

**Site:**

<http://www.bbc.co.uk/print/schools/revisewise/parents/familylearning/index.shtml>

## List of Family Learning Activities

**Samples to give you ideas!!**

### **Activity 1 - Out at six**

National Numeracy Framework Strands: Numbers and Number System, Solving Problems, Handling Data.

Learning objective: To improve your mental addition and make you think about probability.

This is a dice game, with some funny rules! Play it with your helper.

The winner is the first person to score fifty points or more. When it's your turn, you roll the dice as many times as you want, and the number on the dice is added to your score. BUT, if a 6 is rolled, you lose the points from that round and pass the dice to your helper. You may decide to pass the dice on before you roll a 6. If you do, then you keep your score!

Count and keep a record of the number of rolls you and your helper take each turn. How many rolls do you have before you get a 6.

Is it better to roll a few times or keep going?

Is there more of a chance of rolling a 6, the more rolls you take?

Can you make the game more interesting?

Lose all of your score if you roll the same number twice?

Use two dice - you lose the game on a number from 2 to 12 - what number would you choose? Hint: think about the ways in which the numbers may be made using two dice. Are some numbers more likely to appear than others?

Use two dice, but your score is the difference between the numbers (take the numbers away from each other) - you lose on a number of your choice from 0 to 5 - what difference would you choose?

### **Activity 2 - Pick up**

National Numeracy Framework Strands: Solving Problems.

Learning objective: To think about developing a plan or strategy for playing this game.

Find 15 small objects, such as counters, coins, buttons, dried beans etc. and with your helper take it in turns to pick up either one, two, three or four objects at a time. Picking up none at all is not allowed. Whoever, picks up the last object loses. Play the best out of five and see who wins.

Play it a few times and then talk about whether it's a good idea or not to go first.  
Does it help to pick up objects without thinking too much about how many are left?  
Can you think about a plan or strategy for the game?  
Do you always need to finish the game?  
Can you tell who is going to win before the end?  
Can you put your helper in a position where it becomes impossible to win?

Change the game by altering the number of objects or changing your picking up choices (it's better not to do both straight away).

Does this help you to develop a plan that would improve your chances of winning?  
Are there occasions when you are certain to win?

Think about using 'probability' words, such as 'fair, certain, likely, impossible etc.

### **Activity 3 - Order 'n Add**

National Numeracy Framework Strands: Numbers and Number System, Calculations.

Learning Objective: To practise the ordering and addition of fractions.

Find some unwanted card. Cut it up into pieces measuring about 3cms by 6cms. Write a fraction less than one on each card. Use a half, thirds, quarters, sixths, eighths and tenths.

Now shuffle the cards and give your helper and yourself four cards. Both of you must put them in order, starting with the smallest. Then choose any two of the four cards and add them together.

Who has the biggest number?

Play this game several times. Who was the overall winner?

### **Activity 4 - Order, order, order!**

National Numeracy Framework Strands: Numbers and the Number System, Calculations.

Learning Objective: To increase your understanding of place value.

Ask your helper to give you seven numbers less than a thousand, not in any special order. Your task is to list them in the correct order, starting with the smallest and then placing them in ascending order. Ask your helper to time you whilst you do this.

Now you give your helper seven numbers to be placed in a similar order. It's now your turn to do the timing.

Have five goes each and add up your times. Who did it the quickest?

Play the game again using different numbers. You could use decimals. Perhaps you might even want to think about using numbers with two decimal places?

### **Activity 5 - Maximum Product**

National Numeracy Framework Strands: Numbers and the Number System, Calculations, Solving Problems.

Learning Objective: To practice your multiplication and thinking skills.

Make a list for your helper of all of the pairs of whole numbers that when added together make 9, for example,  $8+1$ ,  $7+2$ . Now multiply these pairs of numbers. Which one gives you the biggest answer or product?

Now ask your helper to do this for the number 10. What was the biggest product he or she could make from the pairs of numbers that make up 10?

It's now your turn to try it with 11. Did you have to use all the pairs of numbers that make 11, or did you know which pair would give the biggest product straight away? Together, try twelve.

Now use three numbers that add up to nine, to make the biggest product. Repeat this for ten, eleven and twelve.

How about using four numbers that add up to the total? Or even more? A calculator will be helpful.

### **Activity 6 - Flatten it**

National Numeracy Framework Strands: Measures Shape and Space.

Learning objective: To look at the nets of solids and use the idea to construct some solid shapes of your own.

With your helper, collect two or three empty cardboard containers or boxes, for example, cereal boxes, and carefully undo each one by separating them at their seams. You should end up with a flat piece of card. This is called the solid's net.

Discuss with your partner how the box was made from its net and then fold it back to its original shape.

Then search around your home for some more interesting box shapes and examine the way in which they were constructed.

Work together to design and make a box that would hold a golf ball. How about a box that would hold three golf balls? Explore different designs for the box. Packaging four golf balls could be even more interesting!

### **Activity 7 - Pocket money**

National Numeracy Framework Strands: Numbers and the Number System.

Learning Objective: To think about the value of coins and how they can be used to investigate number patterns.

Imagine that your helper has two coins in his/her pocket, and they add up to twelve pence. What are they?

Your helper now has three coins adding up to twelve pence. What could they be?

Is it possible to make twelve pence using all the number of coins up to twelve?

It's easy to make fifteen pence using either two coins or fifteen coins. With your helper, find ways of making fifteen pence using all the numbers of coins up to fifteen, for example, with 2 coins you will need a 10p and a 5p.

### **Activity 8 - Old money?**

National Numeracy Framework Strands: Numbers and Number System, Calculations, Solving Problems.

Learning objective: To practice subtraction and the ordering of four digit numbers.

Ask your helper if you can borrow some loose change and then place the coins in descending order of age across the table. Start with the oldest first.

Let your helper make a list of the coins dates, whilst you work out their ages.

How many coins are older than you?

How much older are they?

Are any of the coins older than your helper?

If not, how many years younger than your helper is the oldest coin? If your helper is sensitive about giving you an age, together, make up a pretend age.

How many coins are younger than you?

Work out how much younger than you they are.

Talk with your helper about how to show the information that you have discovered on a coins time line. Think carefully about how to make this. You can also put on the timeline other family events, such as when you were born, when you started school. What events does your helper feel could be included on your time line?

### **Activity 9 - Hard News?**

National Numeracy Framework Strands: Handling Data.

Learning Objective: To collect some realistic data and think about what it means.

How hard is your newspaper to read? With your helper choose a page from the paper that has a number of articles, rather than a page full of pictures or adverts.

Look at the first hundred words on the page. Count and record the number of letters in each word. Don't use any words that begin with a capital letter.

Think about and discuss how you can display this information. Perhaps you could use a spreadsheet on your computer to help you to present the information?

Now do this again for a different newspaper or magazine. You could even use your school reading book.

Which of these examples could be the easiest to read?

Now find something you know is easy to read. How many letters are there in the words? Does this confirm your ideas?

### **Activity 10 - Sale Price**

National Numeracy Framework Strands: Numbers and Number System.

Learning Outcomes: To use and understand percentages.

Many shops reduce the price of their goods in their 'sales'. Three popular stores reduced their prices in the following ways.

Everything was reduced by 35% in Shop A's grand sale

Shop B reduced their goods by only 25%, but they reduced the sale price by another 10% during the final week of the sale.

Work out with your helper where you would have had the best bargains.

Talk about some of the things you would like to buy either for yourself or someone else.

Find out how much the items would cost.

With the help of a calculator, price the goods during the last week of Shop A and Shop B's sale.

Do this again for some more goods and compare the savings.

Shop C reduced their prices by only 10%. Their sales were poor so they reduced their sale prices by another 25%. Compare these prices with Shop A and Shop B.

### **Activity 11 - Crowded**

National Numeracy Framework Strands: Numbers and Number System,

Learning Objective: To practice your estimation skills and subtraction of large numbers.

Find a list of next Saturday's F.A. Carling Premiership fixtures. Use your family's knowledge of the home team's popularity and form to predict how many spectators will go to each game. You may also wish to look at attendances earlier this season.

Make a record of your prediction and keep them until after the match has been played. Someone in the family might also wish to make their own set of predictions. Then, once the matches have been played, either use teletext or a newspaper to check how good the predictions were.

Work out the difference between the predicted attendances and the actual attendances. Which one of you made the best predictions?

Could you both make better predictions for the next set of fixtures?

## Activity 12 - Biggest answer

National Numeracy Framework Strands: Numbers and Number System, Calculations, Solving Problems.

Learning objective: To practise your multiplication skills and think about place value.

This is a small competition that you can play with your helper. Use the following numbers or digits: 1, 2, 3 and 4.

Each player makes two, tens and units numbers (two digit numbers). Multiply these together. Who has the biggest answer (product)?  
Can this number be beaten?

Now, choose four different numbers and do the activity again.  
Who succeeded in getting the biggest number or product this time?

Talk about and share your ideas with each other.  
What have you learnt?  
Have you devised a plan or strategy for finding the biggest product?

If you want to go on to some clever stuff, why not try doing the same activity with five or six numbers (using a calculator)? You might even want to introduce decimal points.

## Activity 13 - How Many Answers?

National Numeracy Framework Strands: Numbers and Number System, Calculations.

Learning Objectives: To practise and speed up your mental mathematical skills.

With your helper choose three different digits between 0 and 9. Your task is to use the three digits in any way you can to give you as many different answers as possible.

Time each other over three minutes to see how many different calculations you can write down before the time runs out? For example, your numbers are 4, 6 and 7.

Possible calculations could be:  $4 + 6 + 7 = 17$ ,  $6 - 4 + 7 = 9$ ,  $4 * 6 + 7 = 31$  and so on.

Now use three different digits. Play the best of five games and see who wins.

Choose a further three figures, only on this occasion both of you must use the same figures. Score a point for each calculation that you have which is different from your helper's calculation. If you have both written down the same calculation nobody scores! The biggest answer gets two bonus points. Who has won?

This next one's a little more difficult. Choose three different figures, only this time use them to make as many of the numbers between 1 and 20 as you can. For example, using

4, 6 and 7  
 $1 = 7 - 6$   
 $2 = 6 - 4$   
 $3 = 7 - 4$

You already have 4 as one of your original three numbers, so move on to 5.

Again, miss out 6 and 7 and move on to work out how to make the remaining numbers between 8 and 20.

Add together the numbers you have managed to make, including the three numbers that you started with. Take away the numbers you have missed. The winner is the player who has the biggest answer.

### **Activity 14 - Hit the Target**

National Numeracy Framework Strands: Numbers and Number System, Calculations.

Learning Objective: To practice your mental number skills

This is a game that you play with your helper. You can also invite some of your friends or members of the family to join in.

Again, you need some cards numbered 0 - 9. You can have up to four sets of these cards.

Each player is given four cards faced downwards. Then, turn your top card over so that the number faces upwards. This is your individual target number!

From the cards that you have been given, you have to try and make your target number by either adding, subtracting, multiplying or dividing the numbers, in any order. Players who make the target number, score two points. Players who are one away from their target, score one point.

Who is the winner after five games?

You could even go on to allow the cards to become two digit numbers. For example, a six and a two could be used to represent twenty six or sixty two.

### **Activity 15 - Round up or down?**

National Numeracy Framework Strands: Numbers and Number System.

Learning Objective: To use your approximation skills to estimate and answer before checking for accuracy.

When someone in the family has been shopping, look at the receipt together. From the list, choose about five different items and write down their prices. Then round these prices up to or down to the nearest 10p. Now add together the actual prices and compare the two.

Choose another five items from the list, then ask your helper to estimate their total cost.

You make an estimate by adding up the rounded off prices.

Together, add up the actual cost. Whose estimate was the closest to the actual cost?

Practice adding up rounded off prices to make an estimation of shopping bills.

### **Activity 16 - Shape Search**

National Numeracy Framework Strands: Measures Shape and Space.

Learning Objectives: To recognise common shapes and think about their properties.

Look around the house with someone and find as many different shapes and shape patterns as you can. The tiles in the kitchen or bathroom might be a good starting point. The wallpaper and curtains may also contain patterns. Look outside at brick patterns. Look at logos, badges and symbols for companies, shops, cars, electrical goods.

Either draw some of these different shapes or build up a collections of photographs.

Think and talk about the shapes that you have collected. To find squares and oblongs is fairly easy. Have you found any others, for example, parallelograms, trapeziums, hexagons, pentagons and octagons?

Can you sort some of the shapes that you have either drawn or collected into groups?

Are any symmetrical?

Which ones have one line of symmetry?

Which ones have rotational symmetry?

### **Activity 17 - Bookshelf**

National Numeracy Framework Strands: Solving Problems.

Learning Objective: To develop a way of thinking that involves looking for patterns.

There are three books on my shelf. One fell onto the floor. When I picked it up and put it back, I noticed that the order of the books had changed. Ask your helper to see if s/he can change the order of the book again. Together, see how many different ways you can arrange the three books.

Now use four books. Again, investigate how many different ways these can be arranged. Think about how you might record this information.

What about five books?

There is a way of working out the number of different ways (or combinations) that you can arrange any number of books. Can you and your helper discover it?

### **Activity 18 - Value for Money?**

National Numeracy Framework Strands: Calculations, Solving Problems.

Learning Objective: To use realistic data to develop your calculating and reasoning skills.

As you know, many goods are sold in different sized packs, tins or jars, for example breakfast cereals, coffee and washing powders. Which give best value for money? Talk about this with someone in the family who shops quite frequently.

The next time you are shopping together, make a note of the different sizes and the costs of three or four products.

Work out together the cost of 10 or 100g of each product from each sized packet.

Compare these costs.

How much cheaper are the larger sizes?

Talk about whether it costs the manufacturer the same to make a big packet as it does a small one?

Do two 250g jars of coffee cost the same to make as a 500g jar?

Should twice the amount always cost always cost twice as much?

Talk about what you have found out.

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