

Term Spring Week	<i>CILS Postgraduate Workshop 3</i> <u><i>Learning in Formal and Informal Contexts</i></u> <i>Jonathan Osborne</i>
1	Aims and Purposes of School Science Teaching: Issues and Dilemmas This session will explore the aims and purposes of the formal science curriculum Core Readings Bybee, R., & DeBoer, G. (1994). Research on Goals for the Science Curriculum. In D. Gabel (Ed.), <i>Handbook of Research on Science Teaching and Learning</i> (pp. 357-387). New York: MacMillan. Osborne, J. F. (2000). Science for Citizenship. In M. Monk & J. F. Osborne (Eds.), <i>Good Practice in Science Teaching: What Research has to say</i> (pp. 225-240). Buckingham: Open University Press. Wellington, J. (2000). The science curriculum and science in the curriculum. In W. J (Ed.), <i>Teaching and Learning Secondary Science: contemporary issues and practical approaches</i> . Routledge: London.
2	Alternative Conceptions in Science Education Driver, R. (1983). <i>The Pupil as Scientist?</i> Milton Keynes: Open University Press Wandersee, J., Mintzes, J. J., & Novak, J. (1994). Research on Alternative Conceptions in Science. In D. Gabel (Ed.), <i>Handbook of Research on Science Teaching and Learning</i> (pp. 177-210). New York: MacMillan. Gilbert, J. K., & Watts, D. M. (1983). Concepts, Misconceptions and alternative conceptions: Changing perspective in Science Education. <i>Studies in Science Education</i> , 10, 61-98.
3	Explanation in Science Ogborn, J., Kress, G., Martins, I., & McGillicuddy, K. (1996). <i>Explaining Science in the Classroom</i> . Buckingham: Open University Press. Lakoff, G. (1987). <i>Women, fire and dangerous things</i> . Chicago: The University of Chicago Press.
4	Attitudes to School Science Osborne, J. F., Simon, S., & Collins, S. (2003). Attitudes towards Science: A Review of the Literature and its Implications. <i>International Journal of Science Education</i> , 25(9), 1049–1079. Simpson, R. D., Koballa Jr, T. R., Oliver, J. S., & Crawley III, F. E. (1994). Research on Alternative Conceptions in Science. In D. Gabel (Ed.), <i>Handbook of Research on Science Teaching and Learning</i> (pp. 211-236). New York: MacMillan.
5	History & Philosophy of Science in Science Teaching Matthews, M. R. (1994). <i>Science Teaching: The Role of History and Philosophy of Science</i> . New York: Routledge. Monk, M., & Osborne, J. (1997). Placing the History and Philosophy of Science on the

	Curriculum: a model for the development of pedagogy. <i>Science Education.</i> , 81(4), 405-424.
6	<p>Practical Work in Science</p> <p>Lazarowitz, R., & Tamir, P. (1994). Research on Using Laboratory Instruction in Science. In D. Gabel (Ed.), <i>Handbook of Research on Science Teaching and Learning</i> (pp. 94-130). New York: MacMillan.</p> <p>Woolnough, B., & Allsop, T. (1986). <i>Practical Work in Science</i>. Cambridge: Cambridge University Press.</p> <p>Watson, R. The Role of Practical Work in Monk, M & Osborne, J.F Good Practice in Science Teaching. Buckingham: Open University Press</p>
7	<p>Learning in Informal Contexts 1</p> <p>Crane, V. (Ed.). (1994). <i>Informal science learning: What the research says about television, science museums and community based projects</i>. Washington D.C: American Association of Musuems.</p> <p>Hofstein, A., & Rosenfield, S. (1996). Bridging the Gap between Formal and Informal Science Learning. <i>Studies in Science Education</i>, 28, 87-112.</p> <p>Pedretti, E. (2002). T.Kuhn meets T.Rex: Critical Conversations and New Directions in Science Centres and Science Museums. <i>Studies in Science Education</i>, 37, 1-42.</p>
8	<p>Learning in Informal Context 2</p> <p>Hein, G. (1998). <i>Learning in the museum</i>. New York: Routledge..</p> <p>Csikszentmihalyi, M., & Hermanson, K. (1995). Intrinsic Motivation in Museums: Why does one want to learn? In J. H. Falk & L. D. Dierking (Eds.), <i>Public Institutions for Personal Learning: Establishing a Research Agenda</i> (pp. 67-77). Washington, D.C.: American Association of Museums.</p>
9	<p>Teacher Professional Development</p> <p>Anderson, D. A., & Mitchener, C. P. (1994). Research on Science Teacher Education. In D. Gabel (Ed.), <i>Handbook of Research on Science Teaching and Learning</i> (pp. 3-44). New York: MacMillan.</p> <p>Guskey, T. R., & Huberman, M. (1995). <i>Professional Development in Education: New Paradigms and Practises</i>. New York: Teachers' College Press.</p> <p>Loucks-Horsley, S., Hewson, P., Love, N., & Stiles, K. E. (1998). <i>Designing Professional Development for Teachers of Science and Mathematics</i>. Thousand Oaks, California: Corwin Press Inc.</p>
10	<p>Assessment in Science Education</p> <p>Doran, R. L., Lawrenz, F., & Helgeson, S. (1994). Research on Assessment in Science. In D. Gabel (Ed.), <i>Handbook of Research on Science Teaching and Learning</i> (pp. 388-442). New York: MacMillan.</p> <p>Black, P. (1993) Formative and Summative Assessment by Teachers. <i>Studies in Science Education</i>.21. 49 - 97.</p>

	Black, P. & Wiliam D. 1998 Assessment and Classroom Learning. <i>Assessment in Education</i> . Vol. 5. No.1. . pp. 7-74.
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