Lab Report Functionality Document

5/28/2014

The lab report will be linked directly to a specific assignment. This means that the lab report can take up most of the screen when the user is in the lab report tab.

Sections - These are defined as individual units within the lab report such as background, results, conclusions, etc. Sections can be moved within the lab report.

- At the top of each section, there is a text box that contains the name of the section with some suggested section names written in the text box. This text box is editable.
- Within the section box, there should be an option to either insert a:
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    - text box
    - image
- Each section can be minimized to only show the heading / text box of the section. At the right, you will see a trash can icon to delete a particular section and if you hover over the right side of the section, then you will be able to re-order the sections by dragging and dropping them into place.

Subsections - these are individual elements within the sections: text boxes or images.

- Subsections can be re-ordered within the section in which they are found but not outside of them.
- To edit a subsection, select the Edit button. Once a user starts to edit a section, this will convert to a save button (this may not be an icon but an actual button at the bottom with a cancel button).
- To delete a subsection, select the trash can icon. There should be a confirmation message for users to confirm that he/she would like to delete it.

- Text box: For the text box, we should model its functionality according to basic functionality available in text editors in Evernote or Google sites, such as:
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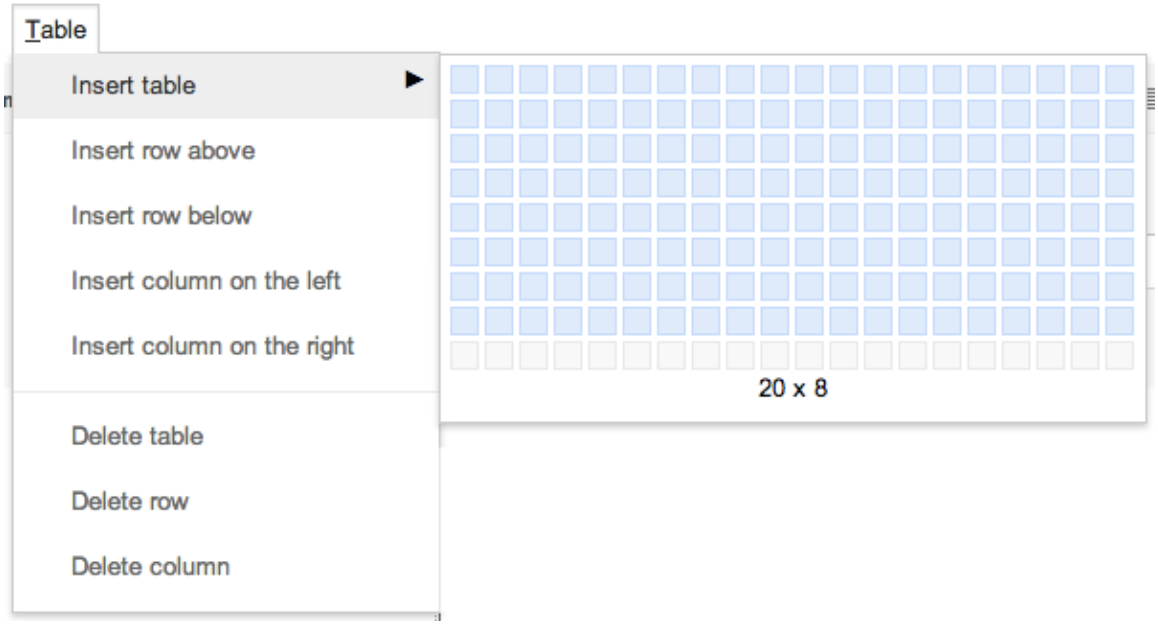
    - Fonts & font size - commonly available set of fonts such as in Google Sites. Worse case scenario only we provide a set of preset formatting options such as Heading 1, 2, 3 and Paragraph ala. edX.
    - Bolding
    - Italics
    - Underlining
    - Number list
    - Bullet list
    - Increase indent
    - Decrease Indent
    - Insert link
    - Remove link

- Table: Table functionality similar to that available in either Google sites or Evernote: (Alison's note is that the table functionality is second to the text box and image functionality)

- Insert table with a defined size according to user
- Insert row above
- Insert row below
- Insert column to the left
- Insert column to the right
- Delete row
- Delete column
- Delete table



- Image: for inserting an image, allow students to insert more than one image at a time from different sources, either from StarCellBio or from the outside. Allow images that are inserted in the same subsection at the same time can be displayed in different ways such as one per row, two per row or four per row —> this will result in the images needed to be adjusted accordingly.
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    - The images will have a default title attached to it when it is inserted. An example title will be: Experiment 1 - W.B. 1 - cdk2 blot. This will be an editable text box.

EXPORT/SUBMIT FUNCTIONALITIES

Save lab report: students should be able to save their work when they are done. An error message should appear if the student tried to quit the lab report before they have saved.

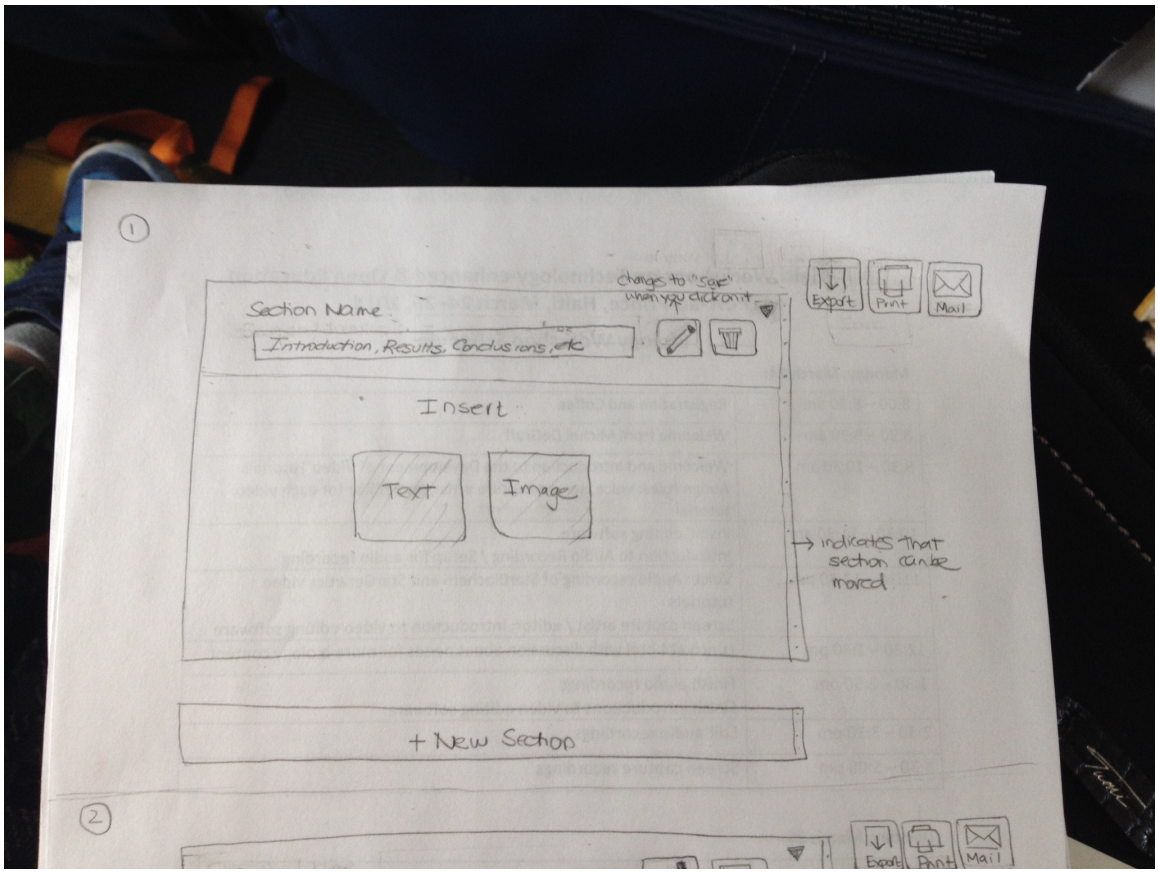
- We decided this is not relevant as it will automatically save for the student and you can save your work as you edit.
- Maybe we can add in a little notification message in the upper right or lower right corner to tell the student that their work is being saved.

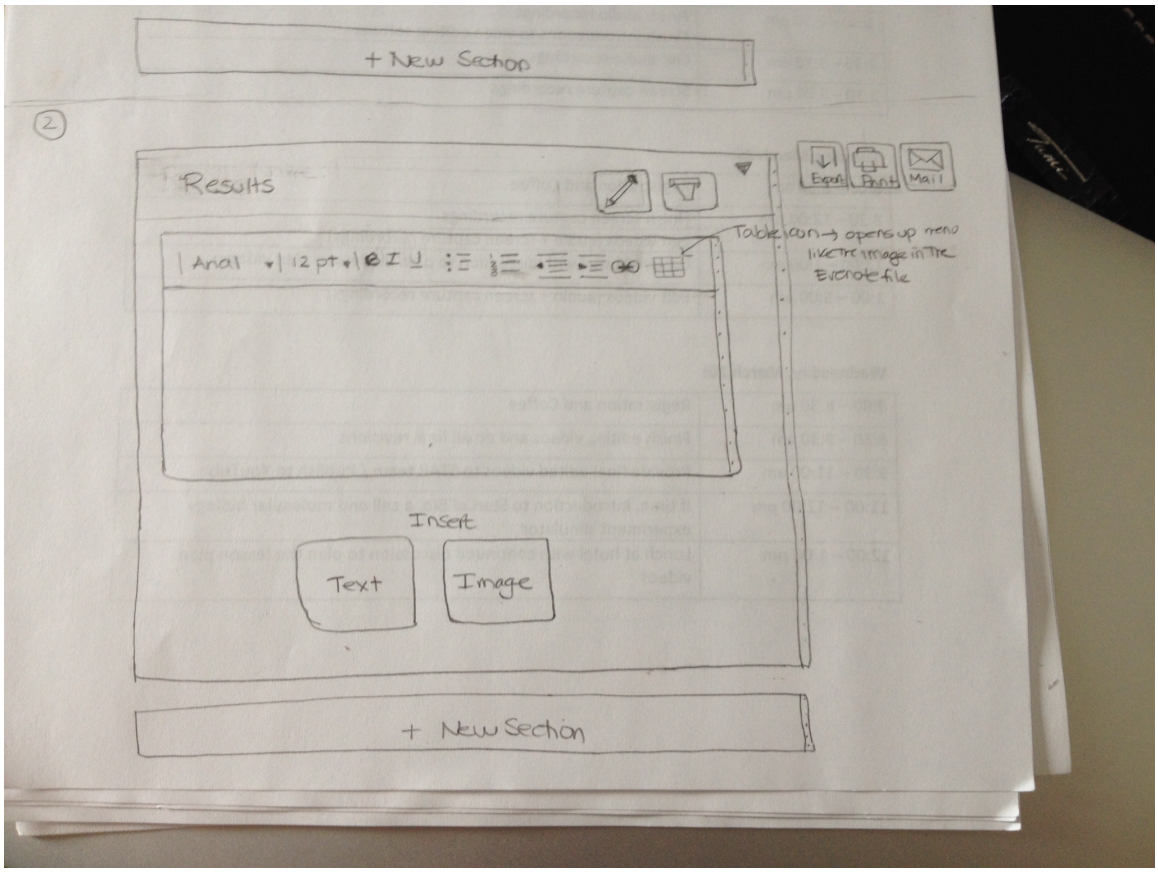
Send lab report to instructor: student should be able to email the lab report directly to their instructor.

Convert lab report into a PDF file: the Lab Report tool should allow students to print their lab report. To do this, the Lab Report tool should have the ability to convert everything into a single PDF file that can be:

- Printed
- Sent to instructor

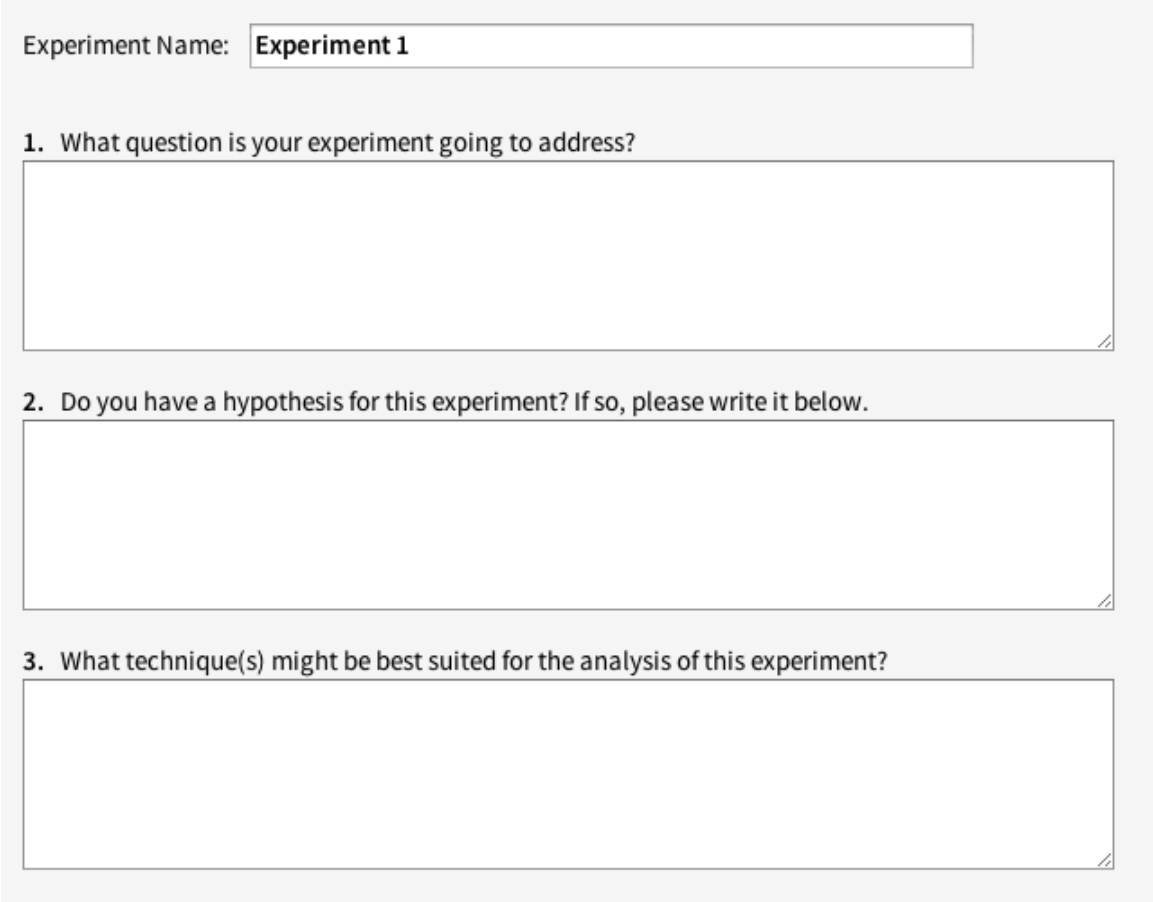
USER INTERFACE MOCK-UPS





MATERIALS THAT GO INTO THE LAB REPORT
Design Page

- The user will be able to select the design page for each experiment.
- Then the questions and student answers on the design page will be displayed. All of the questions/answers will be displayed together, not individual questions/answers.



Setup Page

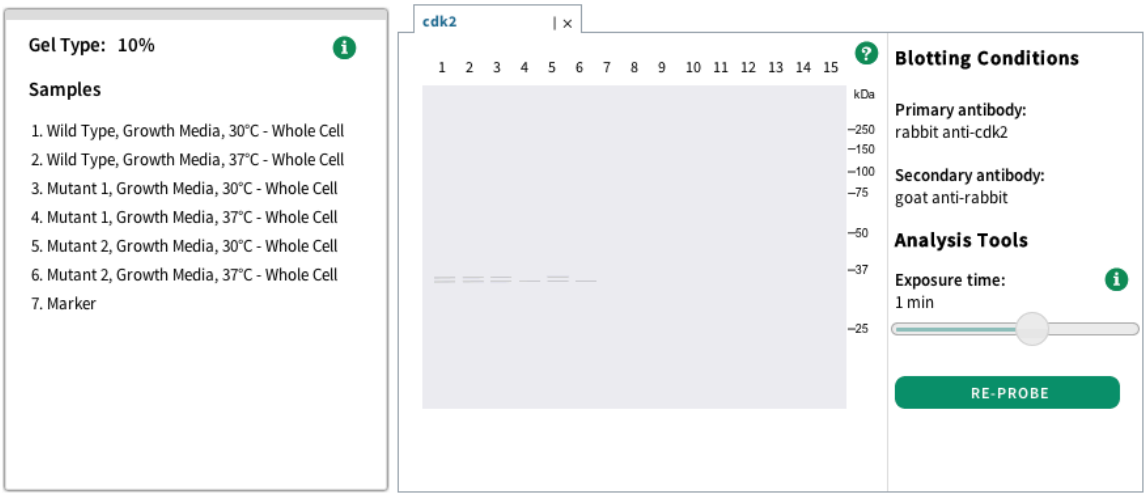
- The user will be able to select the experimental setup for each experiment
- Then in the lab report, a read-only version of the experiment setup table will be displayed:

	Strain	Treatment	Temperature
	Wild Type	Growth Media	30°C
	Wild Type	Growth Media	37°C
	Mutant 1	Growth Media	30°C
	Mutant 1	Growth Media	37°C
	Mutant 2	Growth Media	30°C
	Mutant 2	Growth Media	37°C

Experimental Techniques
Western blotting

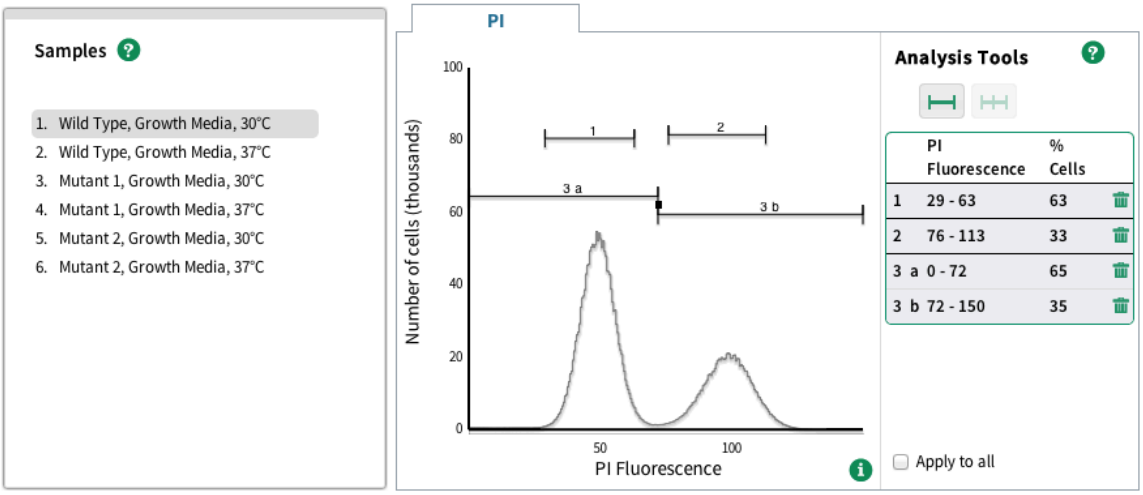
- The user will be able to select the particular blot name (cdk2, for example) within a western blot experimental technique (W.B. 1 for example).
- For each blot selected, the following information needs to be displayed: Gel Type %, Samples (in correct order), image of the blot with the primary and secondary antibodies that were used, and the last used exposure time.

- In the screenshot below, eliminate the exposure time slider, the "re-probe" button, and the '?' and 'i' icons.
- Note: If the entire sample name does not appear in the Samples window, then this would need to be written out completely as tool tips won't work in the lab report.



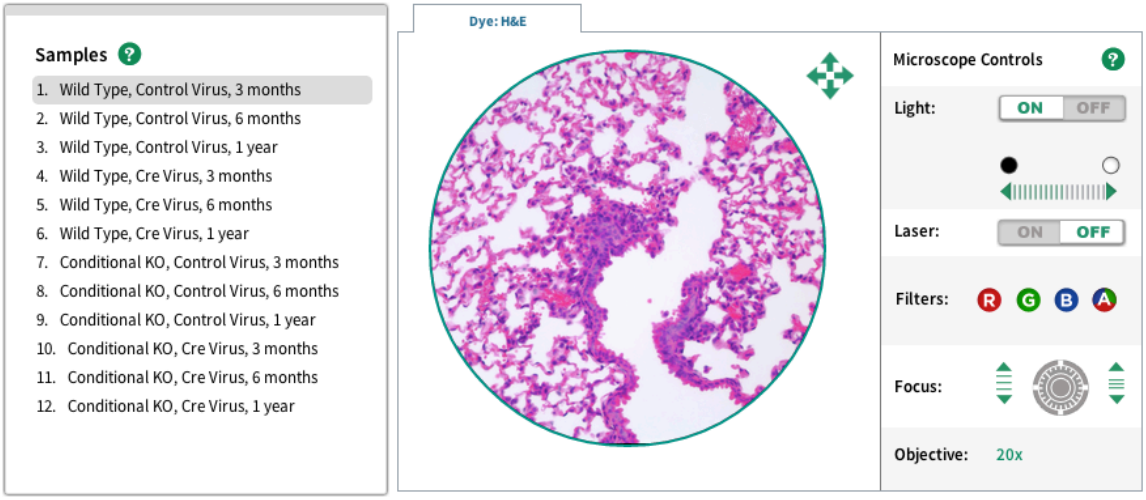
Flow Cytometry

- The user will be able to select the particular flow cytometry experimental technique (F.C. 1 for example), the sample name, and the analysis/conditions (dye/stain and PI for example).
- For each selected sample/analysis, the sample name, flow cytometry analysis/conditions, and its flow cytometry data will be displayed. The entire sample window should not be displayed. Think about whether the sample name is sufficient only in the title or if it should also be displayed elsewhere.
- As a default, we can show any analysis gates on the graph along with the accompanying table of data, but is there a way that the user can turn that off? We decided this is an advanced feature and will come when annotation tools are also available.
- In the screenshot below, you only need to show the relevant sample name, the flow cytometry analysis/conditions (tab label), the flow cytometry histogram + gates, and the table of analysis information. Format the image so that the "sample name - analysis type - conditions", histogram + gates, table
- Note: the table may need to be expanded if there are a lot of gates



Microscopy

- The user will be able to select the particular microscopy experimental technique (M. 1 for example), the sample name, and the analysis/conditions (dye/stain and H&E for example).
- For each selected sample/analysis, the sample name, microscopy analysis/conditions, and the (last saved) image in the view finder will be displayed. Format the image title: "Sample name - analysis - conditions - filter (if relevant)". The microscope controls do not need to be displayed.
- For IF images with multiple filters, will the user select the relevant filter or will all images be automatically displayed? For right now, let's go with each filter being displayed as a separate image in the add image window.



Remaining questions to address

1. IF images with different filters - how are they selected - in the add image window or are they all selected automatically for you when you select the sample name/analysis/condition?
2. Are all images/flow cytometry histograms displayed in the "Add image" window or only those that the student has looked at? At first, we will go with only those that have been looked at for microscopy.
3. Whether we should also display an outline of the lab report - possibly in a small window on the left side (like the assignments window). Sections can be re-ordered easily within this window. Sections could also be deleted within that window as well.