



UNIT 3 – ATOMS, ELEMENTS, MOLECULES

L1: Black Box

GUIDING QUESTION: HOW CAN WE MODEL SOMETHING THAT IS UNKNOWN, LIKE THE INSIDE OF A BOX?

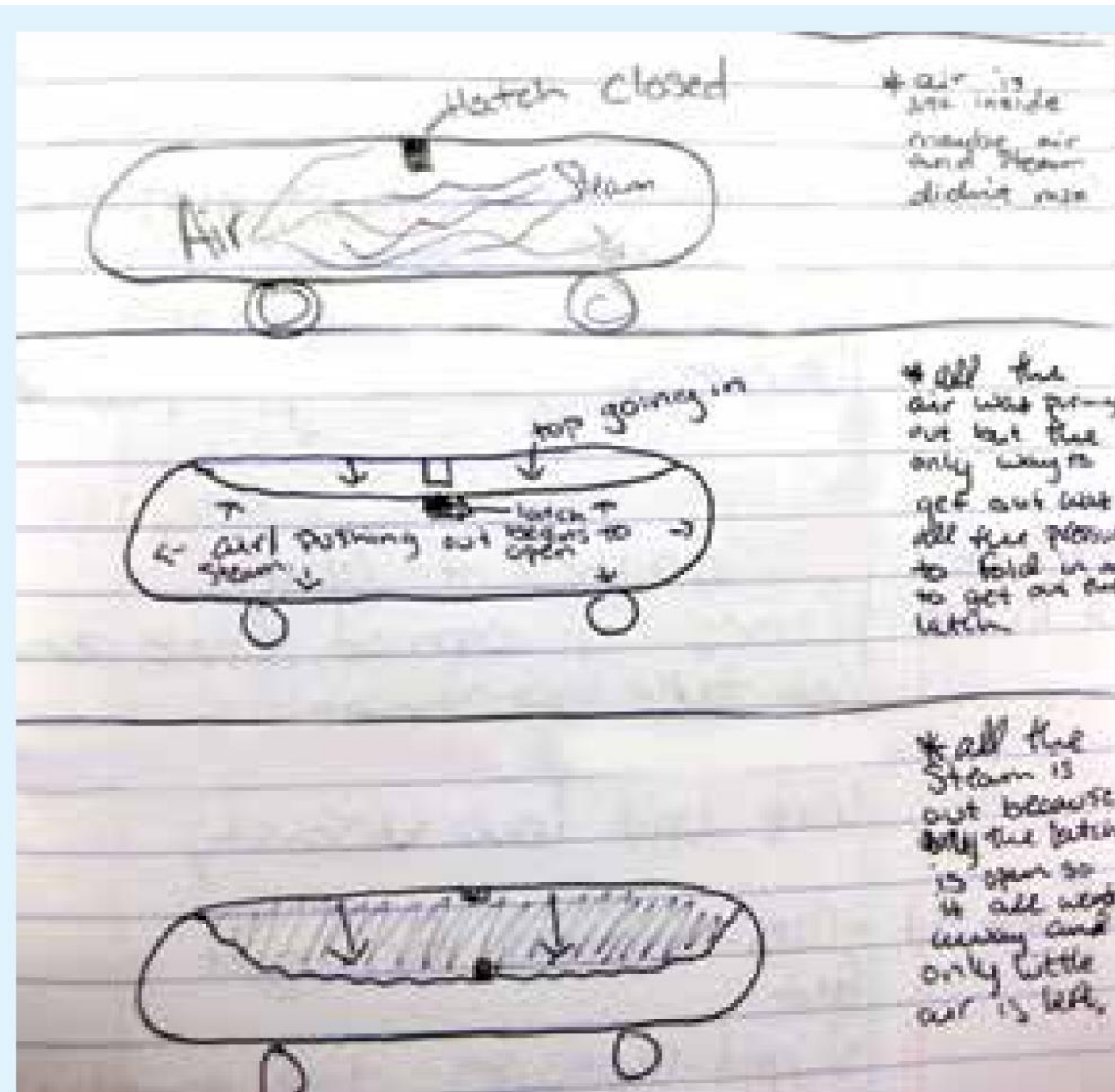
Do Now: List several observations about the box in the front of the room without lifting it up or touching it.



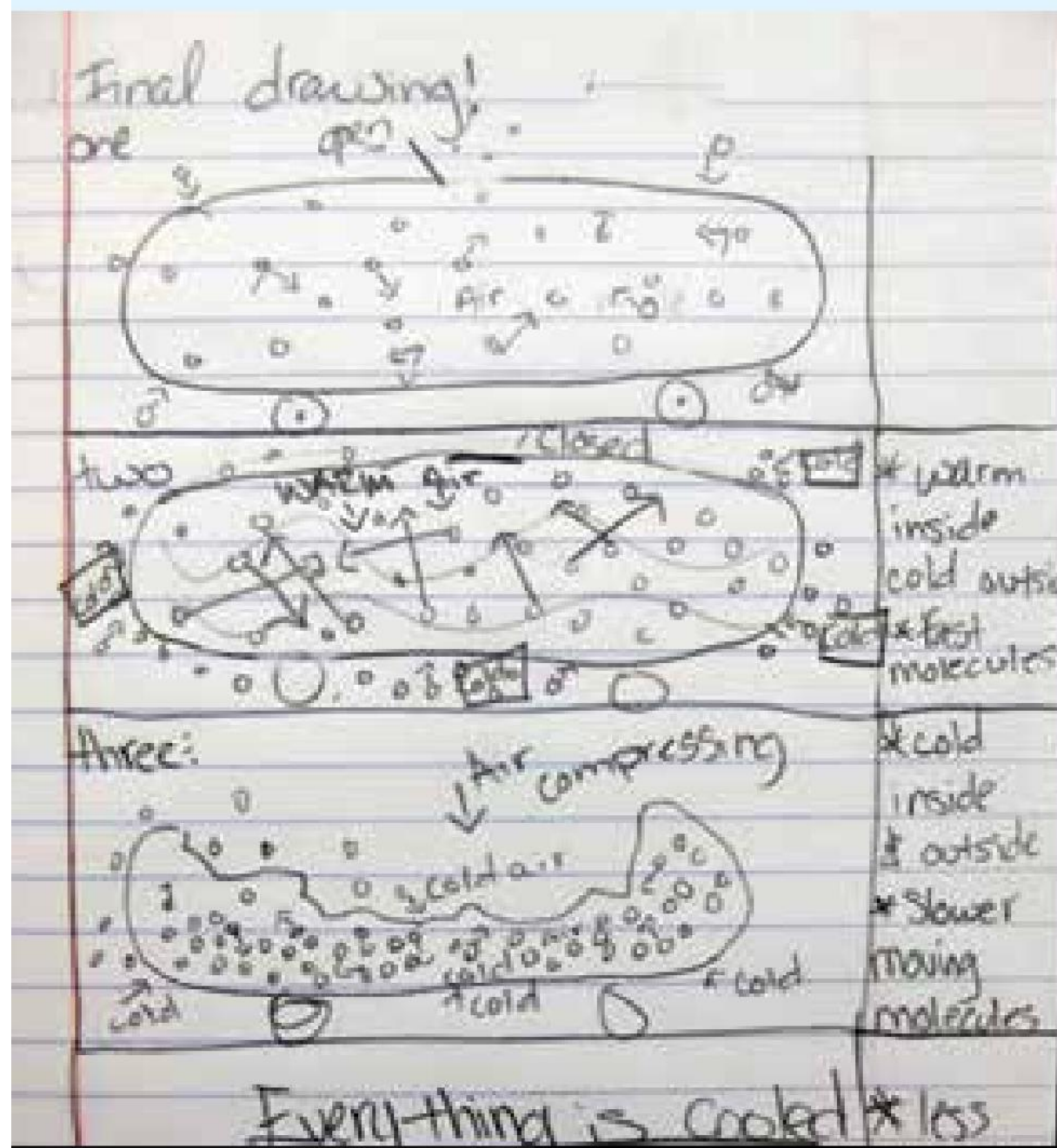
VIDEO

https://youtu.be/Zz95_VvTxZM

EXAMPLE 1



EXAMPLE 2



NOTES

Humans are driven to understand how things work, but many things are either too small to be seen (atoms, cells, etc.) or too large to test (solar system and galaxies)

NOTES

With careful observations and investigations we can develop models that approximate the behavior of these very small or very large systems.

- A model is a simplified representation of something that is more complex. Models help us to understand certain aspects of a real object or process.

NOTES

Scientists create models based on the data they get from experiments or observations. Those models are then tested and revised continuously to make sure that they best represent the phenomena that we observe.

NOTES

Scientists have attempted to model the atom for hundreds of years. The models that we use now are better at describing what's happening inside the atom, but no one knows if they are truly correct because that atom is a black box.

NOTES

- In science and engineering, a black box is a system where the input and output can be observed, but we have no knowledge of its internal workings. Thus, we have to base our understanding of the atom by what happens when we add something to it or manipulate it in some way, just like you did with the mystery box.

REFLECTIONS (ANSWER IN YOUR NOTES)

- How confident are you with the model you've created?
- How did this process relate to what scientists do?

CLOSURE

Unit 2 Binders due on the block (Periods 1, 2, 3: Wed 11/1; Periods 4&6: Thurs 11/2)

Homework #9 due Friday 11/3

Achieve 3000 Article: There's Gold in that Ocean due Friday 11/10 at 11:59pm