Abstract. The struggles of undergraduate students with abstract algebra has been well-documented in recent years, prompting suggestions in the educational literature that alternatives to the traditional lecture method should be explored to address this problem. Several innovative approaches have been developed in response to this need, all of which deal exclusively with group theory (leaving ring and field theory relatively untouched). In particular, the work of Larsen (2004) developed an original approach to teaching introductory group theory using the method of guided reinvention, which encourages students to gradually develop formal mathematics from their own intuitive reasoning and thinking. In this talk, I present preliminary results from a project which addresses a sizable gap in the educational literature by investigating how students might be able to reinvent the fundamental notions of ring and field theory.