

Chat log of 9<sup>th</sup> MIWoSE, “Oddprofessor’s Science Center”

- Date: 9 Nov, 2013
- Speaker: Vicki Robinson (Oddprofessor Snoodle in SL), Associate Professor at the National Technical Institute for the Deaf at Rochester Institute of Technology.
- <http://wallacecenter.rit.edu/tls/teaching-physics-immersive-3-d-environment>
- Participants: AkashaKokouu, Almond Andel, Bingo Rydell, Dae Miami, Janira, Jodeg Janus, Marco Bakera (punktman), motoko Moonwall, Nat Ure (nat.spirt), Patio Plasma, Pell Shmit, Shailey Garfield, Strange Nightfire, Swairard , Veritas Raymaker, Zen Zeddmore,

[06:02] Yan Lauria: Then

[06:02] Yan Lauria: We'll start, OK? Vicki

[06:03] Swairard: no ok

[06:03] Swairard: we want voice

[06:03] Vicki: OK, ready when you are.

[06:03] Vicki: I can do both.

[06:03] Yan Lauria: ahaha

[06:03] Swairard: good

[06:03] Swairard: you do just that

[06:03] Yan Lauria: wait a moment

[06:03] motoko Moonwall: yes , I can

[06:04] Jodeg Janus: ok now I works

[06:04] Jodeg Janus: I tp home and back again

[06:04] Yan Lauria: Oh, then I'll try same thing

[06:05] Vicki: OK, I'll wait.

[06:05] Vicki: Dae, welcome.

[06:05] Vicki: I'm glad you came.

[06:05] Dae Miami: sure

[06:05] Dae Miami: happy to come

[06:05] Jodeg Janus: If anybody still has voice chat problems, please teleport yourself to an other land for few seconds and teleport back here again. It should fix it.

[06:06] Yan Lauria: I'm sorry I give-up to hear voice

[06:06] Jodeg Janus: yes indeed

[06:06] Yan Lauria: Ladies and gentlemen

[06:06] Dae Miami: my school is setting up a virtual online physics class

[06:06] Dae Miami: so this will be very helpful

[06:06] Yan Lauria: Now we start 9th MIWoSE: Workshop on Science Exhibit in online 3D Environment

[06:06] Yan Lauria: I'm a curator of Abyss Observatory and an organizer of this workshop.

[06:06] Yan Lauria: MIWoSE workshop has 4 purpose. Please see MIWoSE web page later.

[06:06] Yan Lauria: <http://aquarobo.com/abyss/MIWoSE.htm>

[06:07] Yan Lauria: Today's speaker is Oddprofessor Snoodle,

[06:07] Yan Lauria: Vicki Robinson, Associate Professor at the National Technical Institute for the Deaf at Rochester Institute of Technology.

[06:07] Yan Lauria: Vicki has been teaching physics to deaf students for 35 years.

[06:07] Yan Lauria: Then, Vicki please!

[06:07] Vicki: OOps, please don't advance my slides for me!

[06:07] Vicki: I'll get all confused. ☺

[06:08] Yan Lauria: ahaha

[06:08] Vicki: OK, Good morning.

[06:08] Nat Ure (nat.spirt): morning

[06:08] Vicki: Hello, and welcome to Oddprofessor's Museum and Science Center. I'm very glad to see you here today.

[06:08] Vicki: Slide 2: NTID/RIT

[06:08] Vicki: I teach physics to deaf college students at the National Technical Institute for the Deaf in Rochester NY. I have been there for 35 years, and during much of that time have tried to infuse as much technology as I can into instructional delivery.

[06:08] Vicki: Because it is particularly hard for a deaf student to make sense of word problems, I have looked for ways to make physics instruction more visual.

[06:08] Vicki: Slide 3

[06:08] Vicki: In 2008, RIT established RIT Island and invited faculty to propose projects. I was attracted to the idea of a 3-D teaching/learning experience, so I designed my project and

[06:09] Vicki: Slide 4

[06:09] Vicki: ... my first Second Life plot was created. I met with a student who would do the building and scripting for the activity I wanted.

[06:09] Vicki: I showed her the lab equipment that I wanted her to duplicate (except I wanted it REALLY BIG). She built it, we played with it and tweaked it until I got what I thought I wanted. And I invited my students in.

[06:09] Vicki: It was a disaster. In sorting through the wreckage I realized a few things that, in my enthusiasm, I had disregarded.

[06:09] Vicki: First, I had to spend a lot more time inworld building my own skills so that I could teach my students some basic SL moves.

[06:10] Vicki: Second, I had wildly overestimated the students' familiarity with virtual worlds. I had naively subscribed to the stereotype that all of the young'uns played video games. Uh, wrong.

[06:10] Vicki: Third, I needed to be much more clear about why we were in Second Life and what I hoped they would get from the experience.

[06:10] Vicki: Fourth, they needed very specific instructions for the activities, at least at first.

[06:10] Vicki: And fifth, I needed a critical mass of activities. One activity can be blown off. An

entire suite of activities, well, that's something you can get your teeth into.

[06:10] Vicki: Slide 5

[06:10] Yan Lauria: sorry, Vicki, a little more slowly

[06:10] Vicki: Let me read this for you: " Look at the table below. It shows the position of a moving object at various times. (This is similar to the data you took in Lab #2.)" Let me repeat: "This is similar to the data you took in Lab #2." See that? "Lab #2."

[06:11] Vicki: Well! A very disgruntled student accused me of gross unfairness. How was he supposed to know that the labs were included in the test? After asking some probing questions,

[06:11] Vicki: it became clear that this student felt that homework was his primary learning experience, and labs were things to do, write up, and forget.

[06:12] Vicki: Don't we all assume that labs were meant to help homework make sense, and vice versa? Something was breaking down for this young man. He interpreted labs as elaborate hoops to jump through to get a grade.

[06:12] Vicki: It didn't seem to click that his homework and his labs focused on the same things.

[06:12] Vicki: Slide 6

[06:12] Vicki: Some of my students were perceiving their lab work as being completely separate from their homework, and therefore not fair game for assessment. So

[06:13] Vicki: Slide 7

[06:13] Vicki: how was I to bring the lab to the homework?

[06:13] Vicki: Slide 8

[06:13] Vicki: My science center is meant to do just that, bring the lab to the students where ever they are, when ever they want to work.

[06:13] Vicki: Slide 9

[06:14] Vicki: I model my SL lab activities after activities that I assign in real life. For example, here is an **air track**. If you've taken a physics class, you have probably run into one of these.

[06:14] Vicki: Slide 10

[06:14] Vicki: My SL air track is bigger, and it can talk to you. Most of my equipment does its own measuring, presenting data to my students to use. They don't get all caught up in the measurement process, which can happen in the real world.

[06:14] Yan Lauria: aha

[06:15] Vicki: Slide 11

[06:15] Vicki: Students are given assignments (homework) that require them to come to SL to get their data. The assignments are online, and they are set up to accept the students' data, and to evaluate their numeric responses on the fly.

[06:16] Vicki: Slide 12

[06:16] Vicki: I'm going to run through these slides very quickly, just to give you an idea of what's out there. This is an exercise in **volume displacement**. That giant ball drops into a 9-m tank of water

[06:16] Vicki: Slide 13

[06:17] Vicki: and the water level rises. The water tells you its new depth, and you get to figure out the volume of the ball. The volumes of successive balls are randomly determined.

[06:17] Vicki: [Slide 14](#)

[06:17] Vicki: [Working in Second Life also encourages collaboration](#). This illustrates a time when three of my students, at different places on campus, met to work on some homework.

[06:18] Vicki: I have sensors that email me when anyone comes into my Science Center, so I just dropped by to see if I could help. All of this at 9 PM. How fun is that?

[06:18] Shailey Garfield: [yes, so right, Odd Professor about collaboration in SL](#)

[06:18] Vicki: I'm glad you agree; SL is perfectly set up for that.

[06:18] Vicki: [\(SLIDE 15\) Vector Components](#)

[06:18] Patio Plasma: [The essence of a social virtual world](#)

[06:18] Vicki: Are any of you math teachers? **Vector components** is something that my students struggle with. This activity is not an assignment, it's for practice.

[06:18] Dae Miami: [I have taught math](#)

[06:19] Vicki: You allow the vector to rotate, stop it anywhere you like, record the angular position and the magnitude and calculate the components. In the meantime, the vector will tell you the magnitudes of the components, and allow you to see them as well.

[06:19] Dae Miami: [I have taught vectors graphically](#)

[06:20] Vicki: I do that too, but the computational method is one that they need to understand as well.

[06:20] Vicki: [\(SLIDE 16\) Vector Addition](#)

[06:20] Vicki: Once they can calculate components, they go on to finding the sum of three vectors. They let the vectors rotate, stop them at any point, record the magnitudes and angular positions of the vectors, and calculate the sum.

[06:20] Dae Miami: [I agree](#)

[06:21] Vicki: [\(SLIDE 17\) Volume](#)

[06:21] Vicki: **Calculating volume** is a challenge for some students, although they are all familiar with the concept. This activity allows them to randomly change the dimensions of six geometric shapes, and calculate their volumes.

[06:21] Vicki: [\(SLIDE 18\) Area](#)

[06:21] Vicki: **Calculating Area**. This is the same concept as the volume calculations, but this time for the area of 4 regular shapes. Not too exciting, but often necessary.

[06:22] Vicki: [\(SLIDE 19\) Archimedes Principle](#)

[06:22] Vicki: **Archimedes Principle** and **Buoyant Force**. This activity follows a real-world lab in which students submerge small aluminum cylinders in several different liquids to see what the effect on the cylinders' apparent weights is.

[06:23] Vicki: Here, they lower a large copper sphere into three unknown liquids, and use the buoyant force to calculate the specific gravity of the liquids.

[06:23] Vicki: [\(SLIDE 20\) Volume Displacement & Density](#)

[06:23] Vicki: **Volume Displacement and Density**. Students can rez any of five different objects (each a different material from the others), drop them into a tank of water, and see what happens! Again, this is analogous to a lab they do in their classroom.

[06:23] Vicki: (SLIDE 21) **Volume Displacement & Buoyancy**

[06:23] Vicki: **Volume displacement and buoyancy**. This is an activity in which students use volume displacement and buoyant force to calculate the densities of two liquids, and two spheres. There is a great deal of deductive reasoning in this activity.

[06:24] Vicki: (SLIDE 22) **Rotation of Rigid Bodies & MOI**

[06:24] Vicki: **Rotation of rigid bodies, moment of inertia and torque**. Just what it says!

[06:24] Vicki: Students can set any of three rigid uniform shapes rotating about a central axis, gather data on the object's angular velocity and answer lots of questions about acceleration, moment of inertia, and torque. This is a favorite for group work.

[06:25] Vicki: (SLIDE 23) **Uniform Circular Motion**

[06:25] Vicki: **Uniform circular motion**. If you've ever taken physics, you have no doubt answered questions involving bugs on rotating turntables. Well, I could do no differently.

[06:25] Vicki: (SLIDE 24) **Free Fall & Acceleration of Gravity**

[06:25] Vicki: **Free fall and the acceleration of gravity**. Each of these towers has a different gravitational field inside of it.

[06:25] Vicki: You can drop spheres, gather information about their speeds and the time to transit two rings, and calculate the acceleration of gravity in each one.

[06:26] Vicki: (SLIDE 25) **Buoyancy: Why do some things float?**

[06:26] Vicki: One of the labs that is the most fun to do is to drop various objects into 3 different liquids.

[06:26] Vicki: Students keep a record of which objects **float** and which **sink**, and they use the densities of the objects and the liquids

[06:26] Vicki: to come to a general rule that will permit them to accurately predict whether a particular object will sink or float

[06:26] Yan Lauria: **Do you have tool to measure acceleration in SL?**

[06:26] Vicki: in a particular liquid. They get to test their hypothesis here. The big orange ball announces its mass and volume. Students make their predictions...

[06:27] Vicki: I don't know about acceleration. I don't think so. Acceleration is very hard to control in SL because you have to do it by controlling the net force or the net torque on an object.

[06:27] Patio Plasma: **Yan talk to me about the acceleration meter**

[06:27] Nat Ure (nat.spirt): **I don't think sl has the concept of force?**

[06:27] Vicki: I will!

[06:27] Vicki: Yes, Nat, it does.

[06:28] Vicki: You can apply either a steady force, or an impulse

[06:28] Vicki: Either one.

[06:28] Vicki: (SLIDE 26) **This one floats**

[06:28] Vicki: and then test them. Some of these spheres sink, others float; their volumes and masses are randomly determined. This one floats!

[06:28] Vicki: (SLIDE 27) Density Comparison

[06:28] Vicki: **Density** is a derived concept that involves thinking about mass and volume simultaneously. My students frequently come to class with the unexamined assumption

[06:28] Yan Lauria: I heard SL gravity is not 9.8 but 9.0 m/s<sup>2</sup>

[06:29] Dae Miami: yeah the physics engines are not the best model of actual physics

[06:29] Vicki: It's pretty close to 9.8 in my experience.

[06:29] Vicki: that larger objects are more massive and have more density than smaller objects. A moment to really THINK about this convinces them that this assumption is wrong.

[06:29] Yan Lauria: ok

[06:29] Vicki: But it's still a knee-jerk response to physical situations. So, here they generate many sphere-cube pairs.

[06:29] Vicki: Each object announces its mass and its dimensions. Students calculate their densities and make a table showing which object is larger and which is more dense.

[06:30] Vicki: Clearly, there is no relationship between comparative volumes, shapes, or densities, but I require them to explain, using their data WHY that is true.

[06:30] Vicki: SLIDE (28) Statics and Newton's 2nd Law

[06:30] Vicki: Lots of my students have aspirations to be mechanical, architectural, or civil engineers. When they complain that physics is hard,

[06:30] Vicki: I remind them that these engineering fields are all physics, all the time. They do a lab that involves hanging a mass from strings, measuring the angles, and then calculating the

[06:30] Vicki: forces in the strings. This is the same thing, but the chains themselves announce their positions; that takes a lot of guess work out of it!

[06:31] Vicki: Slides 29 & 30

[06:31] Vicki: Now, I have teleporters set up on the other side of the sidewalk (big gold rings filled with plasma, labeled MIWoSE) that will take you to the next destination. Each destination has its own teleporter, leading to the next.

[06:32] Shailey Garfield: thank you

[06:32] Vicki: You can play with anything you want; I'll be around for questions.

[06:32] Dae Miami: great job!

[06:32] Vicki: Any questions now, before we go??

[06:32] Jodeg Janus: ty

[06:32] Dae Miami: I especially like the use of virtual worlds for teaching physics...especially changing gravity which cannot be done in rl

[06:32] Shailey Garfield: Have you captured your experiences in a formal report or paper?

[06:32] Yan Lauria: I like tour guide^^

[06:32] Vicki: Yes, that's a real bonus!

[06:33] Vicki: Oh,



[06:33] Vicki: I forgot to mention

[06:33] Jodeg Janus: how about cell biology? Any reference to that?

[06:33] Vicki: that there are glowing shapes near most of the activities

[06:33] Vicki: If you click them, they

[06:33] Bingo Rydell: Thanks Vicki...the place surely has come along since the original plot on the RIT island.

[06:33] Vicki: will give you a notecard.

[06:33] Vicki: Telling you what the activity is supposed to do.

[06:33] Shailey Garfield: That's helpful, thanks

[06:34] Vicki: Ready to go??

[06:34] Shailey Garfield: yes

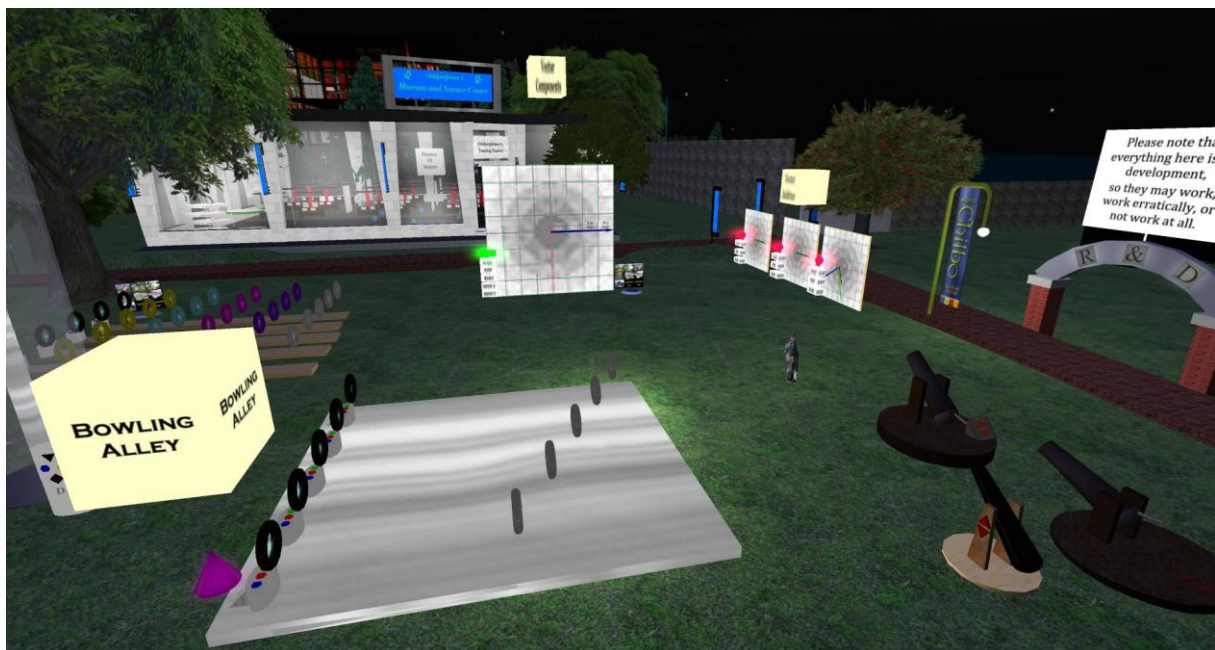
[06:34] Yan Lauria: yes

[06:34] Vicki: OK, let's move.

[06:35] Vicki: This teleporter will just take you into the yard.

[06:36] Vicki: Joe, good to see you.

[06:36] Bingo Rydell: nice talk!



[06:36] Vicki: I developed **cannons** so that my students could shoot each other.

[06:36] Vicki: instead of using my projectile launchers in the lab.

[06:36] Dae Miami: I could only fire one of them

[06:37] Almond Andel: :)

[06:37] Vicki: Yes, I'm working on two of them.

[06:37] Dae Miami: OK

[06:37] Vicki: and the one that works isn't accurate.

[06:37] Vicki: But I'm getting there.

[06:37] Vicki: The cannons are not priority, because they don't have an analog in my real lab.

[06:37] Yan Lauria: aha

[06:38] Vicki: See, it tells you 89 degrees no matter what its real angle is.

[06:38] Vicki: All in good time!

[06:38] Vicki: 😊

[06:38] Patio Plasma: real cannons would be too tempting to fire at the administration building

[06:38] Vicki: True Pat!

[06:39] Vicki: This is an activity on **accelerated motion**.

[06:39] Vicki: Thanks, Dae.

[06:39] Vicki: Students send spheres through the rings, which report back via IM on their speeds and the time.

[06:40] Vicki: They can calculate acceleration, and also the distances between the rings.

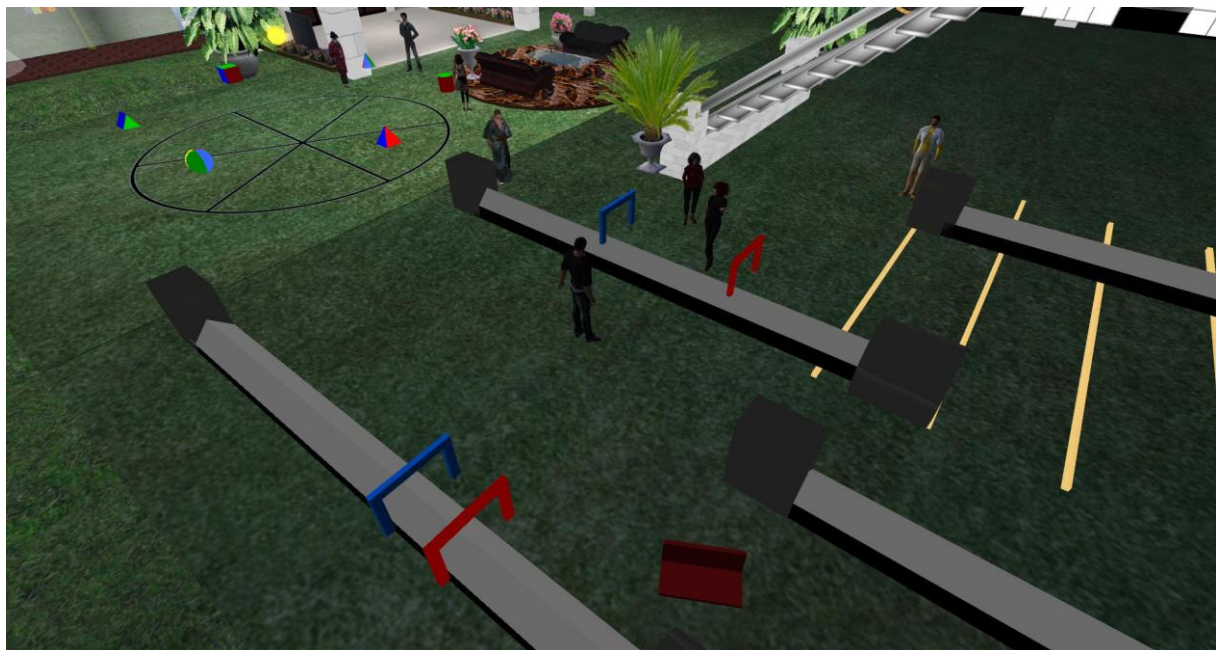
[06:40] Patio Plasma: excellent we have a RL exhibit at the exploratorium where students move rings so that balls which they launch pass through the rings

[06:40] Vicki: If you'd like to come in to the building, there is more!

[06:41] Vicki: Patio, I have a similar activity inside where students can move "photogates" for the same purpose.

[06:41] Dae Miami: sure

[06:42] Vicki: there is the volume activity in the corner, and the area one in the other corner, diagonally.



[06:42] Vicki: **Air tracks** are behind the stairs.

[06:42] Vicki: They aren't very .... um, good.

[06:42] Vicki: They were my first try, and it shows.

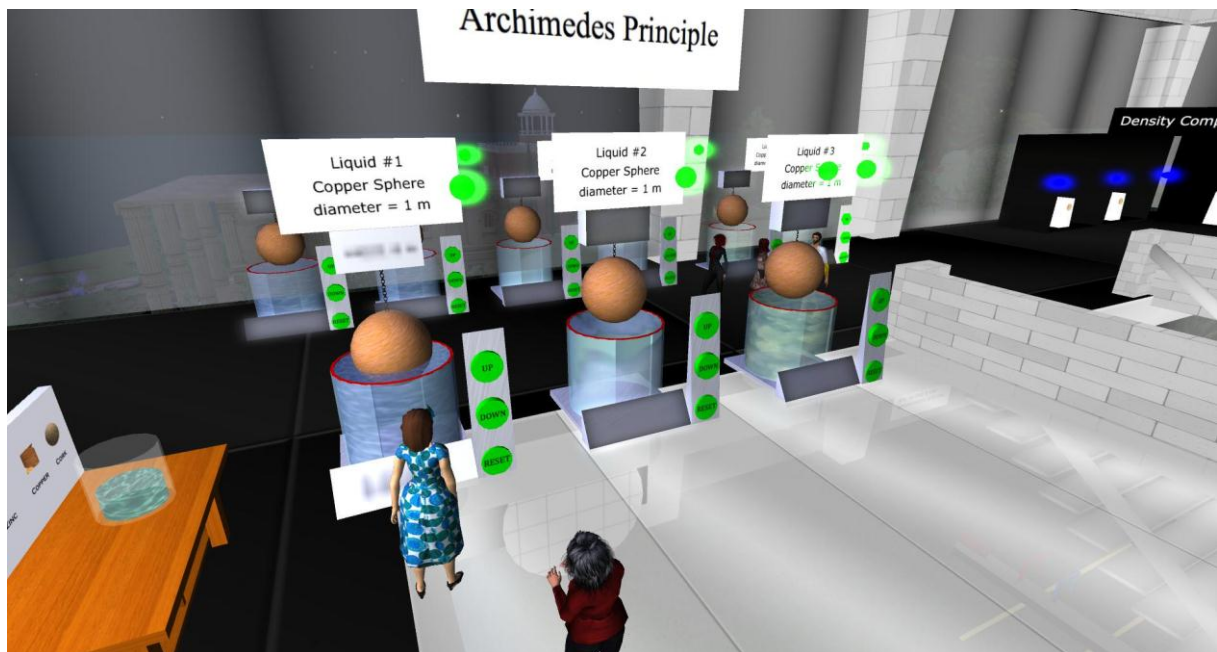
[06:43] Vicki: But I'm getting there. Questions?

[06:43] Vicki: Try anything you like!

[06:43] Vicki: You need to touch the blue photogate



[06:43] Vicki: That will tell the apparatus who the operator is.  
[06:44] Vicki: There are better ways to do this, of course,  
[06:44] Vicki: but I didn't know it at the time!  
[06:44] Vicki: 😊  
[06:45] Vicki: Oh, dear.  
[06:45] Vicki: This is what I mean about this set up not being the best.  
[06:45] Vicki: 😊  
[06:45] Vicki: One of these days I'll get around to fixing it!  
[06:46] [Patio Plasma: got it!](#)



[06:47] Vicki: There is more upstairs, and a teleporter upstairs to take you to the platform for the **big volume displacement tanks**.

[06:48] Vicki: Every time you lower the sphere into the liquid, some of it splashes out.  
[06:48] Vicki: It takes 20 iterations to get it fully submerged, and as you can see, the three liquids have different densities.

[06:49] [Shailey Garfield: that's really cool](#)

[06:49] Vicki: Thanks Shailey.

[06:49] [Shailey Garfield: what a great way to explain the Archimedes Principle](#)



[06:

49] Vicki: This is one of my favorites.

[06:49] Vicki: This one is fun too,

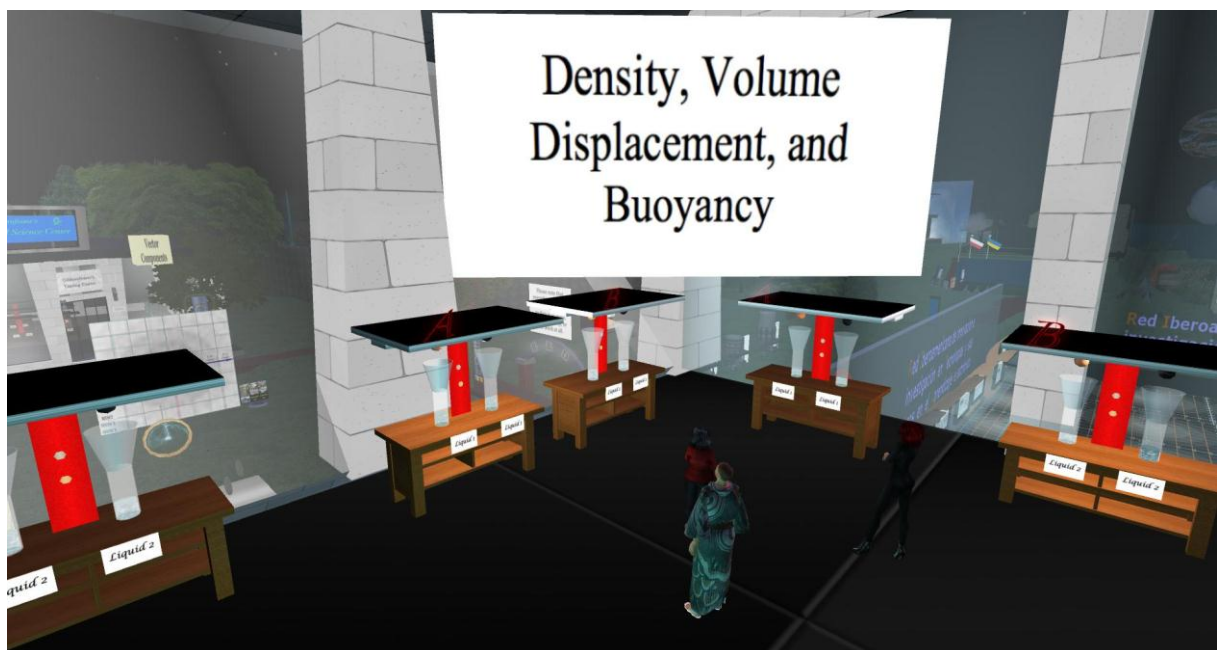
[06:50] Vicki: You can rez a piece of copper, zinc, glass, wood or cork.

[06:50] Vicki: Get its mass, and then drop it into a tank of water.

[06:50] Shailey Garfield: Have you checked/compared OddProfessor that students understand/retain more when they see such visualizations which are interactive and responsive?

[06:50] Vicki: No, not yet. Actually, doing some quantitative, rather than affective, measurement is on my list for this year.

[06:51] Yan Lauria: wow!



[06:51] Vicki: The hardest thing to do is to simulate floating.

[06:51] Yan Lauria: yes

[06:51] Vicki: It's just not possible for me to make it look really real, but it works well enough.

[06:52] Shailey Garfield: Yes, it is quite realistic

[06:52] Vicki: Remember that the B tables have started to give me a hard time.

[06:52] Vicki: I don't know why.

[06:52] Vicki: They claim that they can't see their water jars.

[06:52] Vicki: But they do.

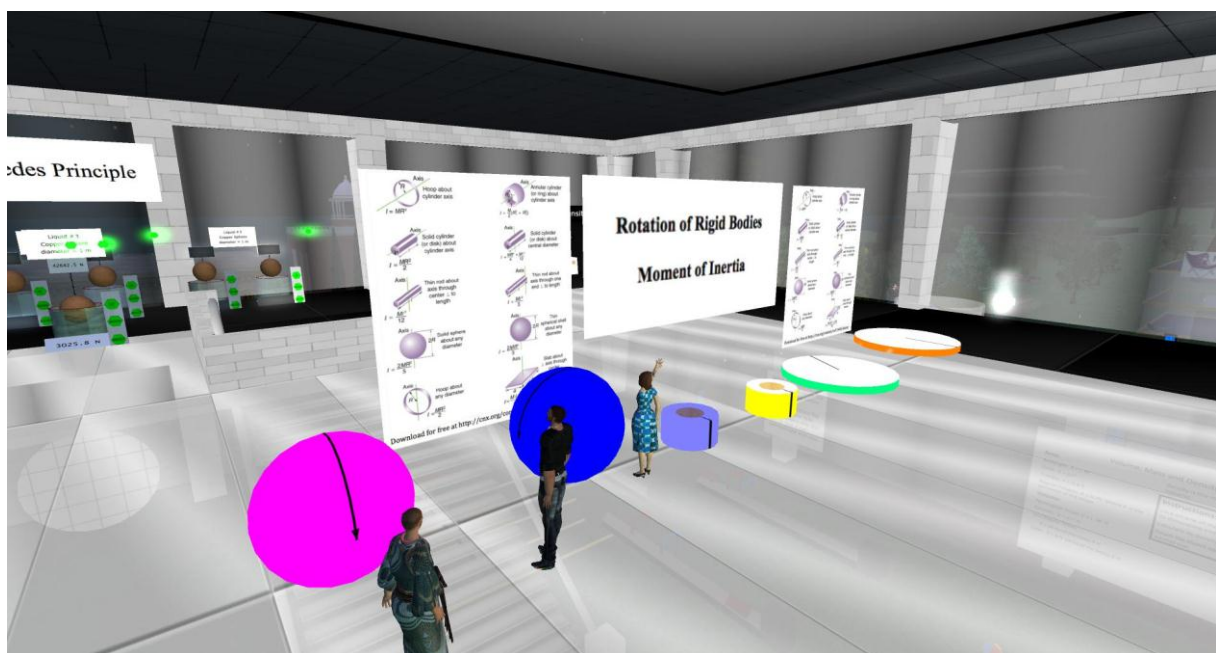
[06:52] Vicki: Weird.

[06:53] Vicki: The students are given some information about the spheres before they start, and it's their job to answer questions about the volume of the spheres and the density of the liquids.

[06:54] Vicki: Oh, and the mass of the spheres, as well.

[06:54] Vicki: Nothing extraordinary here.

[06:54] Vicki: But I always laugh when a visitor leaves one of the exhibits running.



[06:55] Vicki: It' will continue to IM them information until either they or I turn it off.

[06:55] Vicki: 😊

[06:56] Vicki: Yan, you should be getting information about the angular velocity of the blue sphere.

[06:56] Vicki: 😊

[06:56] Marco Bakera (punktman): that looks funny. :)

[06:56] Patio Plasma: love it

[06:57] Shailey Garfield: I have had a great spin

[06:57] Dae Miami: this brings back memories or should i say nightmares from college physics

[06:57] Vicki: I Hope you're not dizzy!

[06:57] Dae Miami: but I still use it

[06:57] Vicki: I totally understand.

[06:57] Shailey Garfield: No, not at all dizzy - very enjoyable indeed

[06:57] Vicki: I loved physics but I had nightmares too!

[06:57] Dae Miami: for example in the 70s when we learned that magma created at mid ocean ridges

[06:57] Shailey Garfield: I have never been to such a large Physics Lab

[06:57] Vicki: I'm going to turn these off.

[06:57] Dae Miami: geologists argued about if the earth was expanding

[06:58] Shailey Garfield: This is a great lab - spacious, interactive, colorful...

[06:58] Dae Miami: it was an angular inertia argument that settled it

[06:58] Dae Miami: the earth was not getting bigger

[06:59] Vicki: For this one, you would calculate the densities of both things and then decide which one was more dense.

[06:59] Vicki: After a few of these, you should be able to tell me if the more massive one is always more dense, or the larger one, or if there is no way to know.

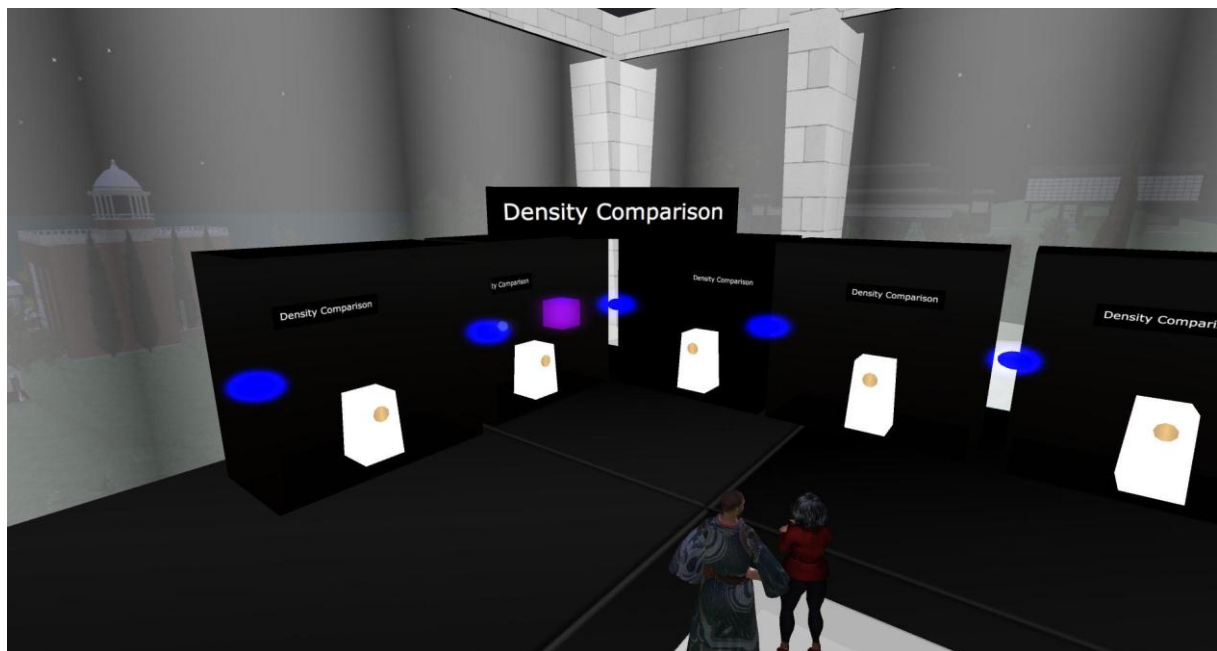
[07:00] Vicki: Every time you click the button, you get new objects.

[07:00] Dae Miami: the earth is slowing down but not due to expansion but tidal friction

[07:00] Dae Miami: Dr. wells was the geologist who did the work

[07:01] Vicki: There is a platform at 350 meters with the big volume displacement tanks.

[07:01] Shailey Garfield: That's really interesting information, Dae



[07:

01] Yan Lauria: I need permission to read notecards

[07:02] Vicki: You do???

[07:02] Vicki: I'm astonished.

[07:02] Yan Lauria: I touched but I can't open notecard

[07:02] Shailey Garfield: It has been fine with me regarding the notecards

[07:03] Vicki: I'll have to look into that.

[07:03] Stranger Nightfire: I can't see the notecards either



[07:03] Yan Lauria: I'm in trouble today lol

[07:03] Vicki: I guess so!

[07:04] Vicki: The teleporter across the room will take you up to the platform, if you want to go.

[07:04] Shailey Garfield: I have to go, Yan and OddProfessor

[07:04] Yan Lauria: I want!

[07:04] Shailey Garfield: It has been a great pleasure to be here

[07:04] Vicki: Thank you for coming Shailey, and come back any time.

[07:04] Vicki: We're open 24/7!

[07:04] Vicki: ☺

[07:04] Shailey Garfield: Thanks a lot for the talk and the demos- enjoyed them thoroughly

[07:04] Shailey Garfield: I will surely come back.

[07:04] Yan Lauria: See you again Shailey

[07:04] Vicki: Feel free to share the LM.

[07:04] Vicki: I like visitors.

[07:04] Patio Plasma: This is a fantastic physics education place ! Great work

[07:05] Vicki: Thanks Patio!

[07:05] Marco Bakera (punktman): See you Shailey.

[07:05] Vicki: That's REALLY big coming from you!

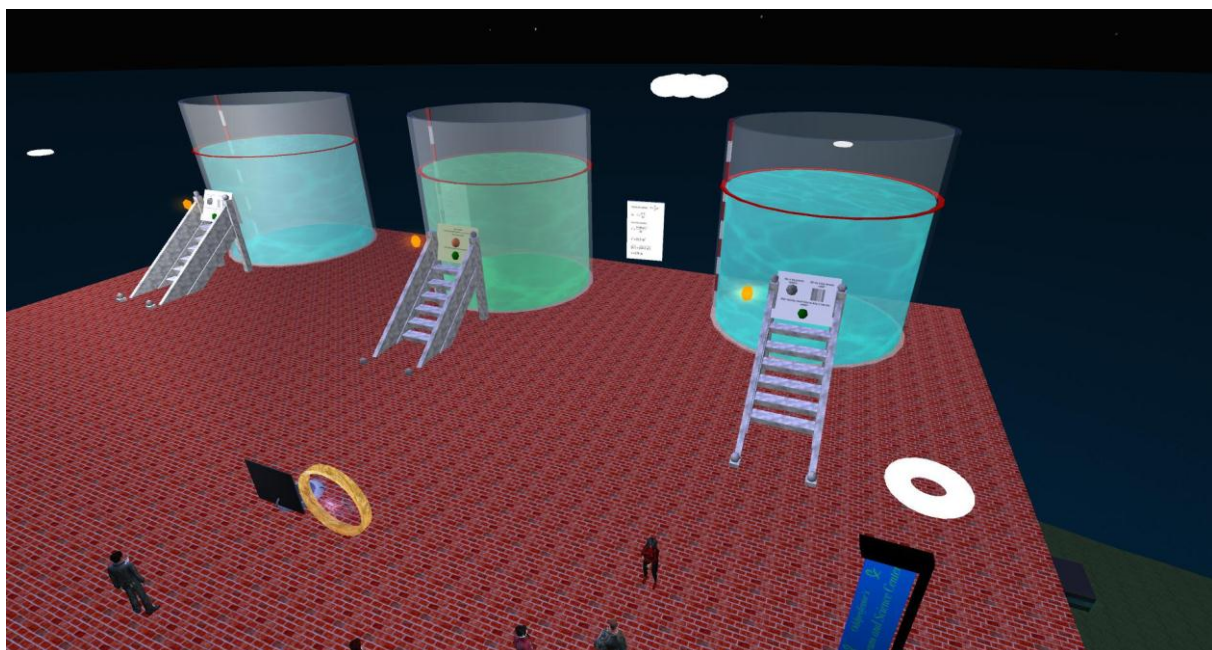
[07:05] Shailey Garfield: Thanks a lot to Yan for organizing this and for bringing the STEM community together through these events. We are grateful to Yan!

[07:05] Vicki: Let's go up.

[07:05] Patio Plasma: I've visited before and you have continued to create wonderful lessons

[07:05] Vicki: Patio, you're making me blush.

[07:06] Vicki: Right click and go!



[07:07] Vicki: The corner tanks will let you drop granite balls and chrome cubes into the water,



and the middle ones will let you test your predictive powers on what will sink and what will float.

[07:07] Vicki: That's always fun

[07:08] Vicki: Again, the bright yellow "eggs" have notecards.

[07:08] Yan Lauria: I can view notecard this time

[07:09] Vicki: I came here once to find a newbie trapped in one of the tanks.

[07:09] Vicki: She couldn't figure to fly out.

[07:09] Marco Bakera (punktman): :)

[07:09] Yan Lauria: ahaha

[07:09] Vicki: And then she got really nasty, so I left her there.

[07:09] Vicki: Justice!

[07:09] Vicki: I guess she figured it out; she's not here anymore.

[07:09] Yan Lauria: ahaha

[07:10] Vicki: ☺

[07:10] Marco Bakera (punktman): That's a really interesting experiment.

[07:10] Vicki: Thanks Marco, which one?

[07:11] Marco Bakera (punktman): All three. :)

[07:11] Vicki: :-)

[07:11] Vicki: Thanks!

[07:11] Marco Bakera (punktman): I'm math teacher always looking for applications.

[07:12] Vicki: Almond, was your prediction right?

[07:12] Marco Bakera (punktman): These are great resources.

[07:12] Vicki: Thanks Marco.

[07:12] Vicki: You're welcome to use them, but I'd like to know ahead of time if you're bringing a group.

[07:12] Vicki: These mainland plots get laggy really fast.

[07:12] Marco Bakera (punktman): How many avatars can be served?

[07:13] Vicki: I've never had more than 12 here at once, and it worked well then.

[07:13] Vicki: I don't know what the max would be.

[07:13] Marco Bakera (punktman): thx.

[07:13] Vicki: Of course, it won't break anything if you try with a larger number.

[07:14] Vicki: If you do bring a class here, I'd really appreciate hearing how you used the equipment, and how the lesson went.

[07:15] Yan Lauria: That is what museum curator wants

[07:15] Vicki: Of course!

[07:15] Patio Plasma: That is how we curators get paid LOL

[07:15] Vicki: I'm trying to persuade my department that this is a viable teaching method.

[07:15] Vicki: The more rave reviews I get from teachers, the better off I am.

[07:16] Vicki: That's why I support the costs of this place myself.

[07:16] Vicki: I don't want anyone to pull the rug out from under my feet!

[07:16] Patio Plasma: I'll gladly write you a letter of support when you need one

[07:16] Vicki: That would be gratefully received.

[07:16] Patio Plasma: OK lets talk

[07:16] Vicki: OK, thanks.

[07:17] Vicki: The **mechanical statics displays** are in the side yard where the tent is.

[07:17] Vicki: And I have an R&D yard on the west end that has some new things

[07:17] Vicki: But they don't always work; that's why it's R&D!

[07:18] Yan Lauria: Vicki, do you have colleague creator or scripiter?

[07:18] Vicki: I'm trying to put together some **ideal gas law demos**.

[07:18] Vicki: It's harder than you might think.

[07:18] Vicki: And **Bernoulli's principle** too.

[07:18] Vicki: I have a good-LOOKING set up for that, but it doesn't do anything.

[07:18] Vicki: Yet.

[07:19] Marco Bakera (punktman): Do your students build as well?

[07:19] Vicki: Can I show you anything else, answer any question?

[07:19] Marco Bakera (punktman): Or even script?

[07:19] Vicki: No, Marco, they don't.

[07:19] Vicki: I don't have time to teach them, they don' have time to learn.

[07:19] Vicki: They are engineering students and their days are very full.

[07:19] Vicki: And, truthfully, most of them aren't interested.

[07:19] Vicki: In building, that is.

[07:20] Patio Plasma: But if you find one who is that is a great teaching/learning opportunity

[07:20] Vicki: Oh, if anyone asked, I'd be happy to show them how to build

[07:20] Yan Lauria: Visualize own idea by oneself is great merit in SL but difficult to teach

[07:20] Vicki: and if they have some scripting/programming experience, I'd encourage them to try that too.

[07:21] Vicki: Yes, Yan, you're right.

[07:21] Vicki: Plus, I'm a terrible scripiter.

[07:21] Yan Lauria: ahaha

[07:21] Vicki: So I would do them a disservice if I were to try to teach it!

[07:21] Vicki: My scripts work, but they are not elegant.

[07:21] Vicki: And they probably chew up a lot more bandwidth than they should.

[07:22] Vicki: Anything you'd like to see that you haven't seen?

[07:22] Patio Plasma: I'm with you , I learned Fortran and this is a whole new world of computer languages for me LOL

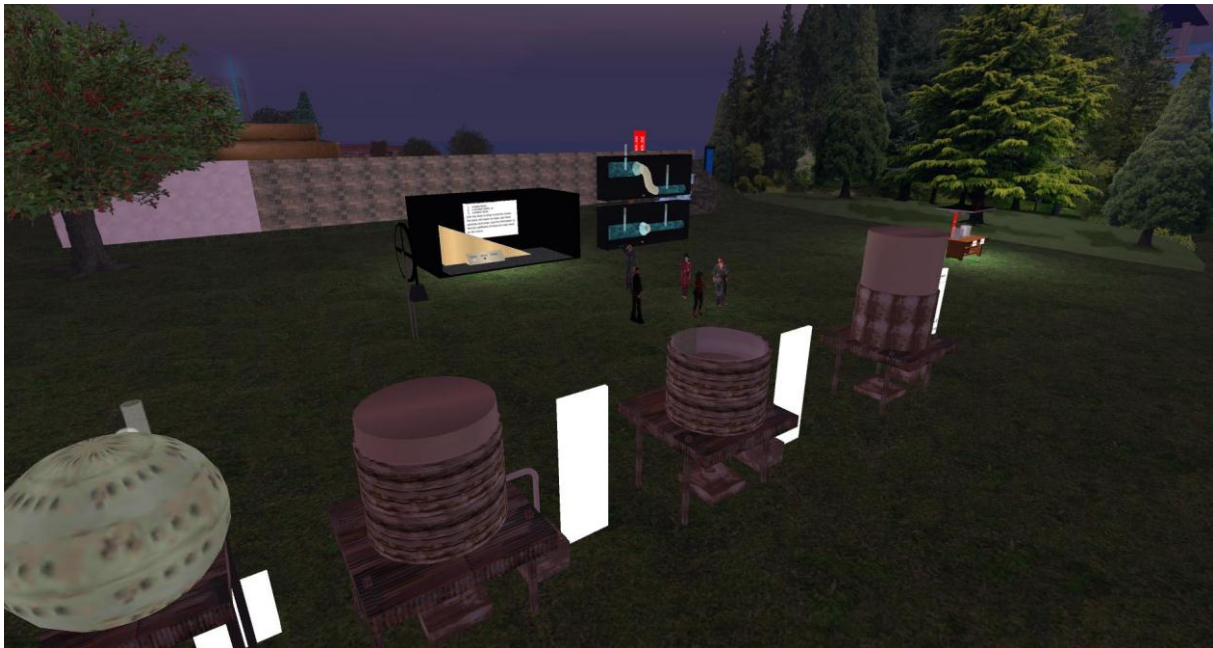
[07:22] Vicki: Wow, no kidding!

[07:22] Vicki: My last language was Pascal, I think!!

[07:23] Vicki: It was a long time ago, anyway.

[07:23] Vicki: ☺

[07:23] Yan Lauria: I am MS-DOS person  
[07:23] Vicki: That's too bad, Yan,  
[07:23] Vicki: ☺  
[07:23] Yan Lauria: no one remember  
[07:23] Vicki: I do. Vaguely.  
[07:24] Marco Bakera (punktman): I started with MS-DOS 5.0  
[07:24] Vicki: But I've been an Apple user since the early 80s.  
[07:24] Vicki: Long before Macs.  
[07:24] Vicki: Would you like to see the R&D yard?  
[07:24] Yan Lauria: yes!  
[07:25] Patio Plasma: I taught a class for physics majors about solving differential equations using finite difference techniques on apple IIe computers in the late 70's  
[07:25] Marco Bakera (punktman): of course.  
[07:25] Patio Plasma: yes  
[07:25] Vicki: OK  
[07:25] Vicki: Follow me. JUMP!



[07:26] Vicki: These are **heat engines**, or will be.  
[07:26] Vicki: There is an awful lot of information to transfer here, so it's awkward.  
[07:26] Marco Bakera (punktman): How long does it take to create a new experiment?  
[07:26] Vicki: This one on the end, the isobaric process works reasonably well.  
[07:27] Vicki: From about 10 hours to weeks and weeks.  
[07:27] Marco Bakera (punktman): That's a lot of time.  
[07:27] Vicki: It depends on how complicated it is, and how many parts from other exhibits I can repurpose.  
[07:27] Vicki: Yes, but I don't have any deadlines.

[07:27] Vicki: I work on it when I can, when I'm inspired.

[07:28] Marco Bakera (punktman): Do you have to change the purpose of your experiment when you don't get it done?

[07:28] Vicki: What takes a lot of work as well is writing good Web assign homework to accompany the activities.

[07:28] Vicki: I'm not sure I understand the question, Marco?

[07:29] Patio Plasma: Oooh I like the **conservation of mass flow demo!**

[07:29] Vicki: Now choose one of the other buttons.

[07:29] Marco Bakera (punktman): If you don't get the scripts running, will you change your original idea to get it going?

[07:29] Vicki: No, I usually just let it ferment for a while, and come back to it later.

[07:30] Vicki: Patio, do you mean the **Bernoulli's principle** one?

[07:30] Vicki: Part of the problem of demonstrating these things is that the equipment communicates vi IM.

[07:30] Patio Plasma: yes

[07:31] Vicki: It eliminates cross talk, but when I try to show something, I'm the only one who can hear the responses from the machines.

[07:31] Vicki: Thanks Patio.

[07:31] Vicki: Yeah, I love the **Bernoulli's equipment**.

[07:31] Vicki: If only I could think of some way to use it!

[07:31] Vicki: LOL

[07:32] Patio Plasma: We had one at the RL museum that flowed water with occasional air bubbles in side , you could watch the volume of the bubbles change as the water flowed through different diameter clear tubes

[07:33] Vicki: Wow. I'm not sure how to do that here.

[07:33] Vicki: Intriguing Idea, though.

[07:33] Vicki: I want to make the height of the water column in the open tubes coming up from the large pipes change somehow.

[07:33] Patio Plasma: It's how I finally convinced Paul Hewitt that Bernoulli was correct

[07:34] Vicki: Actually, I know how to do it, I just don't know the best way to trigger it.

[07:34] Vicki: I have to change the texture animation to show different speeds

[07:34] Patio Plasma: A good idea about the vertical tubes, that's what I guessed you wanted to do

[07:34] Vicki: Yes, it's the easiest way.

[07:34] Vicki: I wanted a **pressure meter**, but this is much simpler.

[07:34] Vicki: Less load on the sim, too.

[07:34] Patio Plasma: yes

[07:35] Vicki: Paul Hewitt doubted Bernoulli???

[07:35] Vicki: THE Hewitt?

[07:35] Patio Plasma: The Hewitt I help edit his books

[07:35] Vicki: Ooooooooooooooh!

[07:36] Patio Plasma: Working on the 12th edition now

[07:36] Vicki: I wish I had an appropriate gesture of respect for that.

[07:36] Vicki: I have almost all of them.

[07:36] Patio Plasma: me too

[07:36] Vicki: I use them as a resource.

[07:36] Vicki: My students don't, but I get some good ideas from them.

[07:36] Patio Plasma: and he is a wonderful person too. Although now in his 80s

[07:36] Vicki: Yeah, he's been doing this a long time.

[07:37] Patio Plasma: OK I am at a science/tech education conference in Santa Cruz CA right now and breakfast is served.

[07:37] Vicki: Is there anything else you'd like to see?

[07:37] Patio Plasma: see you all next time

[07:37] Vicki: You'd better go eat then.

[07:37] Vicki: Thanks for coming!

[07:37] Patio Plasma: Thanks!

[07:37] Vicki: I will talk to you about that letter.

[07:37] Yan Lauria: so time to close workshop?

[07:37] Patio Plasma: yes patioplasma@gmail.com

[07:37] Vicki: I think so.

[07:38] Marco Bakera (punktman): Thanks you very much for all your explanations.

[07:38] Vicki: The **statics displays** are across the yard, past the building, down the hill and into the tent.

[07:38] Vicki: Happy to do it. Thanks for coming!

[07:38] Vicki: I hope you got the URL for the guide? (\*)

(\*) Introduction to Oddprofessor's Museum & Science Center  
Teaching Physics In Second Life, A 3-D Immersive Environment  
[http://people.rit.edu/vjrnts/secondlife/documents/guide\\_2013.pdf](http://people.rit.edu/vjrnts/secondlife/documents/guide_2013.pdf)

[07:38] Vicki: ☺

[07:38] Yan Lauria: Lot of things to see here!

[07:38] Marco Bakera (punktman): I got your guide pdf.

[07:38] Yan Lauria: thanks Vicki

[07:39] Vicki: Yep. And more in time, I hope.

[07:39] Vicki: You're welcome. Thanks for inviting me!

[07:39] Yan Lauria: You can next^^

[07:39] Vicki: It was fun.

[07:39] Vicki: ☺

[07:39] Yan Lauria: Then about next workshop announcement on next month (Dec)



[07:39] Yan Lauria: Place is OSU Medicine, Ohio State University, There is famous Testis Tour!

[07:39] Yan Lauria: Speaker is Douglas Danforth (SL: DrDoug Pennell),

[07:39] Vicki: That was one of the first things I ever saw in SL!!

[07:40] Marco Bakera (punktman): looking forward to it.

[07:40] Yan Lauria: I'll notice date and detail later

[07:40] Vicki: Yes.

[07:40] Vicki: OK.

[07:40] Vicki: Thank you all for coming.

[07:40] Yan Lauria: Thank you very much for attending today.

[07:40] Yan Lauria: Let's meet at OSU Medicine next month^^

[07:40] motoko Moonwall: Thank you, Professor Robinson , these are exciting and impressive exhibitions, and I enjoyed them.

[07:40] Yan Lauria: Yes

[07:40] Vicki: Thanks for those kind words.

[07:40] Vicki: I love having visitors.

[07:41] motoko Moonwall: good night, and see you:)

[07:41] Vicki: Good night!

[07:41] Marco Bakera (punktman): Good night.

[07:41] Vicki: I have to go start my day.

[07:41] Marco Bakera (punktman): night

[07:41] Vicki: Good night!

[07:41] Yan Lauria: Vicki, I want to show you motoko's Lorenz Chaos Waterwheel

[07:41] Vicki: I would like that.

[07:41] Yan Lauria: I send you LM later

[07:42] Vicki: Thanks, I appreciate that.

[07:42] Yan Lauria: have a nice weekend^^

[07:42] Vicki: You too,

[07:42] Yan Lauria: See you again. Byebye

[07:42] Vicki: Get some sleep! ☺

[07:42] Vicki: Bye!

[07:42] Yan Lauria: god night^