



Trent University

The audio part of this presentation was recorded for an earlier semester and so it may not make complete sense for our course...

# Physics 209

Put on your **speakers or earphones first**


Then, up on the top tool bar of your screen click on:

“**Slide Show**” and then

“**View Show**”.....

Then hit the “**space bar**” once



A cartoon illustration of a bald man with a friendly expression, wearing a grey suit, white shirt, and red tie. He is pointing his right hand towards a large white sign that he is holding up with his left hand. The sign contains the following text:

***Welcome to  
Physics 209:  
Physical Science  
for Elementary  
Teachers  
2005-2006***





**Johann Beda**

**First: let's get to know who I am; that's me**

**Instructor at Trent since 2003....**

- taught at UIUC, McMaster, Trent**
- Research interests in Physics Education**





**Johann Beda**

**First: let's get to know who I am; that's me**

**Instructor at Trent since 2003....**

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**Research**

- High Energy Theory (Particle Physics)
- Physics Education

**Interested in how people learn science...**



I'd like you to jot down (on the worksheets) three or four items about you... anything you think might interest others

1) I'm a hello

2)

3)

4)



**Now share your list with your neighbour  
for a few minutes. Meet a classmate.**

**(Don't worry, you will not have to share with everyone)**



**We all do it sometimes, don't we?**



**Again on the worksheets, I'd like you to jot down three or four ideas about your expectations for Physics 209....**

1)

2)

3)

4)





**Again on the worksheets, I'd like you to jot down three or four ideas about your expectations for Physics 209....**

**1) 100% "A+"**

**2)**

**3)**

**4)**



**Now share your list with your neighbour  
for a few minutes.**

**Are your expectations the same as theirs?**



**Now here are some of my ideas  
about my expectations for Physics 209....**

**1)**

**2)**

**3)**

**4)**



**Now here are some of my ideas  
about my expectations for Physics 209....**

**1) Safe Classroom**

**2)**

**3)**

**4)**



**Now here are some of my ideas  
about my expectations for Physics 209....**

**1) Safe Classroom**

**2) Restraint**

**3)**

**4)**



**Now here are some of my ideas  
about my expectations for Physics 209....**

- 1) Safe Classroom**
- 2) Restraint**
- 3) Ontario 1-8 Curriculum**
- 4)**

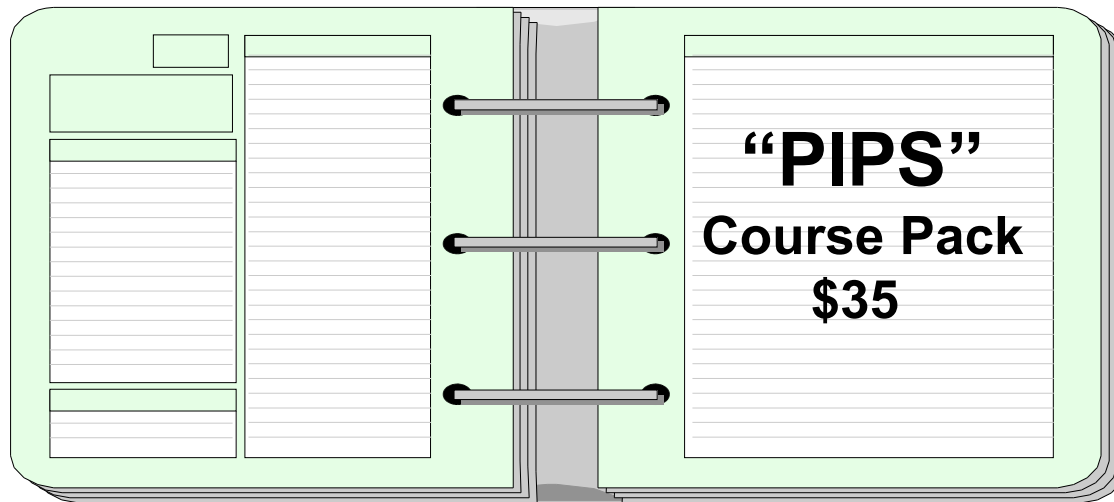


**Now here are some of my ideas  
about my expectations for Physics 209....**

- 1) Safe Classroom**
- 2) Restraint**
- 3) Ontario 1-8 Curriculum**
- 4) Have Some Fun Together**



**Text / Workbook:**  
**“Powerful Ideas**  
**in**  
**Physical Science”**





“PIPS” presents **Case Studies** that will ....



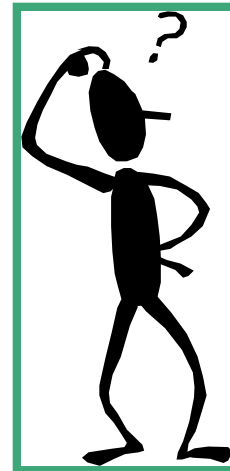
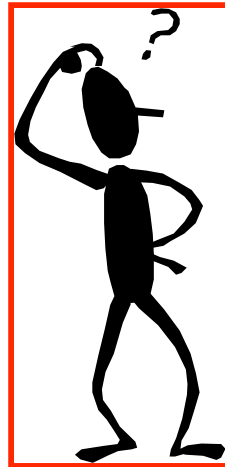
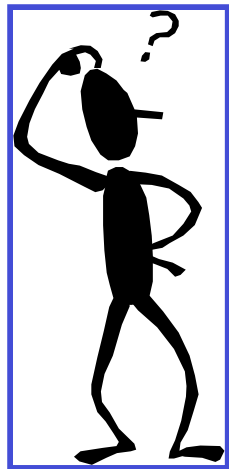
“PIPS” presents **Case Studies** that will ....

- clarify things you already know



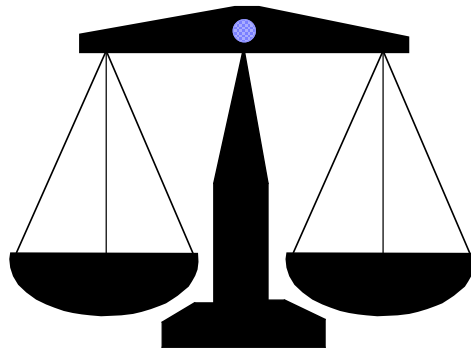
“PIPS” presents **Case Studies** that will ....

- clarify things you already know
- reveal differences among the class



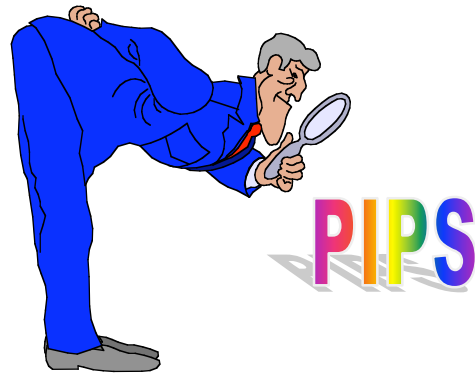
**“PIPS” presents Case Studies that will ....**

- **clarify things you already know**
- **reveal differences among the class**
- **get you to predict outcomes**



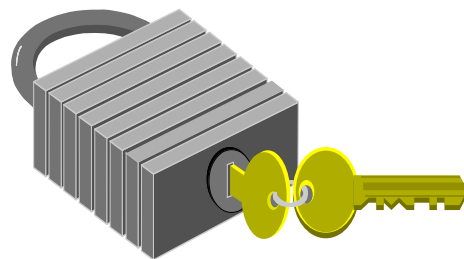
**“PIPS” presents Case Studies that will ....**

- **clarify things you already know**
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- **get you to predict outcomes**
- **lead you to experiment and discover**



“PIPS” presents **Case Studies** that will ....

- clarify things you already know
- reveal differences among the class
- get you to predict outcomes
- lead you to experiment and discover
- document what you have discovered



**“PIPS” presents Case Studies that will ....**

- **clarify things you already know**
- **reveal differences among the class**
- **get you to predict outcomes**
- **lead you to experiment and discover**
- **document what you have discovered**
- **examine scientific learning processes**



## **“PIPS ...**

- a) elicits students' existing notions in writing and in groups.**
- b) presents *disequilibrating experiences* which prompt reexaminations and reevaluations of existing notions.**
- c) engages students in carefully designed collaborative activities.**
- d) leads students to constructing their own new notions and improved conceptual understanding. “**

**Source: “PIPS instructor’s guide”**





# Engaged Learning in.....

- Light & Colour
- Electricity
- Motion
- Pulleys, Levers and Gears



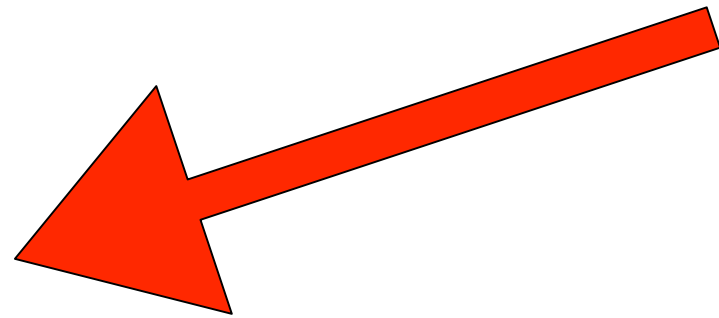
**Let's examine an example taken from.....**

- Light

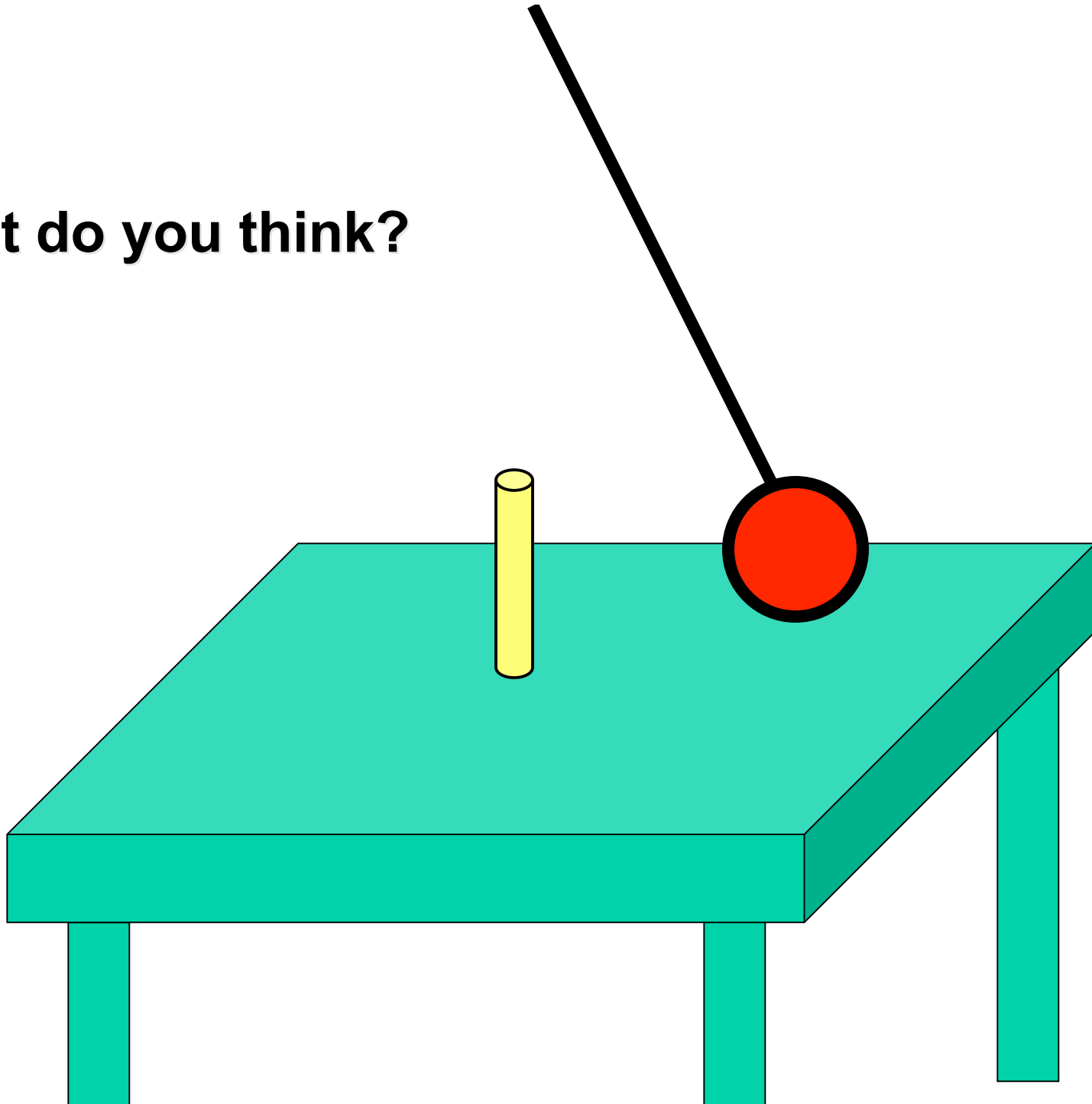
- Electricity

- **Motion**

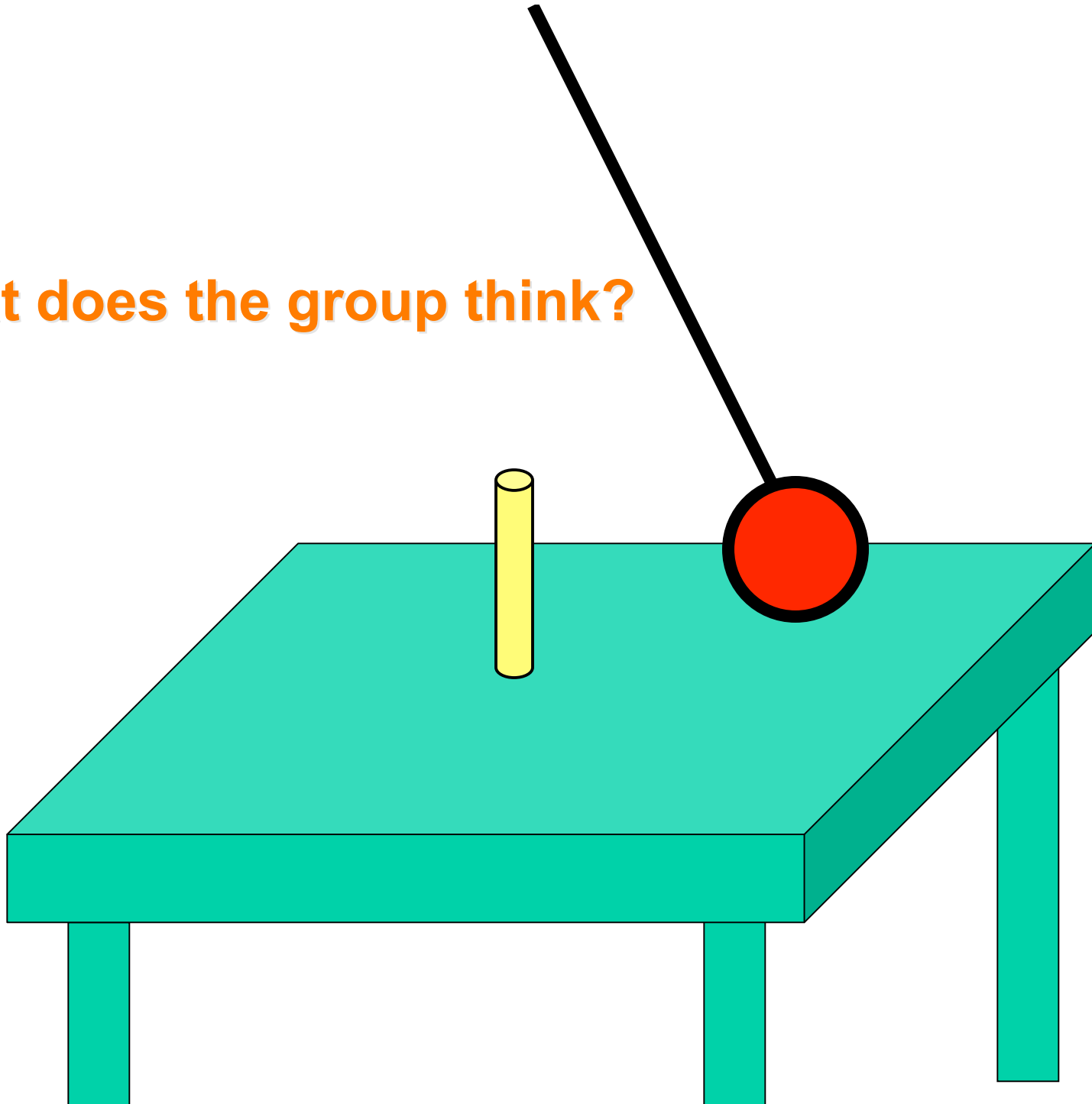
- Pulleys, Levers and Gears



**What do you think?**



What does the group think?

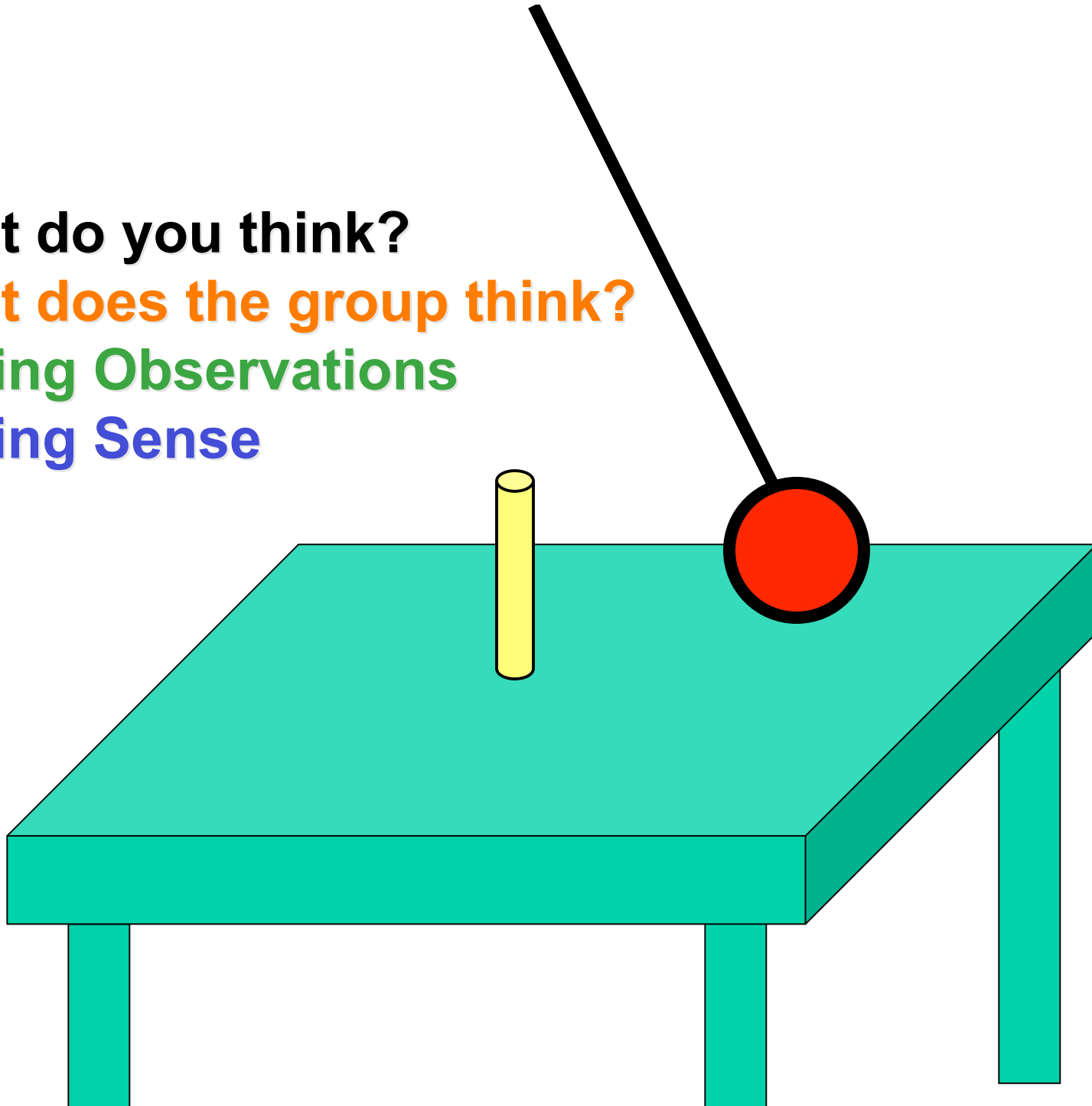


**What do you think?**

**What does the group think?**

**Making Observations**

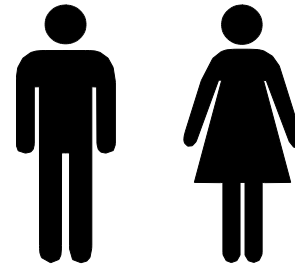
**Making Sense**





# Other aspects of Physics 209...

- Journals



- Ontario's 1-8 Science Curriculum

- *How we learn most effectively*

- E-mail & web page communications



**That's John  
Earnshaw  
facilitating  
someone's  
learning  
in the  
Physics 209  
lab**





## **Your five tasks before the next class:**

### **1) Get your “trentu.ca” accounts activated.**

**nb: If you wish to use another e-mail address, set your “TrentU.ca” e-mail to be automatically forwarded. You may want to forward your WebCT mail as well.**



## Your five tasks before the next class:

### 1) Get your “trentu.ca” accounts activated.

nb: If you wish to use another e-mail address, set your “TrentU.ca” e-mail to be automatically forwarded. You may want to forward your WebCT mail as well.

If you had an account previously,  
but have not used it recently,  
you may have to logon to  
<http://www.trentu.ca/claimid>



## **Your five tasks before the next class:**

- 1) Get your “trentu.ca” accounts activated.**
- 2) Discover what you can about “constructivist learning”.**



## **Your five tasks before the next class:**

- 1) Get your “trentu.ca” accounts activated.**
- 2) Discover what you can about “constructivist learning”.**
- 3) Send me a short e-mail message (under 100 words, with “Physics 209” in the subject line) from your trentu.ca email account introducing yourself, and telling me your expectations for the course. (Do this soon, but at least a day before your next class.)**



## **Your five tasks before the next class:**

- 1) Get your “trentu.ca” accounts activated.**
- 2) Discover what you can about “constructivist learning”.**
- 3) Send me a short e-mail message from your trentu.ca email account introducing yourself, and telling me your expectations for the course.**
- 4) Post a message in the class WebCT discussion forum.**  
(under 100 words, under the subject “HW01 - Intro Messages)

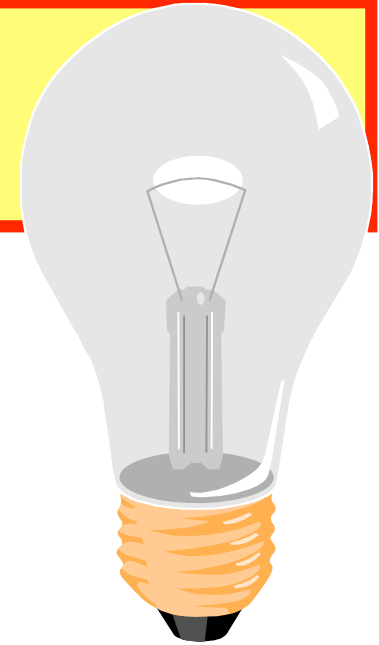


## **Your five tasks before the next class:**

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- 2) Discover what you can about “constructivist learning”.**
- 3) Send me a short e-mail message from your trentu.ca email account introducing yourself, and telling me your expectations for the course.**
- 4) Post a message in the class WebCT discussion forum.**
- 5) Bring \$35 to next week class in room ESC 305:**  
(You will be given a journal and a weekly PIPS course pack)



# PHYSICS 209...



**“constructivist learning”** by  
**“engaged interactions”**

get your ID at <http://www.trentu.ca/claimid>

my name is Johann Beda

my e-mail address is [jbeda@trentu.ca](mailto:jbeda@trentu.ca)

the course WEB page is at:

<http://www.trentu.ca/physics/jbeda/PHYS209/>

<http://www.trentu.ca/webct/>

