The enveloping algebra of the Witt algebra is not noetherian

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We prove that the universal enveloping algebra of the positive part of the Witt (or centerless Virasoro) algebra is not noetherian. As a consequence, the universal enveloping algebra of the full Witt algebra is also not noetherian, thus answering a long-standing open problem re-posed by Jason Bell in the introductory workshop for this program. This is joint work with Chelsea Walton.