Guiding and Assessing the Development of Mathematics Specialists

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Slides available at: www.sdsu-pdc.org/presentations.htm

From Empson (2002)

<table>
<thead>
<tr>
<th>Intermediate Strategies</th>
<th>Description</th>
<th>Example</th>
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<tbody>
<tr>
<td>d) Coordinating sharers</td>
<td>Child partitions each shared unit into enough pieces for all sharers. (This is a useful, all-purpose strategy, within the zone of understanding of many first and second graders.)</td>
<td>6 children sharing 4 candy bars</td>
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References


Melina’s Work

There are 7 cookies on a plate. There are 4 children who need to share the cookies so that each person gets an equal (same) amount. How much does each child get if they want to eat all of the cookies?

7 - 4 = 3

The children eat four cookies. 1 cracked in four pieces. They all get a piece.

Clarissa’s Initial Analysis

Analysis: In both assessments, Melina first gave the whole units to each child. She decided to “crack” the leftover cookies into pieces but doesn’t recognize them as fractional units of a whole. She identifies the fractions as “pieces.” However, when it was 6 cookies and 4 children, Melina decided to “crack” the 2 leftover cookies into halves. When it was 7 cookies and 4 children, she “cracks” the leftovers into fourths.

Summary: Next steps for Melina will be to explore and discuss the meaning of her “cracking” choice and what each piece represents (part of the whole cookie).

New Problems to scaffold: (HALF) & (FOURTHS):

9 cookies / 6 kids
Possible Next Steps

NEW PROBLEMS

* Rationale for 9 cookies : 6 people

Melina's Way

9 - 6 = 3

Left over cookies

Each child gets 1 whole and 1/2 of a whole.

(Partitions)

13 cookies : 4 people

Melina's Way

13 - 4 = 9
9 - 4 = 5
5 - 4 = 1

Each child gets 3 whole cookies and 1/4 of a cookie.

Melina's way or approach appears to lend itself to repeated subtraction of wholes until she gets to the leftovers. 4 people will require her to cut the last cookie into 1/4s.