Multimedia Fluid Mechanics Online- Homsy script for demonstration

Requirements-

- Use Firefox or Chrome at full screen (any issues zoom on or out)
- Visit www.cambridge.org/homsydemo

What is Homsy?

Multimedia Fluid Mechanics Online, funded by the National Science Foundation, and written and developed by a team of experts including G. M. Homsy, will soon be available online. The online resource will include the original DVD content fully optimised for all devices and screen sizes. It will allow users to **view animations and interact with virtual labs,** and will be MathJax enabled for accurate rendering of mathematical notation.

Multimedia Fluid Mechanics Online complements and will be compatible with all standard textbooks on fluid mechanics and includes eight modules providing short textual explanations of all standard topics with linked visuals.

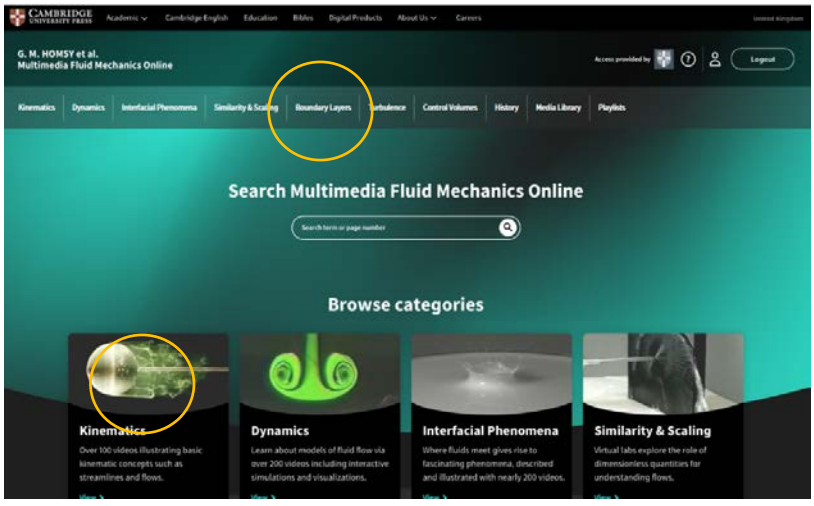
Key features:

- Contains **virtual labs** rebuilt for online experiments
- **Interactive simulations**
- **Pages describing theoretical development** are accompanied by **rollovers relating video material to theory**
- Functionality to save material in your own library

Walk through Demonstration

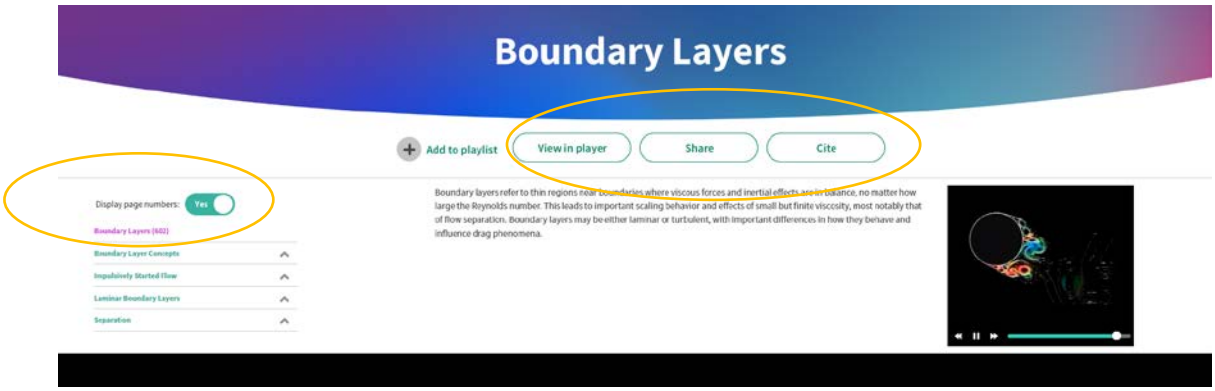
1) You will initially land on the main landing page in front of paywall

- **There are 8 modules corresponding to those available on DVD**. You can get to them via the image or the navigation bar.
- Only **Boundary layers is live**- this was chosen as it exhibits number of features that work on mobile and web and is reflective of overall functionality and types of content
- Click on '**Boundary layers'**

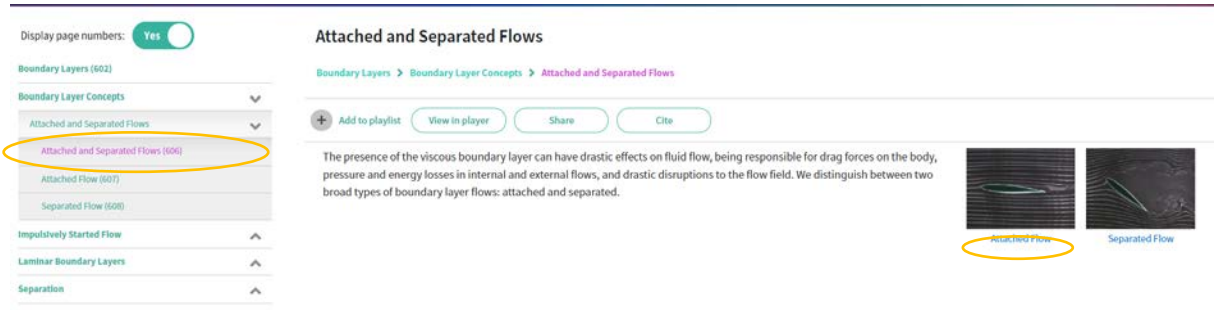


2) **On the Boundary layers landing page** the video on right gives overview of selections from entire module- this was opening video from the corresponding page on the old DVD.

- This page gives an overview of the module (what it is)
- Top buttons 'View in Player' 'Share' and 'Cite' **don't work in demo** but will be able to create playlist, cite and view in player when live
- Options on left-hand list are just a fraction of the full amount of options that will be available (150) for this module on live launch
- The list gives you the option to display page number- this page number corresponding to the original DVD pages. This is not currently live but will be on launch.



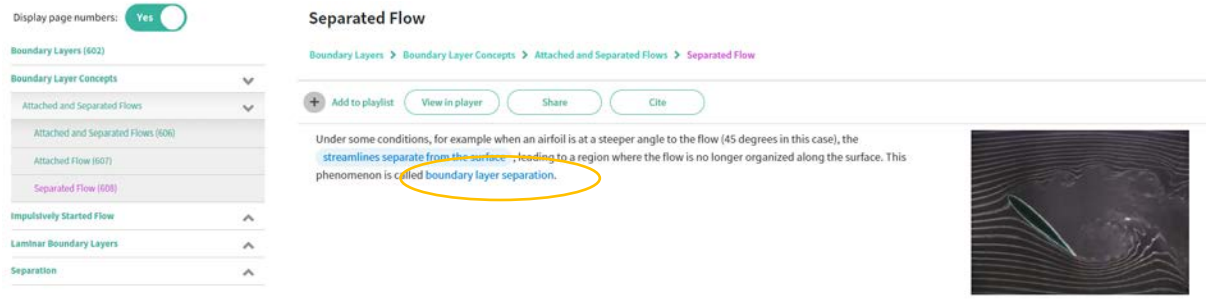
3) Select '**Attached and Separated Flows' (606)** from the left hand menu. This page includes a Cross-section of an aeroplane wing, hover over blue text it highlights the image relevant to this.



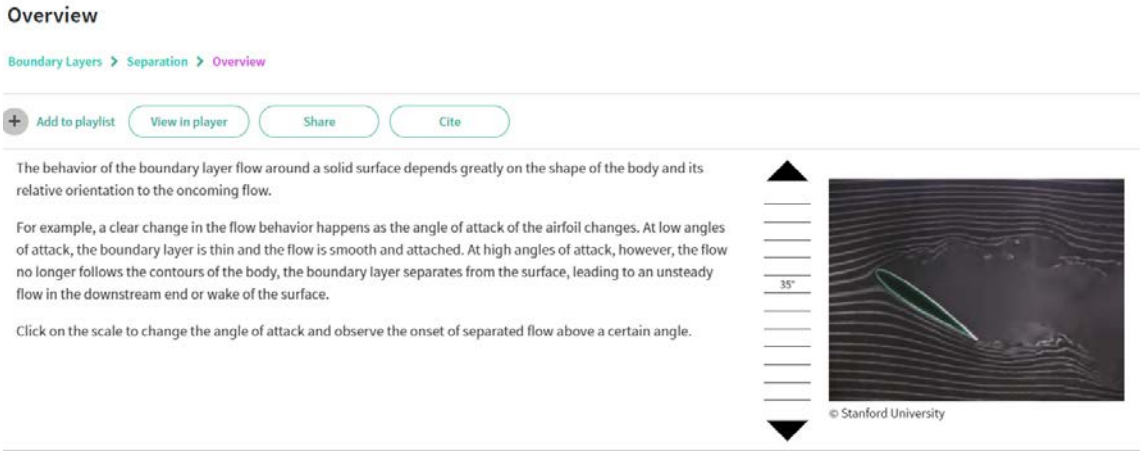
4) Click on **Attached flow (607) -** if you hover over the blue text in pale shaded areas (in this case **thin layer)** - this will highlight something in image that demonstrates this. In this case it's highlighted thin area around the wing.

5) Click on next page **Separated Flow (608)-**

- This shows an example of **blue in shaded area** (which illustrates something in the image) and **underlined blue text** (which will links to another page (638) if you click on it). Click on the **boundary layer separation text.**

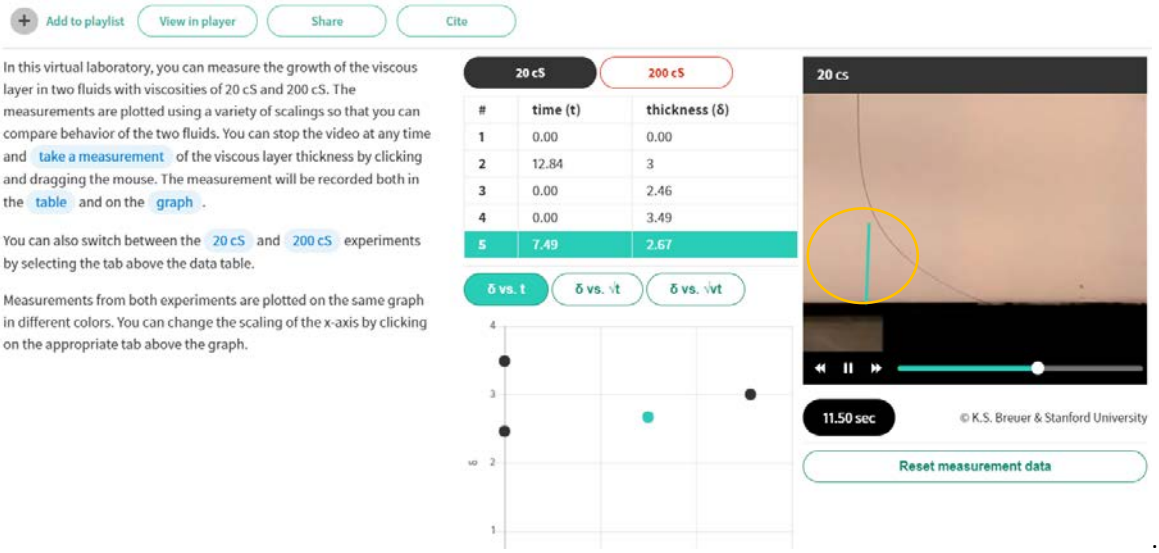


6) This brings you to the overview page (638) which shows an **interactive demo of the wing angle of attack at different angles**. The angle demonstrates why taking off on a plane for example it is bumpier or more unsteady as the flow no longer follows the contours of the wing. You can change the angle to visualise this (useful for aeronautical engineering for example).



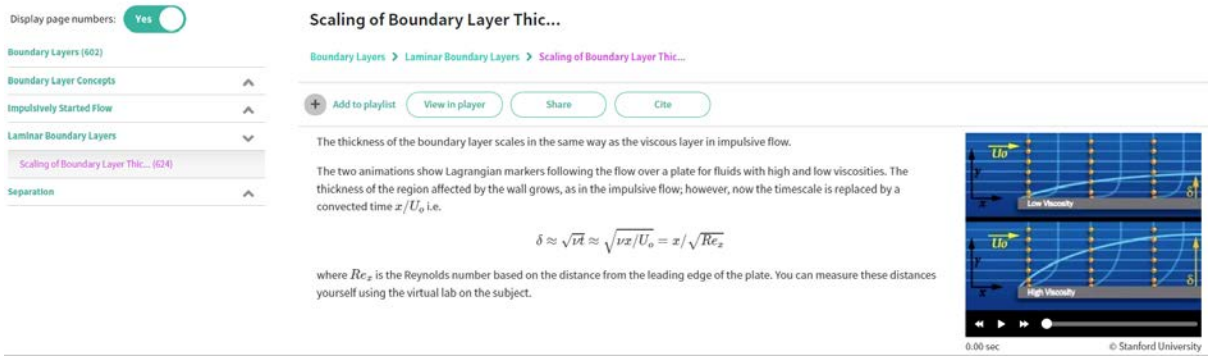
7) Now click on **viscous layer growth introduction (619) to see an overview of a lab.**

- Unlike on the DVD the instructions and lab are side by side so you can see it without toggling back and forth.
- This lab is what you'd do in a normal lab- **take measurement, record and plot**. On page 619, roll over text in a shaded area on the left and the appropriate visual will be highlighted'.
- Go to page 621, where the instructions and the lab are placed on the same page (unlike in the DVD).
- You can conduct your own experiments; click a row in the table, and start the video, and draw a vertical line where you think the boundary layer should end at a given instant. The value of delta and time is recorded in the table. Do the same in a different row till the table is filled. The data is plotted on a graph;
- You can plot different graphs, reset experiments and repeat at different viscosity to see its effect'



8) Now select '**Scaling of Boundary Layer Thickness (624).**

- This illustrates- LaTeX– the page is Mathjax enabled for accurate rendering of symbols (the formula below)
- This page shows a Video experiment for high and low viscosity and the formula that reflects this.



-