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Part I section heading

N Numbers and the number system

Part I sub-section heading

N9 Taking ideas from 'floor to head'


Suggested dialogue to illustrate effective interactions between teacher and children. These snippets of dialogue offer ideas to get things going and to keep them going. They also highlight and exemplify key interactions that will scaffold thinking and develop understanding.


STARTING WITH LARGE OBJECTS ON THE FLOOR


'Floor to head' is a simple model to help you think about using a variety of resources to enable children to internalise mathematical concepts and make these concepts both meaningful and available.

Especially with younger children, you might start with large-scale objects such as number tiles on the floor or with the children each holding a different number card. Get the children to associate physical movements with problem-solving and decision-making.

“ Which two children have cards with numbers that add up to make 7?
Come and stand together.
3 and 4? Yes, 3 and 4 make 7.
6 and 1? Yes, well done!
Stand inside the set ring if you are wearing trousers. Everyone else stand outside.
Where should Seema stand?
Who is holding a number that is less than the number on my card? Wave your card in the air!
Even number people, take your even number card and put it on the floor tile that is one more than your number. Ready, steady go. Now odd number people ...

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Thinking about floor to head
Children learn best by being involved in activity within a language-rich environment. The most successful learning is achieved when activities are firmly associated with higher-order language skills, where children are:

- explaining their reasoning
- applying logical arguments
- questioning each other
- predicting possible events
- exploring consequences
- elaborating an argument
- interpreting ideas.

This model is not just arguing that large resources are good because they can be seen by everyone in the classroom. Nor is it arguing that the move from floor to table top to head, should take place over weeks – they could all be part of the same lesson!

From: Washing lines, floor tiles, Brio, Duplo, Action Mats, hopscotch, skipping ropes as Venn diagrams, playground 100 squares, interactive whiteboards
To: Cuisenaire, Play People, Multilink, dominoes, jigsaws, personal computers, laptops and tablets
To: Paper grids and 100 squares pasted into books, 30 cm rulers, angle measurers, compasses, hand-held calculators and devices

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Where appropriate, we offer prompts, commentary, key points and summaries, resource lists, background information, advice and suggestions for follow-up activities.

Part II or III section heading

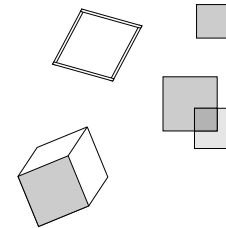
C Resources and planning for teaching and learning

- 1 Self-directed play, exploration and activity as individuals and members of self-chosen groups and of course working alongside adults.
- 2 Involvement in a daily maths activity (for example, through directed play for younger children or a teacher-led lesson for older children).
- 3 Opportunities to use and apply maths in ways that support other curriculum subjects and involve novel contexts including visits and other outdoor environments.

Across the primary school age range and particularly in Early Years settings, maths needs to be connected to other activities. Young learners need opportunities to work alone and in small groups. In particular they need to experience maths through play and self-initiated work. They need to work alongside adults who will help them make connections between different ideas and experiences. Children need to meet and engage with a wide range of adults and experience maths across a whole range of human activity in school, including the arts and humanities. The Internet and social media offer increasing opportunities for children and schools to link up. For example, schools in India have found it very effective to connect their children via the Internet with 'grannies' in the UK for an hour a week.

USING RESOURCES TO EMPHASISE MATHEMATICAL ATTRIBUTES

A resource or piece of equipment doesn't contain the mathematics. The teacher connects the resource with the appropriate mathematical ideas and the associated language in ways that help children to create an abstract mathematical idea, such as area or volume. The human brain is hard wired to respond to certain aspects of the environment. When we look at a paper square, its 'squareness' is strongly visible in the 'edginess' of the paper. When we use four equal-length Geostrips, hinged at the four corners, the squareness appears only as a special position obtained when the internal angles are held carefully at 90 degrees. When we use two pieces of transparent coloured gel and overlap them to form a square, the squareness appears in the darker shade of the overlap but is difficult to create and maintain.



- A paper square shows squareness by virtue of its edges.
- Four equal length Geostrips have their squareness determined by the interior angle.
- Two pieces of gel can be used to illustrate squareness in their overlap.
- The faces of a cube have a squareness that can be imagined, even when the eye does not see a square.
- Combining resources is a powerful strategy, e.g. a number line with Cuisenaire Rods or Play People.

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Part II or III heading

For more go to Companion Website

Issue to activity link

Issue to issue link

Links show connections between simple and more complex ideas, between activities and pedagogical discussion, between brief and more detailed explanation of pedagogy. Add to our links by writing in your own when you find them. You can also annotate the book with self-adhesive bookmarks.