

Conceptual Physics

Exploratorium Field Trip

Name: _____

Date: _____ Period: _____

Extra Credit Challenge!

If someone in your group has a digital camera and you take pictures of your group completing these exhibits you *may* earn Extra Credit.

Exhibits are in general order starting from the entrance and working to the back of the museum. It then continues to the upstairs portion. You do not have to do all the experiments in order but it will help.

1. **“Gas model”** *across from geysers* Play with the exhibit. What happens to the speed of the bouncing balls as the space they are in gets smaller?

2. **“Hot or cold chimneys”** *across from the geysers* Place one hand on each “chimney,” one hot and one cold. What temperature do you feel when you put your hands on the center coils? Why?

3. **“Water freeze”** *near other heat exhibits*

Make a sketch of frozen water seen through the magnifying glass:



4. **“Icy bodies”** *across from heat exhibits, near geysers* What are the icy chunks made of?

5. **“Colored Shadows”** *along back hallway on the right hand side* If you stand in front of a white screen you will see many different colored shadows. What do you have to do in order to get a black shadow? *Be specific!*

6. **“Bouncing Ball”** *near “Hyperbola Stick” exhibit* Release a ball down the funnel and count how many times the ball bounces before coming to rest. _____ bounces. Does the ball bounce as high as it did the first time? Why or why not?

7. **“Cantenary Arch”** *underneath the piano* Complete the arch. When you have it standing have a chaperone initial here _____. Explain *why* the arch stays up using Forces.

8. **“Gravity Calculator”** *near “Cantenary Arch”* Experiment at first with what the relationship between where you put the ball and where it falls. Now place the ball bearings at 4, 9, 16, 25 and 36. Describe what happens.

9. **“Sound Domes”** *near cafeteria* Have one group member sit in one dome and another group member in the other.

a. Where is the spot in the dome where you can hear the other person speaking?

b. Where in between the two domes can you find the other people speaking?

10. **“Aha moment”** *in the new mind exhibits in the back, small table* Read the prompt and try to figure it out. When you *absolutely* can’t figure it out, check the hint. How do you get the two steel balls in the two opposite sides?

11. **“Strobe fountain”** *in the back behind the Tactile Dome* Turn the light off and on. Why does the fountain appear different in light than in dark with the strobe light on?

Now go up the stairs to the second level

12. **“No Peek Pong”** *near “Find that Sound”* Play the game, what was your highest score? _____

13. Find three (3) exhibits about **Sound** *not used in other questions* and explain the point of the exhibit:

Exhibit #1: _____	Exhibit #2: _____	Exhibit #3: _____

14. **“Magnetic Pendulum”** *Upstairs past Biology Exhibits.* Find the large pendulum that can be swung with magnets. Starting from rest, work with other students to get it swinging. When you have it swinging have a chaperone initial here _____.

15. What was your *favorite* exhibit and **why**?

16. EXTRA CREDIT: send your teacher pictures of your field trip! Or, try to stump your teacher about an exhibit. (*BUT you have to know how it works first!*)