

May 2020

LabPhysics_IS5_20151012_Seg01.pdf

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"LabPhysics_IS5_20151012_Seg01.pdf" (2020). *Ethnography Transcription*. 86.
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Setting: A physics lab.

Participants: IS5 (ITA, glasses, female), S1 (male, not visible)

0:00

xxx IS5: did you see the email I sent you ↓about the time.
xxx so you have to complete your experiment before-
xxx uh by 8:30,
xxx so please concentrate on the lab session when you're in the
xxx class.
xxx if you can't?
xxx complete the exam.
xxx I won't give you any other-
xxx I mean
xxx I won't give you more time to:
xxx let you finish your ° results.°
xxx I need to guarantee the fairness to other students.
xxx ok?
xxx so today, we are going to measure the conservational
xxx momentum?
xxx who has their equipment?
xxx you have an (air track),
xxx two gliders, (.2) ((grabs a piece of equipment))
xxx you have air track,
xxx small glider,
xxx and big glider,
xxx and two ((incomprehensible)) and the computer,
xxx so uh first you need to measure the mass,
xxx you need to measure masses of gliders
xxx you can use a scale here
xxx to measure your-
xxx to measure the masses of the-
xxx ↑of the glider
xxx after you measure masses of glider you need to measure
xxx ((incomprehensible))
xxx what is the ((incomprehensible)) you need to measure
xxx it is a ((incomprehensible)) on top of the (.)-
xxx uh glider,
xxx both of them have ((incomprehensible))
xxx on top of the glider,
xxx and errors of the-
xxx the errors of the width is one millimeter,

xxx of course error of the width ((incomprehensible)) error of
xxx the mass is one gram so
xxx you have ((incomprehensible)) them on your worksheet.
xxx after you measure the values and the mass.
xxx you need to-
xxx you need to check if you air pressure is level,
xxx do you know how to check the air pressure?
xxx you did it in last experiment so I- (.)
xxx I mean you are supposed to know how to check the-
xxx if the air check is level or horizontal so
xxx >please check if your air track is level or horizontal<
xxx before
xxx you tell me ((incomprehensible)).
xxx uh just put a glider on the air track,
xxx and relea-
xxx >keep its stationary and release it.<
xxx to make the things
xxx the glider will stay stationary
xxx if the glider stay stationary then the air track isn't
xxx horizontal
xxx you need to moves- ((alt: if it moves))
xxx it is not horizontal you need to adjust so screw on the
xxx (wet) end of the air track to make sure that your air
Xxx track
xxx is level.
xxx so
xxx and then,
xxx now you are ready to ((incomprehensible))
xxx so you need to compare your ((incomprehensible)) to your
xxx computer,
xxx u:h click on experiment five,
xxx ((incomprehensible)) is for ((incomprehensible))
xxx open the software now.
xxx and (nest) you might need to click on ((incomprehensible))
xxx for twice.
xxx because you need to connect two ((incomprehensible)) to
xxx your computer
xxx so you might need to click on ((incomprehensible)) twice
xxx so that you can connect your ((incomprehensible)) to your
xxx computer,
xxx is it ok with your?
xxx ((incomprehensible))
xxx ok
xxx after you click on-
xxx after you uh connect your computer,

xxx and your ((incomprehensible)) you will find that
xxx on the top of the left table
3:00
xxx see the top of the left table
xxx there is ↑a light
xxx there is a ((incomprehensible))
xxx ((incomprehensible)) one and ((incomprehensible)) two
xxx (please click on) ((incomprehensible)) one and
xxx ((incomprehensible)) two
xxx so ((incomprehensible)) we use them to measure the data
xxx we need to make sure
xxx which is the-
xxx which ((incomprehensible)) correspond to which
xxx ((incomprehensible))
xxx so one- one simple math or two uh-
xxx to test it is that plug the ((incomprehensible)) (on your
xxx own)
xxx and see whose ((incomprehensible)) is it locked
xxx if it say it blocked,
xxx it mean that this ((incomprehensible)) correspond to that
xxx ((incomprehensible))
xxx of course another ((incomprehensible)) correspond another
xxx ((incomprehensible))
xxx so: you uh-
xxx when you clarify the ((incomprehensible)) and the state
xxx you can start to ((incomprehensible)) data
xxx and there are three parts you need to do today.
xxx the first part is the-
xxx the last ((incomprehensible))
xxx and first you need to slide the small one
xxx into the big one.
xxx ok look at your glider,
xxx u:h
xxx on the one side there's a piece of metal,
xxx and the other side there's a piece of (velcro)
xxx so this metal performs like a spring,
xxx an:d this (velcro) performs like uh-
xxx the (velcro) will make the two ((incomprehensible)) stick
xxx together,
xxx and they will move together.
xxx so-
xxx so the metal is used for the ((incomprehensible))
xxx and the (velcro) is used for the (indirect)
xxx ((incomprehensible))

xxx so in the first part
INR you need to ((incomprehensible)) it and you need to small-
INR slide the small one into the-
INR into the (.)
xxx S1: big one=
xxx IS5: =big one ((Student interrupts her and finishes her
xxx sentence))
xxx so uh
xxx please make sure that this two-
xxx two pieces of metal face each other,
xxx like such position
xxx and then,
xxx put the small one ((incomprehensible)) the folded one
xxx ((incomprehensible))
xxx and then,
xxx put the second-
xxx put the big one upstream of the second
xxx ((incomprehensible))
xxx but
xxx close-
xxx close but upstream of the second ((incomprehensible))
xxx and then keep them stationary and slide the small one?
xxx the small one will go,
xxx and slide with the ↑big one
xxx and pay attention to the directions after
xxx ((incomprehensible))
xxx you-
xxx you might find that in this-
xxx in the first part (this too) where uh-
xxx (.2) this two (.) will move in opposite direction.
INR like uh the small one uh-
INR the small one,
xxx collide with the big one,
xxx and these two move in opposite direction
xxx so
xxx and
xxx so this one will go to small one
xxx the small one pass ((incomprehensible)) the big one,
xxx and the big one will pass ((incomprehensible)) too
xxx and these two-
xxx and they will hit the end,
xxx of the,
xxx air track,
xxx and they will bounce back,

xxx right?
xxx so please stop-
6:00
xxx please stop ((incomprehensible))
xxx before this one (falls back).
xxx because if this one falls back,
xxx ((incomprehensible)) again then you measurements will be
xxx wrong.
xxx so you (won't) get the (data) you want.
xxx so this is the first part.
xxx and after-
xxx and- and you will ((incomprehensible)) on the left table
xxx on your computer,
xxx there might uh-
xxx there might such a-
xxx table,
xxx as this,
xxx the one is it was blocked.
xxx zero means unblocked so-
xxx the data you need to write on your worksheet
xxx ((incomprehensible)) is the time interval.
xxx it might be the:
xxx (Δ) T might be a baby T goes to my T one or T two.
xxx uh over T 3 or T 4 or T 5 or T 6.
xxx the data you need to (record) on your-
xxx on your worksheet,
xxx is the time interval.
xxx the time difference,
xxx so this is the first part,
xxx in the second part,
xxx you need to slide the big one into the small one.
xxx then you still need to ((incomprehensible)) a-
xxx I mean make sure these two pieces of metal fits eachother,
xxx and put the sm- big one,
xxx upstream of the first
Xxx ((incomprehensible))and the small one
xxx ((incomprehensible)) of the second ((incomprehensible)).
xxx and slide the big one,
xxx and after big one hits the (.) small one,
xxx pay attention to direction it moves,
xxx it should move in the same direction.
xxx and-
xxx so this two I mean-
xxx so the first ((incomprehensible))-
xxx I mean the sli- small slide will pass the (.) second

xxx ((incomprehensible)) first
xxx and
xxx the big one will pass the ((incomprehensible)) (.)
xxx successfully,
xxx so,
xxx and then the small one might hit the end of the air track
xxx and bounce back.
xxx so please stop the small one before it hit the air track
xxx and bounce back.
xxx because if it bounce back,
xxx and it will hit the big one again,
xxx so the big one will be a-
xxx (change the direction) and it might pass the
xxx ((incomprehensible)) again,
xxx so you will get > the wrong (data).<
xxx so: ,
xxx stop the glider before it bounce back.
xxx this is part two.
xxx in part three you need to measure ((incomprehensible))
xxx inelastic ((incomprehensible)),
xxx u:m now you need to turn your (.)
xxx glider around,
xxx to make sure the back-
xxx the pieces of ((velcro)) face each other,
xxx and then put the-
xxx big one
xxx upstream of the first ((incomprehensible))
xxx and the small one upstream of the:-
xxx second ((incomprehensible)) and slide the first-
xxx slide the (.) big one.
xxx ((incomprehensible))
xxx uh-
xxx on the small one
xxx these two will stick together,
xxx and they will move together,
xxx and that's what we call ((perfectly)) inelastic.
xxx and before these two slide the ((incomprehensible)) to
Xxx the-
xxx uh the-
xxx end of the air track and bounce back
xxx you need to stop it.
xxx you can stop taking data,
9:00
xxx or you can stop the glider.
xxx so make sure you won't collect wrong data,

xxx so until now you have (.)
xxx complete these three tables on your worksheet.
xxx so you need to use the computer to analysis data.
xxx so you can open the online system.
xxx and input your data,
xxx but remember to ((incomprehensible)) units of the (.)
xxx length and width in (meter) and you record unit for masses
xxx is uh-
xxx is kilograms
xxx so try to convert your units into meter and kilogram when
xxx you input your data into computer.
xxx you can use the unit uh-
xxx of grams or centimeter or millimeter,
xxx on your worksheet.
xxx bu:t remember to convert your meas-
xxx convert your units when you-
xxx data into computer,
xxx ok uh::-
xxx yea so and when you get the result,
xxx the computer gives to you.
xxx there will be a: (.2)
xxx you get result there will be a-
xxx kinetic energy,
xxx the momentum,
xxx the kinetic energy befo:re,-
xxx the kinetic energy befo:re the (collision),
xxx the kinetic energy after the (collision),
xxx you will use the prime
xxx >K prime or T prime to represent the quantities after the
xxx collision,<
xxx an:d the momentum before collision and momentum after
xxx collision.
xxx and of course,
xxx there-
xxx there (arrows).
xxx to represent data on your worksheet and compare,
xxx if your-
xxx if your momentum and the kinetic energy is conserved or
Xxx not.
xxx so the-
xxx the standard that uh if your-
xxx the standard that if your (.) momentum or your (.) kinetic
xxx energy is conserved or not is that-
xxx (.)uh before collision there is a-
xxx this is the P it's a (value) P,

xxx and this is (arrow) bar right?
xxx and after collision this is the value of P prime,
xxx and this is (arrow) bar.
xxx you see these two (arrow bar),
xxx overlaps
xxx this uh is a consistent.
xxx this means uh your kinetic energy or your momentum I mean
xxx the-
xxx quantity you write here is conserved.
xxx if the (arrow bars)(.) don't overlap-
xxx so it's not conserved.
xxx or consistent,
xxx in this experiment it mean that this quantity is not
xxx conserved.
xxx so this is the standard um:-
xxx the- we-
xxx you need to to make sure to verify the-
xxx if the (.) quantity is conserved or not.
xxx so (during the) you have complete all of the experiment you
xxx need to do today.
xxx so do you have any question?
12:00
xxx alright so if you have any question I will open the air
xxx track and you can start the experiment.
xxx first measure the (lengths) of the gliders,