Five-year-olds find science a gas

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The early years curriculum should be revised to improve guidance on teaching science, an academic has said, after a study found younger children can understand abstract scientific concepts through guided experiments.

A recent study conducted with five and six-year-olds in Greece found they were able to understand the concept of change in the state of water between gas, liquid and solid. Teachers led an experiment in which ice was heated to form water vapour, then cooled on a cold plate to form water droplets. School staff guided the class to "explain what they saw and understood through the experiment."

Dr Maria Danos, from the University of Reading, who led the study, said schools tend to underestimate the ability of young children to understand and grapple with scientific concepts, particularly abstract concepts.

"This study has shown young people do have the potential to understand abstract scientific concepts, but there needs to be a process for that learning. "Children are naturally curious. They possess the skills and attributes that professional scientists need, but we need to nurture them in a more systematic way."

Stephen Fraser, the deputy chief executive of the Education Endowment Foundation, said the findings showed there was "value in introducing simple scientific concepts in the early years."

The early-years foundation stage (EYFS) framework, which sets out what young children must learn by the end of reception, includes a section on "understanding the world", but Danos said the guidance was "very poor."

"In terms of the government, my big dream and suggestion would be to revise the EYFS and include more guidance about the understanding of science." She also called for better training for early years teachers in how to cover scientific topics.

A Department for Education spokesperson said recent reforms to the EYFS were developed with feedback from the sector "to be clearer and create specific goals".