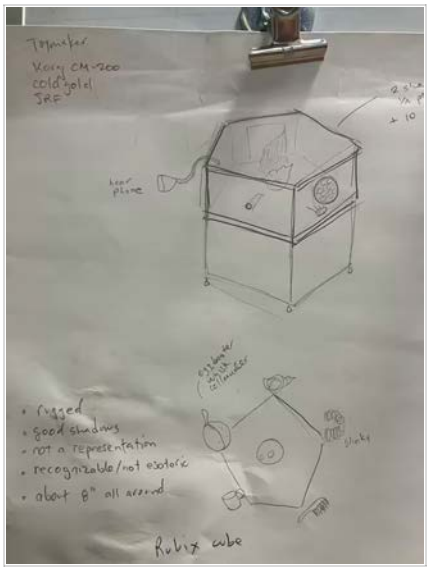
Team Mystery 1882

MF Mason Friedberg · Last updated Nov 27, 2023

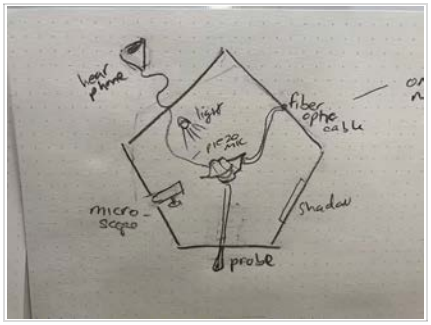
PXL_20231031_164710847.jpg

Bryan Day got me set up with a piezo mic for the shell. It sounds great!

pixelated view first attempt- can discern edges and see color



what if there's a ferris wheel of stuff??



rough layout of the different methods of observing

Still mounting a few more things - it's tricky getting the views just right so you can observe enough without giving things away, and so you have some degree of freedom to feel/look around without destroying things, but I am encouraged! The addition of sound is great.

WK

Dec 13, 2022

William Katzman

I like this idea! Including the ferris wheel of materials.

WK

Dec 13, 2022

William Katzman

I don't think I understand the sound (piezo) though. I also think that the probe might be the least revealing piece about it.

Dec 14, 2022

Desiré Whitmore, Senior Physics Educator

The sound probe was actually cool. The information that I got from it was more about the texture of the object. I found it really useful while looking at the shadow of the object, and directing the poker person to move in certain directions. I could hear faster/slower *clicking* based on the texture of the object. It really enhanced the collaboration aspect for me.

Dec 14, 2022

William Katzman

What is the sound probe? (When I said the probe might be the least revealing, I meant a physical probe as in a stick). Is it that one person taps it with a physical probe and the piezo mic picks up the vibrations? Hard for me to envision what is happening here.

Dec 14, 2022

Desiré Whitmore, Senior Physics Educator

yes, that is exactly what is going on. The physical probe does seem to give you the least amount of information. You can move up/down and slide left/right, but it is definitely weird and you don't know what you are doing. But when you collaborate with another person who is either looking at the shadow and can tell you where to probe, or listening to the piezo mic and can ask you move in different ways to observe how the sound changes, it begins to come together into a bigger picture.

Dec 15, 2022

Jessica Strick

So there's a probe and there's a piezo mic on the object. The probe lets you poke around and get a sense of the size and surface of the object. The headphone lets you hear the sound of the probe poking the object- it gives you similar information that you can get from probing it, ie if it's smooth or bumpy, hard or soft, but you also get a better sense of what the material might be. Prompts can help direct observation- ie, does it sound metallic or plastic? Could it be glass or is it fluffy?

When a couple people are observing together, they can talk about what they're noticing.

Dec 15, 2022

Jessica Strick

Here's a video to show what this interaction is like (keep in mind that the whole box needs to be acoustically insulated so you can *only* hear things with the hearphone)

0:00 / 0:00

IMG_1460.mp4

Edited Dec 16, 2022

Pearl Tesler

So great to see this one coming along!

I know it's too soon for labels, but here's just a rough draft of what I'm imagining for this.

Pearl

TeamMystery.docx
67.4 KB

Dec 16, 2022

Jessica Strick

Thanks, 🐓 Pearl !

Yes, this sounds great and makes a good, direct connection to astronomy without being heavy-handed, and I like that it gives you some hints for what to be on the lookout for (soft vs hard etc).

One small thing- I don't know that I'd call out needing a separate person for each side- especially since there are probably going to be 5 sides. I'd keep it general, as "in get some friends to work with you". Of course, this is the kind of thing we'll be able to easily get a sense of when it's out there for visitors to try.

Dec 16, 2022

Jessica Strick

Some notes on this one from the 12/13 show 'n' tell and our 12/16 meeting:

- people at the show 'n' tell were really engaged! Lots of collaboration and conversation. Of course, the real test will be to see how this plays out with visitors.
- the reveal on the top of the box worked well. Placement seemed to keep people from spoiling the challenge and DW also thought the mirror image felt more in line with the most astronomers can hope for with their own observations.
- the current "scope" on the fifth panel isn't great (too revealing). Some other interesting ideas were proposed: reflected light from the object; blurred out view (like a privacy window); transient view- get a blink to see part of the object. The light for this blink could be top down or at a weird angle to make it disorienting.
- 12/16 meeting we agreed that this is a good one to keep developing (yay!)

Edited Jan 12, 2023

Jessica Strick

Some photos of each side of Team Mystery (as of today, 1/12/23):

IMG-1535.jpg

probe

This one now has a lit button to toggle through three different shadows

sounds

microscope

wobbly view

0:00 / 0:00

this is the wobbly view. Yes, very subtle (too subtle)

0:00 / 0:00

this is the reveal. You can change the angle of the mirror, and you can change your view by turning the mirror.

Floor tested Team Mystery today. It was not a homerun.

IMG-1546.jpg

IMG-1547.jpg

note the way this kid is holding the probe!

It wasn't a super dud. It was more of a moderate dud, due to what I think were a few key problems that were exacerbated by people's frustration and that led to some mild destruction. However, groups used it, picked sides to explore, and wanted to know what was inside.

My big takeaway: It was too hard.

1. the **microscope** takes patience and probably some experience/ familiarity with microscopes.
2. the **probe** gives too little feedback and is frustrating. It got pretty mangled and people managed to move the shell with it. My hope of having a dainty handle for it to suggest dainty use was a level of subtlety overwhelmed by overall frustration.
3. The **sounds** were not meaningful or discernible enough. Also, people didn't see the hearphone as something to listen to. People spoke into it or used it like a stethoscope (which is pretty clever, really!).
4. I think the **shadows** are cool but it would be better to have them

arrayed with regular spacing. Also, even with the lit button, people missed that you could change the shadow.

5. I didn't actually see if people noticed anything from the peephole view of the **wobbly mylar reflection**- but given how everything else was for people, I think it's safe to guess that this subtle and weird observation was too subtle and weird. Also, the teeny fan that's wobbling the mylar makes a teeny sound that is annoyingly audible in the hearphone.
6. **the reveal**, also too hard. The view is too small and you have to hunt for it a little bit. People would go straight to lunging over the exhibit to look through the hole on the top, rather than trying (or knowing to try) to find the image in the reflection. Again, too subtle.

What this needs = Less subtle observations/clues + some improved user design.

Some ideas for next steps:

1. replace the microscope with the nice new one; give it a fixed view.
2. the probe... sigh. OK, I hate the probe. I'm going to try something with gloves or a mitten.
3. the sounds...the hearphone needs to be mounted better. Do gloved, prodding hands sound like anything??? TBD.
4. for the shadows, I'm going to rearrange the lights to be more regular. And the button needs a label.
5. Sadly, I think wobbly reflection is not going to make the cut. Too subtle. I'm going to try privacy filter - something that lets you roughly see the shape and color.
6. For the reveal, I think it needs a bigger hole for a bigger view. It's absolutely not ADA accessible, also.
7. use diagrams could really help- especially for the hearphone.
8. come up with a better way to tie down the conch, because velcro did not cut it. Especially if we're moving away from using a probe and going with gloves!

Jan 18, 2023

Jessica Strick

A few ideas from today's check-in:

- doors that need to be opened to see the shadows, see the frosted view could add the mystery, encourage exploration, and be away to hide the text away.
- we talked about ways of making the reveal work better. Problems noticed last week: people were drawn to the little reveal panel and they didn't get a good enough view with it.
- We talked about possibly making a two part reveal, but the more I think about it, the more I think that is not necessary and will add complication.
- Another idea that Zeke had was to use a wide angle lens camera and give people a view of the live feed. The wide angle is pretty fun- it lets you see the whole arrangement inside with the LED array, glove, etc.
- The simplest thing for now, and for the sake of testing the exhibit next week, is to make the reveal panel flush with the top of the exhibit, ie a little less noticeable, and also to have a larger opening and mirror.

Edited Jan 26, 2023

Jessica Strick

I've been trying a bunch of weird ideas to replace the probe with something that allows for a better feel and still gives the person on the hearphone side something to listen to.

Attempt 1: a work glove restricted in a tube; no photo evidence of this, it was a resounding dud
2: an oven mit; was good giving just enough of a feel but bad at creating any kind of sound.

IMG-1588.jpg

3. pet grooming glove. I got momentarily hopeful that this weird thing could do the trick but the added nubbins rubbing on the shell just sound like nubbins. The sounds don't really tell you much about what it's touching.

IMG-1587.jpg

4. Modified oven mitt. I added a cuff so the mitt would flop out of the way and not interfere with the shadows and I hot glued a bunch of washers to the outside of the mitt. Totally goofy looking and ridiculous. Also really unpleasant to put your hand in. It did make some nice sounds though.

IMG-1585.jpg

IMG-1586.jpg

Here are some takeaways:

- It's awkward and potentially gross to put your hand in a place you can't see. All it will take is one half eaten bologna sandwich tucked in there to ruin the fun.
- the goal of trying to get the touch component to also make sound may be too much. Maybe there can be another way to tap the shell so it makes a sound.

And here are some new thoughts:

- another way to touch the shell: really make the opening large with some loose material (silicone sheets?) that can be pushed in and around the shell.
- the tapping sound can be made some other way- there can be a lever added to one side that lets you tap the shell and lets you get a sense of the hardness of the material too.

And here are my newest thoughts:

- I'm inclined to give the touch thing one last try. But I'm beginning to

think this thing is getting overwrought and too weird. I'm all for weird, but I don't think it's helping and may just be confusing. It's getting tricky to have the different modes of observing not interfere with each other.

- what if.... instead of trying to have 1 object that is observed in 5 different ways, we have 5 identical objects, each with its own observation station? Shell 1 with a set of microscopes fixed to different points; Shell 2 with different shadows depending on what side you're on; Shell 3 enclosed in a box made with silicone sheets that allow you to push in and feel the object; Shell 4 a bunch of tappers and some hearphones; Shell 5, a box made of privacy glass.

Jan 26, 2023

Jessica Strick

Our proximity to Fisherman's Wharf means easy access to a touristy shell shop! Behold, 4 more big conches!
I'm going to move forward with the 5 different stations idea.

IMG-1589 (1).jpg

Jan 27, 2023

William Katzman

My one concern about doing 5 identical objects in 5 separate exhibits is ensuring that people understand when walking up to the exhibit that they are all different ways of interacting with essentially the same object.

I'd also say that there is nothing magical about 5. We aren't really replicating the 5 senses (we do not taste or smell it). I think the important idea is using multiple observations of essentially the same object to hopefully determine what it is. So maybe eliminate touch. After all, in astronomy we generally aren't touching anything. On the other hand, if physical probing is really important to you, you could do something where you could get a profile of an object with multiple wooden dowels sliding in drill holes (maybe long dowels through two or three layers of pegboard) to touch an object. The downside is you would probably want these reset each time, which is one more issue to overcome.

Jan 27, 2023

William Katzman

One other thought. A lot of what astronomy probes are events (particularly LIGO - we don't see black holes or neutron stars, we see them when they are violently colliding). So, a related idea is to probe different elements of the same event.

Jan 27, 2023

Jessica Strick

All good points, WK William!

Yes, 5 is not a number we need to stick with, and this could definitely be a case of less is more. Touch would be a cool one to include, but I agree, it's not essential and fortunately (?) not a prominent sense in astronomy!

I think you're also right to be concerned that people miss that they're interacting with duplicates of the same object. Conceptually, it would be clearer to have people observing the one object together.

If we go with multiple stations, there would really need to be clear connections- through the exhibit design, the language, the graphics- to reinforce that the stations are each offering a clue for the same object. If we can't make this clear, I think we go back to the solo station minus touch.

Some possible advantages of the separate stations with identical objects:

- less interference with the interactions
- it could be easier for people to know what to do- interaction could be reinforced with more spots to interact with the same kind of tools/materials.
- I also think it'd easier to swap in new objects because the boxes would be simplified and more flexible.

I think it's worth testing out. I should be able to get something out on the floor in the next few weeks and then it'd be a good idea for us to reconvene?

Jan 27, 2023

William Katzman

I wonder if you could make it almost seem like the same object while it is different objects by having the exhibits all connected to a central hub.like a hexagon with rectangles attached to each side (worse for flexibility of putting in various locations, but conceptually reinforces the idea that they are all looking at the same object. However this would probably be a few steps away from where you are now.

Jan 27, 2023

Jessica Strick

Yes! I like this idea

Feb 15, 2023

Jessica Strick

IMG-1621.jpg

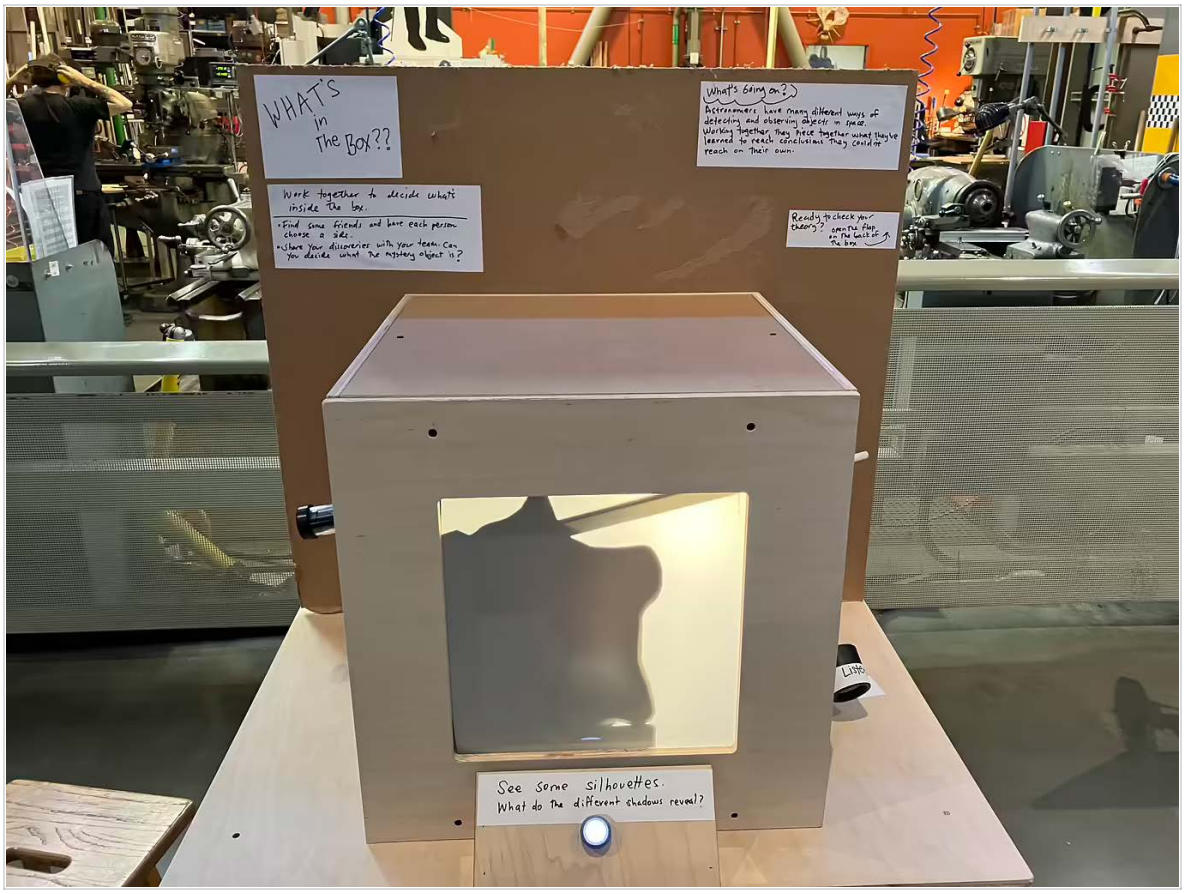
IMG-1622.jpg

IMG-1624.jpg

Floor test today!

Some things to note: I didn't end up using 5 different shells- I agree with William and Pearl; the idea that everyone is looking at the same thing together is important conceptually. And I did drop the ways of observing to 3- shadows, microscope and listening by tapping.

Which means, no pentagon- a box does the trick for usable sides. The reveal is on the back.


WHAT'S in The Box??
Work together to decide what's inside the box.
• Find some friends and have each person choose a side.
• Share your discoveries with your team. Can you decide what the mystery object is?
What's Going on?
Astronomers have many different ways of detecting and observing objects in space. Working together, they piece together what they've learned to reach conclusions they could not reach on their own.
Ready to check your theory? Open the flap on the back of the box
See some silhouettes. What do the different shadows reveal?

front view

scope side

shadow side

listen and tap side

reveal on the back

General take on things: it's working better. And there's room for improvement.

Several groups were pretty engaged. I heard people talking about their observations and making guesses. People tried the different sides and didn't look for the reveal immediately.

Microscope: even with this newer, nicer scope, it's hard for people to see. Some people got it and had useful observations to share, but too many didn't. Possible solution: multiple fixed microscopes with different focal lengths to account for different depths of focus. Getting more spots to focus on will also make it easier to optimize the positioning of the shell for the shadows- the way it is now, I'm kind of limited to one position that works best for this particular microscope.

Shadows: working just fine. But I think with more microscopes to focus on more parts of the shell, there'll be more freedom to reposition the shell to get better shadows.

Tap and Listen: OK, I'm ditching the hear phone and going with something that's less easy to mistake for a microphone. Also, too many people are not doing the tapping and listening simultaneously, despite my cute lil use drawing. In the photo above, you can see all the extra notes that were added to help people out.

The reveal: I put the window too low- before I'd decided to raise the shell. New window should be level with shell!

Mar 3, 2023

Jessica Strick

new array of scopes

different type of listening device

IMG-1682.jpg

IMG-1679.jpg

Brought this back out this morning amidst a flood of field trippers. 1300 kids today, lots and lots of hormone enhanced energy.
Especially given those circumstances, I feel good about what I saw. Groups tried out the different sides, they didn't immediately jump to the reveal and even once they'd seen what was inside, they were still curious.

- There was some confusion about the scope array- some people thought they were knobs. A use drawing would be good here, but I added a note which I think is helping.
- People now understand to listen to the phone (rather than using it as a microphone) but sometimes pull it over while they're looking at

shadows, so they miss that they need to use the tapper to hear anything.

I now feel confident to leave this out in the prototype area unattended during the week and will continue observing and try to talk to more people. Yay!

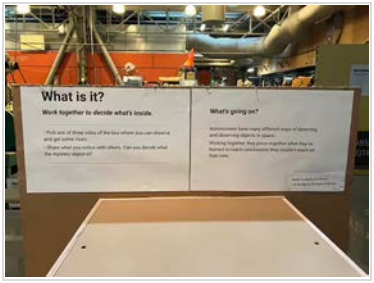
Edited Mar 9, 2023

Jessica Strick

back

left side

front and center



front and center

right side

Pearl, BDR Barbara behold the current state of the labels.
Some thoughts about how the labels could better support interaction, based on what I've been seeing so far...

- The title isn't conveying that this is a social experience. Team Mystery got at that, but I'm wondering if there's something even more explicit, like... ok, not coming up with anything but will think on it. Maybe we just go back to Team Mystery and see if that is better.
- the little note on the bottom corner about the window on the back needs different wording. That said, people figure it out so it's mostly

fine as is.

- people weren't really noticing the questions on scope and tapping/ listening sides. I think both sides could benefit from some use drawings.
- One person mentioned that she didn't realize the shadows were of the same object. Could we come up with a way to get that across? This may be best done with a very simple diagram.

Other non-label related observations:

- people are peeping in the hole where the probe is. I'll come up with a way to limit that view.
- the scopes are really low and uncomfortable for people. The whole box could be raised about 5 inches
- some people aren't hearing much- is this because they expect to hear something less subtle?

Mar 9, 2023

Pearl Tesler

Thanks for the guidance, Jessica! Let's see if some snazzy pro labels and some use diagrams can help here.

For now, lacking a better option, I'm sticking with **Team Mystery**--but will keep contemplating other possibilities.

Revised draft text attached. Let me know if anything needs to be tweaked before we start playing with layouts.

Thanks!
pt

TeamMystery--v2.docx
87.7 KB

Mar 10, 2023

William Katzman

Regarding it being one object, that is an important element. I wonder what could help that. Maybe changing the title to Mystery Object (but then you lose the team part). Team Mystery Object would have all of the elements but the name is long and therefore clunkier. Or maybe on the label sub-title change from "decide what's inside" to "decide what object is inside." Of course the person who missed that it's a single object may not have read the label...

Also on the What's going on, I wonder if we can add in the element that astronomers gather information from different instruments to reach conclusions. The key words we could drop in to the label that the NSF uses are: Multimessenger astronomy. Essentially akin to the idea that you learn more from listening and seeing with than just using one sense.

Thinking about that, I wonder if the hearphone can be placed in such a way to reproduce the sound a shell produces when held up to your ear (may not be possible in a noisy exhibit environment) (or maybe it alread does).

Mar 10, 2023

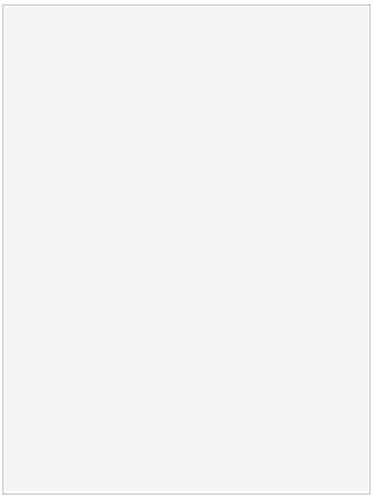
Barbara del Rio

 Jessica , when you get a chance, can you get me a clear photo of someone using the phone (correctly)? :) I took a picture of Eric looking into a scope while we were at the exhibit.
Thanks!

Mar 14, 2023

Jessica Strick

Here are some photos for you, BDR Barbara



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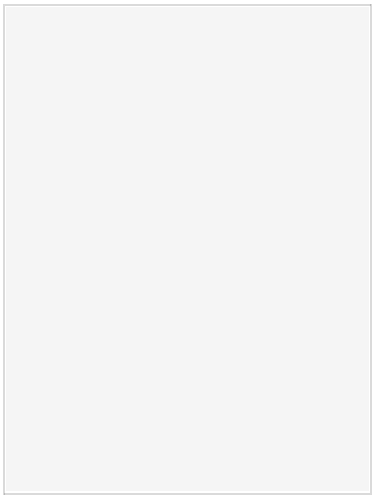

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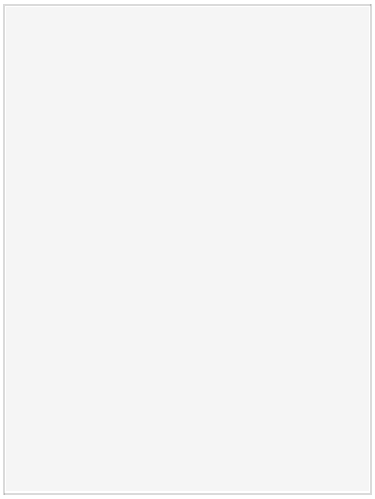


IMG-1704.jpg

BDR I love it!

Mar 14, 2023

Jessica Strick

Some thoughts and observations:

- I chatted with Kevin Boyd at the exhibit and he had assumed that because the button was lit on the shadow side, he didn't need to push it again. He didn't read it as something you keep pushing.
- I've been focusing all along on whether people jump to the back for the reveal (they're mostly not)- but it's possibly even more valuable to observe whether people are checking the reveal at all. Not checking the back window means not very invested or engaged.

Mar 16, 2023

Jessica Strick

Today's meeting with the explainers was really, really helpful!

Here are some ideas, observations, thoughts that came up. Interestingly, there wasn't a whole lot of feedback for the scopes from the explainers.

Shadow side:

- more of a suggestion for what to notice/do with shadows
- a diagram that explains where the lights are

Sound/probe:

- headphones could block out the sound better
- a different kind of mic?
- it may help for the instructions to use the word "scraping" in addition to "tapping"- scraping was a more helpful way to use the probe
- more probes
- could a tube instead of a rod resonate more/feel different for the probe?
- a way to touch a small part of the object, with your finger tip

Reveal:

- additional flap on the reveal- you pick up the first one, find the second flap that says "are you sure you're ready?"
- instead of the note on the main graphic panel about the reveal, put it on up front, under a little door.

General

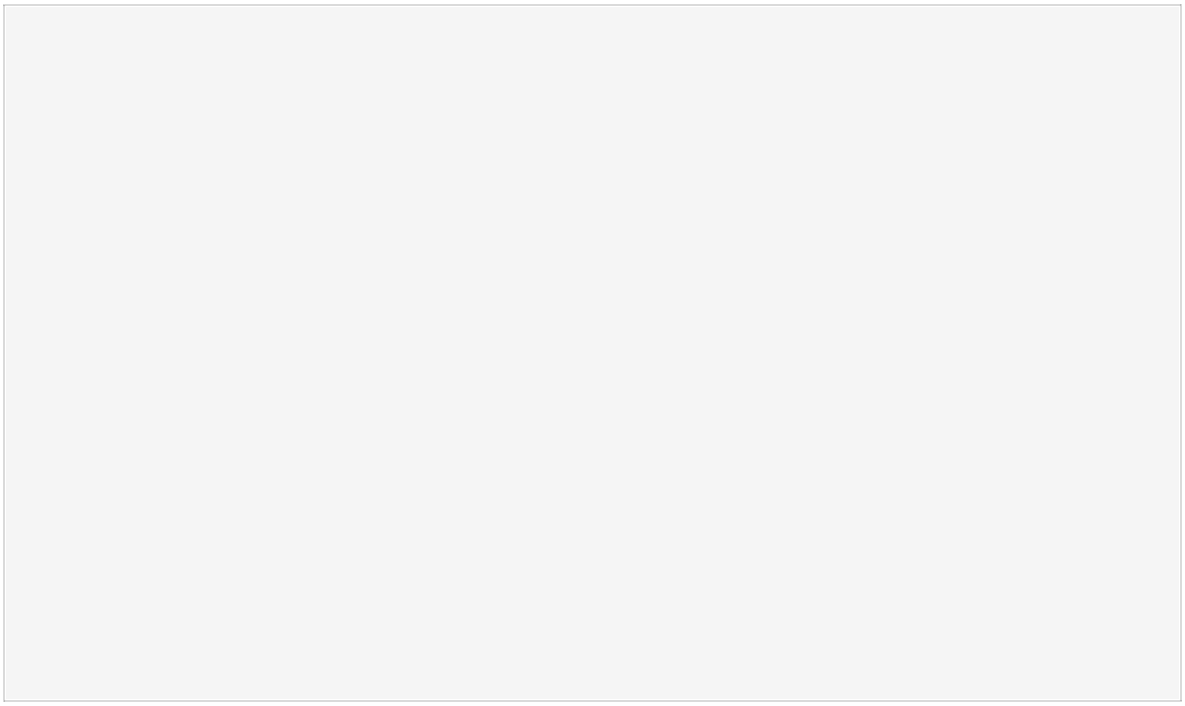
- sentence starters for the sides... ie, "the sound from tapping makes me think that the object is...."
- lazy susan for the object- if we ditch the mic/headphone this could

be more doable.

- make each side more distinct as a "station"- either with barriers, with color

Mar 21, 2023

Barbara del Rio



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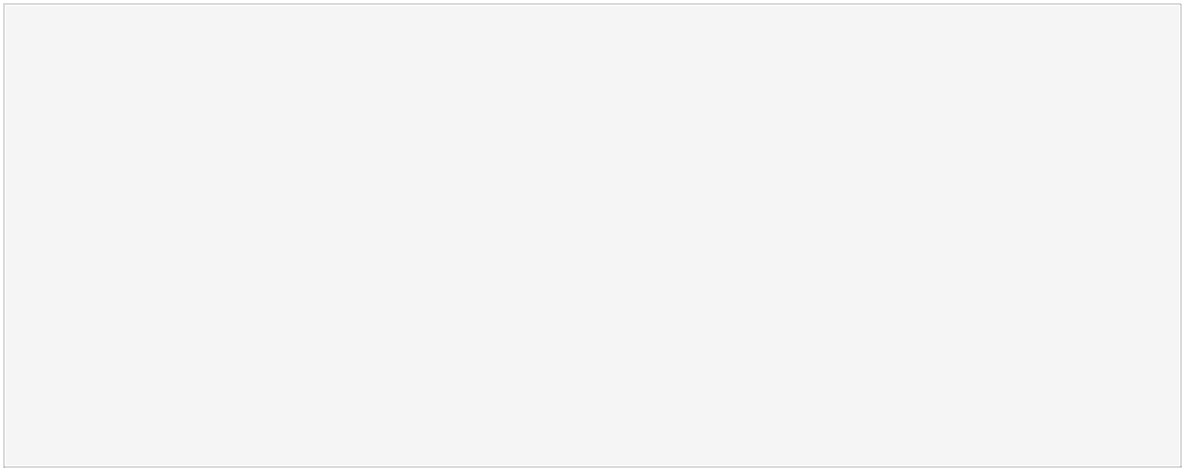

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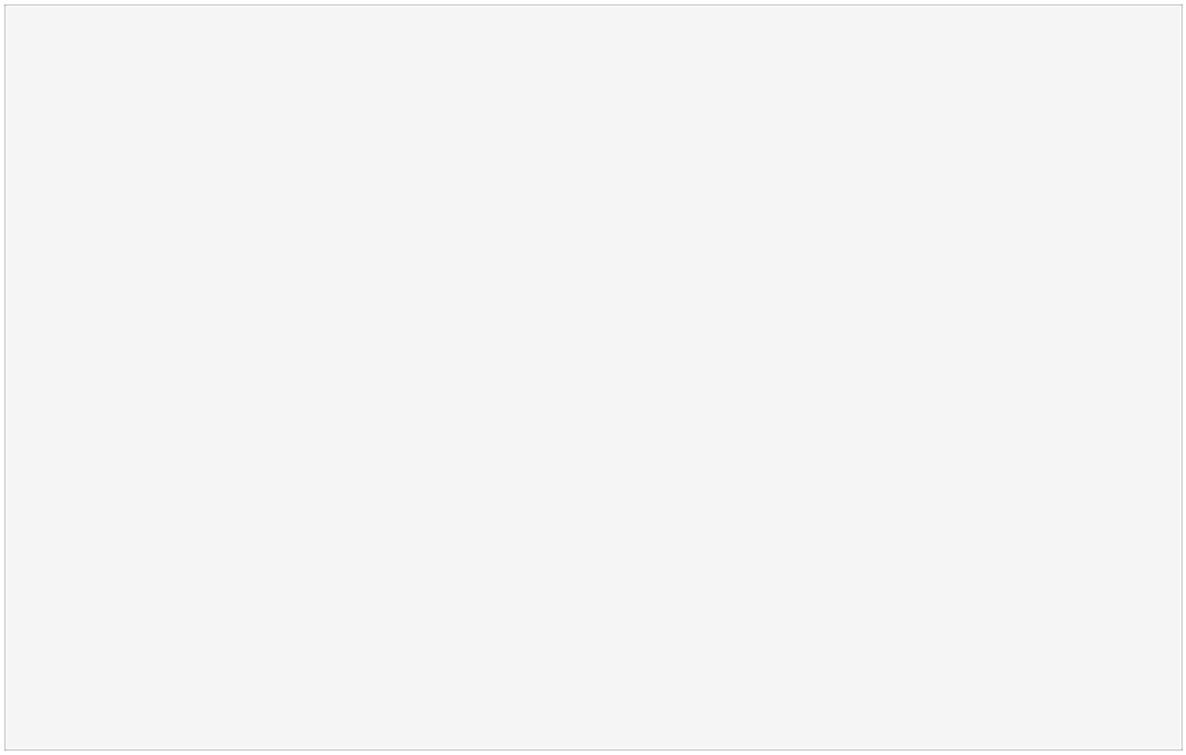

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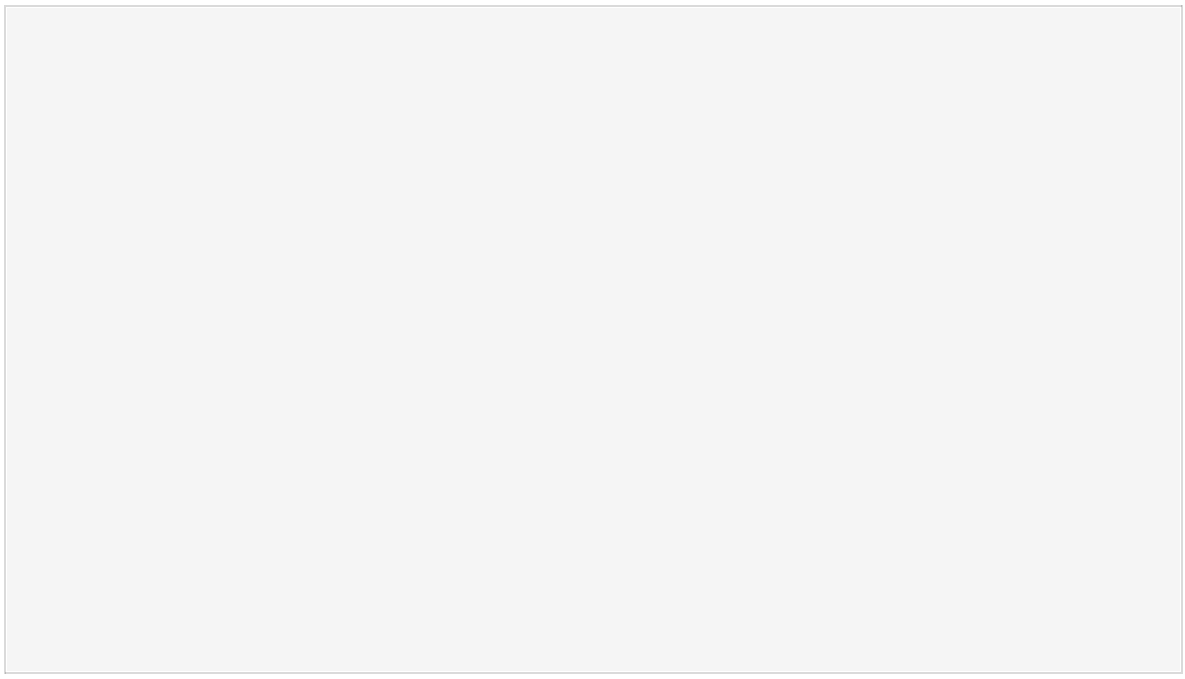

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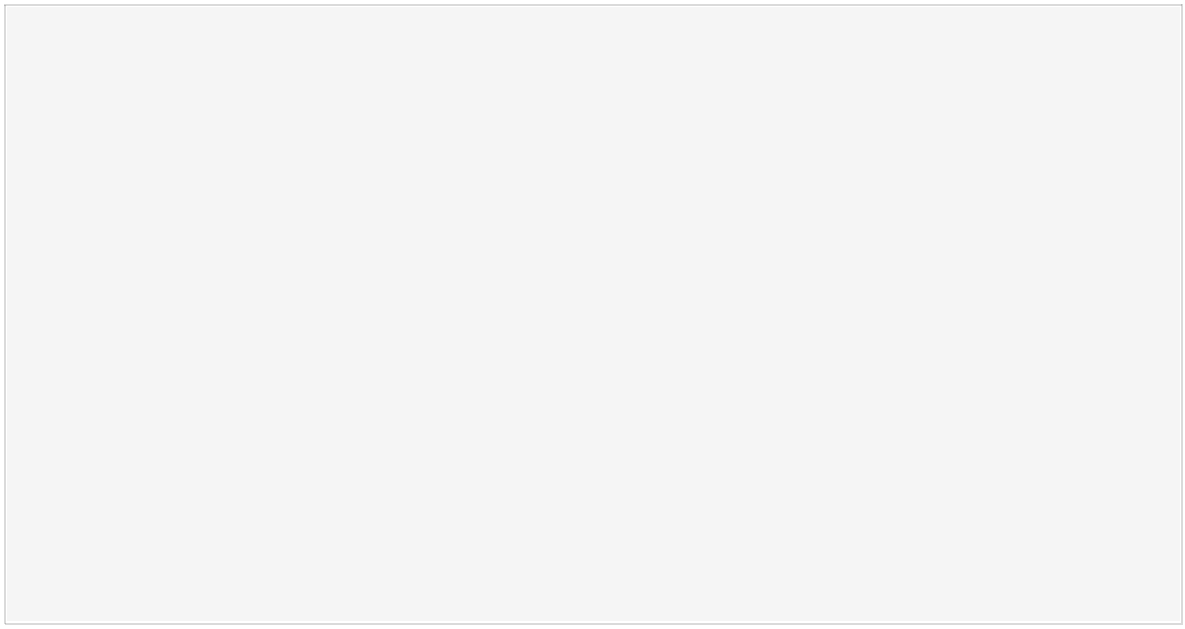


1882_TeamMystery_Shadows_proto.pdf

Mar 21, 2023

Pearl Tesler

Hi gang:

Here's updated text (V3) based on what we just discussed.

Barbara, the changed parts are in yellow.

Go team,
pt

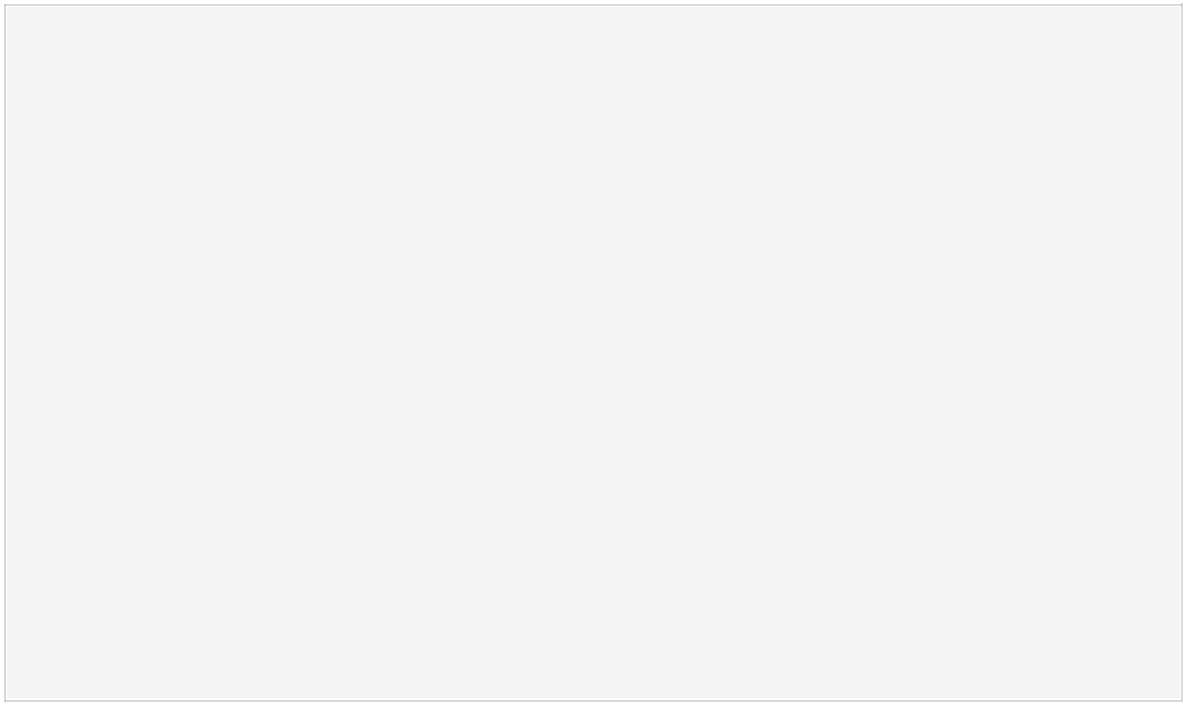
TeamMystery--v3.docx
13.9 KB

Mar 22, 2023

Barbara del Rio

Jessica Pearl Jay

Yesterday I taped revised labels to the prototype. Posting them here.



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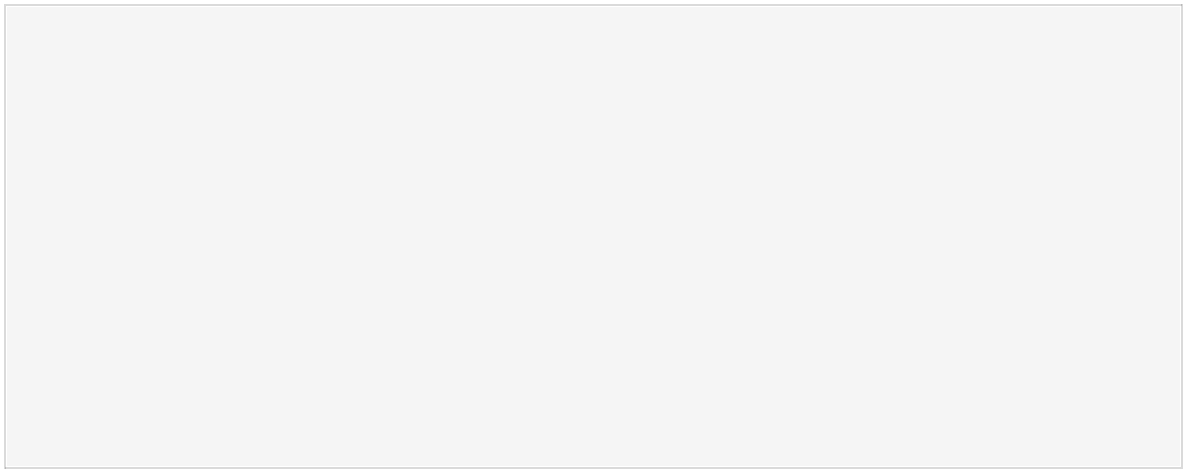

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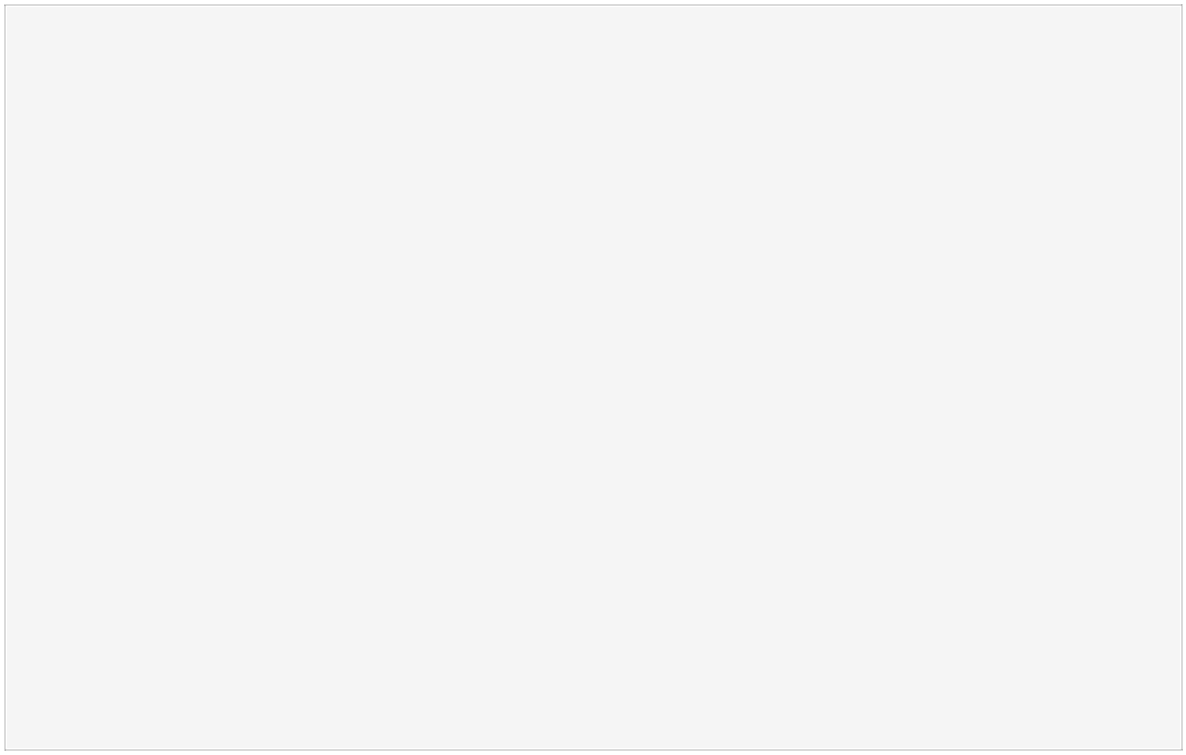

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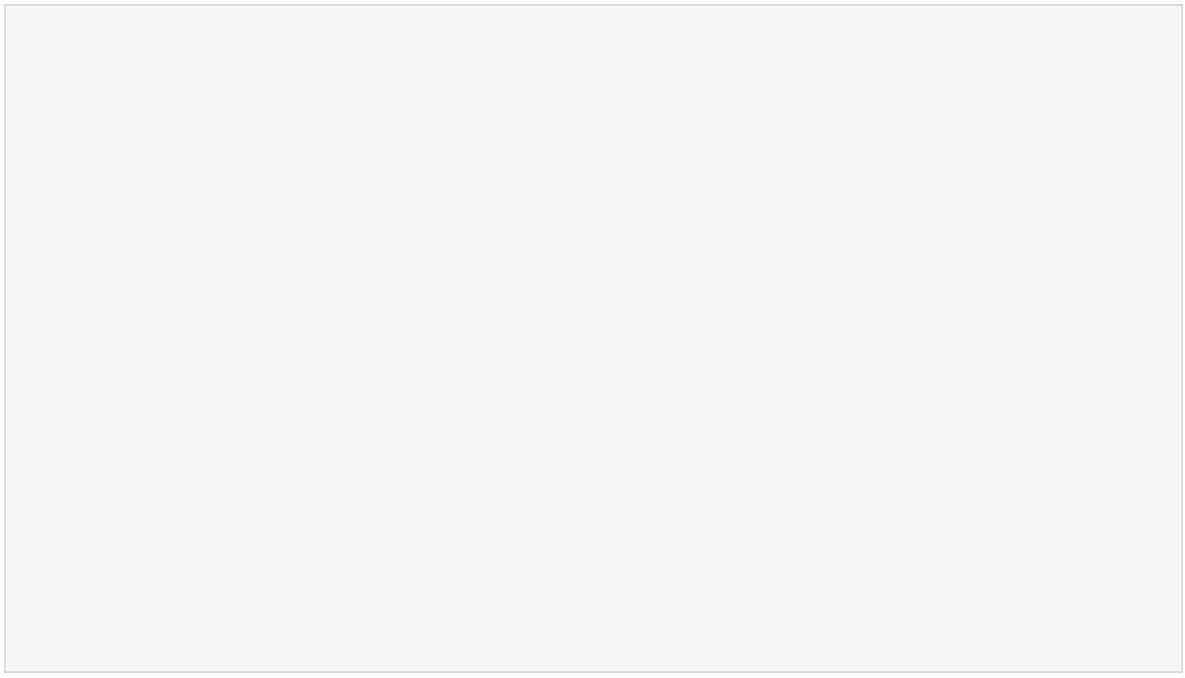

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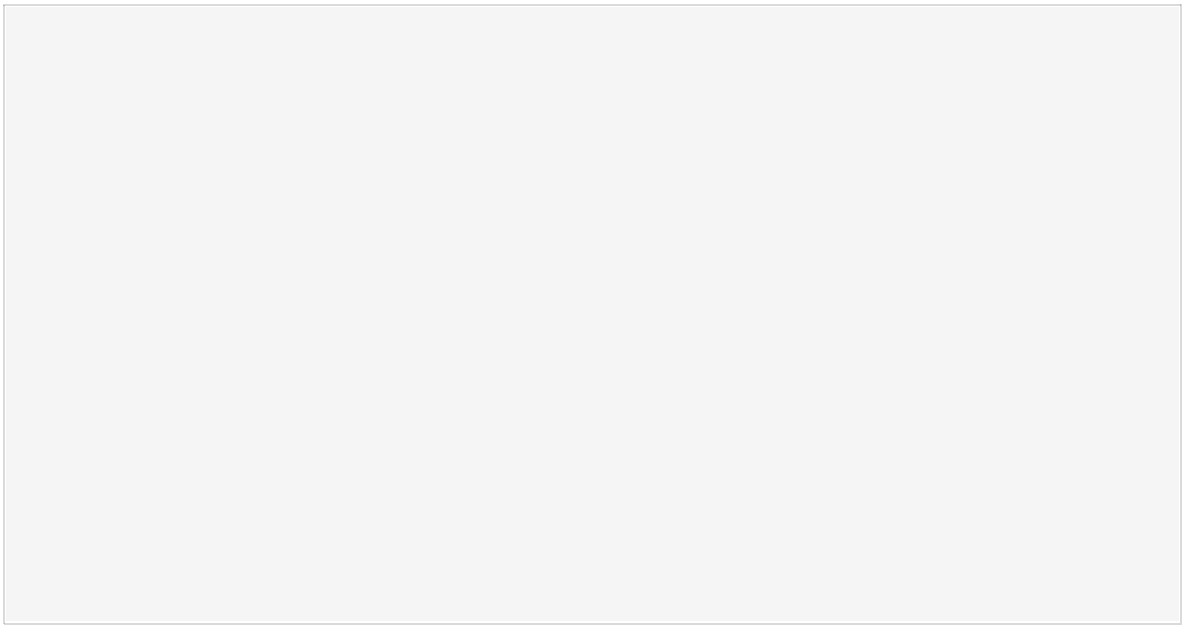


1882_TeamMystery_Shadows_proto_v2.pdf

✨

Mar 22, 2023

Jessica Strick

Thank you!! I haven't had a chance to see people at the exhibit today but was excited to see these labels popped up on the exhibit yesterday afternoon. I'm going to lose the "s" on buttons (crossing it out) until we have multiple buttons (we don't yet).

BDR whiteout!

Mar 24, 2023

Jessica Strick

Jay - got it out with the triple button arrangement. Any time you want to give it a once over, it's ready for you. I'll be checking in on it throughout the day today.

✨

Edited Mar 26, 2023

Jay Shepard, Project Evaluator

 Jessica thanks for letting me know. I should be able to do a little bit of observation today (Sunday) and will come back in tomorrow to do more.

Also, I've inquired about whether or not there will be field trip groups coming in this week because it is spring break for many districts. I'll let you know what I find out.

Updated: There will be field trip groups!

Mar 30, 2023

Jay Shepard, Project Evaluator

VRE update: I observed 20 groups, 11 where school groups and 9 were not.

Station interactions

- Shadow Station
  - Almost all groups used the buttons to change the angle of the light. The previous issue about not noticing/knowing to push the button seems to be resolved
  - Some visitors used the buttons in conjunction with the other sides, looking through the scopes while pressing buttons or trying to look at the shadow while useing the probe
  - The drive-by button smash is still a factor, but so it goes!
- Listening Station
  - Almost all groups used the phone and the probe together. Some seemed to listen to the phone for a bit before realizing they needed to use the probe.
  - Some visitors really made a lot of noise with the probe, mostly by thwacking it up and down so that it hit the edges of the box or by jamming it in/out. Adding something to dampen the sound made by the probe/box intersection might help make the intentional sounds more audible.
- Looking Station
  - The current form of the eye pieces seems to be effecting behavior - some people think that eye pieces are buttons or that they can be focused by twisting. Some also try to pull on them, similar to the probe interaction.
  - The looking station use drawing seems to really help get people into the right position, as does having a stool on that side. (it is a little low for adults)
- Answer Station

    - More than half of the visitors observed checked the flap. However, the time during their exploration they checked it varied.
        - Some checked after using stations, and then left, some checked after using the stations and then went back to the stations, others started by checking the flap and then went to the stations.
    - For those that didn't check the flap, especially when they had invested some time in exploration, it is unclear if they didn't know about the flap or didn't want to check.
- Interactivity between visitors
    - it was hard to tell how much discussion occurred. There were clear instances of collaboration as well as clear instances of simultaneous, individual exploration.
    - For some groups, they approached the exhibit and all started on the same side together, either all observing one person use the interactive or taking turns. They tended to then spread out and explore the other stations in smaller clusters.

Suggestions

1. make the probe and phone the same color. The phone for listening is nice familiar object that people seem to gravitate towards picking up. (also, consider adding a handle to the probe, I did see one kid put it in her mouth and try to blow through it? could be a little too straw-looking)
2. damping the noise from the probe hitting the box - this would hopefully reduce the non-exploratory noise.
3. Adapt the design of the eye pieces/scopes to look less like buttons, and limit the turning to reduce the "its not focusing" reaction
4. Consider making it harder to peak through the flap, maybe an additional layer that prompts them to consider data from all three sides, or to discuss with others, etc.

Mar 31, 2023

Jessica Strick

Jay - so good to get your eyes on it. It's great to know that the use drawings seem to be helping a good deal (thank you, BDR Barbara !).

I will work on the handle for the probe, because, YUCK. And maybe in addition to looking less like a straw, it can be a dainty handle that suggests less ramming, and more light tapping. And adding some material so the probe makes less noise seems important too- there shouldn't be added confusion about what you're listening for.

I'm about ready to try a glass brick and or a different lens arrangement for the side with the scopes!

And yes- a double flap on the back also came up with the Explainer training. I definitely want to do that.

I'll be out all next week but will plan on making these changes the week of April 10.

Mar 31, 2023

Desiré Whitmore, Senior Physics Educator

Thanks, Jenn!

I also checked it out yesterday and I noticed that the sound being louder was really helpful, and is the probe longer or something? It seemed easier to use, and I could tap all the way around the top of the shell, which helped me to notice that is round on the side.

I also really like the separate buttons for the lights, I did notice a lot of button mashing as well.

As for the telescopes, I thought they worked great (I am biased, of course, and know what I am looking for). I got random passerby kids to press the light buttons for me while I took pictures through them. I attached them below.

The signage is super helpful, I think. Thanks, Pearl and Barbara!

Photos-001 (2).zip
76 MB

Apr 5, 2023

Pearl Tesler

Hi all:

Just popping in with some text for the double flap. Here's a suggestion:

[reveal cover label:]

Spoiler alert!

Don’t look here until you and your team have made a guess.

[second layer:]

Wait! You can’t unsee this. Have you *really* made a guess?

pt

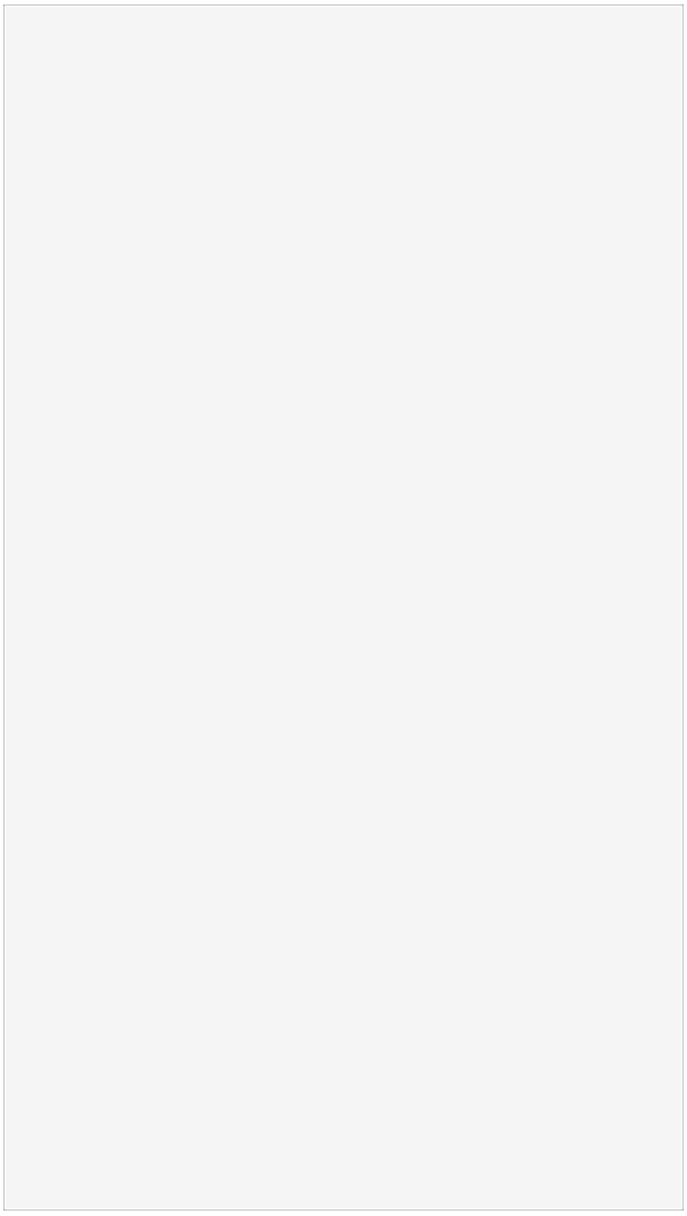
Apr 11, 2023

Jessica Strick

Hey Team Mystery Team:

I think it's ready for the updated labels.

I've pulled out the scopes and replaced that side with this:



IMG-1907.MOV

- I like the amount of distortion that's going on along with some good detail that comes through. I'll be curious to see if this is too much of a giveaway. We'll need an update to the label on that side. Doesn't

seem like a use drawing will be needed!

- I added a black knob to the end of the probe and a bit of a baffle to hopefully make it less fun to go nuts with the banging. Note: I just learned that the phone handset is now obsolete/unobtainable. Bummer. So... we are going to need to move back to the original hearphone thing, which will mean a new use drawing. Let's worry about that later and stick with what we've got for now?
- There is now a second door over the reveal flap.

Apr 11, 2023

Pearl Tesler

Nifty--agreed, it'll be interesting to see if it's too much of a give-away.

Here's some tweaked text to go with the latest incarnation.

Barbara, the only changes are to the window (former telescope) side and the reveal flap (now flaps).

pt

TeamMystery--v5.docx
13.9 KB

Apr 12, 2023

Barbara del Rio

When is the next time we plan to visitor test this? Are we meeting today?

Apr 12, 2023

Jessica Strick

Yes- meeting today. Let's check in with Jenn about visitor testing.

Apr 12, 2023

Jay Shepard, Project Evaluator

Hi! I'm in today. So if it's on the floor I have time before 1 to do observations. Otherwise I could be in tomorrow too.

Apr 12, 2023

Jessica Strick

Jay would you be OK looking at it with my homebrew label or would you rather wait for BDR Barbara 's nicer looking version? I'm guessing it'd be better to get Barbara's updated labels. BDR Barbara is today or tomorrow for updates workable for you?

Apr 12, 2023

Barbara del Rio

I'm afraid not, Jessica . I'm in solid meetings this afternoon and headed to Omaha tomorrow. Jay

Apr 12, 2023

Jay Shepard, Project Evaluator

Jessica BDR Barbara

I'm going to be out starting Tuesday (4/18), so if folks are fine using the homebrew labels it's fine with me.

👍

Apr 12, 2023

Jessica Strick

Ok- it's out in the prototype area now!
I'll have more time to check in on it tomorrow, but it's ready for you now,
Jay

BDR Yay!

Apr 12, 2023

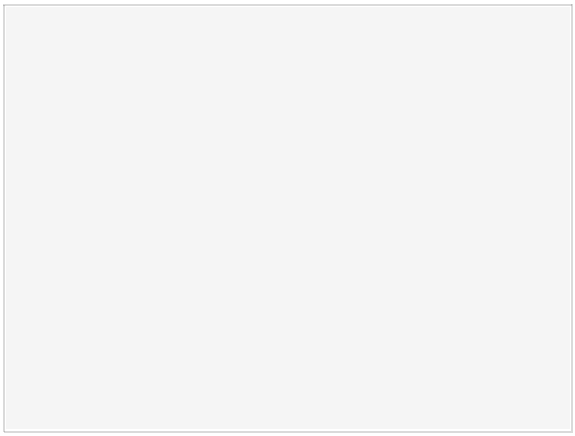
Barbara del Rio

I think that glass brick is going to be a real attractor.

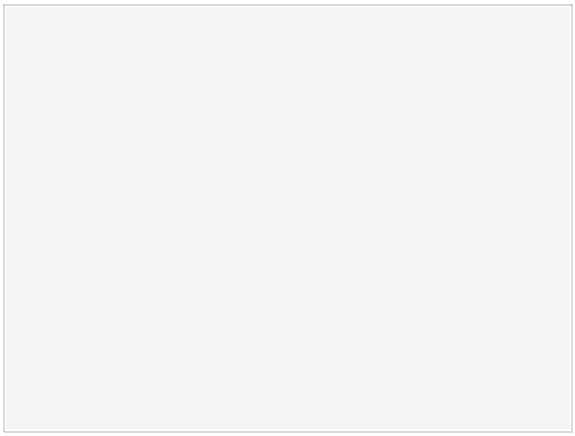
Edited May 12, 2023

Jessica Strick

I seem to have somehow not added updated photos or video of this with visitors!
Sorry for the delay on that.

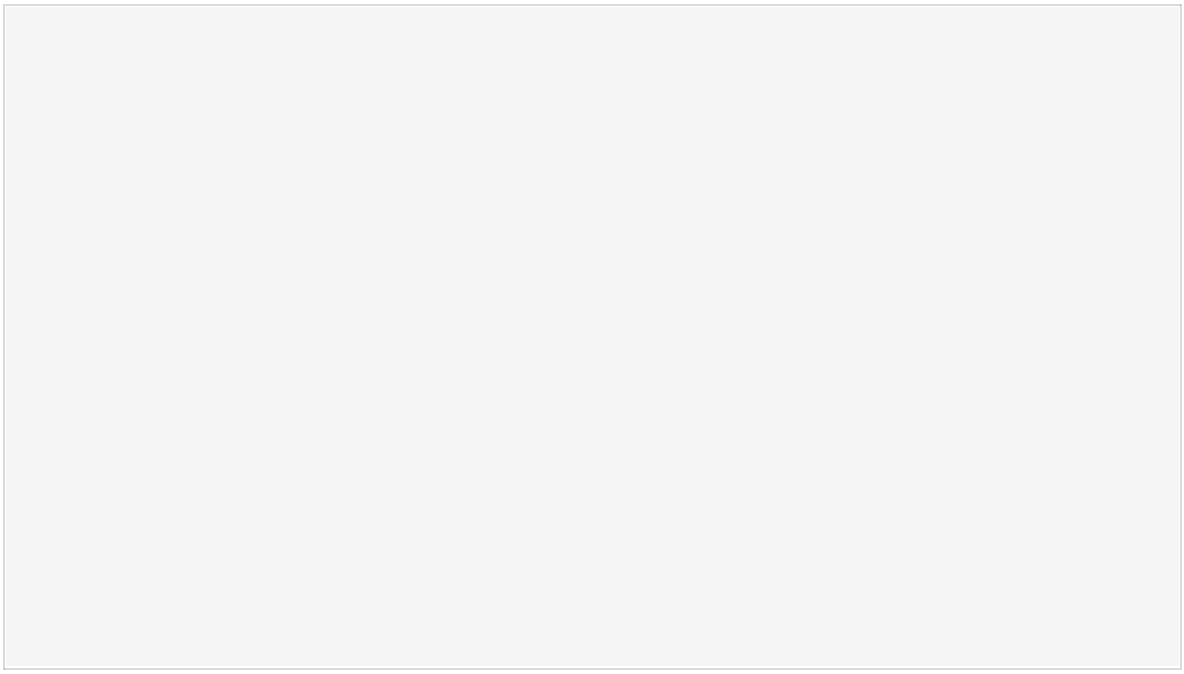


IMG_1909.jpeg



IMG-2009.jpg

Here's a view from today:



IMG_2004.mp4

Sorry about the sound. You can't actually hear what the visitors are saying and it's just really loud.

Some things that we've observed:

- the glass brick works much better than the scopes.
- the double reveal doors on the back are good too- I've seen people open up the top door and then stop themselves from opening up the "you can't unsee this" flap.
- people will open up the reveal but still want to explore the different sides. I've seen this happen a good amount. While not initially what I'd wanted to see, I think it's a natural desire to want to confirm what you've seen and I think it gets people to add up all the pieces.

May 15, 2023

Jessica Strick

Notes from today's Explainer feedback meeting:

- the new object is really easy to discern.
- would the tapper benefit from arrows (around the hole it's coming out of) to show that you can move it around/up and down?
- how about an ear icon for the hearphone?

I'm going to rearrange the new object so it's less obvious and so that the probe can hit a more interesting sounding part of it. Also, Gwen proposed swapping it out for a tambourine, which could be cool for the mix of materials and variety of sounds.

I'm not sure that the tapper needs arrows and the more I think about it, the more I'm unsure what those arrows could actually look like and can imagine it being confusing.

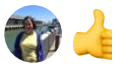
An ear icon does seem like a good idea. People are mostly using the hear phone correctly, but the extra cue would not hurt.

May 16, 2023

Mason Friedberg

 Jessica, wrapping up some thoughts on this from yesterday:

- How are we perceiving the goal of having people work together to figure out the result of the object vs. yelling out when they know the answer individually (**should we add partitions or dividers to help separate 'tasks')?**
- Along the same lines, is there anything to add to the graphic/ description to encourage or steer group think vs individual vs competition in guessing the object?
- Lastly, in the graphic/description (and following up on Williams comment), how do we bring in the relation of how to think about multiple disciplines or scientists sharing results to come to a conclusion?



May 16, 2023

Jessica Strick

Thanks for the added note, Mason!
This issue of yelling out the answer is more relevant now that the new object is a bit easier to discern.
This could be a matter of switching it out to something less discernable. I rearranged the new object so that it maybe is harder to figure out and am going to keep an eye on things and see how that goes.

I do like the idea of making the stations a little more distinct, with subtle partitions. I think this could help people focus on their side and could force a little more teamwork. It's kind of cool to be able to switch the lights while you're looking at the distorted glass brick view and it's sort of nice to be able to listen while changing the shadows. But non-aggressive partitions could communicate to people to use one side at a time and maybe talk to each other more -while not making it impossible to do two things at once.

As for the shouting out the answer issue- jeez. That's a tough one. Because I think the shouters are also the ones who aren't reading the labels.
That said, we could maybe try something like "tell others what you notice" for each side.

And I think the main label could relate a bit more specifically to LIGO science. There's definitely room on the back panel. We just don't want to overwhelm people with words. I defer to 🐓 Pearl on this one!

May 17, 2023

Jay Shepard, Project Evaluator

I observed team mystery on Sunday for about 30 mins and watched 9 groups use it. About half checked their answer, but I agree with the explainers that it was probably a bit too easy to guess, especially from the looking glass side. I'll keep half an eye on it today (wed) while doing some eval for kill the vibe

Another little bit of feedback for the final design - I noticed a few people trying to look through the hole in the answer flap rather than use the hole to lift the flap. A knob for lifting the flap might be an easy fix for that.

May 18, 2023

Mason Friedberg

Hey Team,

 Jessica and I are moving toward production in earnest. A few notes about design that we discussed today in regards to Team Mystery, for anyone interested:

- Touch probe
  - Currently bangs on box from sliding it hard --> need to create ring barrier there
  - shortened 'throw' on probe to allow less travel
  - Need to try probe lower to see if it can touch effectively, but be out of the shadow view
- Ear Phone
  - Change to USO Headphone for listening
  - Inscribe or indicate ear icon on headset
  - Anchor the cable to the exhibit so that cable movement doesn't cause sound
- Back Side
  - Get rid of large surface for graphic (need to discuss in more detail the potential for area sign BDR Barbara)
  - Potential to change flap design (something the resets after someone lifts)
  - Double flap design is great (maybe both rubber flaps); change pull hole to something more subtle
- Inside Top Box
  - Acoustic insulation could be beneficial
  - Have the lights, and the object mount adjustable for staff to change if needed (Velcro mounting, magnetic mount, etc)
  - Seems lights give the best shadow and perspective by being both behind the object and midway up the height of the box

- Inside Bottom Box
  - Organization of electronics
  - Change from 9V battery for the transducer
  - Smaller amp?
  - Auto-retract for headphone not needed

Will work on new aesthetic designs when I am back, but from our discussions yesterday, it sounds like the general idea it to narrow in the bottom portion of the exhibit to allow better access for someone in a wheelchair. Thanks all!

Jun 5, 2023
Pearl Tesler
Hi all

I'm working on refined text for Team Mystery--basically getting the LIGO connection in there explicitly. Besides that change, are there any other changes folks think might be needed, text-wise?

Note that the additions I made to the WGO are brief and I'm hoping they'll still fit on the main (front) panel. True, BDR Barbara?

TeamMystery--v6.docx
15.1 KB

Thanks,
Pearl

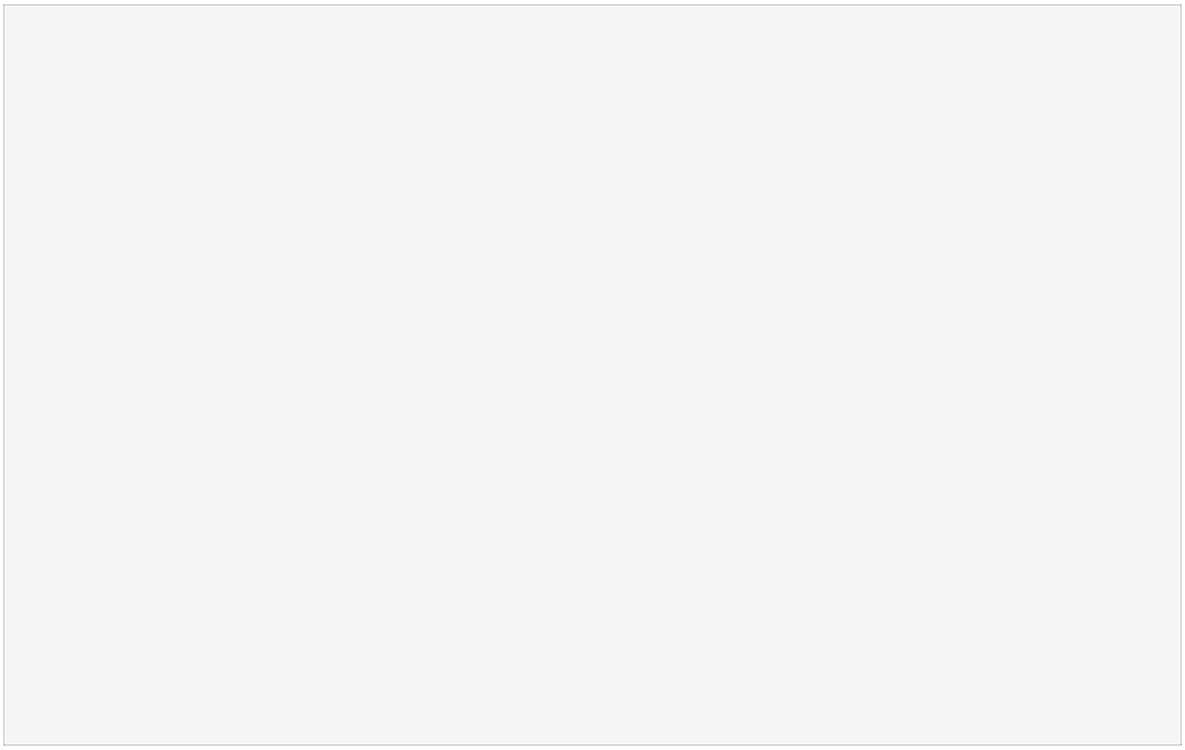
Jun 5, 2023
Barbara del Rio
Pearl Oh, yeah, it looks to me like that will fit. Thanks!

Jun 6, 2023

Barbara del Rio

New text added and revised PDF attached.

Pearl Jessica Jay



1882_TeamMystery_ExhibitLabel_proto_v3.pdf

Jun 15, 2023

Mason Friedberg

Hi All,

Posting updates to exhibit physicals here. Let me know your latest thoughts. Will be starting to think about how to best design some of the interior components for Mystery Team for ease of assembly, and changing objects. Thanks!

Edited Jun 22, 2023

Mason Friedberg

We were able to work with Bryan Day to layout some of the electronics parts we need for audio moving forward on this. Posting here for record keeping:

stick-on piezo:
https://www.amazon.com/SAPHUE-Contact-Microphone-Mandolin-Ukulele/dp/B0B5ZTV4J6/

cable from piezo to preamp:
https://www.amazon.com/Hosa-CMP-303-Mono-Interconnect-Cable/dp/B000068O3H/

piezo preamp:
https://www.bhphotovideo.com/c/product/155445-REG/Rolls_MP13_MP13_Mini_Microphone_Preamp.html

cable from piezo preamp to headphone amp
https://www.amazon.com/CableWholesale-4-Inch-Phono-Adapter-30S1-16260/dp/B000I98Z50/
&
https://www.amazon.com/dp/B01A7SGDOG/

headphone amp:
https://www.amazon.com/Douk-Audio-Headphone-Amplifier-Desktop/dp/B08C2MKBGN

 Jessica, can you order a few of those stick on piezo so we can test them next week?

Jul 24, 2023

Mason Friedberg

Posting here. Jessica, looks like having the graphic up top is still ADA good-to-go (just wanted to double check on that). Barbara, do the dimensions on the PDF prototype graphic still ring true (picture below)?

image.png

Jessica, I think I want to enlarge the peep window on the back so that people who might be in a wheel chair have better direct on view (and will probably bring it down a bit as well. Experience shouldn't change, as the hinged door will still cover it. Let me know if this sounds OK.

Jul 24, 2023

Jessica Strick

Mason - thanks for considering a better view for wheelchair users; yes- definitely a good idea!

Jul 24, 2023

Barbara del Rio

Yes, Mason ; the graphic file is still 19"x11". Thanks!
Jessica

Jul 31, 2023

Mason Friedberg

Barbara Jessica

Wondering if if will be worth it to re-do this graphic with our standard USO earphone set, rather than the telephone model?

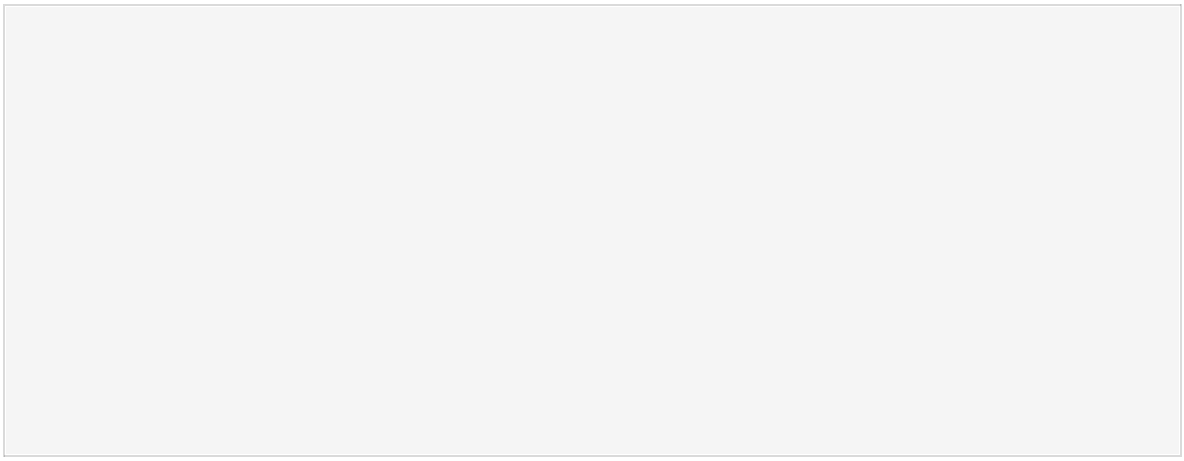


image.png

Also, wondering if the rest of these are up-to-date here?
\\freya\File Depository\Exhibits_and_Projects\Active_Projects\7103_LIGO\04 Design Build\1882 Team Mystery\06 Graphics\PDFS For Review\DNU

About to place these into CAD.
- Do they need a starboard backer, or do we generally just stick these on?
- What are the dimensions of the smaller ones?

Thanks!

Jul 31, 2023

Jessica Strick

Ah - good catch!
Yeah... I do believe we should swap out that one for the earphone.
I sent the label material sample to William last week- if we go with the embedded style I don't think it's worth making an additional backer for any of the labels that can stick directly onto the exhibit.
BDR Barbara- I checked the PDFs for review file and it looks like a couple things aren't there.
Missing: the label for the glass brick and the "stop! you can't unsee this" label (the on that goes under the back panel door.

BDR

Jul 31, 2023

Barbara del Rio

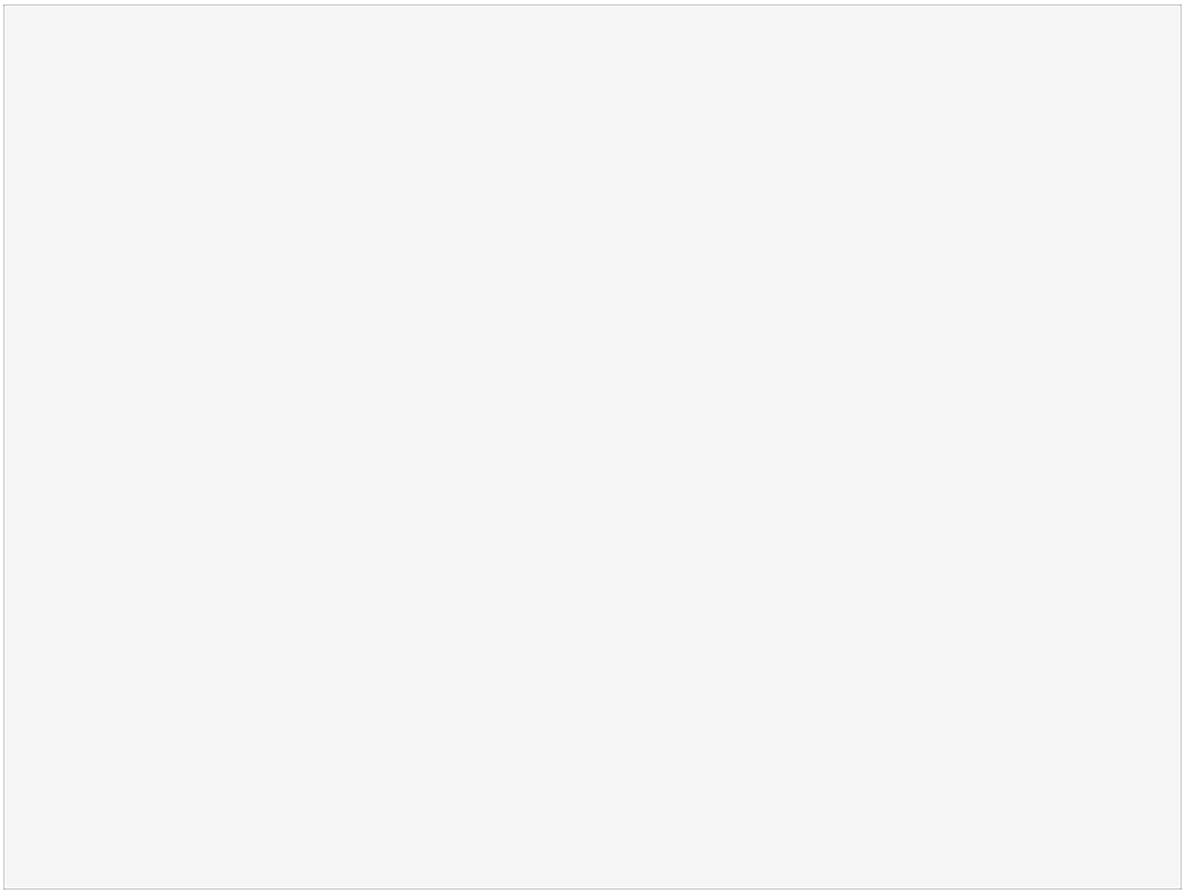
 Jessica MF Mason Devastated to lose our beautiful phone model Jessica, but happy to make a new use drawing if someone can get me a photo of someone using a standard USO earphone.

Thanks!
B

Aug 2, 2023

Barbara del Rio

🐓 Pearl We met today at the exhibit, and wanted to double-check that the prototyped text on this side (Look inside...) is approved.



IMG_3291_LookText.JPG

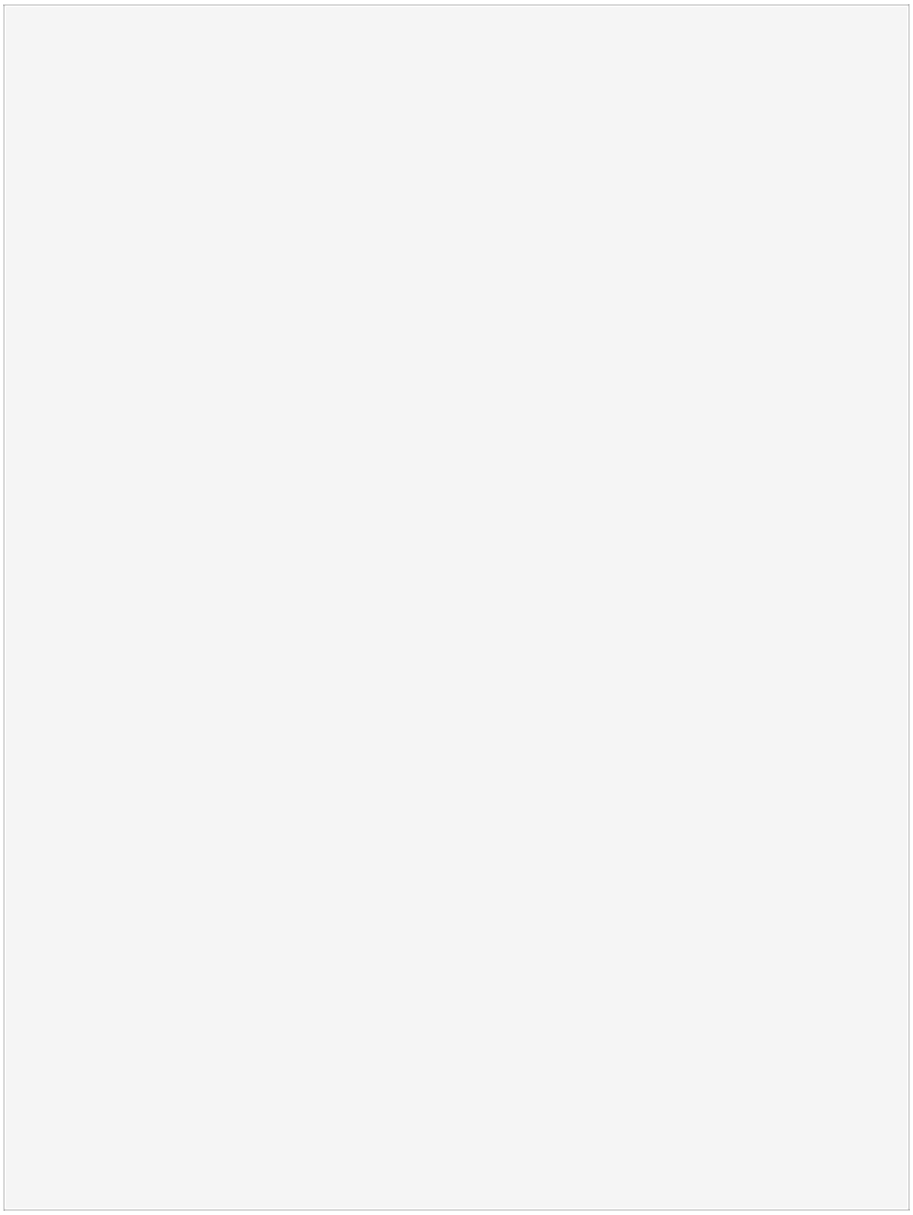
Jessica

Aug 2, 2023

Pearl Tesler

Yep, Barbara, that's the text I have in my most current version.

On a completely unrelated LIGO topic,  Jessica, check out this exhibit in Seoul. Wish I could read the signage, but the fabric brings back fond memories of our prototyping session earlier this year.



040D206E-DDB9-4912-9EB8-3B89047D9043.jpeg

Aug 2, 2023

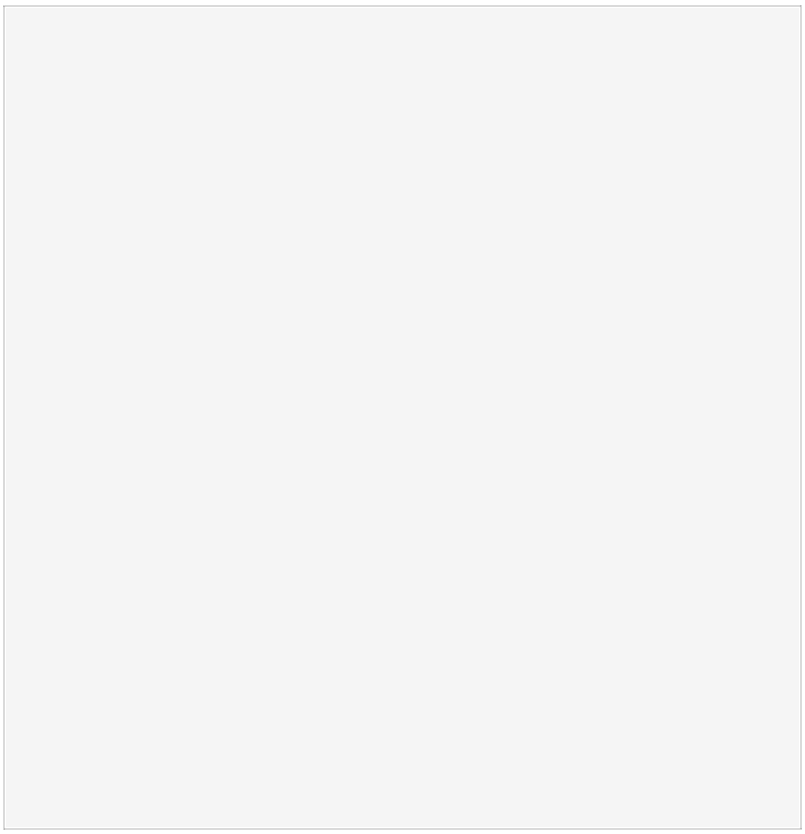
Jessica Strick

Taxi cab gravity!

Aug 3, 2023

Mason Friedberg

BDR Barbara, can you please recreate our graphics photo with this new one of Jessica with the USO headset? Let us know if this photo is OK. Thanks so much!



Jessica With USO Handset.png

Aug 3, 2023

Barbara del Rio

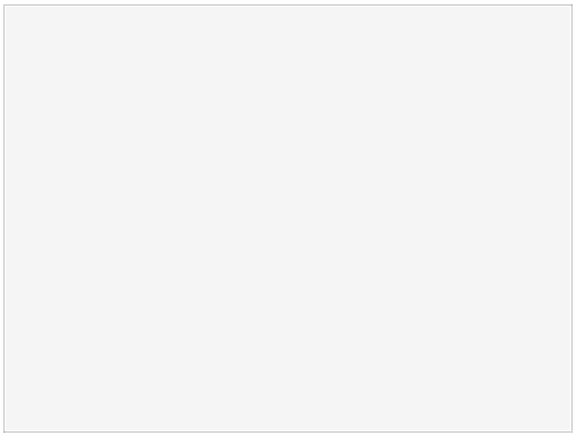
MF Mason That looks really nice! Do you have any others I could see? The focus seems a little bit soft, for the style of drawing we make.

Thanks,
B

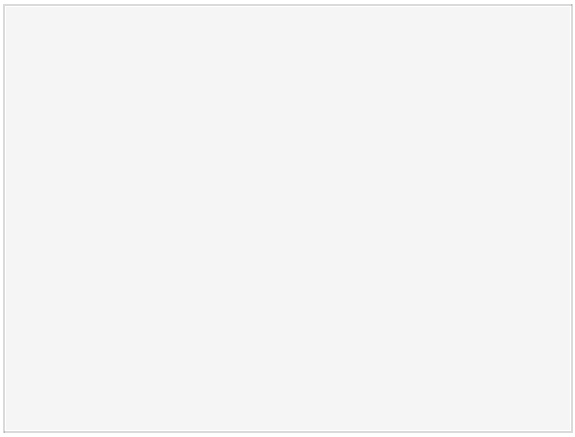
Aug 3, 2023

Mason Friedberg

Would this one be any better (uncropped)?



IMG_5004.jpg



IMG_5003.jpg

Aug 3, 2023

Mason Friedberg

Just be sure to crop to the same frame as the first one I sent, as we don't need the full probe and cord length.

Aug 3, 2023

Barbara del Rio

MF Mason These do look better, thanks!

Aug 4, 2023

Mason Friedberg

BDR Barbara, incoming dielines! All graphics dielines for 1882_Team Mystery are now on Freya in the *Dielines* folder under *06 Graphics*. Some photos to help pinpoint which is which (Key Diagrams to come soon, but this should be sufficient in the interim):

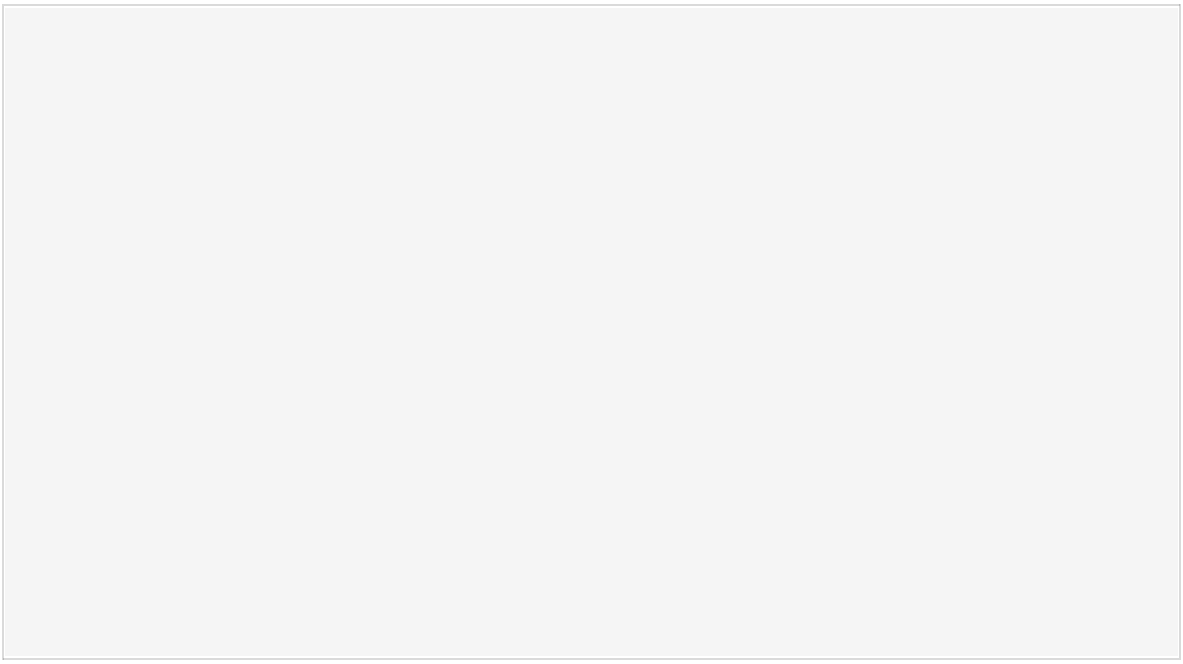


image.png

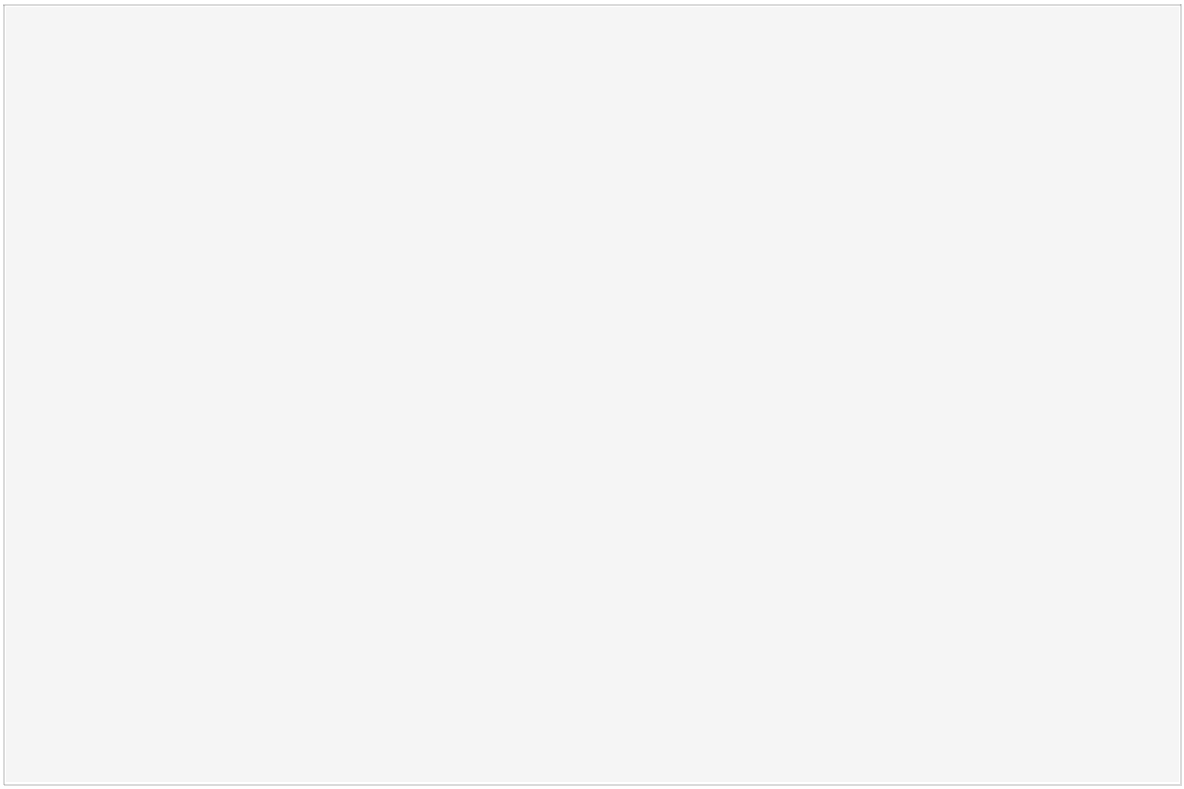


image.png

Some notes:
- *1882-77-G01_MAIN GRAPHIC has remained the same (19"x11")*
- *1882-77-G02_BUTTON GRAPHIC* is new dimension and has the button cutouts in it
- The *1882-77-G03_LISTEN GRAPHIC* should have the new USO sketch of Jessica on it (will not have a backer)
- *1882-77-G04_LOOK GRAPHIC* is final dimensions (will not have a backer)
- *1882-77-G05_REVEAL DOOR GRAPHIC* is now the entire door with holes included
- *1882-77-G06_REVEAL DOOR SECONDARY GRAPHIC* is now final dimensions (we said we wanted to try this one as a vinyl type graphic to stick on the flexible rubber door)

Please let me know if you have any questions, or if something seems amiss from the notes above. Thanks very much!

Aug 5, 2023

Jessica Strick

This looks really great, MF Mason!
The one thing I'm wondering about is if the top main graphic panel could move a bit further back so that it's more visible at the sides.
I think it'd be worth getting spare stick on labels for the rubber flap door- that label will be prone to extra wear and we're not totally sure how it'll do on rubber.

Aug 7, 2023

Barbara del Rio

Good call, Jessica . I've started a graphic tracking sheet for LIGO, and have indicated that in the quantity column. Do you think three will be enough?

👍

Aug 7, 2023

Mason Friedberg

Jessica, makes sense. I can design the bracket to allow for more room. It won't affect the dieline though, so we are good on that.

BDR Barbara, 3 extras would mean one extra for each exhibit. Perhaps we can do 6, that way each exhibit has two spares (that would make 9 total when counting the one that will be on the exhibit itself).

Aug 7, 2023

Barbara del Rio

MF Mason Does this mean we're making three Team Mystery exhibits?
Jessica

Aug 7, 2023

Mason Friedberg

BDR Barbara, yes! Apologies if that was not communicated well. We will have three (3) separate (but of the same design) Team Mystery exhibits. Only one (1) Tuned Damper exhibit.

Aug 7, 2023

Barbara del Rio

MF Mason And there will be no differences in the labels? Thank you for clarifying.

 Jessica

---

Aug 7, 2023

Mason Friedberg

No difference in labels, BDR Barbara. The last step here is just figuring out what size we want the area stand for the LIGO connection graphic that will sit between all three of them.  Jessica does this all sound right?

 Yes!👍

Aug 7, 2023

Mason Friedberg

BDR Barbara all of the complimentary PDFs for the Dielines are now on Freya, as well as a Key Diagram to help reference where each graphic will be placed. Hope this helps.

Aug 10, 2023

Mason Friedberg

BDR Barbara, this is the idea with the area sign for LIGO Connection for the pod of three Team Mystery exhibits (taken from a KL example):

image.png

It is currently sized for a 14"x30" graphic. What would be the size we are going for? I think the stand is a bit taller than what we will need, but we can make adjustments. Let me know!

Aug 10, 2023

Barbara del Rio

MF Mason I'm attaching a PDF of what the graphic might look like at 14"x18".

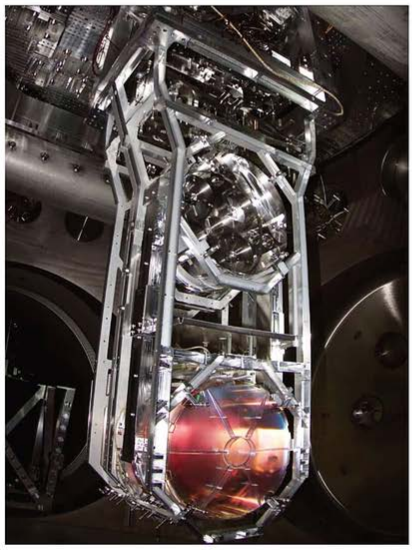
Pearl I'm not sure I have the correct text intended for this freestanding connecting graphic. If this isn't what we want, can you point me to the correct text?

Thx,
B

1882_TeamMystery_AreaSign | 14" x 18"

The LIGO Connection

Scientists must work very hard to reduce vibrations in the LIGO detector. Seismic waves, thunder, passing trucks, even footsteps could disturb LIGO's measurements. A variety of stabilization systems work together to isolate the detector from unwanted vibrations and to damp vibrations that do occur.



LIGO's mirrors are suspended from a system of pendulums and weights that are carefully designed to reduce unwanted vibrations.

1882_LIGO_Connection_Label.pdf

Aug 11, 2023

Pearl Tesler

Hi BDR Barbara

Confused a bit here because this thread is about **Team Mystery** and the text you're asking about is for the other exhibit, **Race to Stillness**.

In any case, here is current text for both, attached.

Racing toward stillness,
pt

TeamMystery--v6.docx
15 KB

Kill the Vibe--V5.docx
31.4 KB

Aug 11, 2023

Barbara del Rio

Hi Pearl ,

The label I posted is for a freestanding graphic that will pertain to both exhibits. Have you written separate text for such a label?

MF Mason

Aug 11, 2023

Jessica Strick

Pearl
BDR Barbara
MF Mason

I am now wondering if the LIGO connection is in fact embedded in the main label (though it is not called out as "LIGO Connection"). Was there ever separate LIGO Connection text for Team Mystery? I'm not seeing it on this thread.

The label with the pendulum system image is only for Race to Stillness and will likely not be freestanding.

Aug 11, 2023

Pearl Tesler

Yes, in fact, the LIGO connection IS embedded in main label for this one.

Which might argue for us leaving that header OFF of the other one.

I'm personally not a fan of that header and don't think they should have it on any of their labels. (They currently have it on some, but not all, which has the effect of making the ones that don't have seem like they have no connection.)

I only added it to the other one as a "b" option because the LIGO folks were unsure which way to go and wanted to see it both ways. Personally, I think it works fine w/out the header there.

pt

Aug 11, 2023

Pearl Tesler

Mason, in answer to your question, no, there is no text that pertains to both exhibits. We were interested in a stand when we couldn't figure out where to put the WGO for **Race to Stillness.** But now that we've landed on the "earlobe" side-attached label for that one, there's no need for a stand anymore.

pt

Aug 11, 2023

Barbara del Rio

Pearl OK, I think I know where we're at with all of these labels now. Thank you!

I'm putting together a package that will show them as two sets; one for Team Mystery and one for Race to Stillness. At that point we can evaluate them in context and make any necessary adjustments that come to light.

Jessica Mason

Aug 11, 2023

William Katzman

We've debated internally as to whether explicitly or implicitly call out LIGO connections on exhibits. I think I am liking the idea of using graphic call out on both signs by doing the grey box when LIGO connections are made. Then it could be in the "What's going on" section or a Going Further section, but it is kind of highlighted for the reader without being hit with the LIGO Connection separation. One criticism we have taken for years, is the lack of connection between our exhibit hall and our project. So the signage work is to counter the criticism.

Also Joe had suggested additional text under the mirror picture: The additional line is the bold part: LIGO's mirrors are suspended from a system of pendulums, weights, and springs that are carefully designed to reduce unwanted vibrations. **To make the mirrors extra quiet, their alignment and damping is done indirectly, from the higher stages, using mostly electronic systems!**
With that being said, I wonder if adding a label mirror that points to the bottom round orange-ish piece on the graphic would help others make sense of this picture. Essentially most of the damping takes place above the second round object.

Aug 11, 2023

Mason Friedberg

Hi all Jessica Barbara Pearl William, I think we got a bit confused here. Let's keep this thread for TEAM MYSTERY. The LIGO Connection graphic photo posted earlier was for the other exhibit, RACE TO STILLNESS.

For final clarity, as mentioned, it looks like the LIGO Connection relationship for this particular exhibit is in the main graphic description for TEAM MYSTERY already. That being said, it will be repeated on each of the three exhibits. Is this the expectation? If so, we do not need a center standing sign between the three (3x) TEAM MYSTERY exhibits. Does this sound correct?

Aug 11, 2023

Jessica Strick

This sounds correct to me!

Aug 11, 2023

Jessica Strick

Barbara
William
Pearl
Just want to make sure we also incorporate William's suggestion of adding a grey box around the What's Going On to visually call out the LIGO connection.

Aug 17, 2023

Mason Friedberg

BDR Barbara, when you update the supplemental graphics, can you post them back into Freya and let me know? I would like to transpose them into the CAD model when available. Thanks very much!

BDR Yes, I will.

Aug 28, 2023

Barbara del Rio

Jessica Pearl MF Mason Please see the PDF I attached **AT THE TOP** of this thread.

If these look all right to you, they can be shown to the client for approval. For now, I have assumed we will produce these in the embedded polycarbonate fashion we've grown accustomed to.

Thx!
B

looks great!

Sep 8, 2023

Pearl Tesler

Thanks BDR Barbara--PDFs look great to me.

Sep 26, 2023

Mason Friedberg

BDR Barbara just checking in to make sure we have ordered graphics for this. Thanks!

Sep 29, 2023

Barbara del Rio

MF Mason Yes, I placed the order September 18.

Thx,
B

MF 🙌

Oct 2, 2023

Barbara del Rio

MF Mason , I just got a message from Shipping & Receiving, and the LIGO graphics are here! I may not be in until Wednesday, so if you want to pick them up, that's fine with me.

Oct 3, 2023

Mason Friedberg

BDR Barbara, these are picked up and near the LIGO production area in El Centro for your viewing and approval!

Oct 4, 2023

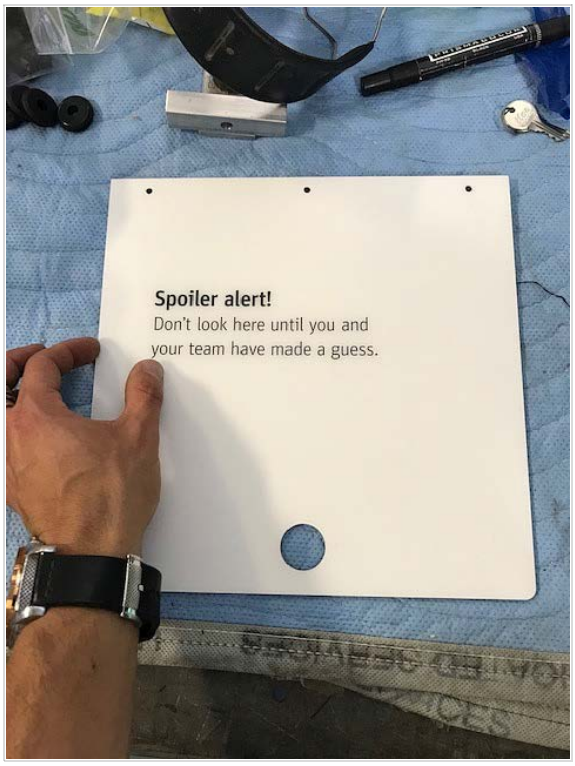
Barbara del Rio

MF Mason These labels are also perfection!

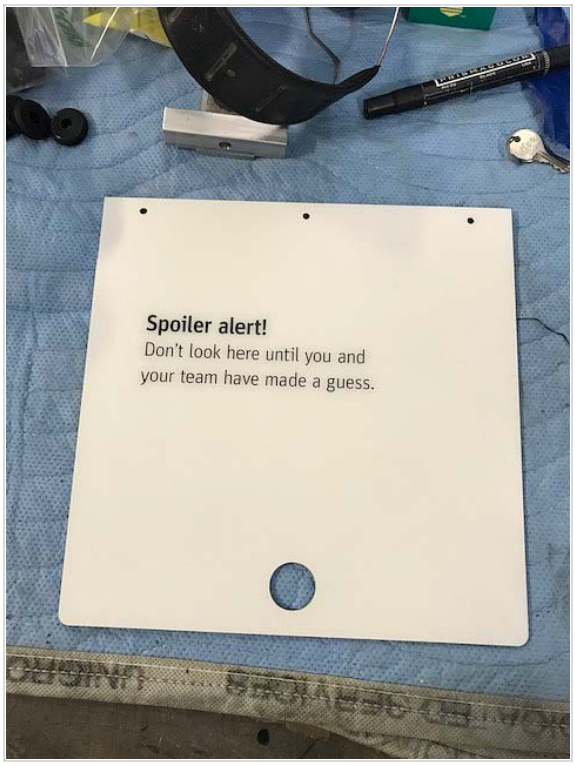
Oct 6, 2023

Mason Friedberg

@BDR Barbara I just noticed that one of the labels for Team Mystery (the main reveal window) was off-center. Was this intentional? Please let me know, as I was about to install them! See attached image:



IMG_5265.jpg



IMG_5266.jpg

Oct 6, 2023

Barbara del Rio

Yes, it was. Thanks for checking!

@MF 👍