contents and sample pages

Title	Developing Mathematics with Unifix
Author(s)	Paul Swan & Geoff White
ISBN/ISSN	978-1-74126-157-8
Published by	R.I.C. Publications

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POST GPO Box 1729 Adelaide SA 5001
PHONE 08 8363 0288
FAX 08 8362 9288
EMAIL office@aamt.edu.au
INTERNET www.aamt.edu.au

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D T E S

Purpose

To develop the concepts of more and less.

To use the language associated with comparing sets of objects (blocks).

To develop simple addition and subtraction concepts.

Blocks in socks – I

Without knowing it, students will develop addition and subtraction ideas.

Knowing the language

While many of the activities appear quite simple, the language required to understand the idea is relatively sophisticated. Many mathematical errors occur because students do not comprehend or misunderstand the wording involved.

(When trying these activities with young students, one claimed to have 'misunderheard' the instructions!)

When giving specific instructions—such as those used in this activity—watch for students who 'misunderhear'. If the students give you a blank look it is likely that they are unfamiliar with the language being used. Model the correct language. Write the words on the board or card for the students to see.

Examples of misunderstood words include:

pile *heap* *collection*

stack *join* *connect*

colours (see list page 2)

tall/short

Seriation (the concept of ... in relation to quantity, ... size) words

compare *...*

most/least *more/less*

long/longer/longest

short/shorter/shortest

highest/lowest

1 Blocks in socks

Collect a few brightly coloured (c... socks.

Focus the students' attentio... collection of coloured sock... students to name the col...

Explain that you will be placing some blo... each sock. Tell the students t... the eyes (no peeking!) while ... fill th... erent socks.

...one of these socks has more blocks than ...other'. Invite a student to come and feel ... socks to see which one has the most ...cks. Once the student has chosen a sock hold it up for all the class to see. State '*Now let's see if this sock holds the most blocks*'.

Empty each sock and stack the blocks on top.

Ask the students whether their classmate was correct. Why?

Encourage discussion and then the chart '*Most blocks in socks – (sock colour)*'. When you have discovered the least number of blocks in a sock '*Least blocks in socks – (sock colour)*'.

Continue the game until the students grasp the idea.

Three blocks on your fingers

D T E S

Purpose

Any number, in this case three, can be represented in many different ways.

What is hidden in the digit '3'?

Developing a picture of three

Within this activity is an amazing idea for young students to grasp: every 'picture' of three is different, yet every one of them can be called 'three' and, later, symbolised by '3'.

The finger game does not work well when four blocks are used, but adaptations of the idea may be created.

Remember! At this stage we have used only language to share ideas. Now is the time to move to the E stage of DTES; E means 'explain' and this can mean 'students write, draw, model the idea any way they wish'.

This is an important stage before we move on to formally introducing the digits. If the students write formal responses do not be concerned. Check to make sure the student knows what he/she is doing, and, if he/she does, celebrate with the student, not the class. One of the problems is the tendency for students to copy another student's ideas. We need to check to make sure the student knows what is happening, but never challenge a student directly for copying.

Already, you will have completed quite a lot of informal counting with some of the pattern-making activities. At this stage, all the counting activity will be oral; the 'symbolic' digits will be introduced shortly.

Playing with 'threes'

Working with the whole group, count out three blocks of the same colour.

'one' 'two' 'three'

'I have a group of three blocks.'

'Here is a group

'first' 'third'

'Show m... Now show ... block, ...'

You ... that some ... to count ... right side of ... arrangement. Is that a pro...? Not as ... as the student is aware that he/she is ... definite ... Students typically count a line of ... from left to right.

... out three different coloured blocks with ... class. Ask the students *'Are any of the blocks same?' 'No.'*

Now count out three blocks, with two blocks the same colour. Ask the students:
'How many blocks altogether?'
'Three.'
'How many blocks are the same?'
'Two.'

Make two groups of three blocks and ask the class *'How many blocks altogether?'* Repeat this challenge with more blocks.

Guid... ...ing this photo... ...resource

M... ...on of all the ... three on fingertips' ... photocopy master on the ... page.

Three blocks on your fingers

Arrange the students in groups of four to six. Ensure that each group has an adequate pile of blocks. Instruct the students to find three blocks of the same colour then arrange them on the fingers of one hand so that no-one else in the group has the same arrangement.

The students will take time to sort themselves out. Move from group to group offering help and advice to solve the problem, not answer it. Here are a few possibilities.

How would you respond if a student showed one of these solutions?

I hope you would challenge the student; just as you would any other: *'Tell me about yours, please'.*

'How many "threes on fingertips" would there be if colour mattered?'

'Lots!'