

REVIEW

Higher Biology

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THIS SOFTWARE programme covers a range of the topics for Higher biology. Loading the program onto a computer was a fairly straightforward process, although it is worth noting that it runs better if the computer has a bigger memory than the minimum requirements. It was also interesting to find that the program runs on a DVD player, giving it additional features not found in other educational software. We also found that the programme covers some of the topics on the Higher syllabus that currently have very few relevant materials available on the market.

At first glance, we felt that the program could do with more text to back up some of the animations. However, after using it a few times, we found that there was probably enough written material for each topic, and that the information provided allows the biology teacher to add his or her own explanations while the animations are being shown to the students.

Assessing some of the topics

Cell type – The program offers comprehensive coverage of cell ultrastructures, and a good illustration of the differences between animal and plant cells. We found that this was one of the software's best animations. It gives the user a 3D effect that is difficult to demonstrate with other audio-visual materials. The animation relies on the teacher stopping and starting at each organelle, which is a good way to deliver the lesson.

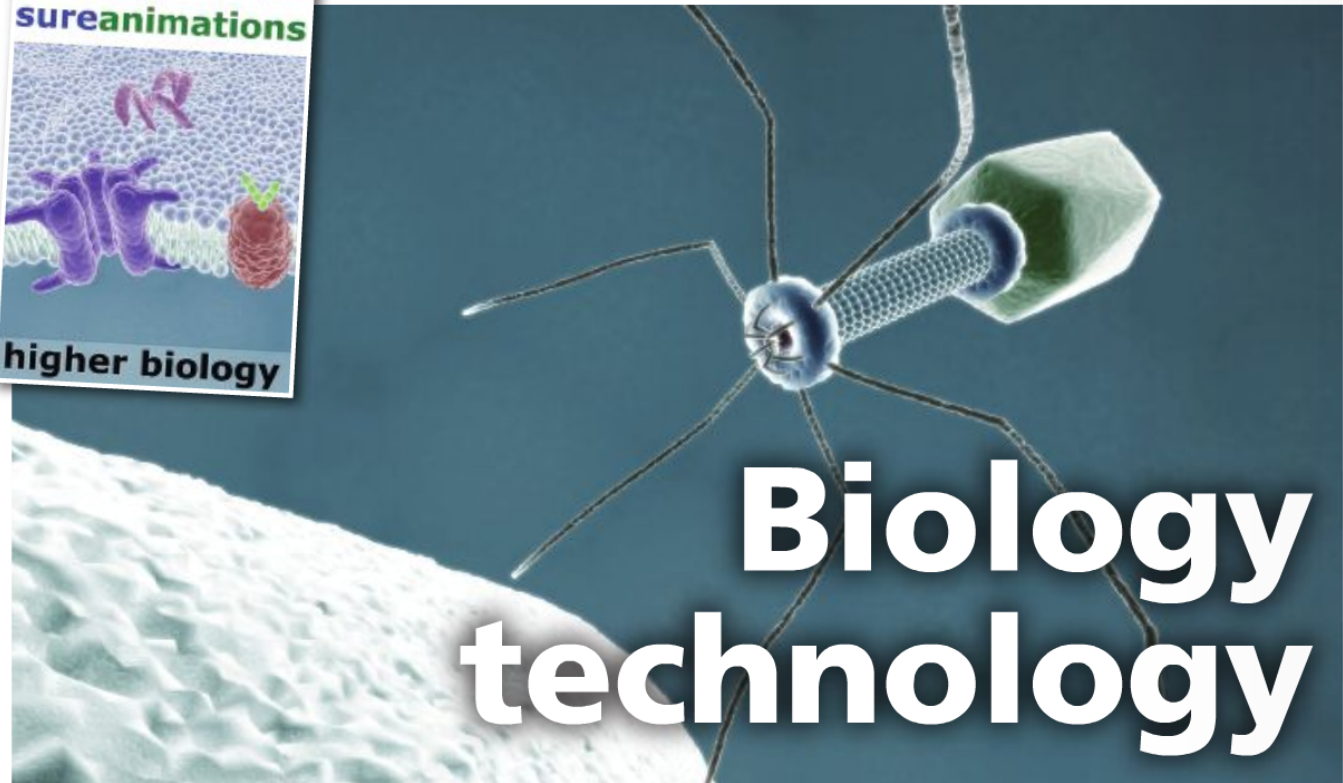
Cell absorption – The program shows plant and animal cells being exposed to isotonic, hypertonic and hypotonic solutions. The animations are excellent, especially the blood cell in hypotonic solution. We particularly like the sound effects of this animation, too.

Diffusion and osmosis – Unfortunately, the animation of the semi-permeable membrane and the molecules are rather poor. There was also little or no explanation as to which molecules are involved.

Plasma membrane – Good animation of the plasma membrane with the phospholipid bilayer well illustrated. The program also makes a good attempt at showing the fluid mosaic model.

Active transport – There is a good illustration of active transport and a good attempt to show passive diffusion. The function of the carrier protein is also very well illustrated.

Glycolysis – We found this section made a decent attempt to explain what is a very difficult concept, and the accompanying animation would fit very well in any



Biological learning: Higher Biology offers a range of animations on different sections of the curriculum, including viral replication (pictured above)

Higher lesson that addresses glycolysis.

Mitochondrial structures – An impressive animation of the mitochondrion offered good emphasis of the functions and structures of the organelle.

Cytochrome system – There is not a lot of animation for the cytochrome system, but it does cover this tricky area effectively.

Photosynthesis – Photolysis is well animated, and a decent explanation of carbon fixation is given.

Antibody – The animation for this topic is very good and the antigen-antibody complex is well illustrated.

DNA and RNA – The animation of DNA structure and replication is very impressive, and

the program also offers a good comparison of DNA and RNA molecules. It was good to see the two molecules lined up next to each other to illustrate their differences.

Viral replication – An excellent animation shows viral replication very effectively, and the combination of sound and animation made the learning fun, really engaging the students.

Phagocytosis – The software has a good animation of phagocytosis, especially when showing the involvement of the lysosomes. The sound effects in this animation make the phagocytes sound very efficient at their jobs.

Mutation – The simple animation showing the different types of mutation is useful when showing the amino acid differences for each type of mutation.

Overall, we found the whole program refreshing, with some interesting and well-designed graphics. It was reasonably user-friendly, but needs the user to have a good understanding of the different concepts.

However, there will be no problem when a biology teacher is delivering a lesson using the animations to help their explanation.

SecEd

• Reviewed by Mike Cheung, principal teacher of science at Tynecastle High School, Edinburgh