

Contents

About the Authors, ix

About the Contributors, xi

Foreword, xix

Prologue, xxi

Acknowledgements, xxiii

1 A Guide to Science Communication, 1

1.1 Introduction, 1

1.2 The Influence of Science Societies, Charities
and Organisations, 2

1.3 Modern Societies and Organisations, 7

1.4 Science Communication as a Discipline, 7

1.5 Phases of Science Communication, 9

1.6 Recent Initiatives, 18

1.7 A Way Forward, 19

References, 19

2 Scientists Communicating with the Public, 23

2.1 Introduction, 23

2.2 What does 'Science and Society' mean for Scientists?
The Changing Environment, 23

2.3 Are Academics Involved in Public Engagement?, 34

2.4 What is the Current Level of Science Communication
by Scientists?, 39

2.5 Concluding Remarks, 43

References, 44

Useful Websites, 45

3 Encouraging Scientists to Communicate with the Public, 46

3.1 Introduction, 46

3.2 Science Communication: the Barriers, 48

3.3 Removing Barriers and Providing Incentives, 52

3.4 Seeking Advice and Support, 63

3.5 Embedding PE in Your Job, 67

3.6 Personal Benefits and Benefits to the Wider Society, 70

References, 72

- 4 Communication, Learning and Writing, 74
 - 4.1 Communication Theories, 74
 - 4.2 Learning and Learning Theory, 75
 - 4.3 Learning Theory Frameworks, 77
 - 4.4 Constructivism and How it Applies to Science Communication Events, 77
 - 4.5 Learning Styles, 78
 - 4.6 Model of Family Centred Learning, 83
 - 4.7 Successful Scientific Writing for the Public, 85
 - 4.8 Concluding Remarks, 91
 - Recommended Additional Reading for Writing for the Public, 91
 - References, 91

- 5 Monitoring and Evaluating your Event or Activity, 93
 - 5.1 Introduction, 93
 - 5.2 Key Stages in Undertaking an Engagement Project, 94
 - 5.3 Monitoring and Evaluating, 97
 - 5.4 Undertaking Evaluation, 100
 - 5.5 Interviews, 107
 - 5.6 Focus Groups, 108
 - 5.7 Observational Research, 109
 - 5.8 Deciding Which Evaluation Tools to Use for Your Project, 109
 - 5.9 Analysing the Results, 113
 - 5.10 Reporting the Results, 117
 - 5.11 Assessing Impact, 118
 - 5.12 Ethical Issues Associated with Evaluation Projects, 119
 - Other Useful Resources and References, 119

- 6 Getting Started with Public Science Communication, 121
 - 6.1 Introduction, 121
 - 6.2 Understanding Your Audience, 123
 - 6.3 Taking Your First Steps, 136
 - 6.4 Planning Your Own Event or Activity, 136
 - 6.5 How to Design Hooks for Your Event or Activity, 143
 - 6.6 Designing a Science Communication Activity, 145
 - 6.7 Consider Your Resources – Consumables, Equipment, Expertise and People (CEEP), 148
 - 6.8 How to Get Your Project Funded, 149
 - 6.9 Top Tips for Successful Marketing, 158
 - 6.10 Health and Safety, 159
 - 6.11 Concluding Remarks, 164
 - References, 164

- 7 Direct Public Communication, 166
 - 7.1 Introduction, 166
 - 7.2 Direct Communication Delivering Information, 166
 - 7.3 Information through Conversation, 182
 - 7.4 A Focus on Policymakers, 209
 - 7.5 Concluding Remarks, 225
 - References, 225
- 8 Indirect Public Communication, 227
 - 8.1 Introduction, 227
 - 8.2 A Focus on Science and Television, 227
 - 8.3 A Focus on Radio and Science, 232
 - 8.4 A Focus on Newspapers, 235
 - 8.5 A Focus on Science and Writing, 238
 - 8.6 A Focus on Science Advocacy, 244
 - 8.7 A Focus on Citizen Science, 245
 - 8.8 Public Involvement in Health Research, 259
 - 8.9 A Focus on Web 2.0 Tools and Services, 261
 - 8.10 Concluding Remarks, 274
 - References, 274
- 9 Getting Started with Science Communication in Schools, 277
 - 9.1 Introduction, 277
 - 9.2 School Science Education and Scientific Literacy, 278
 - 9.3 A Skills Shortage in Science, 280
 - 9.4 Attitudes and Knowledge of Young People about Science, 280
 - 9.5 The Importance of Extra-curricular Science to Achievement, 284
 - 9.6 Getting Started with Science Communication in Schools, 285
 - 9.7 Think about your Resources, Consumables and Equipment, 302
 - 9.8 School Years and Qualifications, 302
 - 9.9 Concluding Remarks, 305
 - References, 305
 - Useful Websites, 306
- 10 Demonstrating Interactions between Scientists and Schools, 307
 - 10.1 Introduction, 307
 - 10.2 Enhancing the Curriculum within the School Environment, 308
 - 10.3 Developing Cross-Curricular Activities for Primary and Secondary Schools, 329

- 10.4 Enhancing the Curriculum with Activities with a School Audience but Outside the School Environment, 333
- 10.5 Influencing Curriculum Change, 337
- 10.6 Embedding Scientists into Schools, 338
- 10.7 Training Teachers, 343
- 10.8 Concluding Remarks, 344
- References, 344

Epilogue, 347

Abbreviations and Acronyms, 349

Index, 351

