Step-1

R^2 is not a subspace of R^3 for the reason that its components (2-component vectors) do not even originate from R^3 (the set of 3-component vectors). It is not even a subset.

Step-2

R^2 is isomorphic to the subset $(a,b,0)$ of R^3, but it's also isomorphic to considerably several other subspaces of R^3 (any 2 dimensional one). As such, there's no canonical embedding.