maths Toolkit

Quantity	Product	Total
1	Tomato Ketchup Sauce 700G	£2.70
1	Beef Lean Steak Mince 500G 5% Fat	£2.79
1	Spreadable Butter 500G	£3.50
1	Cucumber Portion	£0.35
2	Carrots Loose	£0.10
1	Oaty Biscuits 300G (Usually £0.75)	Free - coupon
1	Orange juice 1L	£2.48
1	Granary Bread 800G	£1.45
1	Yellow Peppers Each	£0.45
1	Red Seedless Grapes 500G	£2.00
1	Potatoes 750G	£1.79
1	Baby Plum Tomatoes 325G	£1.00
1	Jumbo Rolled Oats Porridge 1Kg	£2.20
1	Pasta sauce 500G	£1.00
1	Moroccan Couscous 250G	£2.25
1	Pears 4 Pack 550G	£2.10
1	Braeburn Apple Minimum 5 Pack	£1.60
1	Tea Bags 80S 200G	£5.00
1	Finest Fish Fillets 190G (Special offer: usually £4.50)	£3.50
1	Blueberries 125G	£0.89
1	Assortment Biscuits 365G (Special offer: usually £2.48)	£2.00
1	Chilli Heatwave Tortilla Chips 180 G	£1.25
1	Finely Sliced Ham 125G (Special offer: usually £3.00)	£2.00
1	Mixed Vegetables 160G	£1.50
1	Soft toilet rolls x 9 (Special offer: usually £4.95 per pack)	£4.50
1	Sliced Runner Beans 80G	£0.79
1	Cheddar 550G	£3.50
2	Deluxe Mini Cups Ice Cream 4X95ml (Special offer: usually £4.50 per pack)	£6.00
1	Rhubarb Yogurt 4 X 120G	£1.00
2	Blackcurrant drink 750ml	£2.98
1	Semi-skimmed milk 2L	£1.80
1	British Diced Chicken Breast 650G	£3.80
2	Fish Fingers x 20 (Half price: usually £5.00 per pack)	£5.00
Other savings made: Blackcurrant drink – usually £3.75 for a 1L bottle		**£73.27**

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National Numeracy
Getting on with numbers

Family holiday

Talk about

It's a great experience when all the family can go on holiday and have fun but what is the financial cost?

Everyone enjoys different activities and everyone has a different budget. Which of these appeals to your family? Maybe something else would appeal. What influences your choices?

A cruise

- All food included
- Cabins sleep 2 (or 2 plus 2 children)
- A different place each day
- Excursions extra
- All entertainment and activities on board free

Camping/caravan

- Self-catering
- Beautiful locations
- Some activities extra; walking and swimming free
- Everyone must help with jobs
- Toilet and shower block
- Possibly need car on days out

Luxury hotel

- All meals included
- Luxury swimming pool and spa
- Excursions extra
- Golf course
- Choice of country or city break

Bed and breakfast

- Cheaper accommodation than a hotel
- Flexibility of where to eat lunch and dinner
- Usually only 2 per room
- Choice of country or city break

Activity park

- Log cabin accommodation – sleeps up to 8
- Extensive choice of activities – some free
- Can cycle around park
- Choice of self-catering or on-site restaurants

3-star hotel – half board

- Breakfast and dinner included
- No extra facilities/activities included
- Cheaper accommodation than a luxury hotel
- Choice of country or city break

National Numeracy
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Family holiday

Imagine

Once the family has agreed which holiday would best meet their requirements, research to find the location you would like and possible costs. **Use or copy the Budget Planner on the next page if it helps to organise your thinking.** How could you save money on your trip?

Once you have an estimated total, discuss whether it is a reasonable or a dream aspiration. How would this be financed?

If each family member paid an equal share, what would each of you pay? If adults in the family paid 75% of the total, how could the children save for their contribution?
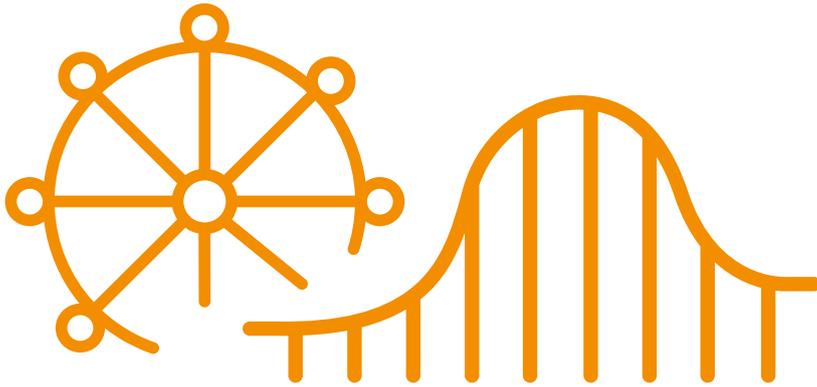
Family comments:

Child comments:

Curriculum Link

- Develop the use of formal mathematical knowledge to interpret and solve problems, including in financial contexts

- Key vocabulary – budget, influences, decisions, included, extra, self-catering, estimate, finance, equal share, contribution

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National Numeracy
Getting on with numbers

Registered charity no: 1145669

Family holiday

Family Maths Toolkit

What are my expenses?

Description	Quantity	Unit costs	Total line cost for the family	Notes
Travel (Including to/from airport or cruise terminal if needed) • Car + parking • Taxi • Train • Bus • Flights				
Accommodation • Cruise • Hotel or B&B • Camping/caravan • Log cabin • Self-catering apartment/cottage				Check for special offers. Sharing rooms?
Food and drink • Self-catering • Eating out • Drinks	How many meals?			Estimate.
Excursions/activities • Physical activities • Museums • Cinema/theatre • Theme parks • Other days out				
Shopping • Souvenirs				Allocate a budget and try to stick to it.
Extras (Such as travel insurance, airport tax, supplementary charges, etc)				Read the small print!
Emergencies				

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National Numeracy
Getting on with numbers

Mountain bike: Spend or save?

Talk about

All your friends have mountain bikes and have invited you to go biking with them in the holidays. You have seen this model advertised and would really like it. How would you either save for it or buy it immediately?

Possible options:

Buy now:

- Buy with cash – 5% reduction for cash payment

- Buy on credit card at 19% compound interest APR – take as long as you like

- Buy on 2-year credit plan with 28% simple interest added in total (£12.26 a month payment)

Save up:

- Save £20 a month in a bank account and gain 2.5% a year compound interest

- Save £25 minimum a month in a bank account, with no withdrawals for a year, and gain 3.75% a year compound interest

- Save £15 a month and your parents offer to add 15% when you reach £200

Without working out the maths, which do you think would be the best option? Which do you think would be the worst? Is it just the overall cost that influences your decision, or do things like the amount of time and how much money you already have make a difference too? What do your family think – do you agree with each other?

CREDIT PLANS AVAILABLE
ASK STAFF FOR MORE INFORMATION

£230

5% reduction to cash buyer

Look on page 3 for more information about simple and compound interest!

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National Numeracy
Getting on with numbers

Mountain bike: Spend or save?

Work out the maths of the options you think are best and worst (or all of them if you like!) – does this change your opinion on which options are worthwhile?

Think about how much you need or want the bike. Perhaps a cheaper model would be just as good? Do you want it immediately or can you wait? Consider what income you have (e.g.. pocket money, presents, jobs) and what else you pay for with that money. How long would it take you to save up for the bike?

Apply to real life

Consider something you would really like and research the best ways to either save or pay for it.

Family comments:

Child comments:

Curriculum Link

- Solve problems involving simple and compound interest
- Key vocabulary – price, gain, reduction, buy/sell, spend, pay, budget, expenses, total, amount, simple interest, compound interest, credit

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National Numeracy
Getting on with numbers

Mountain bike: Spend or save?

About Interest

- Interest is the cost of borrowing money. The borrower pays a fee to the lender for the loan. If you borrow money, you pay interest to the organisation who lends the money to you. If you save money, the organisation you have savings with will pay interest to you.
- Simple interest is generally a fixed percentage of the amount that was originally borrowed or saved.
- Compound interest is a percentage based not just on the amount that was originally borrowed or saved but also on the accumulated interest already added.
- APR is the annual percentage rate – this can be divided by12 to give the monthly percentage interest.
- Sometimes DPR is calculated (daily percentage rate) – this is the APR divided by 365.

To calculate simple interest:

Work out the interest for one period, and multiply by the number of periods.
This gives the amount of interest you'll add to the original amount.

To calculate compound interest:

Work out the interest for the first period, add it on to the original amount, and then calculate the interest for the next period based on the new total amount, continuing until the end of the payment period.

Example of compound interest :
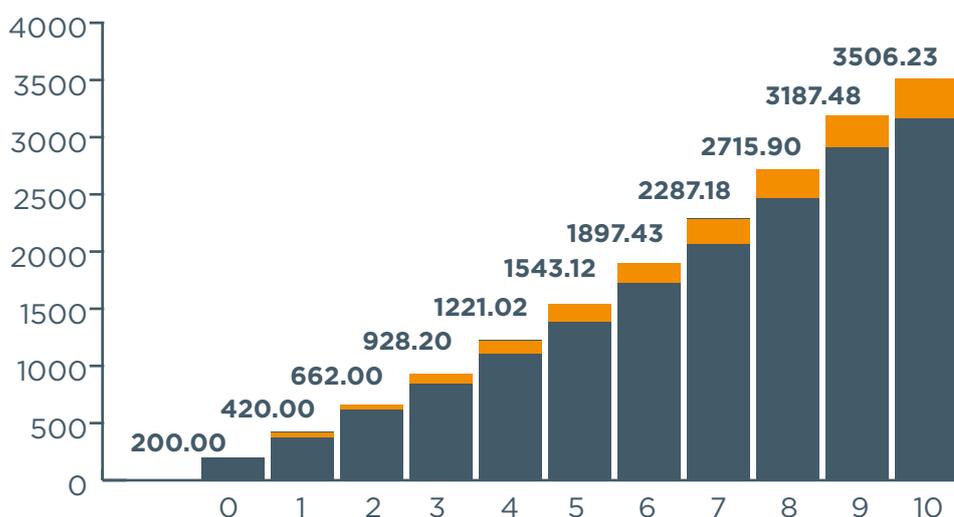
In the first year, £200 would accrue £20 interest.

At the end of the first year, you would have £220 and save a further £200 = £420.

This would earn £42 interest = £462. Then you'd save another £200 = £662, and so on.

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National Numeracy
Getting on with numbers

The student's challenge

Talk about

The National Student Money Survey (2019) found that average monthly outgoings for university students in 2019 were £807. For many students, their loan is not enough to cover this, so they need to budget!

The survey showed that, on average, 11.5% of students' total monthly spend went on food & groceries. On top of this, 4.25% was spent on takeaways and 6% on going out (which may include both food and drink).

How do you think your percentages would compare with the average? Think about where you might choose to get takeaway food or go out for an evening and estimate the costs for a month. Would this still leave you enough for your food shopping?

Imagine

Imagine you've spent a lot of money on nights out and now you've only got £10 a week left to spend on food for the last 3 weeks of term.

What would you choose to buy this week? What about the next two weeks? Here are some ideas for things you might buy:

Buttery spread: **85p**	Loaf of white bread: **59p**	Jar of instant coffee (100g): **£1.89**	Milk 2 pints: **80p**
Tin of mushrooms: **90p**	Chicken breast fillets (300g): **£1.80**	Carton of soft cheese: **49p**	Long grain rice (1kg): **£1.20**
Tin of chopped tomatoes (400g): **35p** (or 4 for **£1.30** offer)	Baked beans: **30p**	1 bulb of garlic: **25p**	Pack of 6 free range eggs: **89p**
1 pepper: **42p**	Bag of spinach: **£1.03**	Onions: **10p** each (or pack of 3 for **85p**)	Carrots: **5p** each
Box of porridge (1kg): **£1.10**	Orange juice (1L): **85p**	Apples: **35p** each (or bag of 5 for **£1.60**)	

Items such as porridge and coffee would last more than one week – is it worth spending more on them this week, and then adjusting your budget for next week?

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National Numeracy
Getting on with numbers

The student's challenge

Apply to real life

Draw up your own list and look in shops or online to find a total for your choices. How could you save money? As well as special offers and student discounts, you could consider buying the shop's own brands, bulk buying, freezing unused portions, and shopping around for the best prices

Tip: Having a weekly budget, making a shopping list and sticking to it can help you save money!
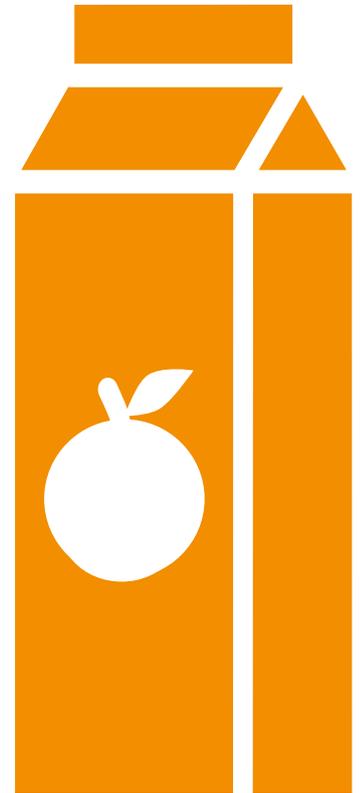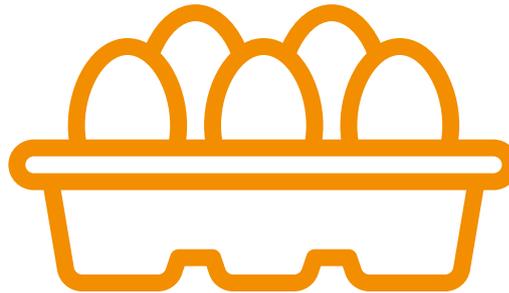
Family comments:

Child comments:

Curriculum Link

- Develop the use of formal mathematical knowledge to interpret and solve problems, including in financial contexts
- Key vocabulary – budget, total, bulk buying, special offers, discount

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