EFFECTIVE CHEMISTRY COMMUNICATION IN INFORMAL ENVIRONMENTS

Committee on Communicating Chemistry in Informal Settings

Board on Chemical Sciences and Technology

Division on Earth and Life Studies

Board on Science Education

Division of Behavioral and Social Sciences and Education

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COMMITTEE ON COMMUNICATING CHEMISTRY IN INFORMAL SETTINGS

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Preface

The committee's report seeks to enhance the effectiveness of public communication by chemists at activities that foster engagement and learning outside the classroom setting. We build on two trends: One is the interest shown by many chemists in sharing their knowledge and experience with the public through activities such as National Chemistry Week, science festivals, museum exhibits or events, science cafés, and online media. The second is the growing research on science communication, informal learning, and chemistry education. Much of that research has been synthesized in previous National Research Council reports, including *Learning Science in Informal Environments, Discipline-Based Education Research*, and *How People Learn*, as well as two Sackler Colloquia on *The Science of Science Communication* and the Chemical Sciences Roundtable's *Chemistry in Primetime and Online*. For the first time, the experiences of these professional communities and the research bases that support their work have been integrated for the development of practical tools.

Chemistry plays critical roles in our daily lives, community issues, national policy, and global events. That everyday relevance presents opportunities for interaction with members of the public who may not be familiar with chemistry or chemical concepts. Evidence-based communication and engagement activities offer the potential to address the situation. For students, informal learning experiences can stimulate greater interest in chemistry, complementing and enhancing the subject as presented within the limitations of the classroom. For adults, such experiences may help them become more sophisticated about chemistry and its ubiquitous role in the world around us.

For the chemistry community, we hope that this report will provide insights for thinking about communication and engagement. It offers guidance based on evidence-based practices for strengthening the effectiveness of activities, such as placing greater focus on the needs and interests of the participants, both in planning and implementation.

For informal learning professionals and science communicators, we hope the report will provide insight from key research findings in the chemical education literature that may be transferable to addressing members of the public and may suggest directions for future research. In addition, this report may encourage more chemists and chemistry-related profes-

sionals to partner with science centers and similar organizations to develop and implement engaging chemistry experiences for children and for adults. Such collaborative efforts could be significantly enhanced by support from chemistry-based professional organizations and corporations.

Although this report focuses specifically on chemistry, the communication strategies could be applied more generally and serve as a model for other disciplines. We hope that professionals in those disciplines will recognize the value of applying effective practices of informal learning and science communication, and of partnering with organizations experienced in engaging with the public.

On behalf of the committee, we would like to thank all those who took the time to share their knowledge and expertise through participation in the meetings, the landscape study, and other data-gathering methods. Special thanks go to the committee members themselves and the Academies program staff who made this report possible.

Mark Ratner and David Ucko, *Co-Chairs*