What is Matter Task Card

NOTE: Before proceeding, read the entire task card. Your group will have 15 minutes to complete your task.

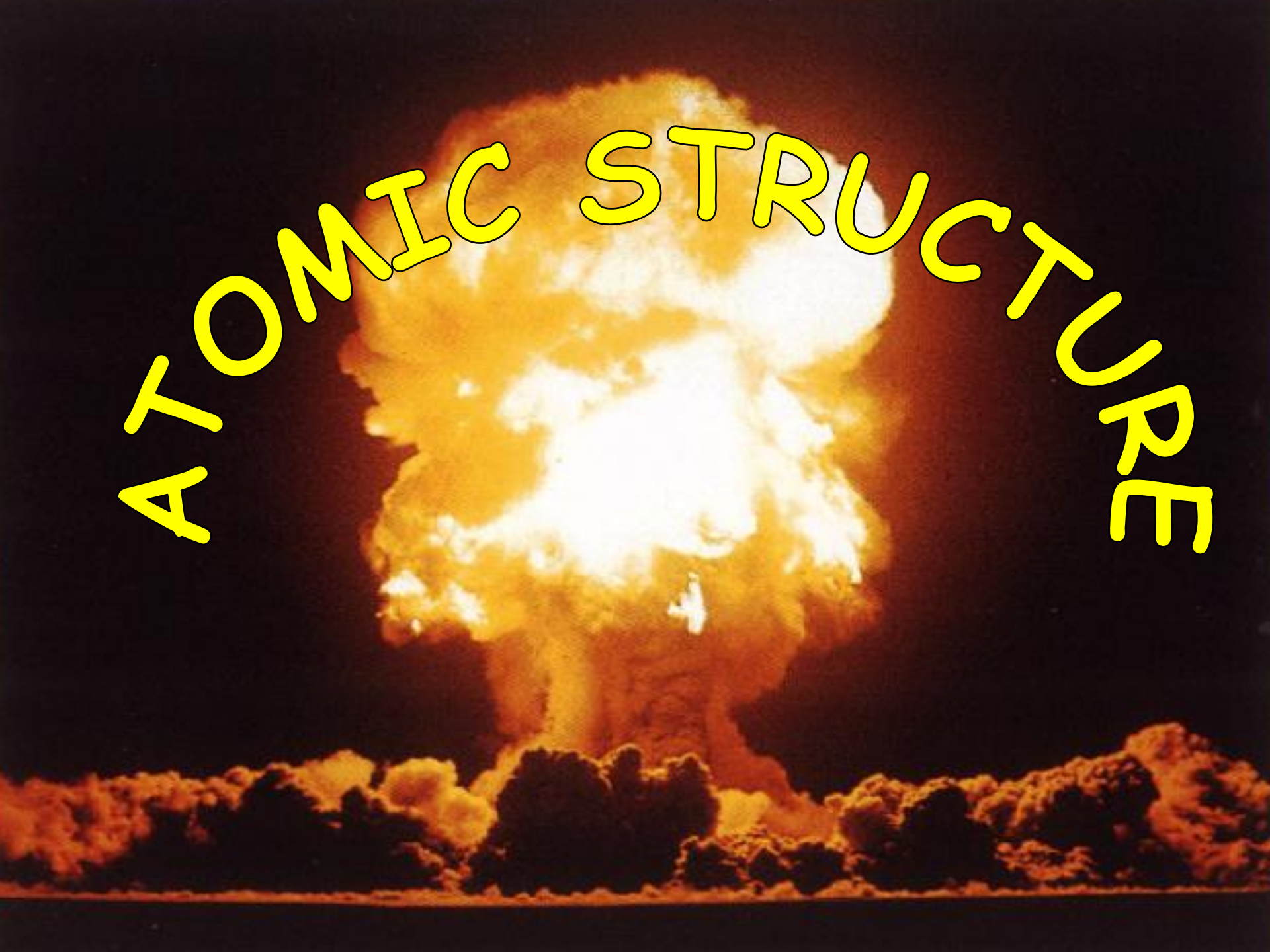
1. Stack matter cards upside down in middle of the table. Place category cards (matter, not matter, not sure) on the table. In SILENCE, one partner at a time picks up a card from the pile and decides what category to place the card. NO DISCUSSION, this is an individual decision.
2. When ALL the cards are placed, with your partners, discuss the "items" in the *UNSURE´*category. Decide AS A GROUP where to move these cards – matter or not matter?
3. Based on your categorizations, discuss what properties things in the matter category have in COMMON. Remember that these properties must apply to ALL things that are matter.
4. Based on your discussions – write a group definition of matter on the whiteboard (and be ready to present)

One Person – holds up sign

One Person – states definition

One Person – gives an example of matter and WHY/HOW it fits your definition

One Person – gives an example of non-matter and WHY/HOW it fits your definition

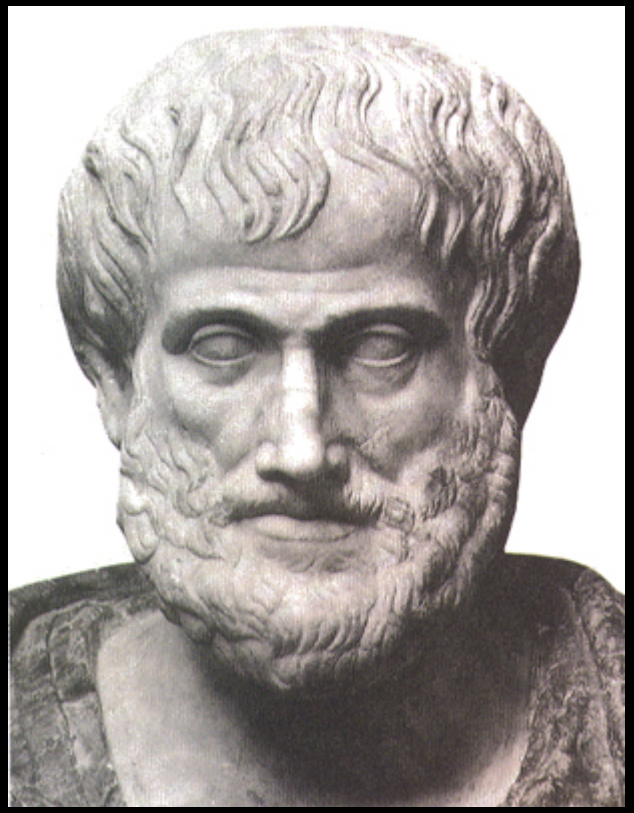

ATOMIC STRUCTURE

350 B.C
Greek Philosophers Grudge Match

In this corner….

Aristotle

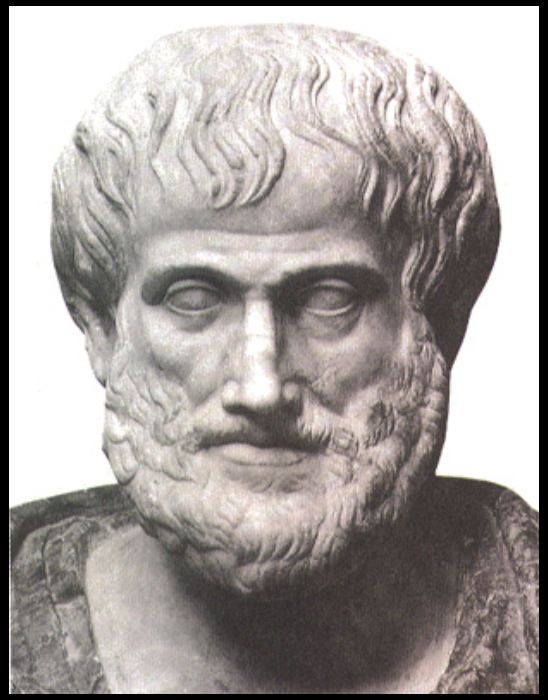
Democritus



Aristotle's concept of matter:

- Everything comes from four elements we can observe:

Earth, Wind, Fire, Water



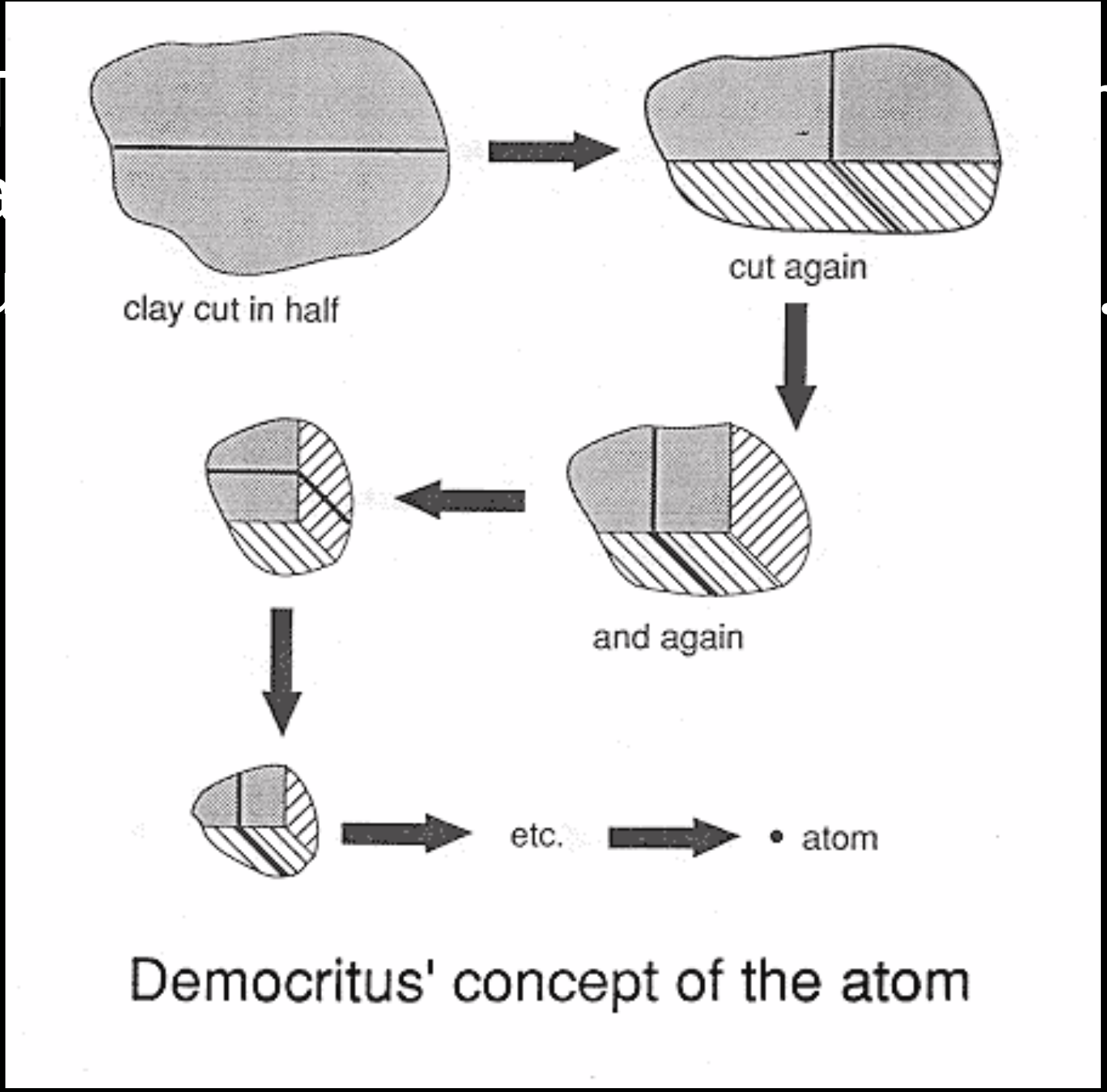
versus…. Democritus

350 BC Democritus **develops** the idea of atoms

He broke things down until he had reduced them to smaller and smaller particles which he called

ATOMOS

(*greek for indivisible*)



Democritus' concept of the atom

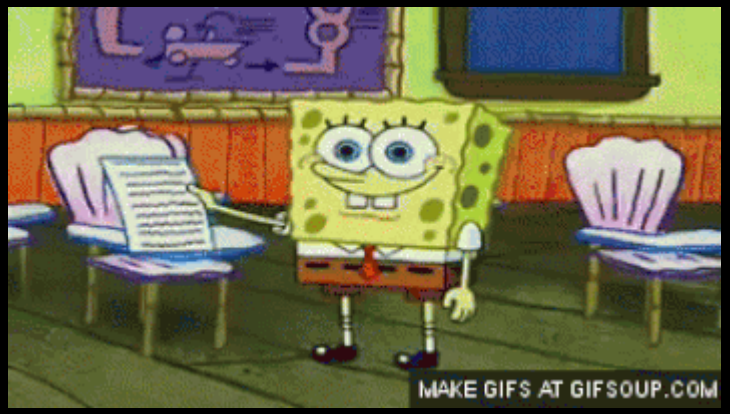
Who will win the match?

Aristotle

- Matter is continuous, as seen with our senses.

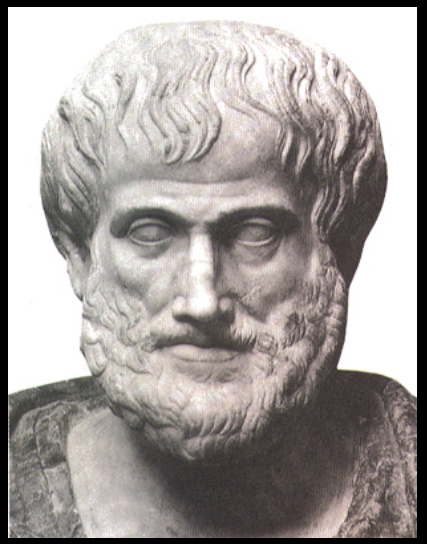
Democritus

- Matter is made of small, invisible, indivisible parts.
- “Atomos”



And the winner is….

Aristotle!!!!!



Why?

Based on what humans could observe his ideas were more accepted.

Democritus' theory was **ignored and forgotten** for more than *2000* years!

Then what happened?

Better tools of science are created

Microscope

First invented in the 1500s, not until 1676 could individual cells be seen.

Balance

Weight measurements were not standardized until 1789 with the introduction of the kilogram.

Matter is made of smaller and smaller parts!

With new tools comes more information about matter

Example - gaining information by use of a balance

Making yellow paint pigment called Lead Iodide

Conservation of Mass

Atoms can re-arrange to form new substances

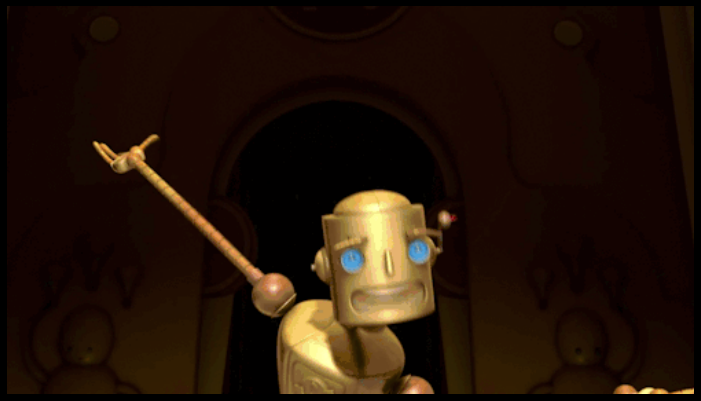
Atoms are not destroyed or created in the process.

New tools allow for the conclusion:
Matter is made from smaller and smaller parts.

The “Grudge Match” is over and the final winner is

Democritus!

Moving forward….



- How do we observe things smaller than cells?
- What can we learn about things without directly observing them?

Obscertainers

- Lets experiment ….

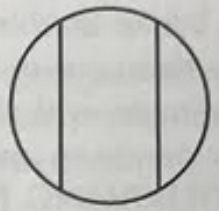
#1

#2

#3

#4

#5

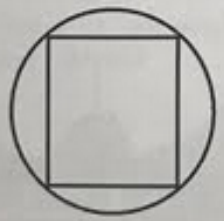


#6

#7

#8

#9



#10

#11

#12

Left side 3-2-1-

Write:

3 things you learned about matter

2 things you learned about the scientific process

1 thing you learned about working with you table partners