

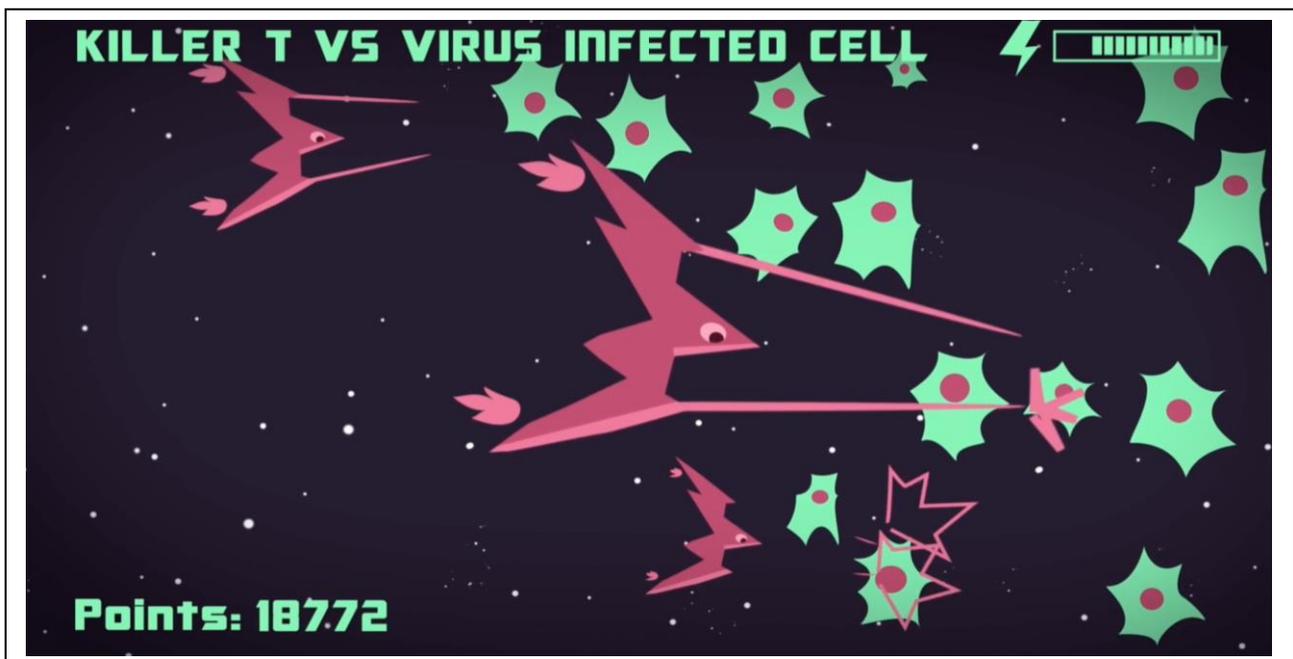


Key Stage 4 – An Animated Immune System

Notes for teachers

At a glance

Students engage in a creative group activity to review the immunity topic. Students will work in groups to conduct research before using stop motion technology to produce a short animated video focusing on specific aspects of the immune system topic. Students then present videos and take questions to teach their given immune system focus to their peers. With different groups working on different aspects of the immunity topic, presentations will enable students to review the majority of the topic through peer led teaching. This activity suits a revision or review lesson.



Learning Outcomes

- Review and explain action of immune cells in the immune response
- Students explain how vaccines and herd immunity work
- Students gain experience of working collectively on a group project
- Students gain experience of presenting work

Each student will need

- A copy of the student worksheet
- A copy of the student storyboard template
- Creative objects for producing stop animation (e.g. playdoh, coloured card, sharpies, etc.)
- Access to an internet enabled device and/or textbooks
- Use of a phone with camera and **stop motion studio** app (ideally 2 per group).
 - Stop motion studio is freely available on the App Store and Google Play





Possible Lesson Activities

1. Starter activity

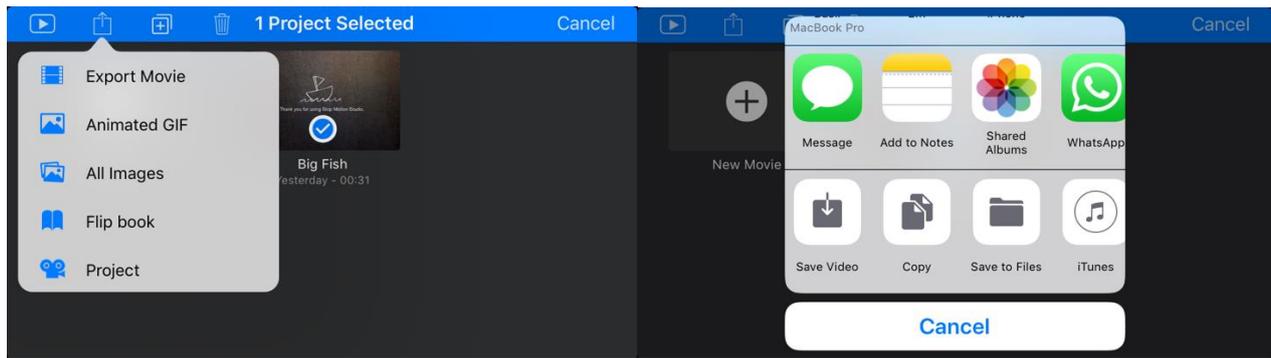
- Show Oxford Sparks animation 'Our immune system – the battle within' to introduce / reintroduce topic of immunity (See web links below).

2. Main activity: Research and story board

- Divide students into small groups (2, 3 or 4) and ensure that two students within each have access to the '**stop motion studio**' app on their phone (one student is sufficient to run the activity but two gives more protection against technical difficulties as students are able to share film projects with other app users). Although the app is intuitive, user instructions can be found at <https://www.cateater.com/support/en/stopmotion/stopmotion-main.html>.
- Assign a video topic to each group. Suggested video topics include but are not limited to:
 - The innate immune system: a stop animation demonstrating and explaining the role of external defences and phagocytes;
 - The adaptive immune system: a stop animation demonstrating and explaining the role of lymphocytes;
 - Vaccinations: a stop animation demonstrating and explaining how vaccinations result in long term immunity;
 - Herd immunity: a stop animation demonstrating and explaining the importance of herd immunity.
- Once a topic has been assigned to each group, students should conduct a research phase in preparation for their stop animation. Research may involve internet or textbook use. Suggested research websites include:
 - <https://www.bbc.co.uk/bitesize/guides/zs6q2p3/revision/1>
 - <https://alevelbiology.co.uk/gcse/immune-system/> (fairly advanced)
 - <https://revisionworld.com/gcse-revision/biology/human-body/immunisation-vaccination>
 - <https://www.bbc.co.uk/bitesize/guides/z2kvw6f/revision/1>
 - <https://www.freesciencelessons.co.uk>
- Students should use their research to complete the student storyboard worksheet. This will allow teachers to ensure that videos will have the correct quality of information before students begin focusing on the creative aspect of the task. This will also allow teachers to assess the scope of the project the students are planning and perhaps edit them to meet time and resource limits.

3. Main activity: stop motion production

- Students produce stop motion animation using their phone and stop motion app, the creativity objects they have chosen, and their story board.
- Once complete students share their animation with the teacher. The easiest way to achieve this is for students to save their video to files on their device and email them to the teacher. To do this, students should select their video, press export and select export movie. They should then choose 'save to files'. Once saved, this will then allow students to send the video as an email attachment which can be opened and presented on the staff computer and projector (see images below). Detailed technical support can also be found at the following website: <https://www.cateater.com/support/en/stopmotion/stopmotion-main.html>



4. Plenary

- Students present stop motion videos and take questions. Email out completed animations to class to ensure that each student has animations covering the immunity topic for future topic revision.

Web links

- Oxford sparks animation: Our immune system – the battle within
<https://www.oxfordsparks.ox.ac.uk/content/our-immune-system-battle-within>
- Suggested research links
 - <https://www.bbc.co.uk/bitesize/guides/zs6q2p3/revision/1>
 - <https://alevelbiology.co.uk/gcse/immune-system/> (fairly advanced)
 - <https://revisionworld.com/gcse-revision/biology/human-body/immunisation-vaccination>
 - <https://www.bbc.co.uk/bitesize/guides/z2kvw6f/revision/1>
 - <https://www.freesciencelessons.co.uk>
- Stop motion studio app support
<https://www.cateater.com/support/en/stopmotion/stopmotion-main.html>