Video question script: Weathering limestone: with my own breath

In teaching about the Earth we use practical activities to explore Earth processes. This example explores chemical weathering, and is called Weathering limestone – with my own breath'Preparation for bridging from the model to real Earth processesExplain that we are going to put some tap water into a small container, add some Universal Indicator, and then blow into the coloured liquid using a couple of strawsMost will say 'green' if they understand that the indicator scale runs from purple (strongly alkaline, through blue to green (neutral) to yellow, orange and then red (strongly acid) and if they think that tap water is likely to be neutralConstruction = applying a pattern learned previously to a new substance Cognitive conflict = if the answer is unknownAdd the Universal indicator, it usually goes green or slightly bluish green tap water is likely to changeSome will know that our breath contains carbon dioxide, which might dissolve in the water creating an acid and turning the colour yellow, but most will notConstruction = applying a pattern learned previously to a new substance Cognitive conflict = if the answer is unknownAdd the Universal indicator, it usually goes green or slightly bluish green how the colour is likely to changeSome will know that our breath contains carbon dioxide, which might dissolve in the water creating an acid and turning the colour yellow, but most will notConstruction = applying a pattern learned previously to a new substance Cognitive conflict = if the answer is unknownAdd the Universal itap water is likely to changeSome will know that our breath contains carbon dioxide, which might dissolve in the water creating an acid and turning the colour
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vellow or orange, depending on the
tap water)
Explain that we now have a weak
acid called carbonic acid
Ask what will happen if we now add Some may predict that the Construction = applying a
powdered limestone (crushed chalk) limestone will neutralise the acid, pattern learned previously
changing the colour back to green to a new substance
Add some powdered limestone and
stir
The liquid becomes a milky green,
because some of the powdered
limestone is held in suspension, but
when it settles, the colour can be
seen to be green again or even a
Ask if this means that 30 seconds of Ves
someone's breath can make an acid
powerful enough to attack limestone
Ask, where on Earth this might be This illustrates how the carbonic Bridging = from the
happening on a large scale acid of rain and soil water reacts activity to larger scale
with limestone, dissolving it.
It simulates normal rain and soil
water (which are dilute carbonic
acid) and acid rain, where extra
carbon dioxide and other gases
industrial areas