

The **colored** words are important. They are the words you need to write on your note sheet!

# The Big Bang

Part 1

# What is a theory?

(Choose one option to write on your paper)

- **A theory is:**
  - A well tested explanation
  - The best explanation of a natural event
  - Tested and supported with evidence
  - The ultimate goal of science

# Events that formed the Universe

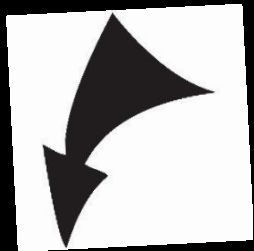
# The Big Bang

- 14 billion years ago ALL of the matter in the universe existed in one single point in space and time.
- There was no light, no space, and no time.
- Nothing existed the way it does today.



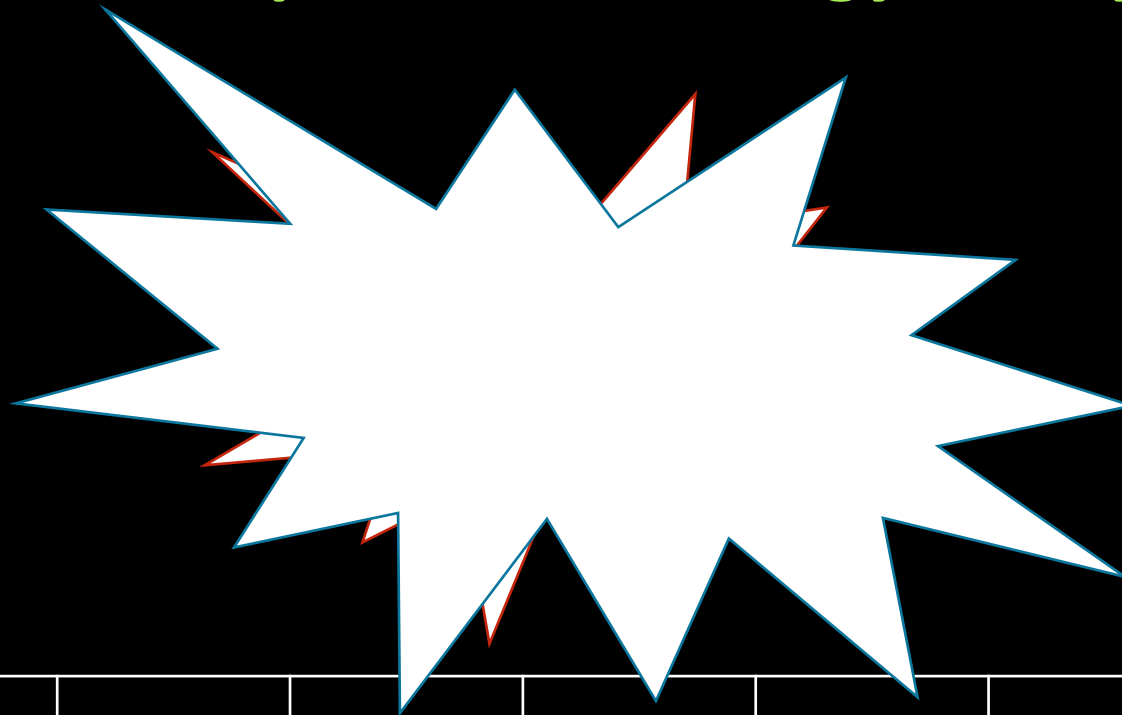
# 1. Inflation

- When: The beginning of time (**14 bya**)
- What: the **superfast expansion of energy and space**



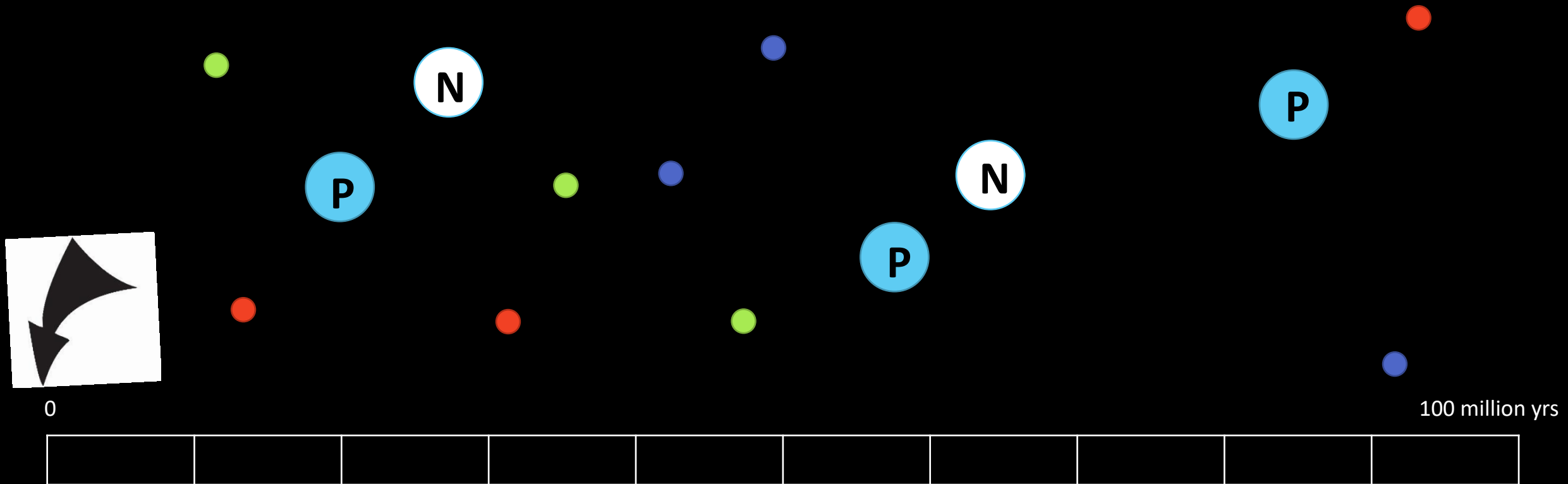
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100 million yrs



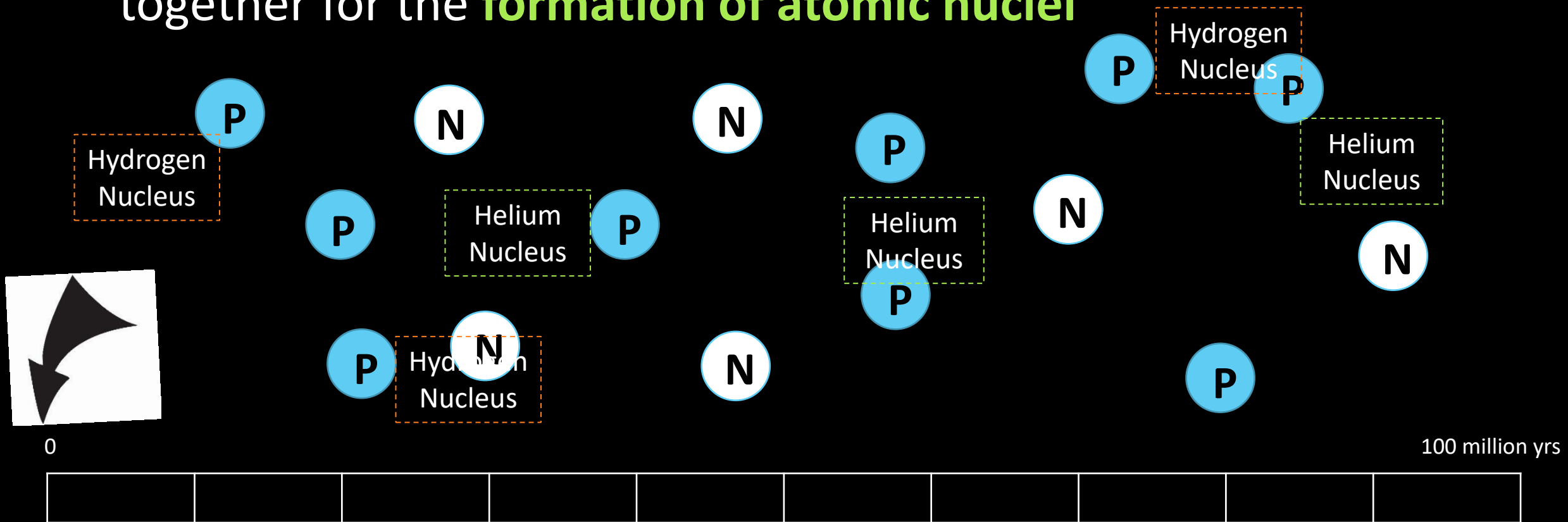
## 2. Protons and Neutrons

- After the universe was **ONE SECOND** old, it was cool enough for the **formation of protons and neutrons**



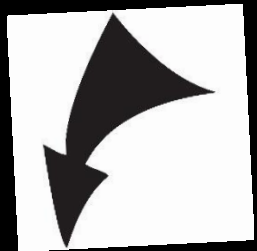
## 2. Protons and Neutrons

- **3 minutes** after inflation the protons and neutrons clumped together for the **formation of atomic nuclei**



### 3. The First Elements

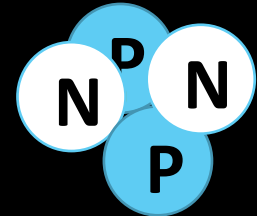
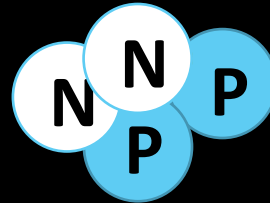
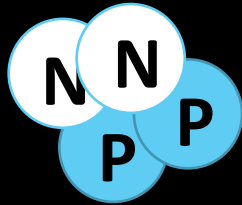
- **379,000 years** after the Big Bang the Hydrogen and Helium nuclei attracted electrons and **made the first atoms**.



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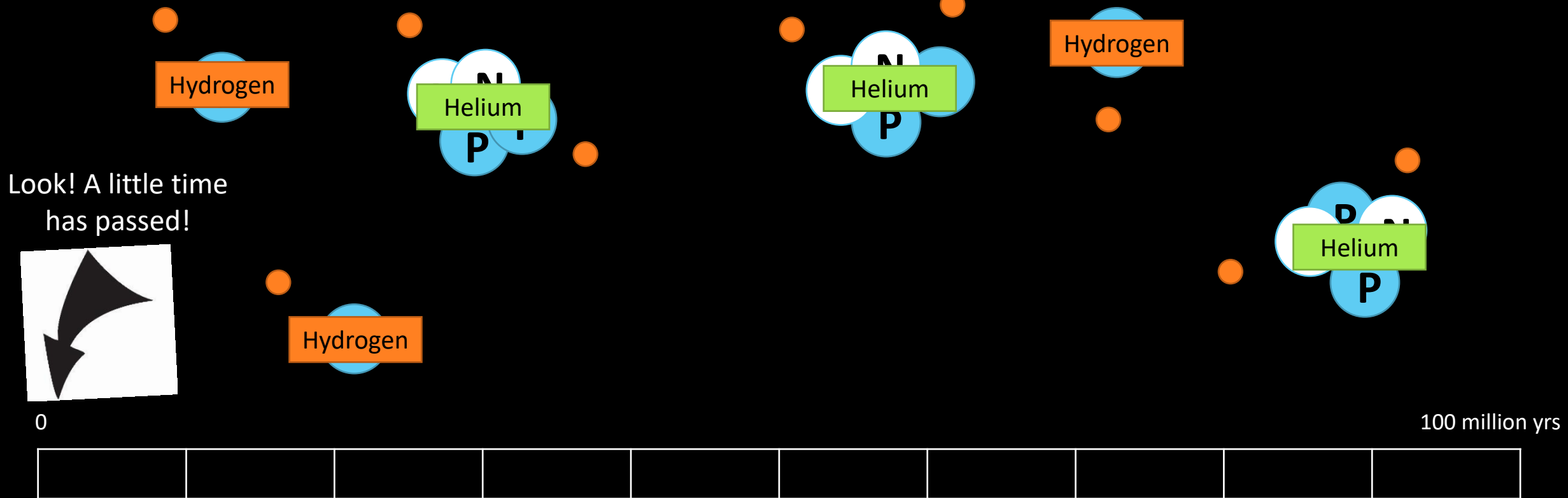
100 million yrs





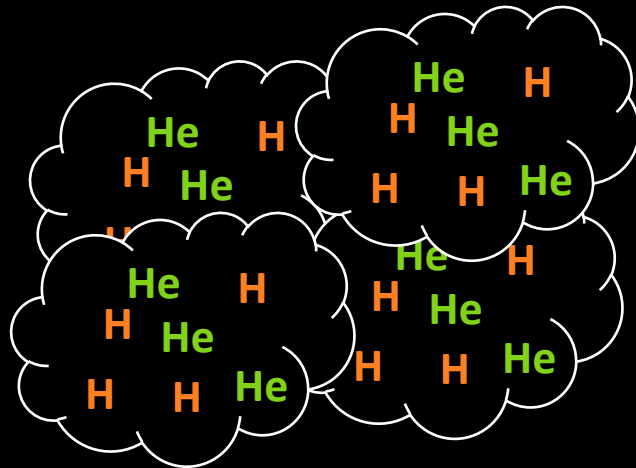
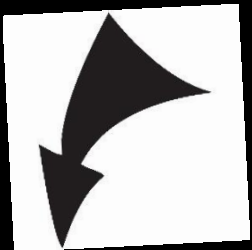
## 3. The First Elements

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## 4. Clumps of Gas and Dust

- Gravity pulls the hydrogen and helium atoms into **enormous clouds of gas and dust**.
- The clouds are pulled far apart from one another **for 100 million years**.

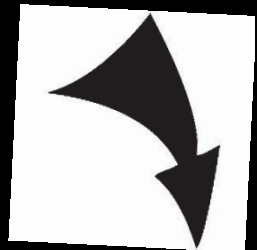
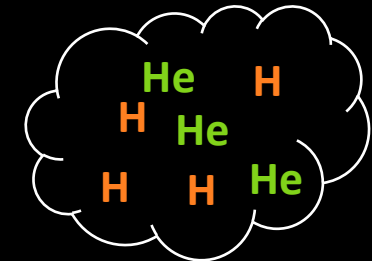
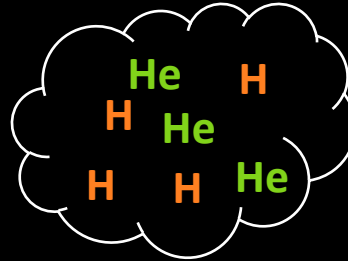


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100 million yrs



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100 million yrs

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# 5. The First Stars and Galaxies



- 100 million years after the Big Bang **the first stars (and planets) were formed.**

