BooKS PD Virtual Experiment Activity (11/03/2012)

In today's activity, we are going to create a Virtual Dissolved Oxygen Experiment using iVirtualWorld, a tool designed for educators like you to generate educational virtual experiments for your students. This document will instruct you step by step to reach our goal.

Step 1 Login *iVirtualWorld* Website

1. Please visit BooKS website (books.ohio.edu)

2. Select "Virtual Boat" menu

3. Click *iVirtualWorld* link and you will be brought to *iVirtualWorld* website

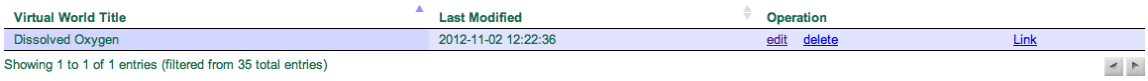
4. Your username and password for login are:

username:

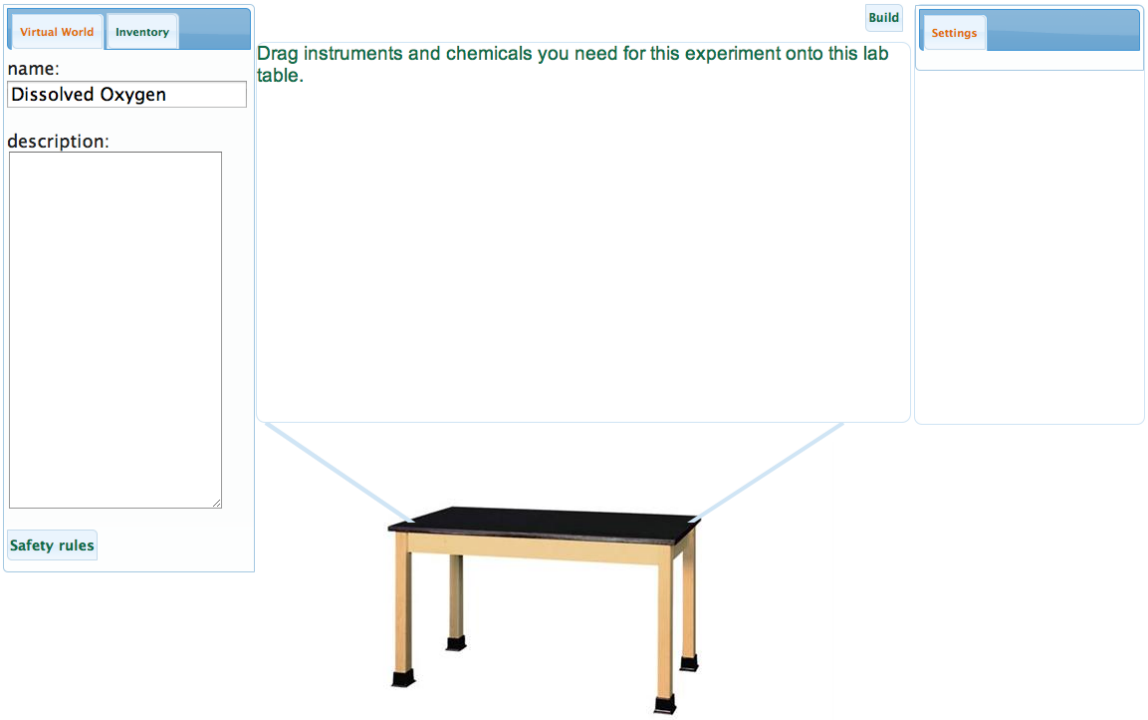
password:

Step 2 Enter your virtual experiment design webpage

1. **Select My Worlds menu item at the right top corner, then you will see the Dissolved Oxygen prepared for you listed like this:**

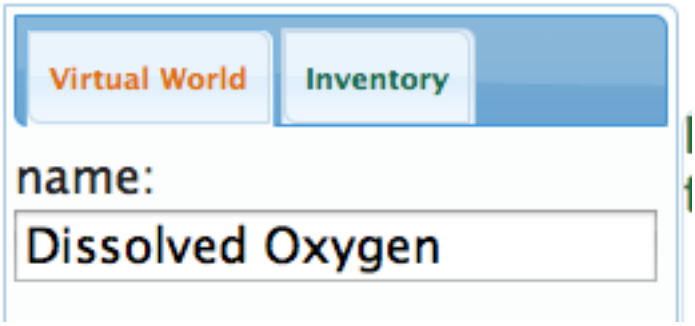


2. **Click <u>edit</u> link to enter the virtual experiment design webpage:**

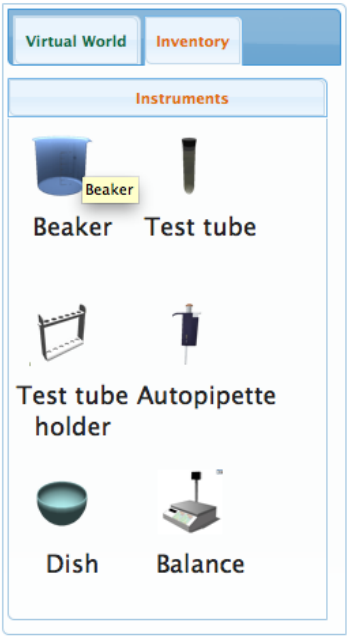


Step 3 Get familiar with your inventory

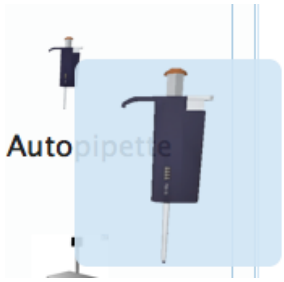
1. **Click the Inventory menu at the left top side**



2. **Then you will see all the instruments in your inventory:**

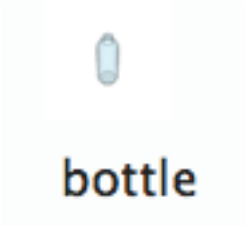


3. **Scroll your mouse wheel to see more instruments**
4. **Left click any icon to enlarge the picture of this instrument. Left click the large picture to close it.**

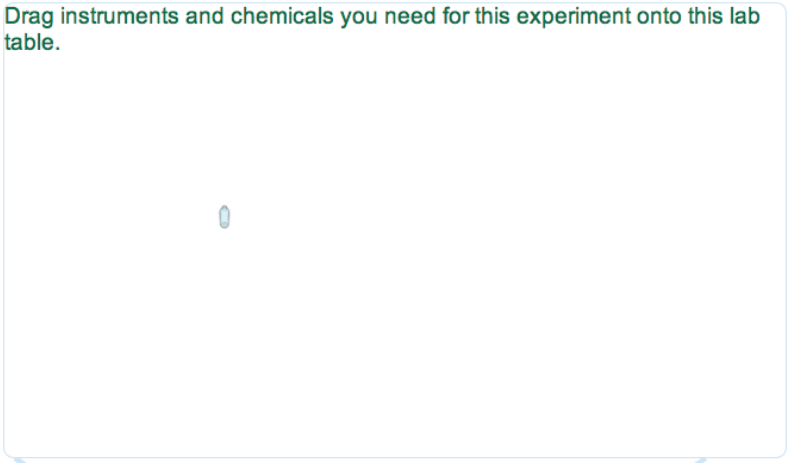


Step 4 Add a bottle of water sample to your virtual experiment

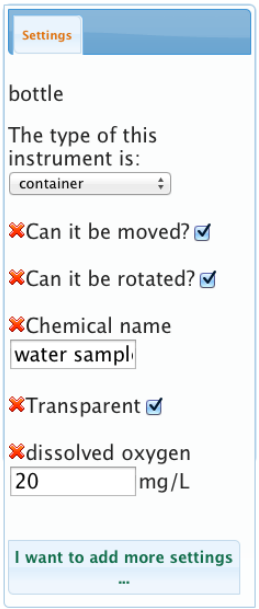
1. **Scroll your mouse wheel down to the end of the inventory list to find the "bottle" item.**



2. **Drag and drop it onto your lab table top**



3. **Left click this bottle icon, at the right side, you will see the settings. Change the settings to below:**



The type of this instrument is **Container**

Check "**Can it be moved?**" checkbox

Check "**Can it be rotated?**" checkbox

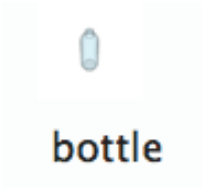
Chemical name means what you want to fill into this container. Since we are preparing a bottle of water sample, please type "**water sample**" here

Since we are going to observe the color change of the water sample, we want the bottle to be transparent. Check "**Transparent**" checkbox

This is a bottle of "virtual" water sample. So we have to tell the computer what is our target **Dissolved Oxygen**. (If you don't see any item buy default, you can click "**I want to add more settings …**" to add them.)

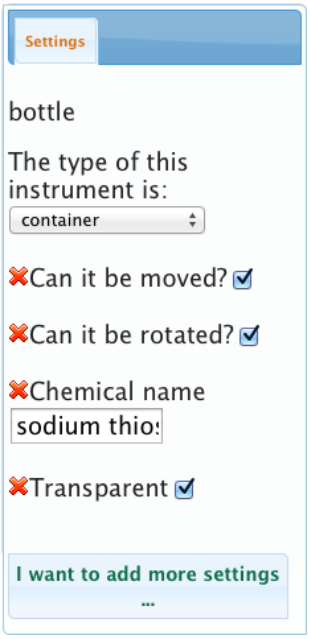
Step 5 Add a bottle of sodium thiosulfate to your virtual experiment

1. **Let's move back to the inventory first.**
2. **Scroll your mouse wheel down to the end of the inventory list to find the "bottle" item.**



3. **Drag and drop it onto your lab table top**

4. **Left click this new added bottle icon, at the right side, you will see the settings. Change the settings to below:**



The type of this instrument is **Container**

Check "**Can it be moved?**" checkbox

Check "**Can it be rotated?**" checkbox

Chemical name means what you want to fill into this container. Since we are preparing a bottle of sodium thiosulfate, please type "sodium thiosulfate" here (no quotes)

Check "**Transparent**" checkbox just for fun. You can leave it unchecked too.

(If you don't see any item buy default, you can click "**I want to add more settings …**" to add them.)

Step 6 Add a squeeze bottle of manganese sulfate to your virtual experiment

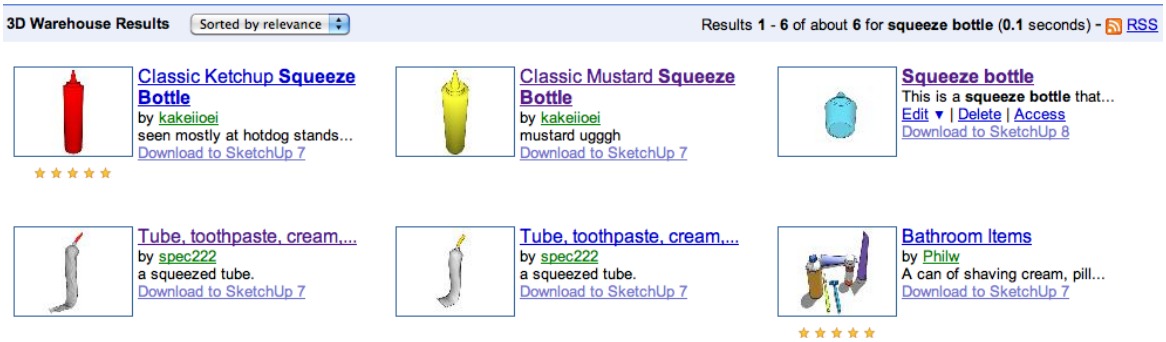
1. **Let's move back to the inventory again.**
2. **We want to use a squeezable bottle to store manganese sulfate just like what is in the Lamotte toolkit. Scroll your mouse wheel down to the end of the inventory list to find your "squeeze bottle" item.**

But Wait! You don't see the squeeze bottle? Oh! Our software developer did not know that you want to use this kind of instrument so they did not add it to the system. However, they did provide a feature for you to add your favorite instrument from outside resource by yourself. Let's try it out.

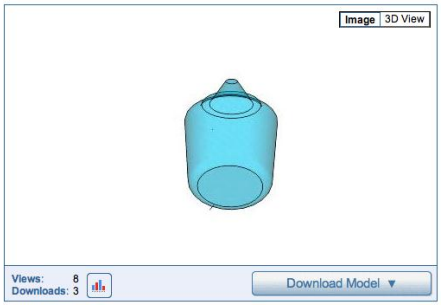
Google Warehouse is a very nice place to find many free 3D models. We are going to leave the *iVirtualWorld* website temporarily and go to Google Warehouse to see if we can find something like a squeeze bottle. Type http://sketchup.google.com/3dwarehouse/ in your web browser or you can find the Google Warehouse link at BooKS website, under Virtual Boat menu.

Let's search for "squeeze bottle" like this:

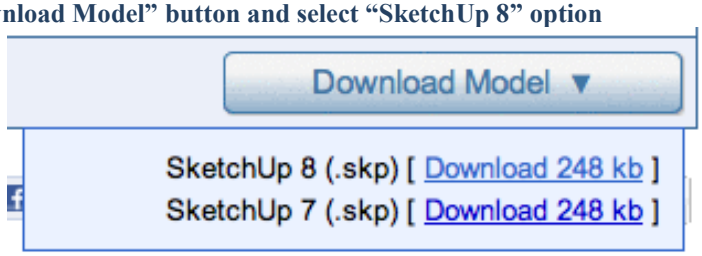
Here is the search result:



The third one looks good; let's choose this one (you can choose anyone you want actually).

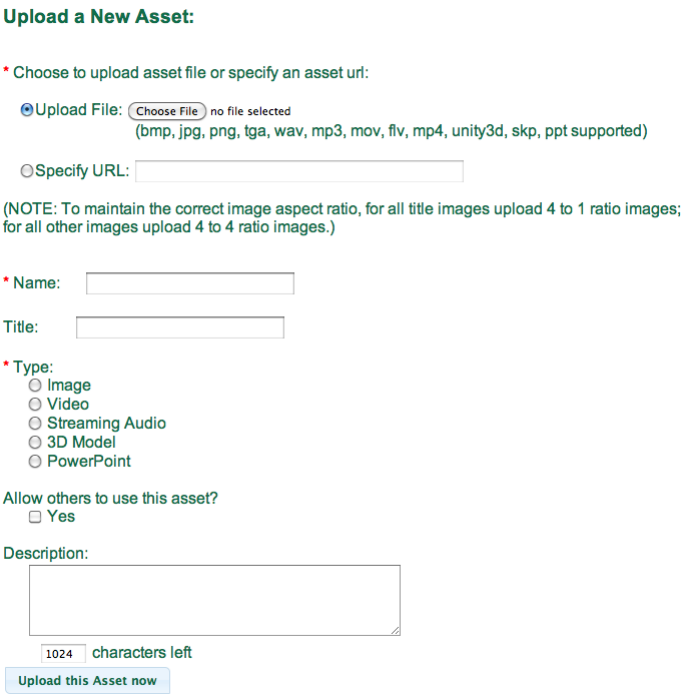


Click the "Download Model" button and select "SketchUp 8" option



Save the Sketchup model to your hard disk and save it as any name you want. We suggest you use "squeeze bottle". (*Please make sure that the name starts with letters not numbers or other characters. Therefore "1_squeeze_bottle" is not a legal name for our system.*)

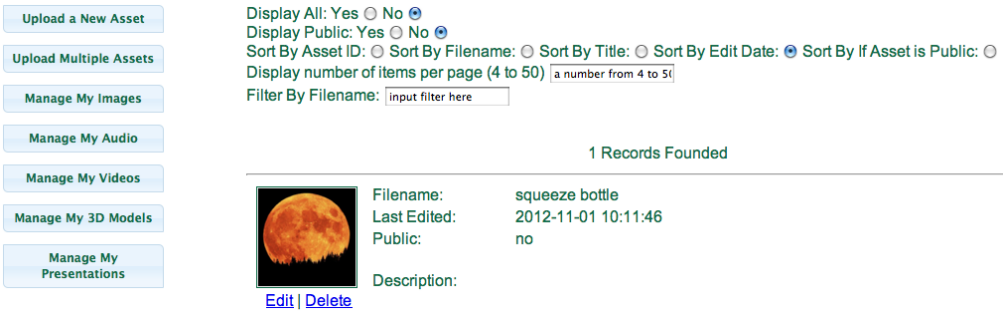
All right! We have downloaded the squeeze bottle model. Now it's time to upload it to *iVirtualWorld* website. I hope still have your *iVirtualWorld* website in your web browser. Go to *iVirtualWorld* website, this time select "My Assets" menu item at the right top corner. You will see the upload page like this:



Choose the squeeze model downloaded just now, and double check you have a good name. For some unknown reason the Chrome or Safari web browser will fill out automatically with a name like "C:\fakepath\squeeze bottle". That's not what we want. If you see this weird name, simply change it to "squeeze bottle".

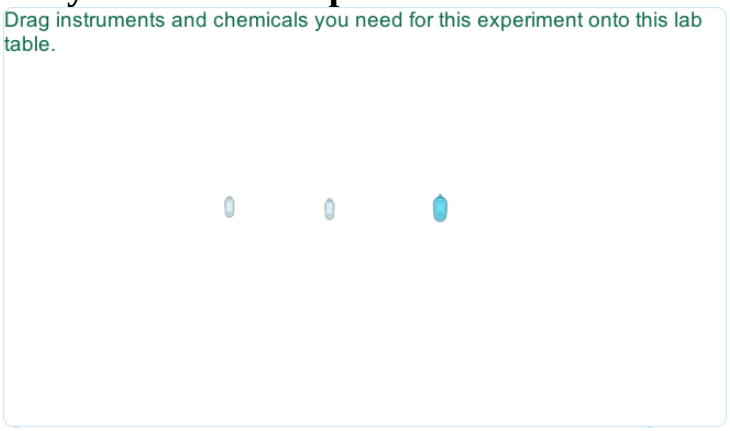
The last step is to click "Upload this Asset now". And hopefully you will see

You can click "Manage My 3D Models" to double check this. If you see your squeeze bottle listed here, then you are done!

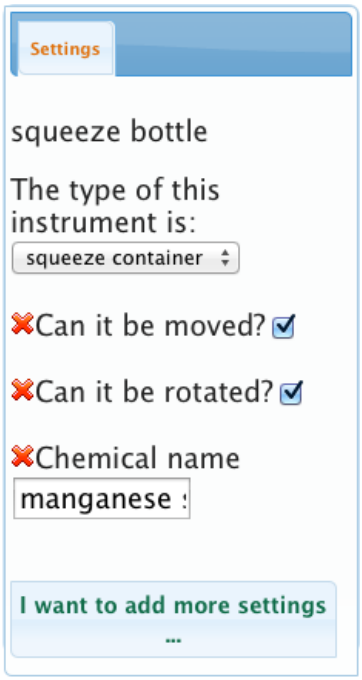


3. Now we have already uploaded the squeeze bottle. We can go back to the virtual experiment design webpage. Remember how to get to there? Select "My Worlds" menu item at the right top corner and click "edit" link of your virtual experiment.

4. **Click the Inventory menu at the left top side**
5. **Scroll your mouse wheel down to the end of the inventory list to find your "squeeze bottle" item. (This time you will see it)**
6. **Drag and drop it onto your lab table top**



7. **Left click this new added squeeze bottle icon, at the right side, you will see the settings. Change the settings to below:**



The type of this instrument is **Squeeze Container**

Check "**Can it be moved?**" checkbox

Check "**Can it be rotated?**" checkbox

Chemical name means what you want to fill into this container. Since we are preparing a bottle of manganese sulfate, please type "manganese sulfate" here (no quotes)

(*If you don't see any item buy default, you can click "**I want to add more settings …**" to add them.)*

Step 7 Add a squeeze bottle of alkali-iodide-azide to your virtual experiment

This step is almost the same as the previous step except the Chemical name here should be “alkali-iodide-azide” (no quotes).

Step 8 Add a squeeze bottle of sulfuric acid to your virtual experiment

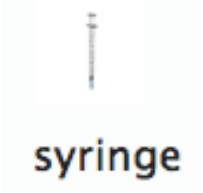
This step is almost the same as the previous step except the Chemical name here should be “sulfuric acid” (no quotes).

Step 9 Add a squeeze bottle of starch to your virtual experiment

This step is almost the same as the previous step except the Chemical name here should be “starch” (no quotes).

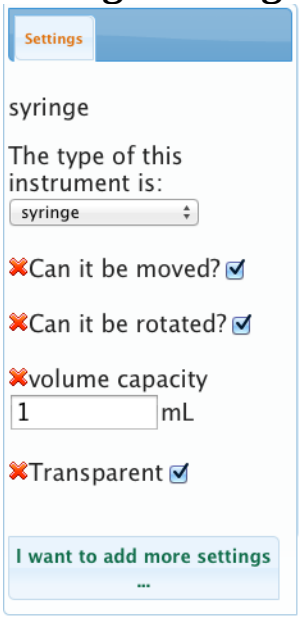
Step 10 Add a syringe to your virtual experiment

1. **Let's move back to the inventory again.**
2. **Scroll your mouse wheel down to the end of the inventory list to find your "squeeze bottle" item.**



3. **Drag and drop it onto your lab table top**

4. **Left click this new added syringe icon, at the right side, you will see the settings. Change the settings to below:**



The type of this instrument is **syringe**

Check "**Can it be moved?**" checkbox

Check "**Can it be rotated?**" checkbox

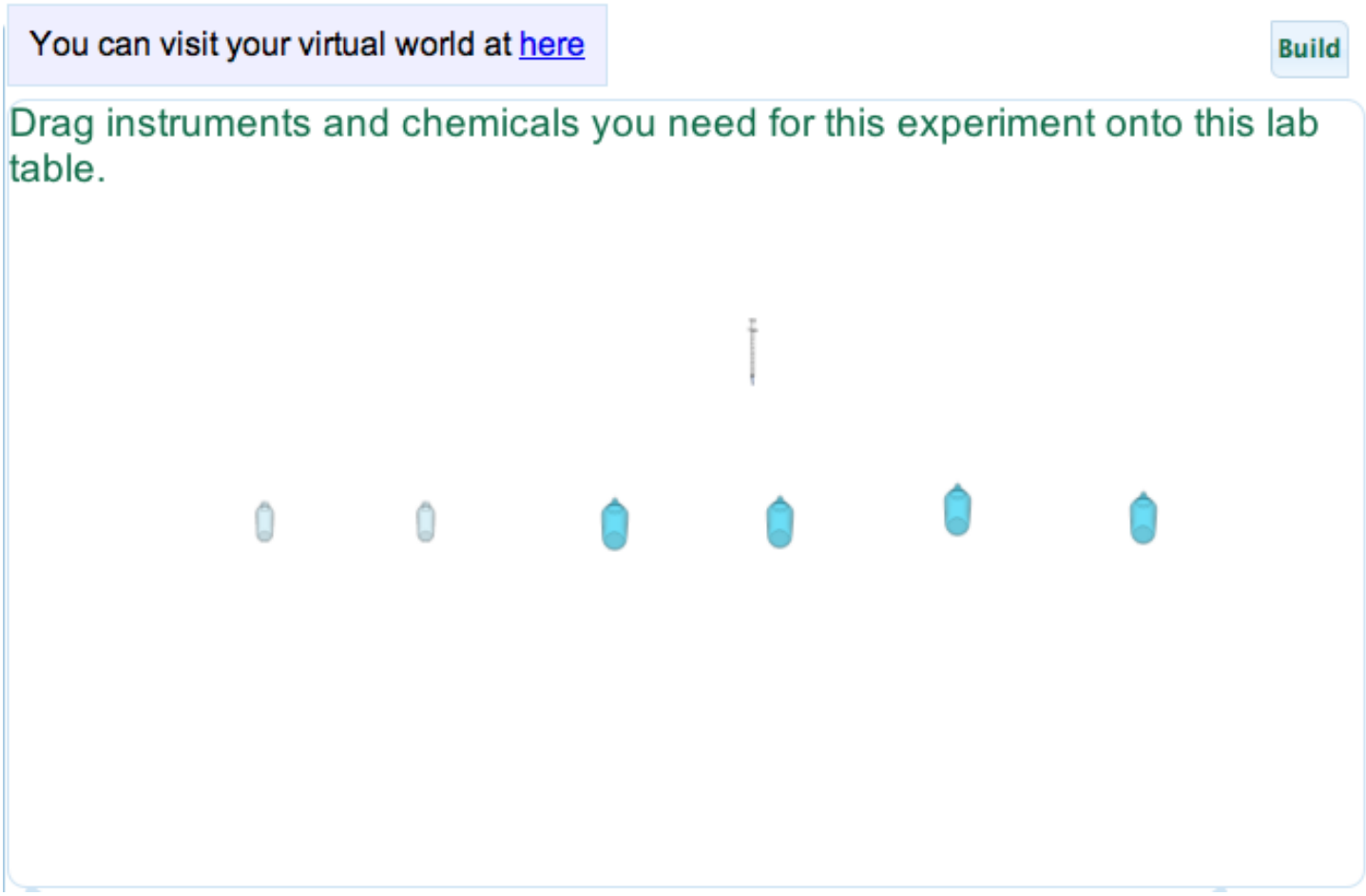
Volume capacity means at most how much solution this syringe can hold

Check "**Transparent**" checkbox

(Again, if you don't see any item buy default, you can click "**I want to add more settings …**" to add them.

Step 11 Build your virtual experiment

To this point we are pretty much done. Good job!
Now let's click the "Build" button



Click the link to go to your virtual experiment and play with it.