This month’s magazine has a bit of a ‘book’ theme. We look at using Pat Hutchins’ stories in problem solving, reasoning and numeracy and explore Big Book Planning from Scotland. Other articles focus on methods of monitoring early progress and Ian Thompson helps us to understand the meaning of that strange, American word, ‘subitizing’.

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Have you had your say on the EYFS Review yet? You only have until 30 September. If summer was too short for you, find out about some useful summer discussion starters and a matching game. Take the BBC’s ‘subitizing’ test and attend Nursery World’s conference on the future of the EYFS.

**Focus on…Pat Hutchins, children’s author and illustrator**
So many books by Pat Hutchins are useful for Problem Solving, Reasoning and Numeracy. From *10 Red Apples* and *Changes* to *Rosie’s Walk* and *Don’t Forget the Bacon*, we focus on how you might use *The Doorbell Rang*. Why not make a story sack for one of Pat’s books?

**R4U - Research for You**
This month, Ian Thompson explores ‘subitizing’, a word you may well have come across when reading about children’s early mathematics, but what does it actually mean? The final paragraph really clarified my understanding, so make sure you read to the end of the article.

**NEW! Games**
Each month we will bring you a simple, fun game which uses ordinary, everyday resources. Thank you, Zoe, for this great idea! This month we bring you two versions of the Grabber Game.

**Case Study**
This month’s case study comes from Scotland, but children are the same the world over and there is much that is relevant to our Early Years Foundation Stage.

**Maths to share – CPD for you and your colleagues**
We revisit Teachers TV to look at Monitoring Early Progress, one of their EYFS Today programmes. This is a really useful programme where you have the opportunity to look over practitioner’s shoulders as they assess children and record those assessments to inform planning and progression.

*Contributors to this issue include: Cherri Moseley and Ian Thompson.*
Editor’s Entrée

Let’s hope for an Indian summer. Some lovely warm sunny days to help the children enjoy the outdoor area are always a bonus. If we’re not that lucky, then why not enjoy a few summer-based games on the computer. Scholastic has a lovely summer pairs game to remind us of those lazy days. You need to be a Nursery Education PLUS subscriber for that one, but their colourful Talk about... summer cards are free. Use them to help initiate discussion about the children’s experiences of summer and holidays.

Have you had your say yet? The EYFS Review was launched on 2 August and you only have until Thursday 30 September to participate. The review is looking at how best to protect young children’s safety and welfare and support their development and learning. It will also consider whether the EYFS is too bureaucratic and how to shift the focus to getting children ready for school, as well as considering how to improve the attainment of children from deprived backgrounds. Have your say before it’s too late.

So what is ‘subitizing’? As well as Ian Thompson’s article, why not read the brief Mathemapedia entry on subitizing and take the BBC’s subitizing test too. You’ll be an expert!

If the mention of shared, sustained thinking in our new ‘Games’ feature resonates with you, why not consider setting up a Mathematics Knowledge Network to develop discussion in mathematics? One of the MKN starting points asks What constitutes effective discussion in mathematics and what teaching strategies support this? Iram Siraj-Blatchford’s work could be very useful.

There’s still time to book a place on Nursery World’s conference and training day on 29 September. The conference is entitled Future Of The EYFS: Planning For The Unique Child and will be held at 27 Sussex Place (RCOG), London. Leading childcare experts will be leading a variety of hands-on workshops. More information can be found on the website.

Remember to check out the Primary Magazine too. Issue 26 suggested lots of summer activities with a mathematical theme. What did you have a go at? Issue 27 looks at water sports and Aboriginal art. It also contains the last in the series of ‘Maths to share – CPD for your school’ on the four functions. The series closes with division, a concept some find hard to teach.
Focus on… Pat Hutchins, children’s author and illustrator

Pat Hutchins is a well known children’s author and illustrator. Pat grew up in a small village in Yorkshire with the countryside on her doorstep. One of seven children, the family spent many happy hours exploring, occasionally returning with yet another pet to add to their menagerie.

Pat loved to sketch and went on to win a scholarship to attend the Darlington School of Art and later Leeds College of Art. In 1962 she moved to London to find work as an artist. After a spell as a shop assistant, she became an assistant art director at J. Walter Thompson, an advertising agency in London. It was there that she met her future husband, Laurence Hutchins. Just two weeks after they married on 21 July 1965, Laurence was transferred to the company’s New York office. Pat continued to work as an illustrator, though the Macmillan Company encouraged her to start writing her own stories. The highly successful Rosie’s Walk was published in 1968. This book has become a children’s classic – the chances are there is a well worn copy within any collection of books in an early years setting.

The family returned to London soon after, where their children became a rich source of ideas for Pat’s books. From the beginning, her books have appeared on lists of outstanding books and many will be familiar to you. Pat writes and illustrates her children’s books. She says, “The basic idea is the most difficult part, to try and do something original. When I have an idea, I sit down and work out the best way of putting the idea across in book form; then I write the story and design the layout. It is very satisfying to know it’s all your own work, from the original idea to the finished artwork.”

You may have seen Pat on television. She was the artistic narrowboat owner in series 3, 4 and 5 of Rosie and Jim. If you missed her, then take a look at Rosie and Jim – Babies. There are several other YouTube videos of Pat Hutchins with Rosie and Jim that you might enjoy.

I love the humour in Pat’s books. There is plenty to notice, both for adults and children. As fond as I am of Titch, One-Eyed Jake and Don’t Forget the Bacon, my personal favourite is The Doorbell Rang. Although first published in 1986, like many of Pat’s books it is timeless. Again, you may well find a copy of it in your picture book collection. This simple story can inspire a whole range of problem solving, reasoning and numeracy. Act out the story with children taking the parts of Ma, Victoria, Sam, Tom, Hannah, Peter, Peter’s little brother, Joy, Simon, the four cousins and Grandma. Use real or salt dough cookies and a little bell for the doorbell. Begin by setting the table for two children, including plates and plastic tumblers. Make sure you have 10 further plates and tumblers within easy reach. Focus on the need to share out the cookies again each time the doorbell rings. You can pause the story whenever you wish to discuss the action. Photograph the children in action to make a class or group version of the book.

There are so many possible linked activities too. Set up a sharing table, with bowls and small identical items to share. Turn a table into a cookie stall by attaching a banner to the top of canes fixed to the front table legs. Make cookies and boxes to sell them in at a cookie stall. Cookies could be geometric shapes, especially circles and squares but gingerbread men are fun too. Provide coloured and shiny paper, wool and fabric pieces to decorate card cookies, or make and paint salt dough ones. Don’t forget to make and taste-test real ones too! With opportunities for a wide variety of shape and number activities, children will
soon demonstrate their level of awareness. They will have opportunities to match, order, count and more – all particularly relevant to the early learning goals within problem solving, reasoning and numeracy.

Any child with friends or siblings knows when sharing is fair and will loudly protest when they consider it to be unfairly done. Children don’t need to be able to count all the objects to share, they can use direct comparison and perhaps even ‘subitizing’ (see Ian Thompson’s article). Having heard the story, some children might like to make up their own sharing stories. These could be captured in a variety of ways – on a tape recorder, by drawing a series of pictures and adding text in their own way, directing friends and photographing the action, or by an adult taking notes. In the examples shown, an adult scribed each new page, rereading it with the child before the next page was added. Read Ella and her friend by Ella and Evie’s birthday by Evie. Children’s own stories are usually popular additions to the book stock and these were no exception.

Other books by Pat Hutchins are just as useful for problem solving, reasoning and numeracy. There’s 10 Red Apples, where the farm animals help themselves one at a time until there’s only one apple left – a useful link with number work. In Changes, Changes, two wooden dolls rearrange wooden building blocks – a useful link with 3D and 2D shape. And don’t forget Rosie’s Walk for position. Thank you, Pat!

For more information on Pat Hutchins:

- Harper Collins
- Your Library
- Carol Hurst.
R4U – Research for You

How good are you at subitizing?
Ian Thompson, Visiting Professor, Edge Hill University, Ormskirk, Lancashire

‘Subitizing’ derives from the Latin adjective ‘subitus’ meaning ‘sudden’ (cf. modern Italian ‘subito’ – ‘straight away’). It describes the phenomenon of the immediate correct assignment of number words to small collections of objects without consciously using any other mental or mathematical process. For example, a child looking at a book showing a picture of the ‘three little pigs’ says “three” without counting the individual pigs.

I believe that the concept underpinning this word first appeared in ‘mainstream’ mathematics education in England in the Reception section of the National Numeracy Strategy Framework (DfEE 1999: 4) which included as an end-of-year outcome:

Recognise small numbers of objects without counting, then check by counting one by one.

Interestingly, the then Director could not be persuaded to include the “very ugly-sounding American” (but correct) word!

Clinical research suggests that subitizing and counting may involve anatomically distinct brain areas. Patients with simultanagnosia have difficulty in perceiving more than one object at a time when observing a complex scene. For example, if presented with an image of a table covered with food and cutlery, a patient might report seeing just one particular item, such as a knife. Such patients are unable to enumerate objects outside the subitizing range, either failing to count certain objects or alternatively counting the same object several times. They usually have no difficulty, however, enumerating objects within the subitizing range. Researchers suggest that there appears to be little or no relationship between children’s success on subitizing and counting tasks. Some argue that subitizing is a pre-requisite for counting, whereas others suggest that children develop subitizing later as a shortcut to counting.

Other researchers argue that children can differentiate between ‘one’ and ‘more than one’ at about 33 months; between ‘one’ and ‘two’ at about 36 months; between ‘one’ ‘two’ and ‘three’ at about 40 months; and at about 42 months can recognise ‘four’ (see the work of Karen Wynn described in Early Years Magazine, Issue 5). Also, the spatial arrangement of the objects in the collection can obviously influence the level of difficulty children experience when subitizing.

As children get older, subitizing is believed to develop and combine with other mental processes. Clements (Sarama and Clements, 2009) distinguishes between perceptual and conceptual subitizing, the former being what we normally understand by ‘subitizing’. He argues that only the smaller numbers are perceptually recognised, and that with larger collections conceptual subitizing is involved. Most adults would say almost immediately that the number of spots on the dice is “eight” (surely, only pedants insist on ‘die’ in the 21st century!). Clements argues that they have subitized (perceptually) the two separate halves of the dice and unconsciously combined them to get eight. This he calls conceptual subitizing. Unfortunately, some educators have also used the term to describe any situation that involves a spatial pattern or configuration.
There is also some evidence that counting and subitizing are not automatically reconciled in young children’s thinking. A study by Bruce (2000), for example, reports that many young children count for cardinality even when very small quantities are involved, seeming to have lost faith in subitizing for identifying the size of very small collections, where others persist in subitizing for larger quantities even though it is not reliable as a method of determining cardinality. Bruce’s (2000) research, reported in Threlfall (2008), involved 93 children aged from 3 years 6 months to 4 years 10 months from six contrasting early years settings in West Yorkshire who were given a series of simple number tasks. A ‘give me x objects’ task was used to explore counting for cardinality. Each child was asked to make collections of a specified size, by giving a ‘teddy’ progressively larger quantities of identical plastic blocks. The blocks were set out close together in a large group, and each child was asked to select, in turn, 2, 3, 5, 8, 10 and 17 blocks.

The children were classified on this task as ‘counters’ or ‘grabbers’. Overall, counters were more successful than grabbers, and none of the children who persisted with grabbing was successful for quantities greater than five. Subitizing – reliable in producing two and three blocks by grabbing – became less reliable as the number of blocks increased. Interestingly, though, the most successful children were those who grabbed up to, say, three blocks and counted larger quantities. If combining low quantity subitizing with larger collection counting really is the optimal approach, it seems to contradict the quotation above from the NNS Framework, and it may be better if teachers do not discourage small quantity subitizing by insisting that all collections be counted, but concentrate instead on raising children’s awareness of the limits of its reliability.

Incidentally, if you get an opportunity to see the Horizon video mentioned in Early Years Magazine, Issue 7 there is a sequence involving a young Martin Hughes interviewing a pre-school child who has ‘failed’ to answer three simple addition problems similar to ‘What is one plus two?’. When bricks placed in a tin are introduced, Tom’s demeanour, and his answers to the researcher’s questions, change. When asked the same question involving bricks, Tom says ‘Three’, and when Martin opens the tin the child looks at the result and immediately, without counting, turns to the researcher with a smile, knowing full well that he has given the correct answer: a perfect example of subitizing in action.

References


NEW! Games

There are plenty of book-related articles this month, so when Zoe’s brilliant suggestion of a games feature arrived in my inbox, I could have cheered! Each month we will bring you a simple, fun game which uses ordinary, everyday resources. It could be a brand new game or an old favourite you might not have used for a while – why not send in a favourite?

This month we bring you two versions of the Grabber Game.

Version 1
You will need:
- a small group of children
- a paper plate for each child
- a tray of cubes or similar – not too small or the count could be tricky
- numeral cards (optional).

First, enjoy comparing hands. Look at how they are the same and how they are different. Ask each child to choose one of their hands to draw around on a paper plate. Children could work in pairs, helping each other. Ask the children to take it in turns to use the same hand to grab a handful objects from the tray and place the items on their paper plate. When everyone has ‘grabbed’, compare plates. ‘Who grabbed the most/least? How do you know?’ Estimate then count the number of objects on each plate. Draw one of the items on the plate and label it with the number grabbed. Support recording with numeral cards.

Version 2
You will need:
- a small group of children
- a grab box
- a set of up to 9 counting objects – small plastic dinosaurs, cars, people or similar
- numeral cards.

First, make a ‘grab box’. Cut a hole in the top or side of a pretty or decorated box. Place a set of up to nine small objects in the box. Play some music as the box is passed around the group. When the music stops, invite the child holding the box to feel inside, through the hole and grab a handful of objects to remove from the box. Count the objects together and then invite the ‘grabber’ to select the matching numeral card. Count the objects back into the box and continue. Stop occasionally to ask questions such as ‘Who grabbed the most/least?’ ‘What if you’d grabbed one more/one less – how many would you have then?’

Either version of the game could lead to some sustained shared thinking. One or more of the children may become totally absorbed in grabbing handfuls, talking about hands or vehicles such as diggers, or something related. Take the opportunity to interact with the child (or children) and get to know them and their view of the world better – especially useful if you are their key worker. If the interest is there, make sure you give it the time!
Case Study

This month’s case study comes from Scotland, but children are the same the world over and there is much that is relevant to our Early Years Foundation Stage. Learning and Teaching Scotland hold a series of Saturday conferences for early years practitioners. Several of the conferences will be of interest to you, but we are going to highlight the fifth in the series. Rosamund Roberts, a teacher from Glen Family Centre in East Renfrewshire, spoke about Using Big Book Planning to Promote Involvement. The organisers hoped to make the presentations available on video, but that has not been possible. So, although we cannot see and hear Rosamund talk about development of the approach, we do have the presentation slides. Download the presentation as a pdf file or powerpoint file.

The presentation begins by explaining why consultation with children is important. It moves on to relate children’s experiences to the (Scottish) curriculum. The process of Big Book Planning begins on slide 10. After establishing what the children already know, the slides show how the big book becomes central to the learning. It moves on to look at self and peer assessment as well as how the children can use the book to reflect upon their learning. There are lots of lovely comments from the children and a thought-provoking final slide. Could you use this approach in your setting?
Maths to share - CPD for you and your colleagues

This 15-minute Teachers TV programme examines ways of monitoring children’s progress. This is a really useful programme where you have the opportunity to look over practitioners’ shoulders as they assess children and record those assessments to inform planning and progression. The video also looks at how the cumulative information from assessments is used to support and improve the whole setting. The video shows how three early years centres, Clapham Manor Children’s Centre, Hall Day Nursery and Clifton Children’s Centre, observe and assess children’s development in order to support progression. Methods range from notes, photographs and video to an extended written form of assessment, known as a PLOD (Possible Lines of Development).

The programme talks about organising assessment information systematically to help identify how a particular child learns, what a child is good at and where they need support. One of the key points is that assessment does not, in itself, support progress. It is the analysis of the assessment data that enables questions to be answered.

As you watch the video, keep the remote control handy. There are several ‘over the shoulder’ moments where you may like to pause the action and take a closer look at the paperwork in use. For example, as early as 0:23, you get a good look at the observation sheet the practitioner is using. Around five minutes in, we see how Jack’s initial assessment is analysed and at 12:36 we get a good look at a PLOD sheet.

After watching, reflect on the following questions together:

- When do you discuss the implications of your observations? Who with?
- How do you respond to what you have observed – immediately, at the end of the day, during that week, later?
- When and how do you analyse the information collected?
- How do you use what you have observed to extend learning and development?
- What drives the planning of the learning environments?
- As a result of your discussions, identify no more than three points for development and consider how you will organise those developments. For example, how will you ensure that practitioners have dedicated time to discuss their observations? When and who with? How will those discussions feed into planning?

Further reading

- Progress Matters Reviewing and enhancing young children’s development