

British Science Week

iPad Lesson ideas



"Science is a huge topic, there are so many areas we can cover across the various levels of education, but fortunately the iPad is a great tool to help us discover and investigate a lot of these subjects."

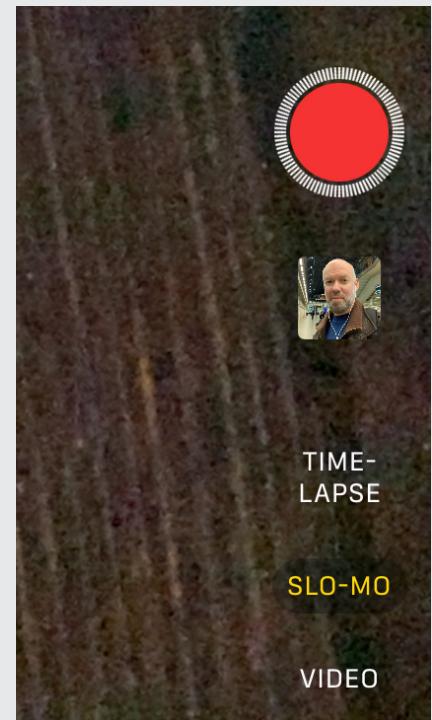
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"Working with Video"

Video is a fantastic resource for science, it enables us to capture experiments, and reflections on the outcomes very easily, and the iPad really gives us some great options to make the most of this.

The basic camera tool has some useful features built into it, obviously we can take photographs and videos which are great for evidence and recording results of experiments, but in the bottom right-hand corner of the screen, you have options for slow motion and time-lapse videos, scroll through these options and the selected one will turn yellow.

The Slo-Mo option is really useful for capturing things that happen quickly, and we can then see the outcomes in much greater detail. Obviously once we have recorded the slow motion video, the video will be saved to the camera roll, which gives us further options to take that video in to iMovie and add voice overs so that the children can add explanations.



For younger children we could explore colour science, and drop food colouring into a glass of water, a slow motion recording of this looks fascinating as the colours almost form clouds in the water as the colours mix.

Working with Video

In this example, science teachers were recording exothermic reactions in slow motion, by bubbling methane through washing up liquid and igniting the bubbles with a splint. The reaction is very very fast, but by recording it in slow motion, they were able to see how the reaction developed and even see the refractions in the light due to the heat.

Similarly, time-lapse video is equally useful in the science classroom, but does obviously take longer, as you may need to leave the iPad set up for a few days to capture very slow changes - don't forget to plug the iPad in though to ensure it maintains enough charge to capture the full time-lapse video.

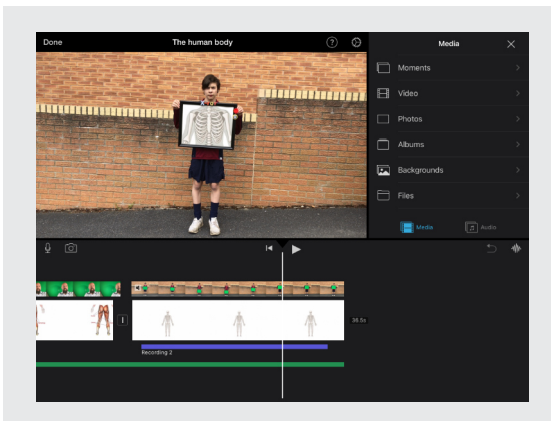
For example, you may want to make a time-lapse video to show how bacteria grows in petri dishes, or perhaps grow seeds under different conditions to see how the germination rates are effected by water, drought or light.



Top tip - Slow motion and time-lapse filming is much easier if you can set the iPad up in a stand, so that it's fixed and doesn't move. This allows you to frame the recording much more easily.

iMovie

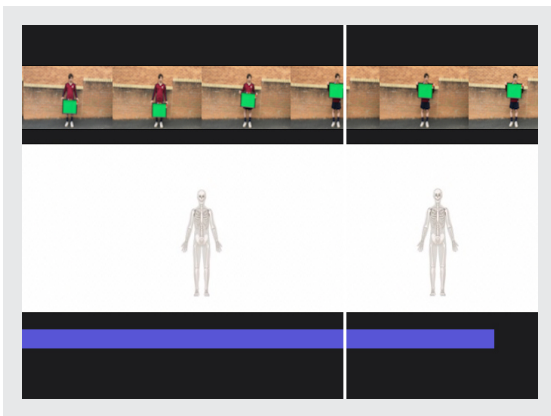
iMovie is another great tool for exploring science topics, with children evidencing their knowledge and understanding by combining images with voice over explanations. However, the Green Screen options in iMovie also give us other options.



Try creating your very own X-RAY machine in iMovie! Aside of all the complicated electronics, screens and radiation... ;-) it's actually very straight forward to create something like this, and as we move the 'X-RAY' machine over the human body, we can view the skeletal structure.

The X-RAY 'machine' here is simply a piece of green poster card, that I've placed in a frame, and added some play dough tub lids to make the dials, and some fridge magnet letters to label the device.

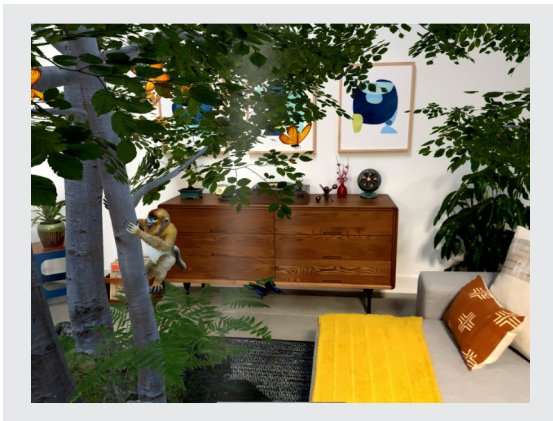
This is just using the Green Screen features of iMovie as we normally do, the only difference is that the green is not behind the student, but this time in front. iMovie will look for the large green area behind the student, and as we have a much smaller area in front of the presenter, it may ask you to tap on the colour you want to replace. In which case, simply tap on the green of the X-RAY machine.



Top tip - make sure that your background image, in this case the image of the skeleton, has plenty of empty white space around the image, I created this example in Keynote, so I could place the skeleton in the middle. This gives you options to position the Skelton by simply tapping on the i image on the time line, ensure that the Ken Burns effect is turned off, and then you can drag and pinch to re-size the image, so line up the skeleton with the X-RAY machine.

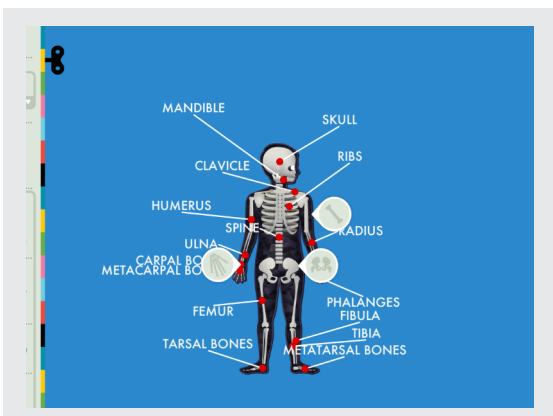
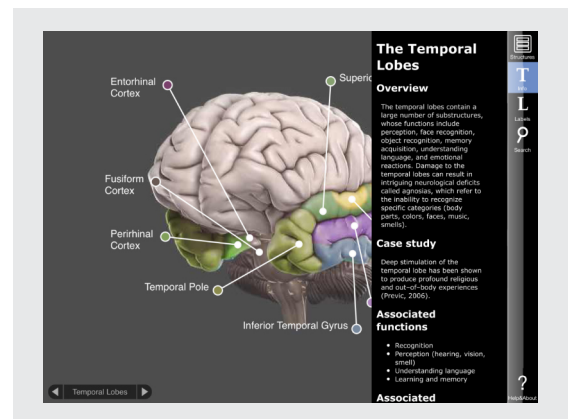
AR and VR Apps

There are a lot of augmented and virtual reality apps available at the moment, and a lot of these have a science focus. These are great for short exercises to engage children and use these to research topics and gather facts. Some of the current highlights are:



WWF Forests - this allows you to build a virtual rain forest in your classroom, and has different stages of rain forests, from thriving ecosystems through to forests in danger. You can also build your own rain forests and develop more of an understanding of the different plants living there.

3D Brain - There are numerous apps that allow you to explore 3D models of the human body, this one focuses on the brain, with labels and highlights of different areas and structures. There's lots of information here, which is great for independent research. Screen shots could be used to present some of the knowledge here in iMovie with verbal explanations.



The Human Body by Tiny Pop - This app is perfect for younger children to explore the human body, there are lots of lovely, clear graphics with labels and audio (and in multiple languages). The app also includes the information on how the body responds to different environmental conditions such as temperature changes.