

Contents

Introduction

1	Why problem solving?	1
2	Skills and strategies	16
	Identifying and defining the problem <i>Keith Jackson</i>	19
	Getting results and solving problems <i>Jean Dowson</i>	21
	Practical examples of problem-solving work from Oldham schools <i>Betty Pedley</i>	27
3	Discussion and investigation	34
	King Kong and the pirates <i>Hilary Tunbridge</i>	47
	How to get Piglet off an island <i>Valerie Irving</i>	53
	Story books for problem solving <i>Robert Fisher</i>	55
4	Problem solving in writing	58
	Writing to recollect, ask questions, reflect . . . <i>Pat D'Arcy</i>	60
	Think books <i>Steve Bicknell</i>	65
	What if? Some starting points for thinking and writing <i>Robert Fisher</i>	71
5	The heart of mathematics	72
	The ability to solve problems (from <i>Mathematics Counts</i>)	75
	Problem solving (from <i>Mathematics from 5 to 16</i>)	77
	Problems and puzzles <i>Leone Burton</i>	80
	The canoe problem <i>Janet Duffin</i>	88
	Secret messages <i>Marion Bird</i>	92
	Some starting points for problem solving and investigation <i>Robert Fisher</i>	99
6	The use of computers	103
	Thinking things out: solving problems with a micro <i>Anita Straker</i>	105
	Problem solving with control technology <i>Carol Wisely</i>	113
7	Science and technology	125
	What's the problem? Science with a problem approach <i>Sue Dale Tunncliffe</i>	129
	Science through technology <i>Keith Geary</i>	136

	A case study: Castles (from <i>Designing and Making</i>)	147
	Starting points for investigation <i>Robert Fisher</i>	151
8	Clues to the environment	154
	Clues to the past in the environment <i>Sue Millar</i>	156
	Case study: Litter (from <i>Designing and Making</i>)	167
	A project in Walkergate Infant and Primary School <i>Nancy Elliott</i>	169
9	Art, drawing and decision making	172
	Art as a decision-making process <i>Jenni Hallam</i>	175
	Problem solving through cartoon drawing <i>D Joan Jones</i>	179
10	Moral problems	186
	What do you think? <i>Robert Fisher/D and C Milman</i>	191
	Moral development <i>Robert Fisher/A Wilkinson et al.</i>	199
11	Games for problem solving	202
	Games: a rationale for their use in the teaching of mathematics in school <i>Paul Ernest</i>	204
	Problem-solving games <i>Robert Fisher</i>	211
12	Teaching problem solving	232
	Musical problems <i>Margaret Hope-Brown</i>	241
	Developing real problem solving in the primary classroom <i>Patrick R Easen and Denise A Green</i>	242
	'Bridges' – an integrated and problem-solving approach <i>R McTaggart</i>	255
	Reactions to problem solving <i>Mary Burns</i>	258
	Index	262